ON WHICH WE SERVE PART 1

WHERE LIFE-LESSONS ARE LEARNED

EDWARD ATKINS

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Edward Atkins

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REVIEWS

"5 out of 5 stars: I truly love this book. Between the beautiful, yet deeply realistic picture of life on the ship and the beautiful photographs that further tell the story, it is a book that EVERY HOUSEHOLD SHOULD HAVE. The greatest generation, as they so fondly have been called, is an important part of our country's history, and one which is quickly leaving us. Holding on to stories and images like this is vital for going forward.

This book has the ability to transport me through time and try to imagine what it must have been like for those that served during this time. . . . These are truly life-lessons for all of us, and they should be passed on to our children and grandchildren . . . talking about hard work and doing the right thing. Things it sometimes seems as if our society has lost sight of; stopping to think about something other than themselves."

—*Rhe's Bookshelf — A Military Monday Book Review*, http://cammostylelove.blogspot.com/2014/05/rhe-bookshelf-military-monday-book.html.

"As a curator in a museum would take photographs throughout the exhibits and add insight resulting in a higher appreciation and understanding, Edward Atkins curates this book of Naval Archive photographs with his personal story, impressions and insight. His words are captivating as it becomes clearly evident to the reader that each and every word, thought and opinion is there for the reader's benefit, not the author's. As there is just so much time a man has in life, it is important to pass along to others the essence of what has happened, how men have created this world in which we inhabit, and why things are the way they are . . . the reader is brought into a first-hand diary of how life was upon a ship for the sole purpose of warfare.

Interestingly, Edward Atkins writes a narration for each photograph using two distinct "voices". One being a seasoned gentleman of elder years, with the historical knowledge and wisdom earned through his life's achievements and research; then one of impressionable young man of 18 or 19 years of age, serving in the Navy aboard an aircraft carrier; a man-made creation of immense design excellence of 'form following function.' This dichotomy of wisdom and emotion, coupled with the bountiful photographs of exquisite detail, result in an experience one cannot gain nowadays any other way.

—*Pacific Book Review*, 2013

"Edward Atkins narrates his thoughts to the reader in a humble fashion of wisdom, insight and honesty.

—*Pacific Book Review*, 2004

SYNOPSIS

This book (Parts 1 and 2) can be considered to be two books in one. That is, "Book 1" consists of a photograph and an enlarged caption opposite that photograph which describes what is in that photograph and/or what is happening in that photograph. "Book 2" frequently, but not always, is a seamless segue (on the same page) from "Book 1" to a discussion of some social aspect of what just preceded it. These social topics could be such as Responsibility, Accountability, Respect for Others and Self, Earned Self-esteem (those who have it will "never" do anything antisocial), Empathy, Trustworthiness and similar values and virtues (Volume 2 of the Trilogy is more fulsome in this respect). Thus each text-page/photo-page of this (physical) book may be considered a "couplet" in that this couplet is self contained. This means that each text-page can be read as a "standalone" and no continuity is lost by doing so. This has the advantage that the reader can, if you will, "savor" that page and feel no need to hurry on to the next page. It encourages a meditative approach to reading similar, if I may, to reading the Bible. One could even form a discussion group based on a given page (book clubs take note).

(One caveat should be made: Each page might also contain a running commentary on a given subject such as the technology of something such as the gun fire-control system or the process of the war in the Pacific as it moved westward.)

"Book 1" represents the title "On Which We Serve" while "Book 2" deals with the subtitle "Where Life-Lessons Are Learned." "Book 2" is in no way meant to be "pontifical" or "dogmatic" but rather it is meant to stimulate thoughts concerning a more sane and sanguine society.

One final point: These books (and the Trilogy) can be quite literally said to be "one of a kind for ALL time." That is, "FOREVER." Pray tell, why?? It is simply that no one has ever written a book about the activities on the flight deck of a WWII fleet aircraft carrier. In addition, no one ever will in the First-Person because those who could have are either dead or very soon will be. Sad but true. Since I was a flight deck crewman (Airdale) for a solid year on a training ship during 1945–1946 I thought it imperative to give those hard-working Airdales their "day in the sun." They EARNED it.

Note: I have tried very hard not to include politics or religion in these pages. I do not want to stir up animosities that seem to invariably occur when these subjects are addressed. Besides, there are a plethora of such books.

Finally, my approach to writing this book consists of the following:

1. Keep it precise and concise.
2. Be scrupulously accurate.
3. Use words that are appropriate to the meaning you're conveying.
4. Make each sentence of significance and substance.
5. Don't use "filler": Your readers' time is too important.
6. Try not to use elongated sentences (although sometimes a stream of consciousness is useful, if done judiciously).
7. Remember: Brevity is the soul of wit.
8. Above all, maintain clarity; without it you have nothing.
9. And it doesn't hurt to think in terms of timelessness.

Now, read on and ENJOY the trip!

CONTENTS

PART 1

PART 2

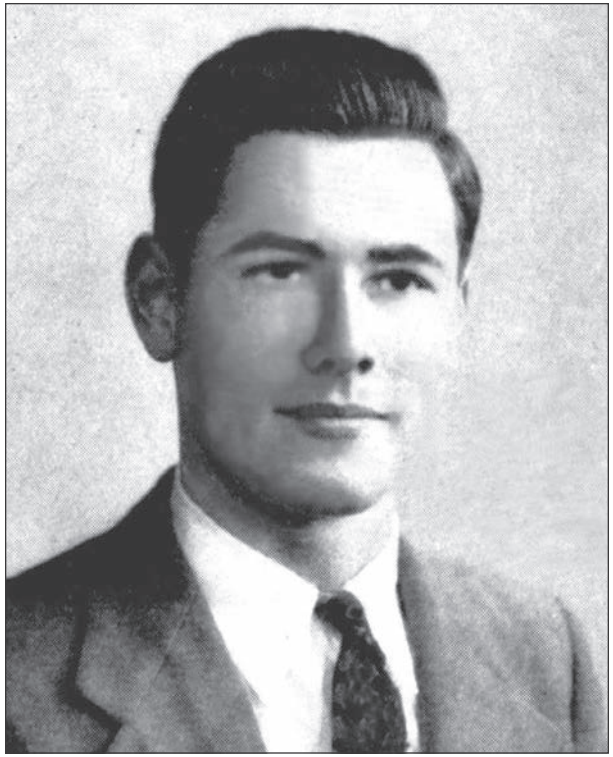
FOREWORD

It was deemed appropriate , for those with limited knowledge of naval history, to very briefly describe in a broadbrush manner "how it was" during the the 1942-1945 time-period in the Western Pacific, according to the historians. The preeminent naval force in the Western Pacific during 1942-1945 was the aircraft carriers, as they were surrounded by the battleships, cruisers, and destroyers that provided protection to the carriers from Japanese air and submarine attacks. This group was called a "task force". The battleships, cruisers, and destroyers also provided bombardment support to the Marine invasion forces in their efforts to secure the occupied islands from the Japanese. But it was the carriers, with their aircraft (along with the submarine) that were responsible for the almost total destruction of all the Japanese naval and supply ships in the Western Pacific. The carrier aircraft were also responsible for the almost complete annihilation of the Japanese air force. In addition, the carrier aircraft provided continuous air support to the Marines by means of aircraft bombardment and strafing runs against the Japanese ground forces. In sum, the carrier aircraft effected a terrible toll on the Japanese land, air and sea forces over a period of three and one-half years of warfare. The sheer size of the naval operations was staggering, covering many hundreds of square miles. It was a testament to the naval aviators' endurance in accomplishing such a monumental undertaking. That they functioned over those vast stretches of open ocean is also remarkable (there were no sign-posts out there). WHERE DO YOU FIND SUCH MEN? Thus, though the battleship was the "Queen of the Fleet" during WWI, it was the aircraft carrier that was the "Queen of the Fleet" during WWII. The Japanese attack on Pearl Harbor was the beginning of this reign. The Battle of Midway, where opposing ships never saw each other, reinforced this concept, and the clean-sweep of enemy aircraft and ships in the Western Pacific by carrier aircraft (and submarines) only validated this fact, as witness the intonation, by both sides, "GET THE CARRIERS!" It was, after all, the carrier aircraft (and submarines) that would , that could, hurt you. So it was that the carriers took the war to the enemy, and though some of them suffered grievous harm in the process, they were the prime naval force that gave us "Victory at Sea". They were the "fleet that came to stay", in spite of the Kamikaze abomination. (Please look at the superb video series "Victory at Sea". The Richard Rodgers score is worth it alone.) What follows, then, is essentially a pictorial essay of aircraft carrier activities, with first-person commentary by the author, of that "Queen of the Fleet", the magnificent Essex-class aircraft carrier!

NOTE: A large portion of what follows will of necessity concern itself with the thoughts and opinions, the feelings and emotions, of an 18-19 year old neophyte as put into words by a 75 year old man, they being one and the same person. Since the Airdale's job was basically repetitious, the sometimes melodramatic descriptions and impressions of what transpired on the flight deck were also somewhat repetitious. They are the reflections of that 18-19 year old as he experienced them, right at THAT moment, while the 75 year old man tried to modulate, tried to retain a more measured balance to the accounts. But then, please remember that it's the pictures that are the focus of this book. It's hoped that the reader will be drawn into the sights and sounds and the emotions of being a part of this mini-drama that one finds on the "FLIGHT DECK". Immerse yourself, and imagine the essence of standing next to a very large, very noisy machine that spells "threat". But not all is of this nature, and it's a bygone world, never to be experienced again, ever. Be objective if you will, but also, I recommend that you turn yourself to the subjective and introspective. Transport yourself back to 1944-1945 when the world was a different place by far, and perhaps spend a little time living vicariously. If you do, this book will have been useful, in my humble opinion. And finally, there will no doubt be those who will consider that much of what follows in this book about the duties of the Airdale is too rhetorical, too excessive, too "blatant", and too repetitious. I'm sorry about, but to have done otherwise would have been to diminish what it was that the Airdales did do, day in, day out. That I will not do, because this was how it really was.

The Lone Sailor at the Navy Memorial

The "Lone Sailor", the author, about to take a journey to places and destinies unknown. It was to be a solitary journey, a journey into surroundings that were sometimes benign and interesting. But also, it was to be a journey filled with the sound and the fury that would be found in a "pack of relentless demons bent on doing one grievous harm". What with that allusion, duty calls. So now, let's find out what it was all about.



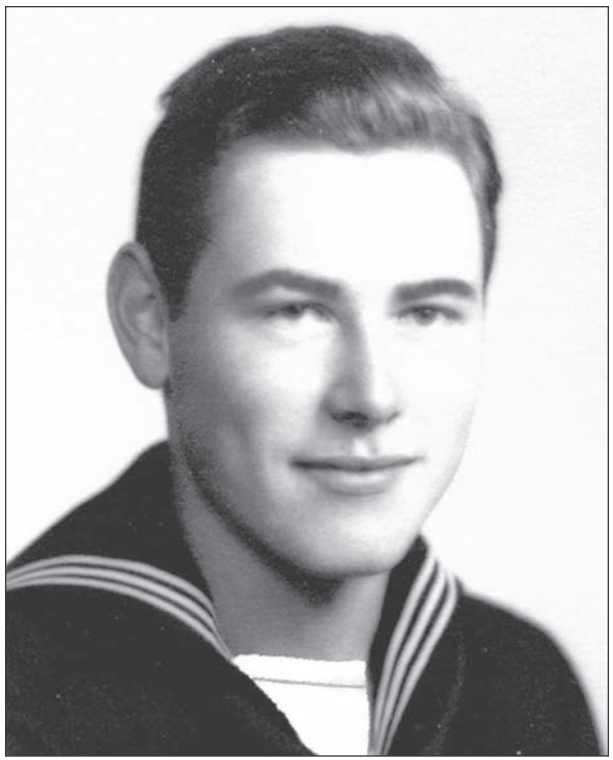
This is my graduation picture from Newark Academy. I attended Newark from September 1939, the start of WWII, to June 1944, the start of the invasion of Europe. These were five years of international tumult of a scale unknown to mankind and which times were amply chronicled in newspapers, magazines, newsreels and radio. In addition to college preparatory courses I participated in varsity football, basketball and elsewhere in baseball, tennis and a swim team. I was a member of the student council and by the time I was fourteen years old I achieved the rank of Eagle Scout with the additional Bronze Palm (it should be noted that I was fortunate enough to have gone to a two-month summer camp in verdant Vermont for nine summers since I was seven years old. Several of the staff were qualified scout Some of the merit badges I earned there were gardening (farming), camping, archery, tennis, horsemanship, swimming, Red Cross (water safety), canoeing and sailing. Perhaps this is why my father said I should do twice as much as anyone else (when I was twelve years old).

PROLOGUE

Since this pictorial essay will be a frankly personalized and sometimes "self-centered" account and a semi-narrative of my experiences on the flight deck of an Essex-class aircraft carrier during 1945-1946, I believe I should "put a face" on this book by providing a very brief outline of my origin. That origin was about as un-Navy as possible in that I grew up in a heavily tree-lined, benign, and pleasant town (Montclair) that was completely surrounded by similar towns that all merged together in Northern New Jersey, only 20 miles distant from New York City. I've heard it said that many Navy men come from the treeless flatlands of the mid-West because the wide ocean reminds them of home. In my case, it was far different. There was no place you could go where you weren't a stone's throw away from a large tree. I liked that. There was even a "mountain" in Montclair from which I would view the NYC skyline. The houses were all comfortable, two-story homes, all close to each other, where each street was a neighborhood, and for us, the stores were well within walking distance. We had ample parks, most of them large enough to play football or basketball or baseball or tennis. Car traffic was always minimal on the streets that were for the most part laid out in a gridiron fashion. This allowed for activity in the street in front of the house, with an occasional car passing through. Bicycling was the main method of getting around. The shops were centralized, "all" the fathers seemed to take the train to NYC, and all the mothers were at home. In a word, it was very pleasant, and very far removed from anything that was of a military nature. (But we did have an old WWI tank "planted" in one of the parks, and a statue of a soldier looking like a soldier. Also, although my uncle was a Colonel in the Army, and my father was an Army officer in WWI, I had no military tradition to refer to.) Instead, I grew up with Winnie-the-Pooh and Mickey Mouse and graduated to Tom Mix, the heroic cowboy, and "Buck Rogers of the 25th Century", my hero. I also later followed the exploits of "Don Winslow of the Navy", my one and only excursion into things of the sea. (I must admit, though, that I also had my toy soldier set.) Later on it was sports and Boy Scouts that occupied my time. Since I went two months each of nine summers at a camp in Vermont, I was able to gain my Eagle Scout Badge with Bronze Palm in two years. (But my two brothers did even better than that.) One thing I did there, of which I was proud, was that during a 3-day hike we made a 1-day 30-mile trek with a 30-lb pack up and down two of Vermont's highest mountains (Killington Mt. and Pico Peak) when I was 12 years old and the others were 14 years old. I was allowed to do that because I was an "old timer". Anyway, when I was thirteen, I went to a prep school, and then the regimen was studies and the school football and basketball teams, plus the student council. Soon parties and dances were thrown into the mix, nicely flavored by the big band ballads. They were very "vanilla" according to today's standards, and they were very satisfying. Not the least reason was that at fifteen I met and got to know "the very special" girl. It was not an unusual time with her; it was sometimes pangs of doubt, and sometimes days of bliss. A special girl has a way of having this effect on you. It should also be said that I never smoked and I was almost a teetotaler, a simple choice of mine, just as I was almost "as pure as the driven snow". In a word, I was a pretty normal teenager, a la the 1940's, where the movies were devoid of gratuitous violence that nobody missed in the slightest (however, we did have a full offering of wartime newsreels, magazines and newspapers). And so it was that on graduation from school I went into the Navy. I must confess that I tried to get into the V-12 (Navy Surface) and the V-5 (Navy Air) programs where they sent you to school to become a commissioned officer. But it was not to be: the Navy doctor said I had high blood pressure and I was thus disqualified. (My family doctor said "you have a sensitive nervous system". Great!) But it was not so high that they wouldn't accept me into the enlisted Navy which I chose so as to learn a trade, learn something useful. So that's how I entered the Navy. Upon leaving home for destinations and destinies unknown, the only downside that concerned me was that "my" girl was regularly seeing a V-12 candidate (Naval officer-in-training) at a college very near her college. This generated all kinds of despair, and then utter dejection and despondency, beyond measure, and

was in good part why I was a classic loner (but not a recluse). Thus it was that one evening at about 10 PM, I said good-bye to my parents, walked to the bus-stop, awaited and then took the bus about 20 miles, through the Lincoln Tunnel, to the bus terminal. From there I walked to the old Penn Station on 34th Street, through those famous Roman Colonnades, and to the train that would take me to boot camp. And so this journey of mine began. It's primarily told in pictorial form as it was sensed and experienced and perceived by me, an 18-19 year old, who had yet a lot to learn. But without further ado, to the task at hand, the magnificent Essex-class aircraft carrier.

NOTE: A word about the group called "veterans". My own, my personal, perhaps unique interpretation of the word "veteran" is the following: a veteran is that person who was actually under strong enemy fire for at least a day's duration. With that definition, I categorically exclude myself from having been a "veteran". Instead, I was an "ancillary" But as an "ancillary", I was certainly a useful part of the war effort, as were the many others in uniform (and out) who did not see enemy action. So here's to the veterans who served so well, and who are given their due, very briefly, in the last chapter.



Just out of boot-camp and still "wet behind the ears" while just ahead would be the Receiving Station at Newport, RI where I was assigned to the U.S.S. Antietam in the Navigation Department as the Antietam was nearing completion at the Philadelphia Naval Shipyard. It had been my intention of joining the Navy because I had thought I could learn a technical trade there better than in the other services. During the first years of the war we heard a great deal about such things as radar and communications and fire control (shooting down enemy aircraft) and the nascent electronics field. However, I was shamelessly beguiled by the prospects of standing watch on the bridge of a large fleet aircraft carrier and so I chose to be a quartermaster striker (Navigation Division). As it turned out, I was transferred to the flight deck crew after about four months but not before I was able to spend some time at the helm of the ship steering it during our shakedown cruise at Trinidad. This was particularly enjoyable when the Officer of the Deck ordered full right and left rudder during gunnery practice. I've made every effort to be as accurate and precise as possible, about both the activities and my thoughts and feelings. Memories may fade but not, mind you, about those things that had a vivid impact on various events of one's life (as an Airdale).

INTRODUCTION

To my knowledge there are no books that feature the aircraft carrier Airdale. In the larger scheme of things, an Airdale was a very minor player and had a fairly simplistic job: he had to pull wheelchocks, put wheelchocks, push aircraft around the flight deck, put out aircraft fires, and clear up after aircraft crashes. Simplistic or not, no aircraft could be launched, much less moved, unless and until an Airdale pulled the wheelchock. This then isn't a book about the broad scope of naval strategy, or tactics, or about the historical significance of naval battles, or of how this decision or that decision affected the outcome of this or that engagement. Instead, using the premise that a picture is worth a thousand words, this book is a first-hand account of the daily life of the Airdale topside, what he did, what he saw, and sometimes, what he thought as he performed his duties on the flight deck day after long day, week after long week, month after long month. Because there are no books about the Airdale, and because "time is running out", and because my naval service was that I was an Airdale on the Essex-class aircraft carrier U.S.S. Antietam (CV-36), and because I believe it'll be a (small) contribution to a very significant part of our naval heritage (the naval activity in the Pacific Theatre during WWII), I'm taking it upon myself to put together this book. My picture-source has been the wealth of official photographs of U.S. Navy activities during WWII that reside in the National Archives. I looked through thousands of them, and that was but a fraction of the total. I chose what I thought would be a fairly good representation of the Airdales' day, considering the required limitation of 365 pictures. Most of the pictures are to the point, but there are some that add a flavor that could not be withheld. And there are some few that were chosen for, frankly, their artistic effect and merit. Since the Antietam saw no enemy action, the short tenth chapter is included only to round out the presentation, and as an exclamation-point finale to this aircraft carrier genre.

At the very outset, I'd like to say that I've made every effort to be scrupulously accurate in all things found in this book. This applies to both objective as well as subjective subjects. All of the objective items, such as specifications, have been found in published sources, while the subjective thoughts have followed the paraphrased maxim to "tell it like it WAS!"

NOTE: The author served on board the U.S.S. Antietam (CV-36) from January 1945 to May 1946, and served in the Pacific from April 1945 to May 1946. The U.S.S Antietam carried the name of the Civil War battle that claimed 23,000 casualties, the bloodiest single day in American history. Ocean-going Navy men are a traditionally superstitious lot, and this is especially true of a ship of the line that has no place to hide from those bent on doing it grievous harm, especially if it goes in harm's way. A brief recitation of the author's path in the Navy will be given in narrative form: "After boot camp, it was off to the receiving station in Newport, RI. It was here that I was assigned to the U.S.S. Antietam and was to be assigned to a rating. Ignoring my previous determination to apply for a technical rating, such as electronics or radioman, I instead chose the Navigation Division which had the bridge of the ship as the duty station. I'm afraid I was beguiled by the fact that I'd be where the captain of the ship would be, with all the decisions going on, and that I'd have the opportunity to steer the ship as helmsman. Both things happened and it was good duty. But it only lasted until March of 1945. The reason was, I believe, the following briefly told episode: being in the Navigation Division, we also had sea details whenever we came into port. My detail, that day, was to raise the Ensign flag when the bugle sounded as the anchor was dropped. We were just heading into the Chesapeake Bay to go all the way up to Baltimore to onload bombs and ammunition. Sea Detail was sounded and we proceeded very slowly. It was a cold March day, especially when the wind-chill was factored in. After about an hour of this, I was FREEZING. It seemed such a stupid thing to be doing , standing there in the cold for no good reason, especially when no one else was out on deck. So I "defiantly" strode from my post at the

very front of the flight deck to the island structure about 100 yards away. This was in plain view, obviously, of everyone on the bridge. The chief petty officer (Navigation) could have stepped out onto the outside bridge and redirected me back to my post if he had wanted to do so. But he did no such thing. So what did happen was that about 10 minutes later, here he comes, huffing and puffing and very perturbed. "Where the ?%@*&! have you been?! I've been all over the ship looking for you!" (Ha. I was in the most obvious place of all, inside the island structure.) Not to make excuses, but here is a guy (me) just eighteen years old, just out of civilian life and obviously lacking the required military deportment, doing what at the time seemed to be an entirely rational act: getting out of the cold if you're not doing anything useful. To make a long story short, soon after that incident the Navigation Division's Ensign officer stopped me and said "Atkins, you've been transferred to the V-1-F Division (Airdales) effective immediately." As explanation he said that the Assistant Navigation officer had a family friend in the Airdales and that he wanted him in the Navigation Division. I was the one to make room for him. When he said this, the above Sea Detail incident naturally came to mind. So, in one fell swoop I went from the most prestigious rating (Navigation), the top of the totem pole, to the least prestigious one (Airdales), the bottom of the totem pole. But, c'est la guerre. Naturally I was disappointed. "How could someone who had been accepted to Yale University be so ignominiously demoted?" one could well say. (And therein lies a tale, best left alone, at least in this book.) I, being young, didn't look back, but rather looked forward to doing something with "real clout"; after all, this (Airdale) is what a carrier is all about: serving the aircraft onboard ship. This is what an aircraft carrier did, and I was going to be an integral part of it. So I reported to the Airdale Chief Petty Officer (yellow-shirt) right away. And what was his response? "Oh, OK", and he then walked off without saying another word. In fact, he never did say anything to me again for the rest of the tour except that about a week later he said only "Here, you'll need these", handing me a pair of non-skid flight deck shoes, goggles, a blue shirt, and a blue cloth-helmet. In fact, no one, not anyone, ever did talk to me about what my duties were, what to do, what not to do, what to be aware of, when to do what I should be doing, how to do what I should be doing, etc., etc. That's to say, my "training" for this job was absolutely nil. It was pure and simply "on the job training", sink or swim. But then one could say, who needs training for such a "simplistic" job? Well yes, it was a simplistic job, but it wasn't SIMPLE. Therefore I did the only thing I could do: observe what the other Airdales were doing and emulate them. It was very dicey at first, especially when I was without the flight deck shoes. But after a while it became more "comfortable", if it's possible to feel comfortable during flight operations. However, there were always a lot of times when it was NOT "comfortable", and there were other times when it was downright ANXIETY-time (such as going to a wheelchock during launch operations, or standing next to an aircraft as it's being parked.) After a while, I became "acclimated" to the routine, and in a subdued way I became pleased to be an Airdale because this was where things were happening and this was what an aircraft carrier was all about and because I felt I was, in a mundane way, doing something worthwhile. That said, I was NOT a risk-taker as people are wont to typically say about teenage boys who are looking for excitement. No, this was, to me, only a job, and even an interesting job because of all the activity that was always going on on the flight deck. (Heck, I won't even go near a roller-coaster. That should give some idea of my intrinsic daring.) The flight deck was no place for daring-do people. It was, instead, a place for doing a necessary job, and deep down, I felt a genuine pride in what I was doing, trivial though that job might appear to outsiders. I believe the Airdales understand of what I speak. To reiterate, this book will be an account of an Airdale's life on the flight deck of an aircraft carrier, and what he did there, during the latter part of WWII. It will also be a personal account of what I thought, what I felt, what I experienced, and what I observed. In effect, this book will be a tribute to ALL the Airdales, as they underwent the trials and tribulations of doing what had to be done, thus doing their part in enabling an aircraft carrier to fulfill its assigned mission. While it's true that I was an Airdale from April 1945 to May 1946, it is also absolutely true that this book is in no way a self-tribute. That would do damage to all the other Airdales to whom this book is dedicated, and it would be unforgivable. I'm sorry if this book seems to be self-serving in some way or other. But it would be a DISservice to the

Airdales if I didn't tell it, and "flavor" it, like it really was. I'll do no less than what the Airdale genre deserve based on what they did out there on the flight deck, day after long day, regardless of how I might appear by telling it like it actually was. (How does one praise the group without praising the "teller"? I'll do the former, and let the latter take care of itself.) Thus, the focus of this book will be the set of pictures it contains and what they represent. The captions are merely thoughtful reflections of the intrinsic content of the pictures, and sometimes, of my personal involvement with, and thoughts of, the same. Again, may I take the liberty to say the following: I'd like this book to be a tribute to all the Airdales, they who served unstintingly, often under extremely difficult, arduous, harrowing conditions, EACH day, for months on end. So it is to them, the unheralded, that this book is dedicated.

NOTE 1: Some of the accounts that appear in the following pages must take into account the fact that I was 18-19 years old. Thus, some of the things written must be viewed from this perspective, and that which seems somewhat melodramatic was in fact melodramatic for someone as ill-prepared for such things as I was. Some of the descriptions of events that took place on the flight deck are those of an 18-19 year old neophyte, someone who had led a life far removed from anything that could have been in any way construed as menacing. So it's a nineteen year old's thoughts and impressions that are to be found in this book, not those of an "old salt". (But at the same time, I must insist that at no time did I shirk my duties or cower physically at anything that was happening on the flight deck. Instead, I adjusted sufficiently to the point where all my actions were, I believe, "professional", if were not my emotions.) So, to sum up, this book concerns events on and around the flight deck of an Essex-class aircraft carrier during 1945-1946, as experienced and perceived by an 18-19 year old, but also as modulated by a mellowed 75 year old man.

NOTE 2: The flight deck was a tight little world unto itself. This means that repetitions were an integral part of that world, and so also will be some of the text. But this was the essence of that world: do this, and then do it again, and again, and …..Thus, "this" is described this way, and then that way and then another way. And so it goes. At the same time, this sameness had an "infinity" of flavors and ramifications. Each day was a new "adventure", a new set of happenings and possible eventualities. It was always "stay tuned". And yet the days dragged on and on because of those possible eventualities. It was a peculiar anomaly: stimulating adventure, yet dreary drudgery. You be the judge.

Now, to that magnificent ship, the Essex-class aircraft carrier.

THE SHIP AND AIRCRAFT

There were twenty-four wartime Essex-class aircraft carriers of which fourteen saw enemy action during WWII. This book will describe the U.S.S. Antietam, a training ship that did not see any enemy action. Its lack of enemy action was "made up" by having daily flight operations twice a day, each flight consisting of ninety or more aircraft. It served in the Pacific Theatre from April 1945 to May 1946, and beyond. (I was part of her crew from her commissioning in January 1945 until I left her in May 1946.) Since we were replenished and refueled at sea (capacities of 1,500,000 gallons of fuel oil and 440,000 gallons of high octane gasoline), we never knew where we were, other than being somewhere in the Pacific. Thus, the enemy "could have been just over the horizon at any time". It turned out that they never were.

Essex-class carriers had a flight deck 900 feet long and over 50 feet above the water. They displaced up to 30,000 tons. The Antietam's aircraft complement was 30 F6F Hellcat fighters, 30 F4U Corsair fighters, 20 SB2C Helldiver dive bombers, and 20 TBM/F Avenger Torpedo bombers. Thus, we had flight deck space (90,000 square feet) and hanger deck space (40,000 square feet) for 100 aircraft. Very briefly, the aircraft had the following capabilities:

F6F Hellcat: 375-mph at 17,000 feet; 2000-hp engine; 1,600 mile range; 40,000 foot ceiling; six 0.5 cal guns and 2,000-lbs of bombs and rockets. Later versions had 20-mm machine guns.)

F4U Corsair: 445-mph at 25,000 feet; 2250-hp to 2800-hp engine; 1050 mile range; 40,000 foot ceiling; six 0.5 cal guns and 2,000-lbs of bombs and rockets. Later versions had 20-mm machine guns.) (Later versions could carry up to four and five thousand pounds of bombs, but with a reduced range and speed.)

SB2C Helldiver: 280-mph at 12,000 feet; 1700-hp engine; 1,100 miles range; 25,000 foot ceiling; two 20-mm machine guns, two 0.3 cal turret machine guns and 2 .000-lb of bombs and rockets.

TBF/M Avenger: 260-mph at 17,000 feet; 1850-hp engine; 1020 mile range; 23,000 foot ceiling; two turrets of machine guns; one torpedo or 2,000-lb of bombs and rockets.

The Essex-class aircraft carrier was not only a floating airport and depot for 100 large military aircraft, but it was also a floating city for some 3,000 personnel who required all the basics for living while at sea for long, extended periods of time. It remained at sea for many, many months at a time, being replenished and refueled at sea. Its maximum range was 4,100 miles while going at a top speed of 30+ knots (about 35-mph). It had facilities to maintain and repair the aircraft and the aircraft engines. In other words, it was self-sufficient in all respects for months at a time.

An Essex-class carrier required extensive internal and external communications equipment to allow personnel to talk to each other and to those external to the ship. It required complex search and navigation radars. It required intricate electronic/mechanical fire-control radars and computers to control and direct the 5-inch guns. (Consider the problem of trying to shoot down an aircraft that's moving at high speed, in an erratic fashion, from a moving ship that's affected by the ship's roll and pitch and heave and yaw, and without the high technology of the 1980's and 1990's. The one thing that the defense had going for it was the use of proximity fuses in the projectile, i.e., when the projectile was within a given distance of the target, it would detonate, showering the area with shrapnel. Books have been written about this subject and I've read many of them. A fascinating problem.) It required electronic 40-mm gun directors on some of the 40-mm guns. It required IFF (Identification Friend or Foe) radars. It required monitors and displays for all of the many radars on board ship. It required the CIC (Combat Information Center) displays and monitors to act as the nerve center for all the systems on board ship. It required the personnel and the repair

shops to keep all this equipment operational. It required massive amounts of cabling throughout the ship to interconnect all of these systems together (think of it as a gigantic network of nerve fibers innervating your body.) All of these things were the "big ticket" items. Another big ticket item was the 150,000-hp propulsion system that turned four 16-foot propellers that moved the ship at 30+ knots for sustained periods, as well as providing for the four 1250 kilowatt generators required to power everything from the 5-inch gun mounts to the emory drill that shaved a tenth of an inch off an aircraft part. It provided for producing 180,000 gallons of fresh water daily. It provided for the hydraulic power system that drove the two catapults and the arresting-gear wires and barriers. And it required the complex control panels and dials and gauges to monitor and control this power plant.

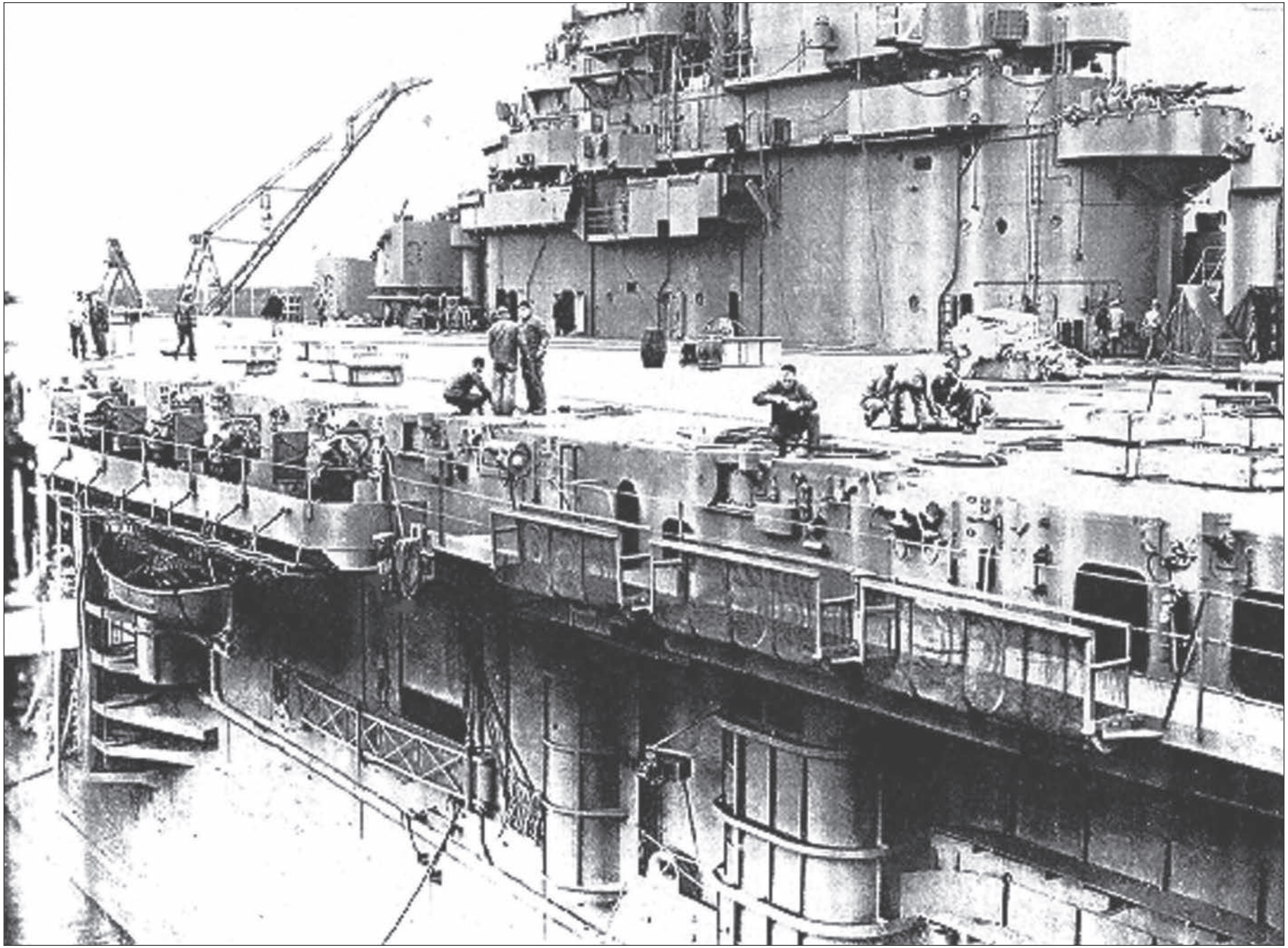
Not to be overlooked in all of this was the ship's armament to protect itself if it was attacked by enemy aircraft and Kamikazes (suicide aircraft). An Essex-class carrier supported a large suite of guns for this purpose. On the Antietam, we had sixty-four 40-mm automatic guns, fifty 20-mm machine guns, and twelve 5-inch guns. (Upon transiting through the Panama Canal we, the Antietam, had affixed to the starboard side of the ship five guntubs each of which contained a 40-mm quad (four guns in tandem). These were to increase our fire-power to oppose the increasingly destructive Kamikazes who were devastating to our fleet as they encroached on the periphery of Japan. (The saga of the Kamikazes is a riveting story in and of itself: There were those (Kamikazes) who committed their very lives to the defense of their country. They traded their one Japanese life for American lives, not to mention the destruction of a mighty ship, a carrier, which was crewed by over 3,000 men)). The first line of defense was the CAP (Carrier Air Patrol) and the accompanying destroyer escorts. The CAP was a small group of planes in the vicinity of the carrier, ready to intercept an enemy force of aircraft. Should the enemy penetrate this screen, then the ship's anti-aircraft guns came into play for its protection. As for the ever-present submarine threat, the screening destroyers were the only line of defense, using their sonars. Remember, out there it was always "Get the Carriers!!" Training ship or not, this was always a viable possibility. No one "owns" the ocean, and an enemy doesn't know you're "merely a training ship".

Because I'm admittedly partial about this, I have no qualms about saying that I think an Essex-class aircraft carrier is a thing of beauty, both in form and especially in function. One of its great attractions, to me, was that there was absolutely nothing on or of that ship that wasn't there, for a specific USEFUL purpose. There were many pictures (at the Archives) that I could have used to show off the ship in all these functions. But this book is devoted to the Airdale, and so those pictures must await another showing. Even though an Essex-class aircraft carrier was designed as a means of destruction, that aside, I genuinely salute her and her grandeur! And even though she has a "flat top", she also has what I believe are beautiful, functional lines and a beautiful confirmation. She's a magnificent construct! (Besides, she was my home for each of 550 consecutive days.)

THE U.S.S. ANTIETAM UNDER CONSTRUCTION

To start at the very beginning, this then is the future "playing field." The work is almost complete, just as it was when we went on board the Antietam in January 1945. There were welding wires and various construction equipment about, but within a couple of weeks they, the workers, were all gone. Notice the "catwalk" (walkway) in the foreground, just below the flight deck level. This was about fifty feet above the water below, with only two (horizontal) hand-wires strung on the outside of the catwalk between you and being overboard. The hand-wires came up to those U-shaped containers at the edge of the catwalk that would hold floatation nets, to be used if the ship sinks. The hand-wires came up to about six inches above your waist, so they didn't give one a feeling of security. Soon this "playing field," about 300 yards long, would be a bedlam of sound and motion, while at the same time being a model of orderliness. It was to be high-level performance! No frills here: everything, absolutely everything, on this ship was absolutely needed for the proper and best functioning of this ship. To me, that was one of its beauties. Look around you and you'll see things that puzzle you but be assured that that that someone, sometime, will require whatever it is that you see. There's an underlying sense of beauty in those things that are essential to the smooth functioning of any machine or device. When their utility is obscure they might well appear but an unattractive attachment. Yet when that same thing becomes known to be useful, and very useful, it immediately takes on satisfying presence. The catwalk seems but an foolish appendage till its recognized to be the strength beneath your feet and the water 50 feet below. It then takes on a certain beauty. (I can remember the first day that we arrived at the Philadelphia Navy Shipyard, and as I walked up to the Antietam, I felt a distinct, but subdued, thrill that I was actually going to be a part of the crew of this mighty ship. It does one well to realize that one is a part of an important and valued enterprise that will require one's efforts, even if they are merely those of a laboring man does a job of an undeniably menial nature. Yet one also does well to take pride in a job no matter what its importance. I labor all day in the yard doing tiring work and yet feel the pride in a job well done. We can all feel this).

So this then is the "playing field" upon which the Airdale will ply his trade: manhandling 100 "brutish" aircraft that become very angry at launch-time as they stand in parked precision vibrating their 10,000 pounds in impatience. It should be said here at the outset that never again will there ever be another Airdale to trod the deck among all those behemoths with slashing blades. Those youths donned in blue are now a breed long gone, their time on the stage of history both brief and barely noticed. This volume seeks to redress that omission. Simple-minded though the job he did was, simple it was not. Simple-minded though the job he did was, never would an aircraft have left the deck unless and until he pulled that wheelchock that "anchored" each and every aircraft to the deck. Yes, the Airdale was at the very bottom of the totem pole, but yes, he did his duty with quiet and dogged determination. And so this book is dedicated to all those Airdales, Airdales who have never been recognized by a single soul in the publishing field. It will be noted here and now, at the very beginning, that only a handful of the first edition were sold in spite of about 45 copies having been distributed to the general and particular audience. Now, let's "play the game"!



THE U.S.S. ANTIETAM IN PHILADELPHIA NAVAL SHIPYARD

And yes, this then is the U.S.S. Antietam during December 1944, in the Philadelphia Naval Shipyard. You'll notice the welding sparks at the bow of the ship. The shipyard personnel worked around the clock to complete the ship for a January 1945 commissioning. In the meantime, we (the Antietam crew) occupied the building near the starboard side of the ship. It was an interesting time, what with all the activity. And, being in Philadelphia, it was only about 75 miles away from my home in Montclair, New Jersey. So I was able to go home a couple of times in December and January. This was both a rejuvenation and a great disappointment because "my" girl was both there and "not there." It also allowed for a few liberties in Philadelphia. But once we left the Navy Yard, I spent every night, for about eighteen months, on board the Antietam. It was home! I'd be lying if I said I didn't feel, deep down and unspoken, a certain stimulation knowing I was a part of this grand effort, this great enterprise, this magnificent ship. Here I was, still "wet behind the ears", being "allowed" to serve on an Essex-class carrier, a ship that would surely have a huge affect on the outcome of the war. True, I wasn't able to become an officer, but this was the next best thing, serving on a ship that would make a difference. However, it didn't particularly turn out that way. It turned out, instead, that we only supported the job that had to be done. (At school, I was fortunate enough to have been on the first team, and I didn't get to know the feeling of "sitting on the bench". Perhaps frustration is not an appropriate characterization here, but that word comes to mind. However I didn't fully understand what was involved with the word "action", though I was exposed to a lot of newsreels, etc. of war. Let's just say that I was inspired, on the inside only, without understanding sufficiently the consequences of the word "action".) I can remember, when we were berthed in the barracks to the left, looking out at the Antietam and wondering what the future might hold, far from here, on that floating airport. Day in, day out, long they labored to form and shape and invest this marvelous vessel with the wherewithal to make the U.S.S. Antietam , as were all the "Essexes", a sturdy force with which to reckon. (Parenthetically, the U.S.S. Antietam's name-sake was the Civil War's Battle of the Antietam Creek, that battle which was the bloodiest day in American history when there were about 23,000 casualties that day. (Oh to sail a ship with such a name! Did this bode well for those of us who rode it into harm's way, should that be our destiny?) In any event, it was the result of that battle that Lincoln decided to announce the Emancipation Proclamation thus freeing all of those not so endowed. It did not have the grandeur of the later Gettysburg Address but it held a principle that rings through history and the following generations of all peoples in this country. Can it be said that the Antietam leads the way to freedom? No, but it's a grand thought.) There's beauty to the night here at the birth of this grand ship. So it is, day and night, night and day, the work went on to bring the U.S.S. Antietam on line. Yes, it was now sequestered in the depths of the drydock but soon, very soon, it would be set free and allowed to "get its feet wet". That it did on 28 January 1945 when the war was approaching a climactic ending in the Pacific Theater. There was yet much violent ahead as both sides were pressing for an advantage that would see them through almost four years of withering conflict. The thought here was would we be a part of the punishment being dealt by the Kamikazes?

THE U.S.S. ANTIETAM NEARS COMPLETION

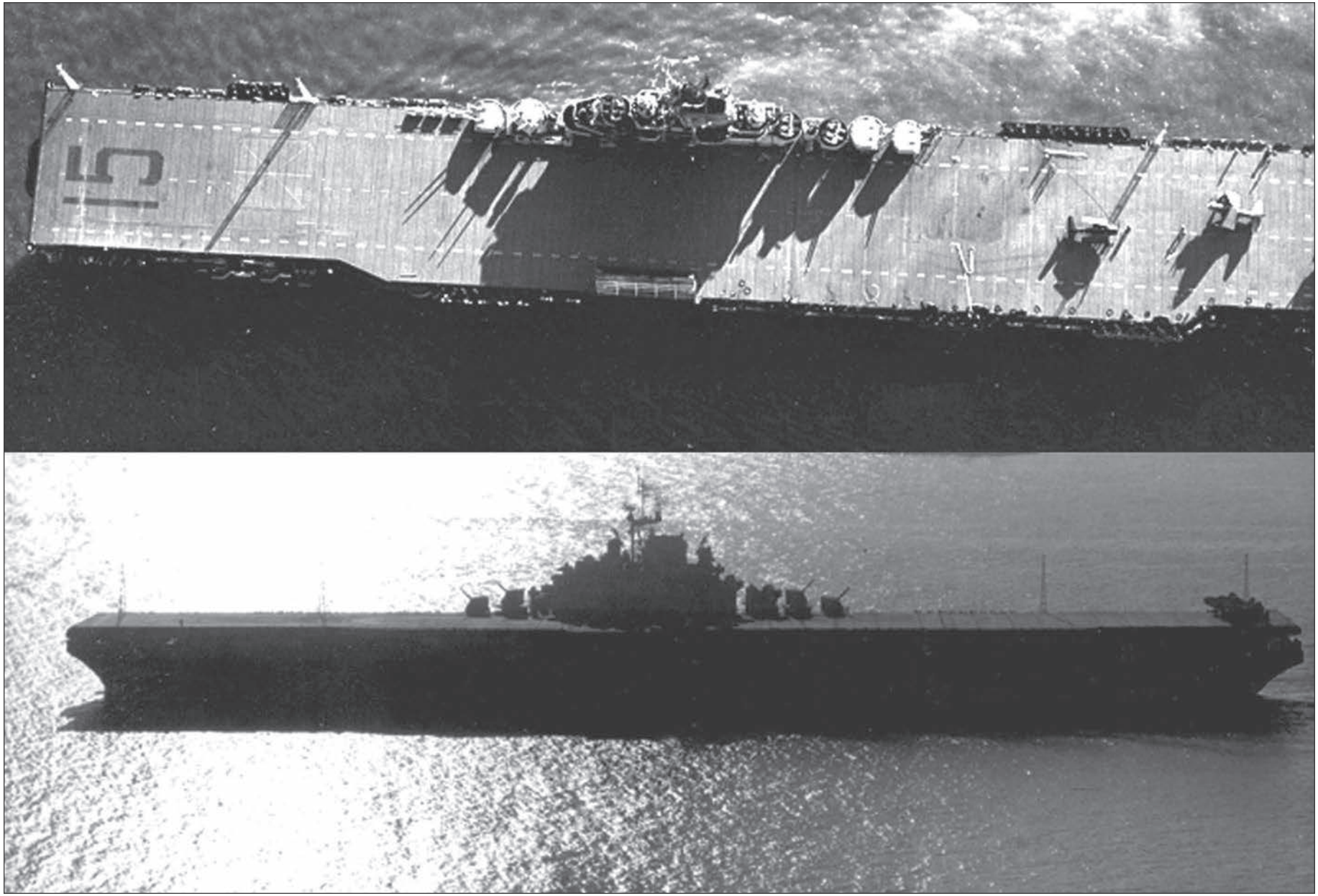
Same ship, different view. Notice that the starboard side is "clean". When we arrived at Pearl Harbor a couple of months later, we had five 40-mm guntub quads "tacked on" to the starboard side, one level above the hanger deck level. (These can be seen in the Flight Deck Activities chapter.) That object on the starboard side is a construction crane. I plan to have this picture and the previous one enlarged and framed. Some of those Navy photographers were actually artists, to my way of thinking. For instance, the fact that there are no details in these two pictures only reinforces the fact that this is a mighty ship. The stark lights and darks make for a dramatic image, so much so that it reminds me of my having thought, back then, that "this was going to be the start of something big". As can be clearly seen in the previous picture, the Antietam was built in a dry-dock. This also reminds me of when we were in Pearl Harbor we were put in dry-dock to have the ship's bottom scraped. So, with scrappers in hand, we climbed the scaffolding and started to scrap, and scrap. Not much was accomplished after two days of this. The next day there appeared workmen with sandblasters, and the job was done in quick order. (But when it came to painting the flight deck, we swabbies got out the mops and swabbed the deck front to back, with paint. No spray guns here.) I can remember the pure drama I felt as I walked beside this monolith of majesty in the full glow of the illuminating lights. In a way it was an eerie feeling because it was a world so far removed from that which I had known. This beautiful scene also causes me to recall the weekend pass I had allowing me to see "my girl". I believe it's a truism that those important to us in large measure determine how we comport ourselves. A simple example of this is the fact that my interest in sports (football, basketball, baseball, tennis, etc. greatly diminished as a result of my unstated presumption that she was nowhere keen about those who liked sports. I suppose this is just a simple example of those we care about having a strong influence on our thoughts and feelings. In truth (and "in truth" should always be our motto) I thought she thought the lesser of me because of my interest in sports. Ever since then these games have lost their original luster; but no matter, I have replaced that with other more durable interests (that are especially of value in latter years. Mind you, I still greatly appreciate those who perform with skill and talent as I do for anyone who is skillful and talented in most anything. "Skill and talent" are "the name of the game". Also, those we care about are in a very meaningful way our exemplars. Choose well!

At night the ship loomed so large that it almost generated the feelings that it was actually an apparition. This was especially so because the island structure was on the facing side, towering high above (even while the ship was residing in a dry-dock). There was something beautiful about this ship, this huge construct of steel in stately gray with form, fit and function precisely designed for a singled-minded purpose. If it wasn't appropriate for the task at hand, an appurtenance would not be there. To me, that was beautiful on a structure fabricated for a specific purpose. This was the epitome of a functional construct, made for one purpose only and beautiful in that functionality. I still marvel at the ingenuity of man to have built such a magnificent ship, both beautiful and functional at the same time.

THE ESSENCE OF THE ESSEX-CLASS

These two pictures are configuration images, essentially showing the top and side views of the ship, and what could be called the visual essence of an Essex-class aircraft carrier. Since the flight deck is 300 yards long, the people in the top picture are obviously small. Although the flight deck could hold the 100 aircraft that an Essex carries, usually about one-third are held below in the hanger deck, and brought up to the flight deck when they were to be launched (or taken down to the hanger deck during landings to make room on the flight deck). In both pictures note the two dual 5-inch guns both fore and aft of the island superstructure. The top picture has nice clean lines that are distorted only in that the deckedge elevator, opposite the island superstructure, is folded in toward the ship. This is done so that the ship can transit the locks of the Panama Canal. The clean, symmetrical lines are especially evident in the below silhouette picture. Here too note the distinctive bow and stern, made that way so as to allow for the two 40-mm quad guntubs on both the bow and stern. (These guntubs are more clearly seen in the "Flight Deck" chapter.) I can remember how impressed I was with the size of this ship, but let's make a few comparisons, then and now: then the Essex-class was about 100 feet shorter than now and less than one-half the tonnage. Then we had 3,000 officers and men, now they have 5,000. Then we had 100 aircraft on board, now they have 75 (most of which are larger). Then we had analog technology, now they have far superior digital equipment: computers, communications, radar, fire-control, etc.) Then we had no fire-fighting protection, now they have sophisticated protection. Then we had about 35 Airdales manning the flight deck, now they have little need for Airdales. Then we had no excess space, now they not only have "all" the amenities but also all kinds of open spaces. The amenities include such niceties as curtains for each individual bunk. Our only amenities were a small library and an ice-cream dispenser that was available only at certain times (I never did know where it was). I was dumb-struck when I learned that now they have a spacious room for lifting weights, etc. Back then such would have been unthinkable. The most egregious difference to this "chauvinistic oldster" is the inclusion of women on board a combat ship. Women can do wonderful things with their minds, but being savaged on the deck of a carrier is not a "woman's place", pure and simple. In many areas women are superior to men, often by far, but its certainly no demerit to lack some qualifications even where "heavy lifting" is not required. Besides, there are differences, so "vive la difference!"

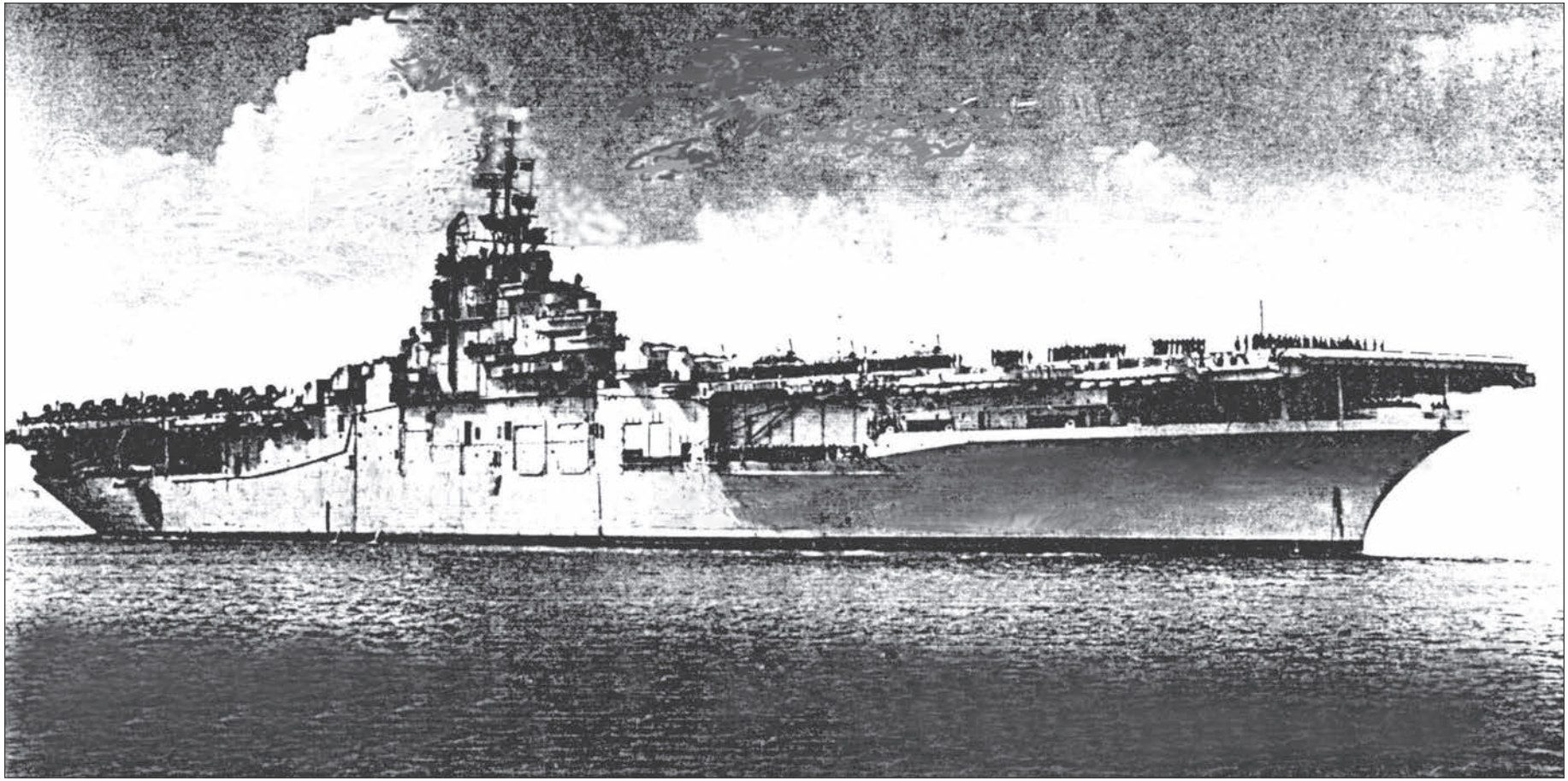
They say that beauty is in the eye of the beholder. I believe they say correctly. For example, I say that this picture is beautiful while I'm sure that there are those who are completely unenthused by this picture. Part of their being unmoved is due to the content of the picture. This is too bad because often rendition can trump content (as I believe should occur here.). Things that are well done should elicit admiration regardless the content of the subject or activity. It's all to easy to be biased one way or the other simply based on the content/subject. In so doing we are too apt to short-change ourselves, to deny ourselves of that which is beautiful in its own right. Perhaps part of it is due to our laziness in being willing to be more observant. To be sure, we lose a great deal in life in not being observant (of things both large and small). Be alert to intrinsic beauty or life will "pass you by". I can say with no embarrassment at all that it wasn't all that long before I made this ship of gray steel my legitimate home. They say that sailors tend to "fall in love" with their ships. This I will not admit to but I will say that it was a near thing. All hail the Antietam!



THE STATELY SHIP OF THE HIGH SEAS

In a deliberately diffused image, here is the Essex-class aircraft carrier in all its glory. The purpose of diffusing this picture was to present the Essex as a whole, and discourage its presentation as a set of details. Of course details are evident, such as the crewmen in orderly ranks up front, and the aircraft in orderly ranks back aft. One of the attractive things about the Essex, to my way of thinking, is the fact that everything that appears in this picture is absolutely essential. If it were not absolutely essential, it wouldn't be there. What are missing are the five 40-mm gunsponsons (guntubs) that later on will be attached to the starboard side of the ship at about the hanger deck level. Their absence here is because it hasn't gone through the Panama Canal yet. The clipper bow is one of its distinguishing features, and its long flight deck, instead of being the source of its moniker "Flat Top", is instead the reason one could call this ship, this Essex, "a stately ship of the high seas".(I can remember the sense of pride, unearned though it was, that I felt as I stood in the ranks on the flight deck during inspection. It was a small thing, but it was also a big thing.) Continuing the comparison of then and now, now the carriers have a canted deck (a deck whose landing area is at a 10.5 degree angle to the centerline; in 1952 the Antietam was the first carrier to receive this modification providing for a 525 feet long by 70 feet wide landing area that narrowed to a 32 foot width that extended outboard.) In addition in 1957 the Antietam conducted the first tests of an automatic landing system. This system allowed for a hands-off landing on a pitching, rolling and more importantly a heaving flight deck. Since then the system has improved markedly making possible night landings. The canted deck of course makes life much more agreeable to those on the flight deck. This is automation at its finest . It has been my "passion" since before I gained my electrical engineering degree. It's my belief that a nation is strong in a fundamental way to the degree that it can develop and support a technical capability to the extent that it can "care for itself". One looks at a ship such as this and only sees "the shell". What they don't see is all the marvelous intricacies that comprise this magnificent construct. I must say here that one-half of volume 3 consists of the wonders of learning about things that the majority of us only take for granted. To some, when I say I receive a legitimate thrill when observing all the complexities of a ship such as this, they will scoff. If these books do nothing else, I devotedly hope that the reader will no longer scoff but rather will at least appreciate such things. Such creations are a true joy. Enjoy!

Look at her. Is she not magnificent? Starting at her beautiful clipper bow (that holds two 40-mm quad guntubs) we move back on that straight and true flight deck, the domain of multitudes of powerful, stalwart aircraft. Next we come to that rising superstructure guarded fore and aft by two twin 5-inch gun mounts. Festooned atop the superstructure are all varieties of radar antennas, whether search or fire-control. Then follows that part of the flight deck that takes aircraft aboard with sometimes tragic results. Cupped at the stern are two more 40-mm quad guntubs. Now that's a lady with strong, beautiful lines! Too bad she has to be named after America's bloodiest day in American history (that made possible the Emancipation Proclamation). Of course I honor these who fell on the field of battle to, as it turned out, make possible the actual freedom of a group of people singled out because of their heritage. To me, this was the right thing on its merits but in a larger sense Martin Luther King had it perfectly correct: It's not the color of the skin but the quality of the character of the person. Yes! Yes!



A CLEAN LOOKING SHIP

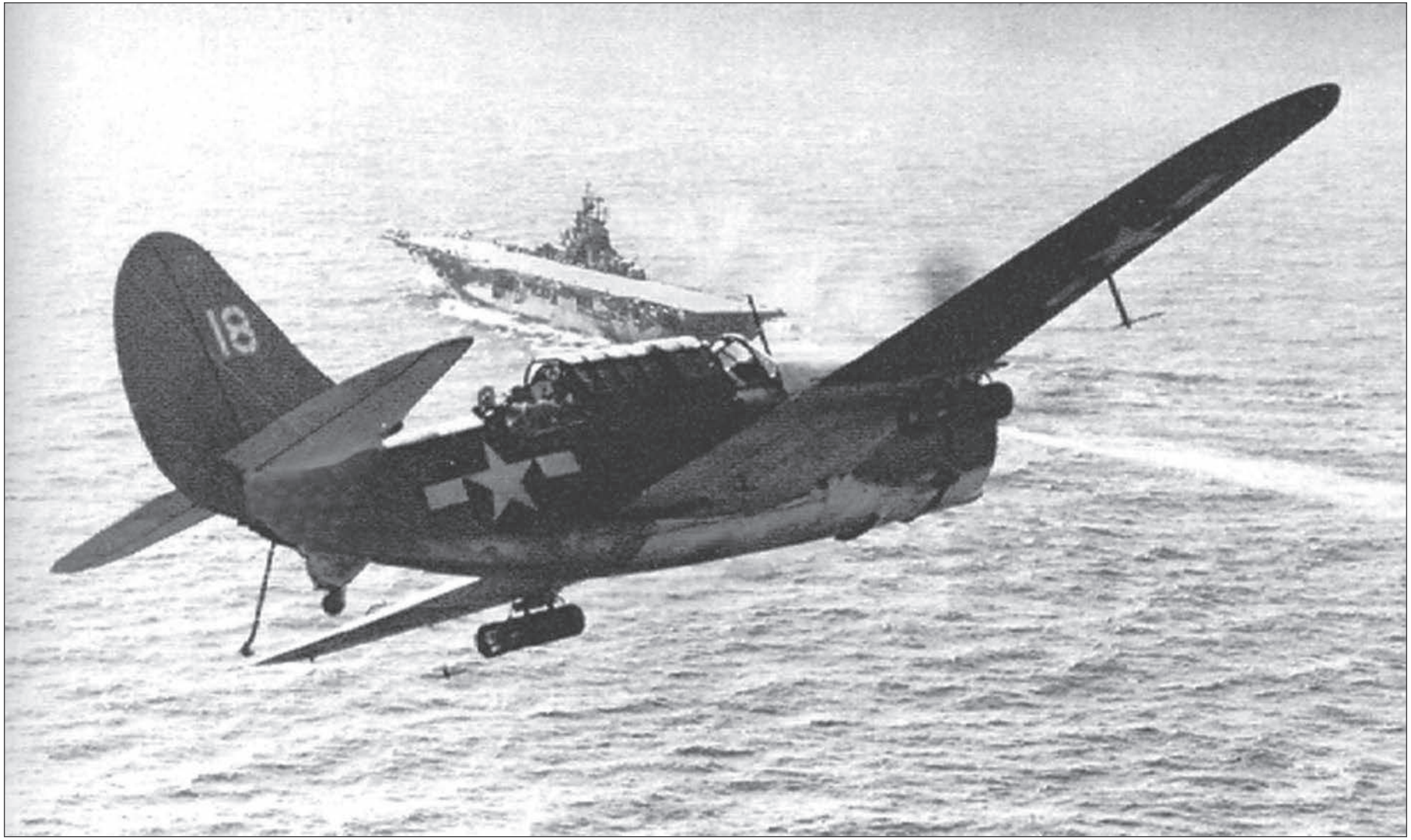
This view clearly shows the two 40-mm guntubs on the bow. Both guntubs had four guns each, and this will be made clear in the chapter "Flight Deck Activities". Also made clear here is the deckedge elevator, port side, in its normal configuration (level with the flight deck). Just in front of the starboard side 5-inch gun mounts are two upright radio masts between which was strung a low-frequency radio aerial. During flight operations these masts were lowered 90 degrees, outboard, so as not to interfere with the launching of the aircraft. Two similar masts can be seen back aft of the island superstructure. Changing the subject, when I was in the Navigation Division for a short time, and off duty, I'd stand in the forward part of the bow's guntub and "ride the waves". There was of course nothing in front of me, just the wide open ocean. It was a quiet, restful place (when there was no flight operations). For some reason, I sometimes had it all to myself. With no distractions to interfere, I would think back to home and what was happening there. This didn't happen often though, because this area belonged to the Gunnery Department, and they felt proprietary about it. When it was vacant, I guess it was good "quality time" (if wondering and worrying about what was happening back home was "good").I can remember the first sojourn of the Antietam as it slowly cruised down the Delaware River on its maiden voyage. There to the left was New Jersey. When would I see it again? Would I see it again? Thus a source of depression sets in. The subject of depression is a depressing one, both mentally and also physically for depression saps your energy right down to your very marrow. The unknown will do the job very well, just as will an environment of deception and deceit. Yes, deception breeds depression as surely as does the unknown. The good news is that with the banishment of deception and the unknown there is very little between you and a modest, subdued elation. It's difficult to forfend (avert) deception and deceit but the unknown can respond to remediation by learning from proper books and legitimate experience. As to deceit and deception, yes, it's difficult to be "assaulted" by it day in, day out. However, here too knowledge must be our refuge against these constant assaults. And yes, knowledge is often difficult to come by when that very knowledge is tainted by those wishing to deceive. But be of good cheer because GOOD books are your path to salvation. To the point, knuckle down and read all points of view and let your rational thought guide you through the thickets of deception ill-conceived. Not to be too sophisticated here, dig deep into the basics of reality.

Flight Deck, there it is in all its glory. A book can not be written about a flight deck per se but it can be written about in terms of what happens there as men and machines inhabiting it. Each day on the flight deck is essentially the same, day in and day out. Yet, each day is different from the day before and the day to come. What transpires each day is not determined by a "cookie cutter" and woe be unto he who thinks thusly. The god of the fates shall not let it be so. There is repetition, to be sure, but there is no such thing as a sure thing. Wind, the Airdale's nemesis, has an unpleasant way of being capricious even while requiring it to be at least 30 mph over the bow of the ship during launch operations (during launch operations the ship turns into the wind and uses the ambient wind over the bow of the ship plus its own speed to generate that 30-mph wind). Little did I know that shortly after embarking on the Antietam I would be at the helm steering this 30,000 ton giant (with all due respect to those present sailors riding the 80,000 ton variety).

COMING HOME TO ROOST

This could possibly be the U.S.S. Antietam receiving her first flight of aircraft, of a total of about 60,000 over a period of a year (90 aircraft per flight times 2 flights per day times, yes, 7 days per week times 4 weeks per month times 12 months out of the 13 months I was on board the Antietam; recall, we were a training ship that trained squadrons of aircraft before they were deployed to the Task Forces). This SB2C is just circling the ship and is not in a landing pattern. First, he's too high. Second, he's not lined up enough with the ship, even though the ship is moving at probably 20 knots. Third, the fighters land first so as to be in the forward position when the aircraft are respotted back aft (by the Airdales) for the next flight operation. The faster the ship's motion, and/or the faster the wind over the bow of the ship, the less the relative motion of the landing plane and the flight deck below it. This made for fewer bad landings, and for fewer bad days. In general, though, the combination of the ship's speed and the wind velocity over the bow of the ship had to be 30-knots. I can remember the anticipation I felt as that first aircraft rounded the landing pattern to line up for a landing on board the Antietam. It was tense as it approached closer, but not to worry, there was no problem. Besides, there was a certain beauty in the steady, every 20 seconds, landing of an aircraft, most always without incident. Initially, to this neophyte this was not a sure thing: one could not put out of one's mind the "Law" which said that "If things can go wrong, they will go wrong". This is not a suitable attitude with which to go through life, by any means. If they go wrong, so be it. However, to brood on it can only be counterproductive (this is a favorite word of mine; it implies that one should always be alert to what one does and what one thinks, and not jump to conclusions especially if new "ground is being plowed". Thoughtfulness is a powerful word: it can refer to one who uses his/her God-given mind in a constructive manner such as acknowledging all sides of a situation by giving them recognition. Or on the other hand a thoughtful person is also one who is considerate of others and their condition. Is it so hard to show, or at least feel, a concern for others' thoughts and feelings? [Note for the tough guys out there, this is far from being of a "touchy-feely" attitude. At the risk of appearing of another age, what ever happened to the concept of chivalry? The "knights of old" were hardly a soft touch: "In days of old when knights were bold…") Think of what a splendid place this would be if chivalry were the norm and no one would be afraid of being kind and considerate and thoughtful! One can dream as is said in the song, "The Impossible Dream". Better to dream than to wallow in mental and emotional squalor that allows for no courtesies. The definition of an honorable man is "gentleman". Is it possible for a "gentle" man to be a "man's man"? Yes, of course, if you understand the term "man".

Consider a pilot who has been cramped for hours in a confining cockpit having undergone the emotional fatigue of flying over miles and miles of unmarked ocean. Then consider the utter relief of seeing that speck down below which is his haven in a hostile world. Home may be where the heart is but never has something looked so good as that long, flat object below as it leaves a fully churned wake below. The awaiting Airdales on the deck can only hope that that weary pilot is composed enough to see his aircraft neatly caught by sturdy arresting wires strung across the surging deck. Sometimes those arresting wires never did catch the tailhook trailing behind the aircraft and so there was a set of five barrier-wires strung across the deck to stop the errant aircraft. Even then there were times when the landing aircraft would hop those wires and smash the aircraft parked up ahead. Woe is me!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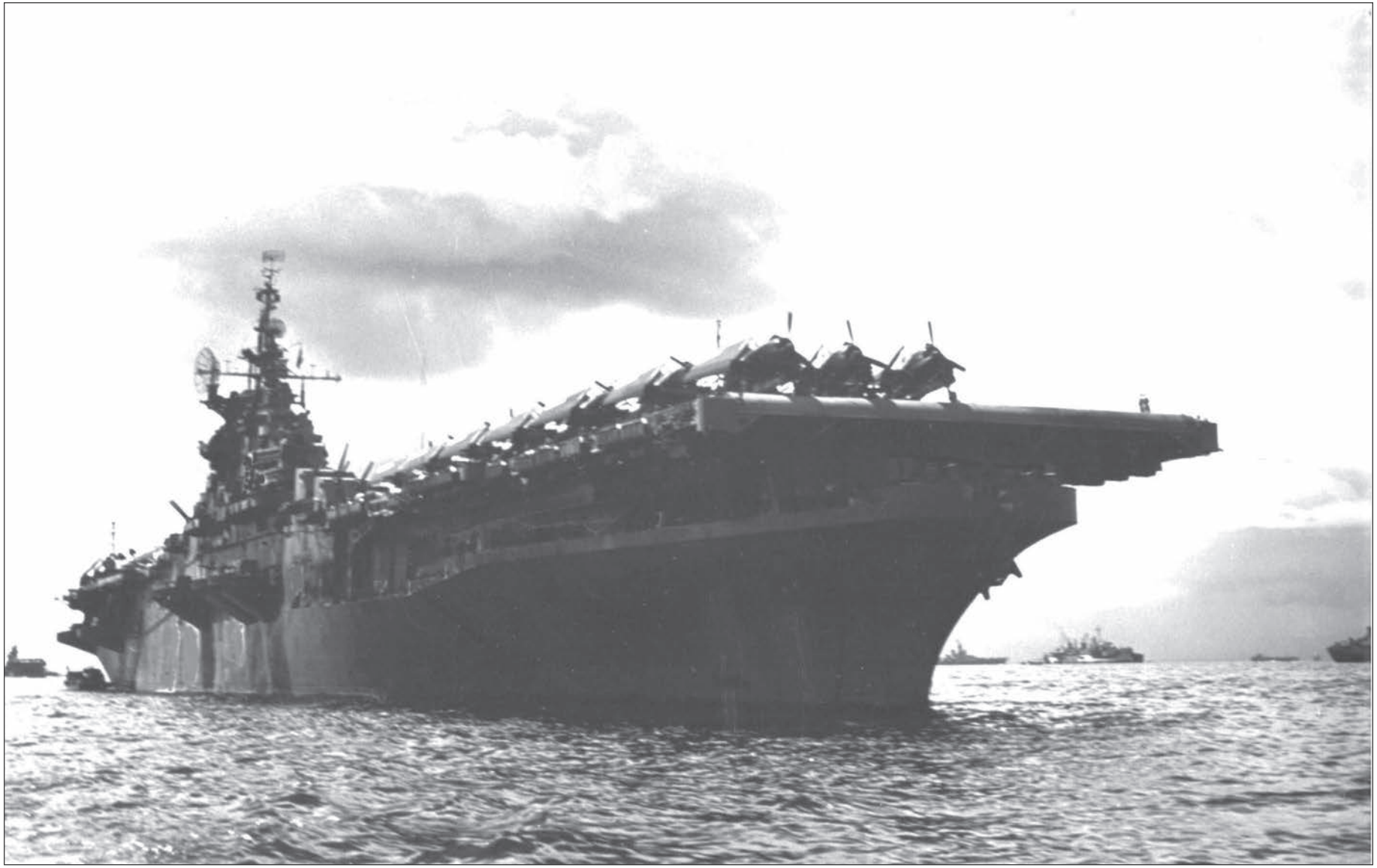
HALF A DECKLOAD

I particularly like the lines of the bow of the ship in this picture. Also, one can see that this ship has been through the Panama Canal because it has the five 40-mm guntub sponsons "tacked" onto the starboard side of the ship. An important element of this picture is the placement of the F6F Hellcats. Notice that six of them can be parked side-by-side. With thirteen foot diameter propellers this leaves little useable space between the aircraft when one is negotiating one's way to a wheelchock during flight operations. These aircraft are where they are after having taxied there after a landing operation. This process can be highly hazardous, and is covered in the "Landing" and "Parking" chapters: boys we were then, yet men we had to become in the face of those slashing blades as presented by those "enormous" 13-foot diameter propellers, the bane of our existence. Fierce winds and deafening noise added to our everlasting consternation, but we'll leave that till later. Now, to look at this picture one might think that the flight deck was but half occupied. Probably not, yet there are those who would say that the deck is half unoccupied rather than half occupied. That is, the pessimists say the glass is half empty while the optimists say that it's half full, a classic case of negativism vs. positivism. It would seem that those who concentrate on the outcome of a situation will be torn between the positive and the negative. First, why go through life dragging the anchor of negativism and pessimism? On the other hand a positive, optimistic attitude promotes a resilience that sustains life. Why not concentrate on those things that can not be taken away from you, such as the beauty of Mother Nature? Be of good cheer in this. Also, remember, "God helps those who help themselves". To wit, "GOD give me the SERENITY to accept the things I cannot change, the COURAGE to change those things I can, and the WISDOM to know the difference". You might be well advised to choose, and choose wisely, a mentor to whom you can "go" in times of stress and negativity. Some would call this religion. Call it what you will, but "go" to it. The song "You Raise Me Up" from "secret Garden" comes to mind. Find and go to that "You" Speaking of "Secret Garden", a personal note comes to mind, full of sweet thoughts: one day we went to my granddaughter's dance recital, she of about 12 years. After "endless" groups of young girls of all ages going through their hyperkinetic gyrations (I'm being unkind) to music that frankly grated on the nerves (I'm an "oldster" after all) Finally, finally, my granddaughter's group appeared, all in their chiffon dresses, dainty as only young girls can be. Then to the enchanting music of "The Promise" from the "Secret Garden", they glided effortlessly to the music, graceful as can be. It was a sheer rhapsody, unspoken till now. Perhaps such as this should not be spoken in such a book as this.. Yet when such delight and innocence comes to mind, I'm a soft touch.

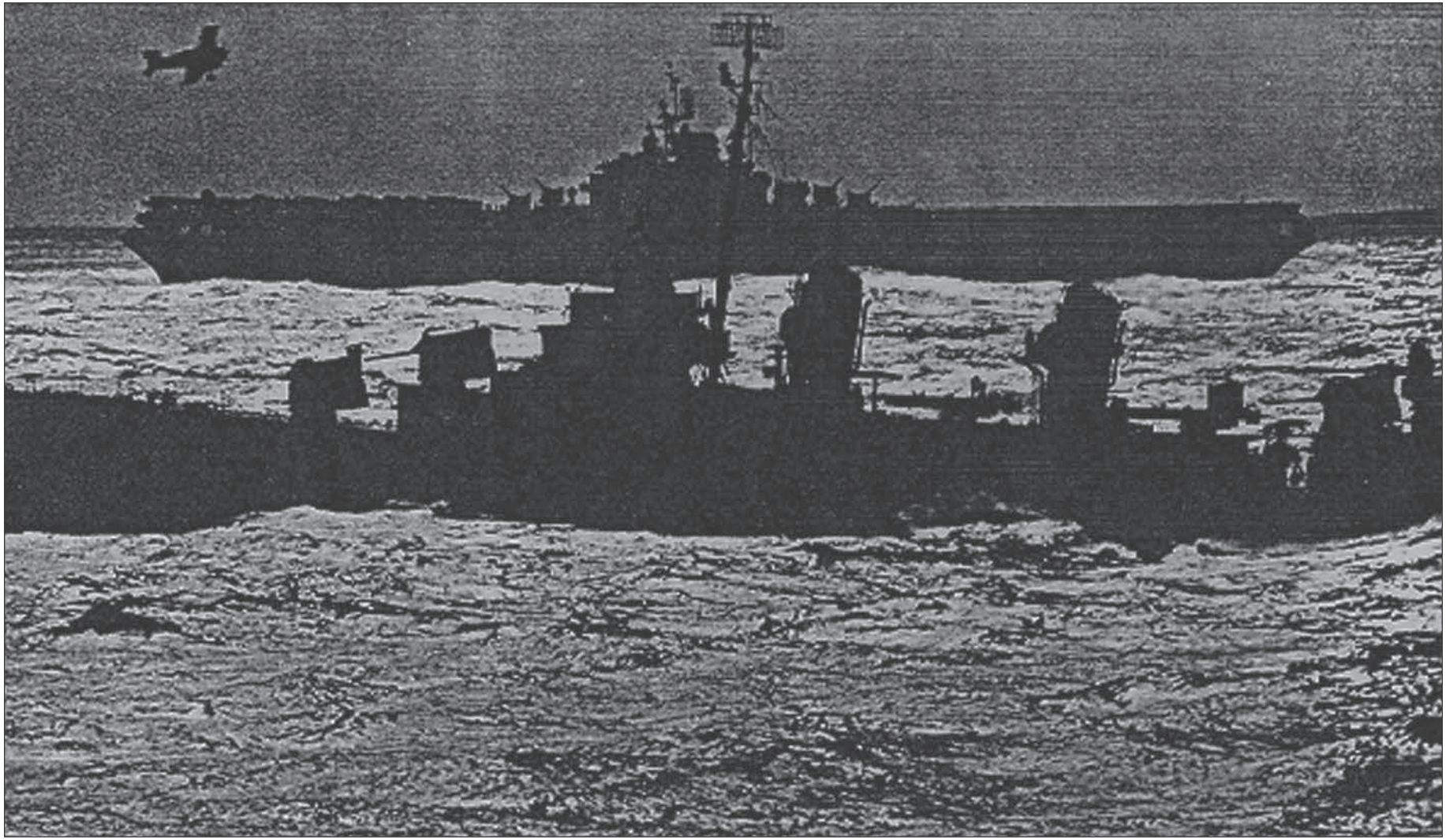
That raises the question: should an Airdale be a "soft touch"? Well, why not? When tough work is to be done, it's done. Then when simpler times arrive, they are savored. A one-dimensional person is an uninteresting person, unable to enjoy the a life full of different things. Yet, this does not leave one "Carte blanche".: rules still apply. In fact they always apply. What kind of a world would it be otherwise? Enjoy within the bounds of propriety and you'll be happy, or so so you should be, (This is long but necessary.)



THE ETERNAL TRIO: DESTROYER, AIRCRAFT AND CARRIER

This next picture epitomizes our operations: the carrier, an aircraft, and one of the two destroyers that always accompanied each carrier. (There were always two Essex-class carriers that would steam the ocean together, at least in our duty as a training ship.) Silhouettes are sometimes most effective, and I believe that applies here. Notice the destroyer's torpedo tubes amidships, among other things, and notice the carrier's five-inch guns pointing skyward. They were only used for defense against enemy aircraft. It was never a case of using them against surface ships. The carriers would naturally stay away from a battleship's 16-inch guns and even a cruiser's 12-inch guns. Enemy aircraft were enough of a threat, especially since it was always "Get the carriers!" Notice that the forward third of the flight deck is loaded with aircraft. That implies that landing operations are taking place, although the aircraft in the picture doesn't seem to be in a landing pattern. But he's also too low to be a part of CAP (Carrier Air Patrol) in a defensive position to ward off enemy aircraft. Here again, a silhouette makes for an effective picture. We, the U.S.S. Antietam, and the U.S.S. Boxer didn't very often get this close to each other. It probably had something to do with spreading out the target we formed. I can remember, when I was in the Navigation Department, sitting on the after-bridge's lookout chair looking out over at the accompanying ships and feeling, that this is the Navy I used to daydream about as a boy as I played with my small, 8-inch wooden model of a destroyer. A quaint recollection this, but a valid one. It's interesting why certain memories are retained vividly while others are vague and still others are vapid. The medical people tell us that certain of our memories are more reinforced by the emotional content we feel at the time of the initial incident. This would definitely apply to my experiences on the flight deck. The impression is more strongly stamped if the corresponding emotion is strong. This then begs the question as to what precisely is an emotion. Is it primarily visceral or mental? The former was prominent during my duties in and among the fired-up aircraft. I can vouch for the fact that that will "stir the juices". It's a fascinating thing, the creation of memories and why we retain some and not others. I have long been interested in the workings of the mind and so was especially intrigued when the technology of computer neural networks came upon the scene. Some of them depended on the concept of reinforcement of learned thoughts and capabilities. These ideas are more thoroughly discussed in volume 3 and will be a subject of impact in the future (that I wish was mine).

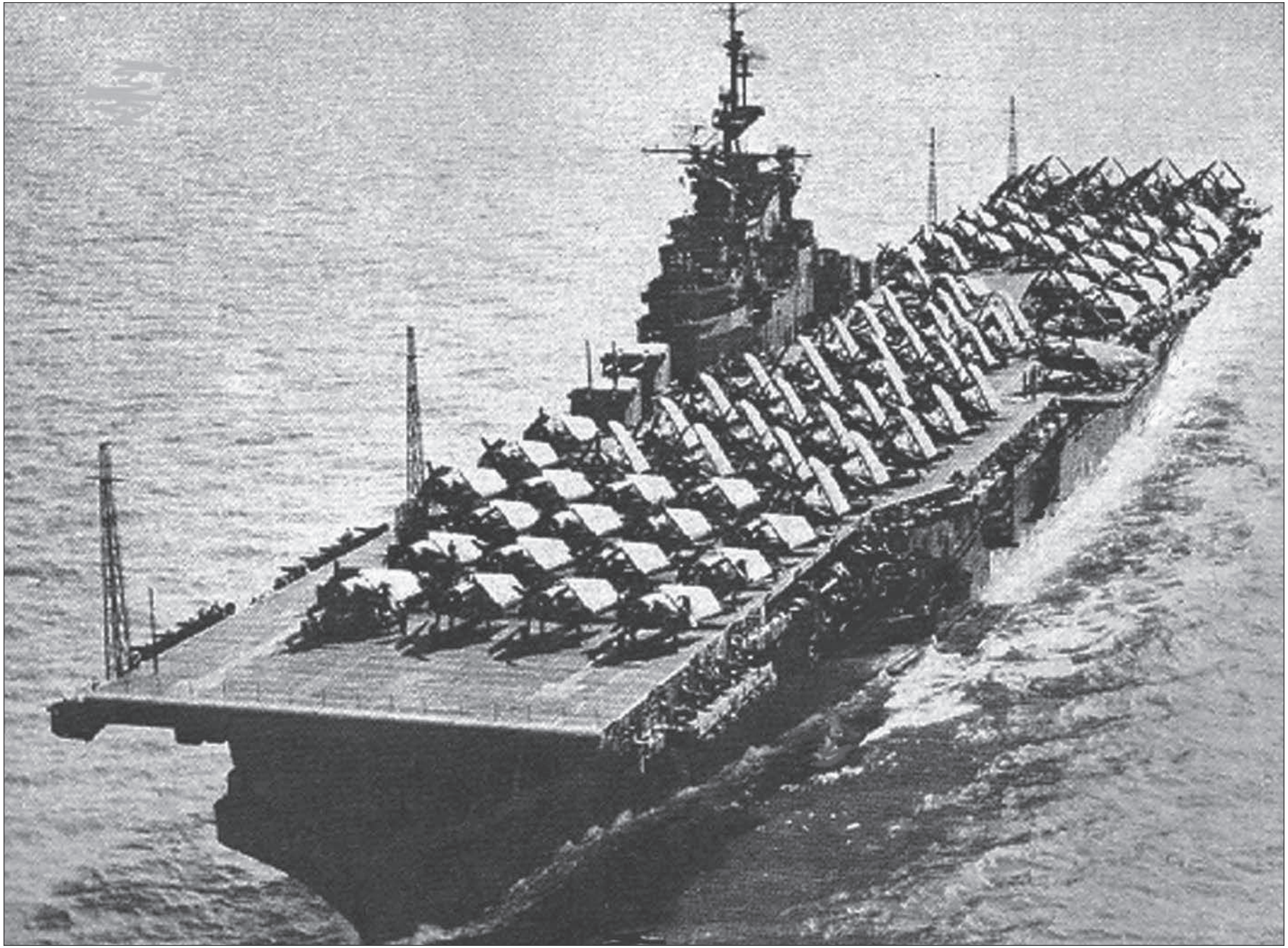
In the sports world this is called team-effort: individual members of a team be accountable to the team's success. This is one of the main reasons I like to participate in team sports: your contribution is returned by the others' contribution. You are all in it together. (Winning is all fine and good but a MUCH better good is to improve your performance, whatever that may be). While I like team sports my most favorite one is tennis. There you are, on your own, displaying hand-eye coordination, pure skill, strength, endurance, superior intelligence, heart. As I now watch a tournament I'm particularly taken by a young player from Serbia. She is young but has developed all the above attributes to a level very high level. Her loveliness from head to toe is matched by her delightful comportment, both of which are much more important than her skill. Would that the world were inhabited by people as nice as she . This of course is a pipe-dream that all too often looms large on the stage of life. Is it too much too ask that everyone have a delightful personality with a strong character to match? Probably, unfortunately.



ALL ABOARD, WE'RE OFF TO WAR

I chose this picture to show a carrier's "armament," its reason for being. An Essex-class aircraft carrier carried a complement of 100 aircraft, as explained previously. Before flight operations, many of the aircraft would be below, in the hangar deck, awaiting their transfer topside via the elevators, engines warming up. To catapult an aircraft, there would have to be open space from just behind the aft radio antenna mast (which would be lowered outboard ninety degrees). As aircraft were launched, others would be brought up. This picture shows the F6F Hellcats, five-across the deck. Using the six-across arrangement, there'd be more space up forward and so less time would be required to get the aircraft airborne. This in turn means less time that the airborne aircraft have to wait before forming up and leaving for their destination. So, on our ship, we mostly used the six-across arrangement, especially since we launched most of the 100 aircraft. The significant thing to be aware of is that, for the F6F and F4U aircraft, the tips of the propellers reached out as far as the wheels of the aircraft. This will be discussed further in the "Launch" chapter. But suffice it to say that under packed-deck conditions, it was "Airdale beware (of propellers)." This picture shows about 80 of the 100 aircraft on board the ship. I can remember when we were at Trinidad on our shakedown cruise and I was still in the navigation division: I roamed the packed flight deck before a launch and felt as if I were in a veritable "forest of monsters". An exaggeration, to be sure. We all do it to one degree or another of course. For comedians this is their stock-in-trade along with the absurd. Also, exaggerations that rides the waves of enthusiasm is fair enough; however, exaggeration done deliberately to deceive deserves naught but scorn. Life is already plagued with too many unknowns to further blur it with deceits. Such as exaggerations even if done for desired impact. Playful exaggerations are known to be in jest and are taken that way. No harm done. However, there;s danger in excessive exaggerations in that one could well begin to believe them and thereby doing one harm. It's been an act of faith to me throughout all these years that if I did nothing else I would forever be absolutely honest with myself about myself. Self-delusion represents an unstable foundation even with the laudatory self-cheerleading. Banish the former and augment the latter. You'll be glad you did. [Throughout this book there'll be little "homilies'" as this. Their purpose of course is to stimulate your own thinking on on what has been said. Heaven knows, they are certainly not "written in concrete". Very little has been.]

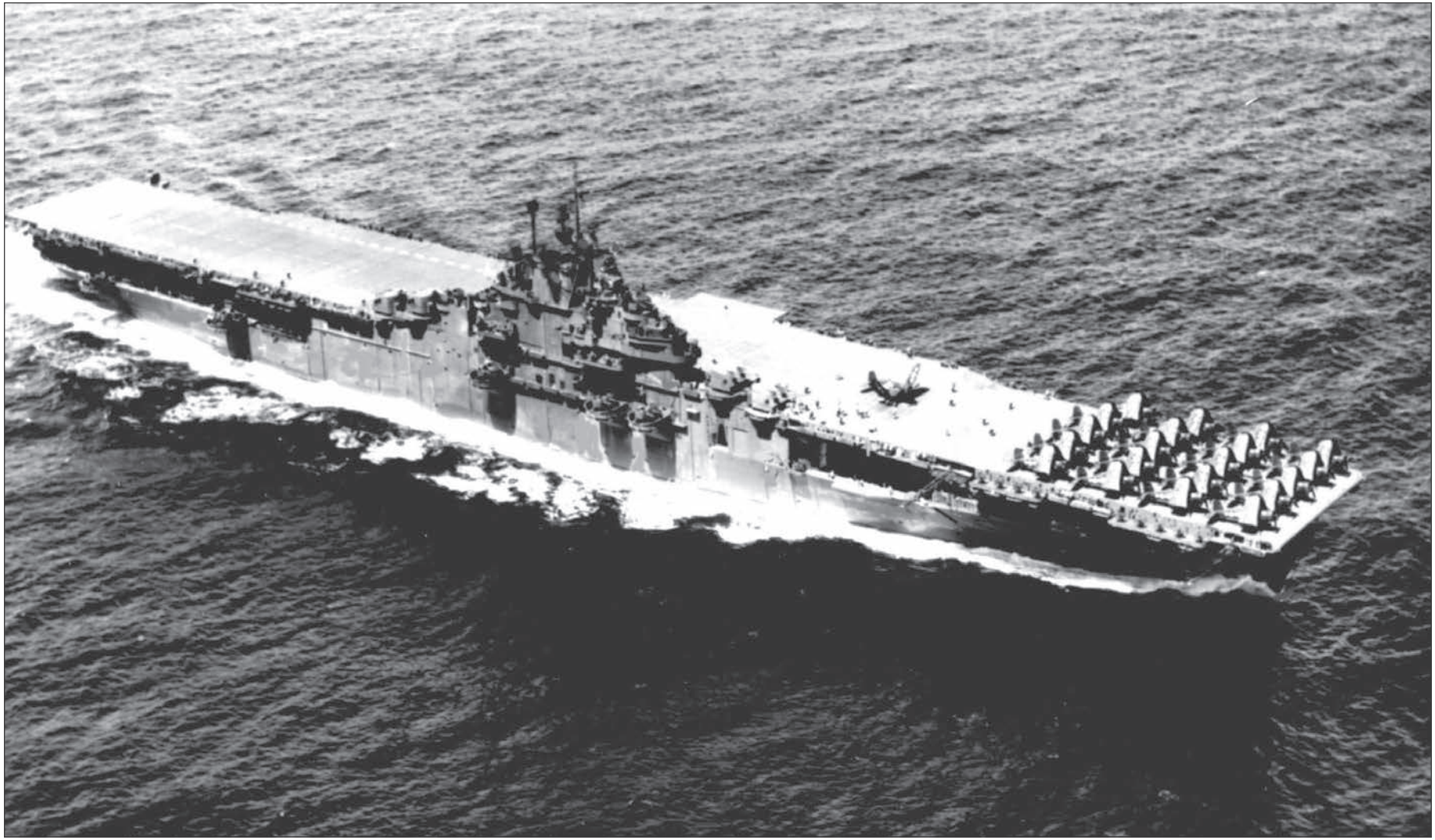
There they stand, row on row, column on column, but a portion of the 100 aircraft on board the Antietam. From a distance the aircraft appear to be but toys. You can be assured that this is grossly misleading. At up to 10,800 pounds they are formidable machines with propellers on the fighters measuring 13 feet in diameter. This leaves precious little safe space between them in which the Airdales can maneuver during launch operations. Chapter 4 will discuss this problem in more detail. Keep in mind that a ship not only pitches and rolls but it also heaves as on an elevator. Add to this the ferocious winds in amongst the aircraft and you have a touchy situation that threatens life and limb. It should be said, though, that one attains his sea-legs early on. If not, ones health becomes problematical if one happens to be an Airdale. We all have situations that require special skills to negotiate our way through life, weather they be mental or physical. It would be well if we learned them early on. Yet how nice it would be if life were not so complicated. There are such places where this is so for those who wish it so.



ROW ON ROW, COLUMN ON COLUMN

This picture shows well what a carrier is all about: a floating airport with everything geared to accept and service high-powered aircraft. The Essex-class aircraft carrier was the length of three football fields, with a flight deck wide enough to carry six aircraft across its narrowest dimension. (Usually, during landing and parking operations as shown here, the aircraft were parked five across because time didn't allow packing them in any closer. Normally, there would have been another aircraft that had just landed back aft, as well as the one shown here taxiing forward. The landing intervals were 20 seconds between each aircraft as they touched down.) The island superstructure is flanked by two twin 5-inch gun mounts, fore and aft, and the upper part is populated by numerous communications antennas and search and fire-control radars. Three thousand personnel crewed this city-ship, and there were ratings for everything from aircraft mechanics and other technical jobs to the "blue-collar" workers manning the flight deck. An Essex-class carrier was certainly a magnificent construct, and if you'll pardon the phrase, a "thing of beauty". I can remember standing on the bridge, looking down onto the flight deck, wondering how those below managed to stay composed among all that sound and fury, among all that motion and commotion. At the same time it also occurred to me that I was up on high safe from the rigors of an active flight deck while those down below were those subjected to the vicissitudes of launching aircraft, landing aircraft and parking aircraft. Why should I be safe above while those below were not? The reason must be that life is not, can not, be even. In fact, life seldom is "fair" even in the best of times. This of course brings up the question of what "fairness" is. .Fairness implies evenness and evenness in life is an impossibility. Keep in mind that evenness is not equality, which connotes equality of opportunity. This is a goal while evenness is a fiction. How can the steering of a ship be made "even" with working on the flight deck? It can't nor should it be. Regardless of what is and is not "even" we should all count our blessings and be thankful for those that we have. It is only when they are arbitrarily taken from us that we should rise up in remedial action in that the quality of fairness is not to be denigrated. Fairness is, or at least was, an integral part of our culture and woe-be-to-us if we let it go by the wayside. Disputes as to its meaning will go on and on but this in turn is a healthy thing in that we more clearly define its meaning: what is clear to me is not clear to you and visa versa. As to the flight deck, as they are wont to say, "somebody has to do it". To be sure but nevertheless is there compensation? The gunners in the TBM and SB2C bombers received extra hazard-duty pay but not so for the Airdales. Fair?

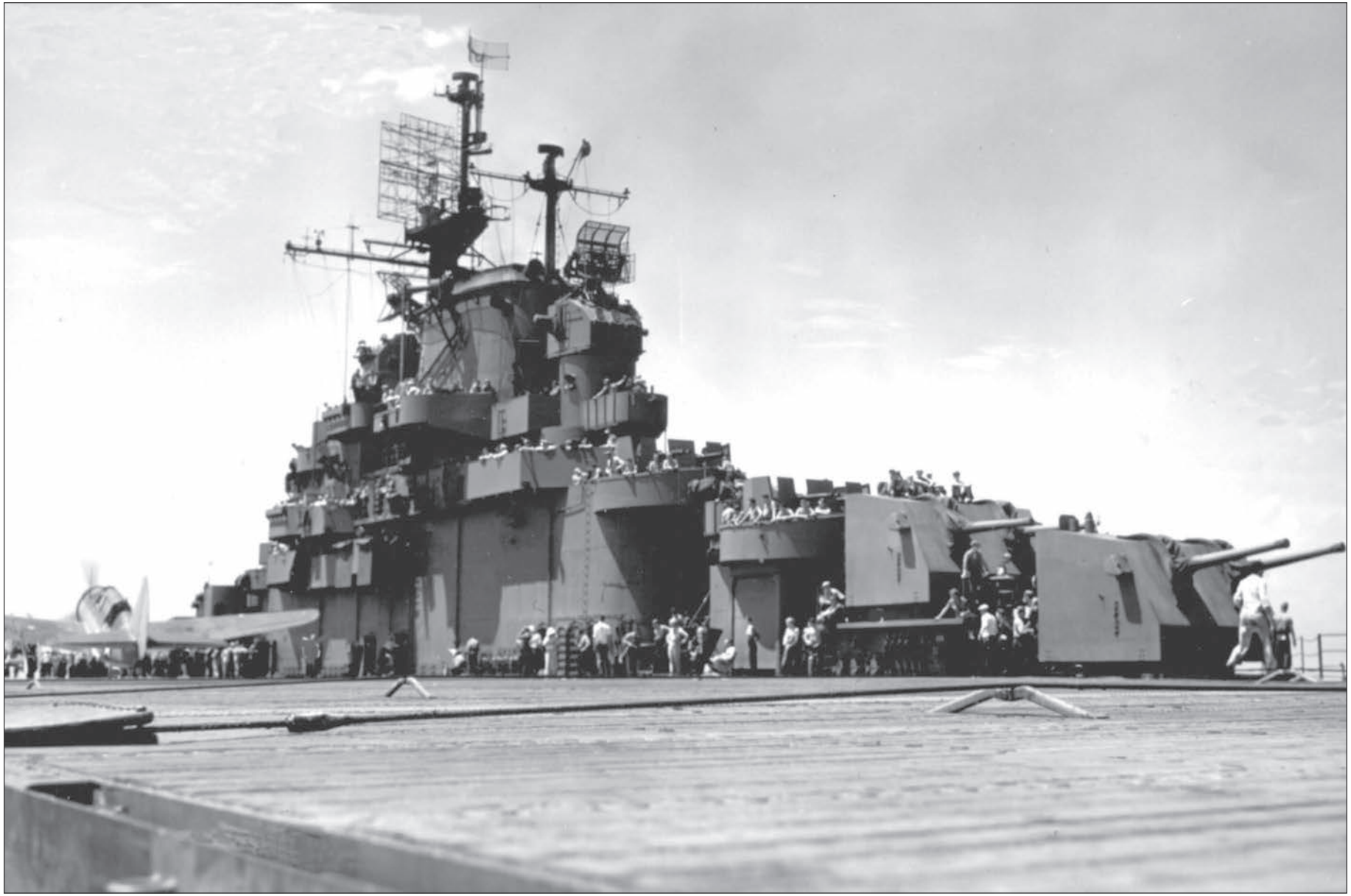
This picture portrays the essence of the fleet aircraft carrier: to carry as many capable aircraft as possible to any ocean location as it cuts through the seas at speeds in excess of 30 mph with as much antiaircraft gun-protection as possible. Only a kill=joy would say that this picture is not as neat as those aircraft parked up forward. Keep in mind that those aircraft are being parked, cheek-by-jowl, in a matter of fractions of a minute. This apparent haste must be balanced against the ever present danger of overshooting the mark and "chewing up" the aircraft in front of it. This of course places the Airdale in jeopardy of being struck by flying shrapnel. In effect, an Airdale's well-being is in the hands of the pilot and the plane-director. If either one of them makes a mistake, the mistake takes on dire consequences. In effect, the Airdale's life can be almost literally in the hands of two essentially strangers. If either one of those two strangers (the pilot and the plane-director) makes a mistake the Airdale could receive a death-dealing dose of shrapnel. This near calamity is dealt with much more fully in Chapter 7. The parking situation is probably the Airdale's worst activity because he has absolutely no control over what happens.



THE SUPERSTRUCTURE

This view of the superstructure, looking forward, showcases the two twin 5-inch gun mounts, behind which are two 40-mm quad gun mounts. These guns were of course to provide anti-aircraft fire and were certainly not to be used against surface ships. The accompanying battleships and cruisers were for that purpose. Also clearly seen is the 5-inch gun fire-control radar, and above that the big surface-search radar. Up forward are the captain's bridge, the wheel-house (steering), the navigation chart-room, the communications rooms, and other such equipment rooms. An aircraft has just landed, and the arresting-gear wires have just been elevated by the brackets that are raised out of the flight deck. (The Airdales are up forward parking the powered-up aircraft.) Landing operations always drew a crowd up in the superstructure, but there was no applause for those down below on the "playing field". To me, the prime beauty of this picture is that everything seen here was for a specific purpose. There was absolutely nothing there that was in any way superfluous. One could say it's the beauty of pure utility. All was neat, and only functional. This was a ship after all, not a building. Filigreeing has its place, but not on a fighting ship. There's a purpose for everything that's there, and if it has no purpose, then it's not there. That, in it's own way, is beauty I can remember, when the aircraft were aloft and I was able to walk about on the cleared flight deck, thinking what an imposing island structure this ship has, with all those levels of gear for this and that, here and there. It was impressive! Consider, if you will, the multivariable knowledge required and wrapped up in this superstructure. For starters, those 5-inch guns had the difficult job of shooting down a target that moved in three dimensions at a high speed while it was taking a non-straight-line course. Now understand that the platform on which the gun resided was unstable in that it was taking evasive action at the same time as it was rolling, pitching, yawing and heaving. Thus the relative motions of the target and the gun became highly complex requiring the subjects of algebra, analytic geometry, spherical trigonometry and calculus. With the math solved it then required the subjects of mechanics, mechanisms, electricity, electronics, communications, automatic controls and various other areas of knowledge. (It was this problem that in large measure inspired me to return to college to earn an electrical engineering degree.) Yet there were many other forms of knowledge represented in the superstructure besides the aforementioned gun fire-control system (discussed at length in Volume 2). There were the communications antennas for both low (long distance) and high (ship-to-ship) frequencies and those in between.

The superstructure also contained a wealth of communications antennas from the long-range low frequency ones to the ship-to-ship high frequency antennas and those in between (the ship also had signal blinker-lights and signal flags for close-in communication during radio-silence). In addition there were multiple search radar dishes, both air-search and surface-search plus the gun fire-control director/fire-control radar dishes. (To my knowledge, we did not have sonar equipment because it was the destroyer-screen that provided that capability/requirement.) Thus we were heavily invested with the equipment for defense, all of which represented the application of a broad-based knowledge-store. What then can we say about the term "knowledge? One thing we can say is that without it we will only tread-water. Knowledge is represented by the condition of knowing facts and implying veracity. One could say that knowledge is the combination of knowing and understanding. In the strict sense, knowledge deals with reality. Knowledge is qualitatively distinct from belief, opinion, understanding and intelligence. To wit: 1) Belief affirms from experience (empiricism), or more willfully, on faith, or on authority, or from conjectures based on insufficient evidence without verification, or sometimes is prone to conclude from inconclusive inference (yet belief often affirms certitude); 2) Opinion derives from reflective thinking on incomplete knowledge or unverified conjecture or from partial inferential evidence; 3)



Understanding comprehends not only the verified knowledge or the conclusive belief but also, to understand implies the ability to perceive the meaning, to clearly apprehend the nature and nuances of a subject, to be conversant with an idea; 4) Intelligence is the accumulation of understanding.

Knowledge is the stuff of life. What would we do without it? That which is learned is better than that which is handed to us. As an adjunct to this statement there's benefit to be derived from restating in our own words that which has been presented to us: one's apprehension is strengthened when we rephrase the knowledge or explain it to someone else. Just so, for instance, do we solidify our understanding when we reword Archimedes' Principle that a floating body is buoyed up by a force equal to the weight of the displaced fluid (a boat floats because it is supported by an upward push of an amount equal to the weight of water that is equivalent to the amount of water that the boat replaces; more wordy this, but it has the advantage that this can enhance our basic understanding). Using this process you make the fact "your own" and the more explanations you can derive, the more solid is your comprehension. Saying the same thing over and over is not as useful as saying something in multiple ways (but be on guard not to shave the truth of the matter). Be aware that knowledge, strictly speaking, is an accumulation of verifiable facts, albeit some facts are more verifiable than others. This can be a detriment to a salubrious (favorable, healthful) society. One of the beauties of science and engineering is that these subjects are more verifiable than the social sciences (at least to my way of thinking). Knowledge is strength, the strength derived from learning, and at its most fundamental, knowledge is understanding the knowing.

AFTERTHOUGHTS: The preceding discussion of knowledge is a neat segue to a very important subject, namely, schooling. In fact, it might be the preeminent problem of our time. To quote the beginning of the Boy Scout Law, "On my honor I will do my best to do my duty to God and my country. . . ." It is the youth of our country who are the torch bearers of how this country will proceed, for good or bad. This in turn naturally leads to the subject of schooling, i.e., learning. If the schools do not generate a high level of students the country will have a tough slog ahead. Thus, why are those who are sincerely concerned with the level of learning, and acquisition of useful knowledge, that is being acquired by the country's youth? It is my contention that the level of learning is in direct proportion to the level of INTEREST a student has for a subject at hand. To my way of thinking one learns in direct proportion to the amount of INTEREST one has for that subject. It is the "sine qua non" of all learning. If one shows a desultory attitude toward the subject being learned the subject will not be learned. It's as simple as that. Unless and until the student develops this "love" of the subject at hand there will be essentially NO learning acquired. Q.E.D. Money will essentially be wasted almost in its entirety. Teachers will be "spinning their wheels" and the country will be at risk. In my case, during the war I was fascinated with the new technology as was such as gun fire control (servomechanisms and radar), communications and the like. I scoured publications to learn more. I kept this up until I finally made the decision to go back to school to do it right. That is, I went to a local college full time to earn a degree in electrical engineering. This was not easy since I had to take a very heavy schedule (I was an economics major previously). But there was no way that I was not going to see it through. And what was the impetus? Say it in unison: INTEREST!

EXTERNAL ACTIVITIES

The Antietam spent almost all of its time in the company of the U.S.S. Boxer or the U.S.S. Bon Homme Richard, both of which were also Essex-class carriers. Each carrier had two escorting destroyers, ostensibly to pick up downed flyers. Since we were at sea for about twelve of thirteen months, we had to refuel the destroyers while underway (at sea). (That one month not at sea was accounted for thus: three liberties (12 hours each) in Tokyo/Yokosuko; two liberties in Hong Kong; one liberty in Manila; one liberty in Tsingtao, China; one liberty in Guam; one liberty in Saipan; and the rest of the thirty days were spent at Pearl Harbor.) Back to the refueling. We'd do this between flight operations. It wasn't that often, but when we did, it was always an interesting occasion. Lines were shot to the destroyer from the hangar deck level, which led to ropes being drawn to the destroyer, which in turn led to fuel hoses being pulled to the destroyer. It would take about one-half hour to accomplish this refueling process. Then the other destroyer would come along side and the process was repeated.

Then there were times when we, the Antietam, needed fuel oil and/or aviation gasoline. This is when ocean-going tankers would come along side, and the process was repeated in reverse. Astute seamanship was required, for sure.

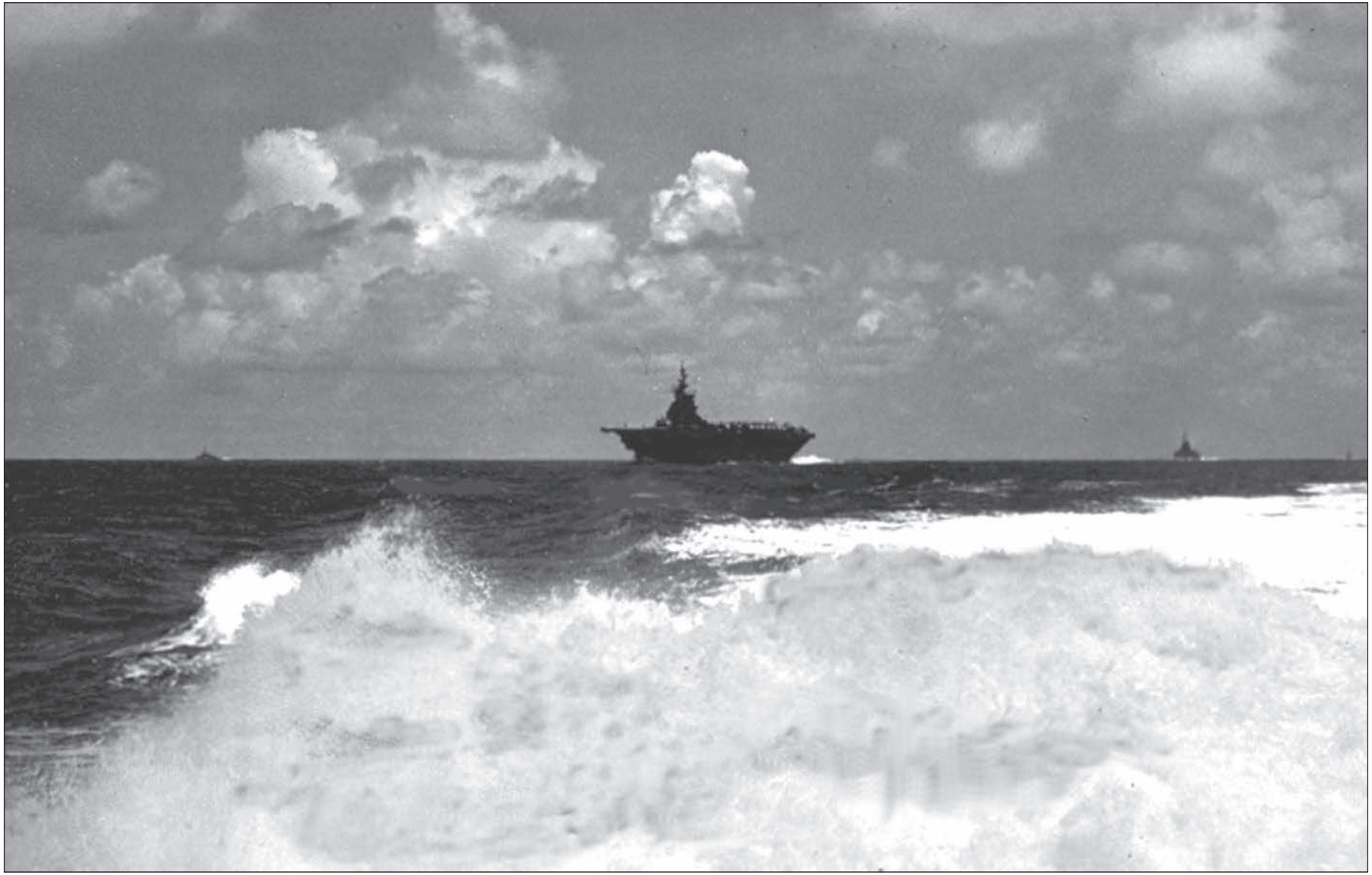
Not only did we need fuel and aviation gasoline, but we also needed replenishment of bombs and rockets. Nets were used here. Nets were also used when a supply ship came out to provide us with food and general provisions. One of the advantages of being on a carrier was that there was always something going on. If it wasn't flight operations (launching and landing), it was respotting the deck. If it wasn't either of those things, it was watching the refueling/replenishment process. If it wasn't those things, then it was watching gunnery practice. And when that was over, it was watching the aircraft mechanics repair aircraft or aircraft engines. And finally, if that wasn't going on, then there were the red-shirted ordnance men loading aircraft with bombs or gassing up the aircraft.

But finally, when the day was done and the evening was come, I would go up high into the deserted island superstructure, look out over the vast ocean and just let my thoughts range over whatever. Very often, it was of home and what it would be like when I returned, should that day ever mercifully come. Now that was the ultimate "external activity."

FULL SPEED AHEAD, DESTINATION UNKNOWN

Here we go, "Anchors Away," to places unknown, to events and eventualities yet to be determined and with a fair-weather sky to lead us. The churned up water says we're in a hurry to get where we're going. That's a big ocean out there where a lot can and does happen. So it's "Anchors away, farewell to 'college' joys." It looks like a fairly choppy sea, and with probably a fairly high ship-speed, the flight deck will have a fair amount of pitch and roll and heave. This could present some problems during flight operations, both for the aircraft (and pilots) and the flight deck personnel. Such an unstable platform means problematic landings due to excessive bouncing (more later), and launches that skim the water. For flight deck personnel, unsteady footing often could be catastrophic if in the proximity of an aircraft under power.(I can remember standing back aft at the fantail, in the 40-mm guntub, watching the churning, "boiling" wake of the ship as it revved up to 30-knots, going with furious speed somewhere. It was "endlessly" fascinating to watch.)

It was always "Destination Unknown" (at least it was for us Airdales, scuttlebutt notwithstanding). Thus "there was always the possibility that just beyond the horizon there lurked an enemy force ready to engage us". [Naturally the Air Operations people would have known of such a thing and have had the General Quarters sounded (but what did the Airdales know? However we all know that the unknown can be pernicious. I personally do not subscribe to the notion that what you don't know won't hurt you. I feel obliged to say here and now that it's my firm belief that there can be no such thing as "democracy" or even "freedom" and "liberty" without a fully and correctly informed electorate.] At the other end of the spectrum concerning the far horizon there was an entirely different emotion: At day's end, in the early evening when all were down below in their compartments, I would go to the upper lookout chair where I'd ensconce myself. All was quiet, all was blessed solitude. It was then at day's end that I would gaze out over the vast expanse of the ocean and wistfully think back to places far away not that long ago. My wistful thoughts took me to were my heart yearned, far, far over that dimming horizon. This was the perfect time to recall that song titled "Beyond The Blue Horizon" and the future song "Somewhere Beyond The Sea". As has been said, hope springs eternal in affairs of the heart. This is not a bad thing if it is handled judiciously. The "girl back home" syndrome has kept many a pining serviceman "afloat" after times of stress. The hope may be misguided but it does help to maintain and sustain one's sanity, or should I say one's will to go on. Each has one's own way to cope.



"LITTLE BOY", THE CARRIERS' CONSTANT COMPANION

This ship most likely is a Fletcher-class destroyer, of which 175 were built in a two and one-half year period. Their prime function was to engage in anti-submarine warfare (ASW) and anti-aircraft warfare (AA). They would form a picket around the carriers and battleships and cruisers because of their ASW and AA. During non-combat periods they steamed in front of the carrier during launch operations to pick up the pilots who weren't able to become airborne, and during landing operations they steamed behind the carrier to pick up pilots who, for various reasons, crashed into the sea. Their popular name was "little boy" in Navy lingo, and "greyhounds of the sea" in naval novels. The Fletcher's top speed was 38 knots, five knots faster than the carriers and the battleships. Its armament was four 5-inch guns (AA), two quadruple torpedo tubes, twenty-eight depth charges (ASW), and three single 20-mm guns. This armament varied from ship to ship, and usually incremented from that just enumerated. The Fletcher-class had a displacement of 1,700 tons and a length of 365 feet. During the later stages of the war this class was fitted with various kinds of search and fire-control radar, and various communications gear and antennae (and all the electronic gear internal to the ship, including a CIC (Combat Information Center). Books have been written about a ship-class (destroyers, cruisers, battleships, carriers) and reading them puts one in awe at what a marvelous construct a Navy ship is. We had destroyers accompany us wherever we went: two were assigned to us and two were assigned to the U.S.S. Boxer (CV-21) that was paired with us (sometimes it was the U.S.S. Bon Homme Richard (CV-31), and after the war, the U.S.S. Intrepid (CV-11)). In some ways the destroyer was the epitome of what the Navy was: a fast, sleek "greyhound of the sea". There are no doubt better pictures of destroyers, but I included this one because it looks just like an 8-inch wooden model I was given when I was about ten years old. I thought it was "really neat" at the time, and I spent time "riding it over the bounding main". I wish I knew what happened to it. (I can remember enjoying those little destroyers "scooting" around (actually "dashing" would be more nautical) somewhat like a frisky wooden model of a destroyer I had when I was a boy.)

The assigned responsibility of the destroyers that accompany the fleet carriers is to protect those carriers. The protection includes threats from overhead and underneath against submarines. This concept of responsibility unfortunately seems to receive short shrift by too many in our society. The theme of "Rights" is rampant and under suitable circumstances this is fitting and proper. However it unfortunately seems to have taken on the attributes of a swan song, even a cult. There should be no such thing as a person's "rights" without a commensurate emphasis on a person's responsibilities. The one goes with the other; the one is incomplete without the other. A nation will never be great if the reality of "responsibility" is not met. Indeed, "responsibility" should trump " right" each and every time. If not, we shall not be called great, we shall not prosper. There are too many who consider this responsibility onerous and "a drag" to their self-centered wants. It is dangerous to a society that is made up of a people who "want" to the exclusion of contributing to the general welfare. Do they not realize that in their efforts promote progress they are at the same time promoting their own?

"LITTLE BOY" SEARCHING FOR THAT SUBMARINE

This could be a situation where the destroyer made a sonar contact with an enemy submarine and has cranked up its engine's RPM to flank speed to intercept it before it could reach the carrier. Navy protocol, both friend and foe, was to "Get the carriers!" This was obvious because it was the carriers' aircraft that will hurt you the most. The United States lost some carriers at the beginning of the war due to enemy submarine action, and although they were always a threat, no Essex-class carrier was ever sunk due to enemy action. This is certainly a tribute to the stalwartness of the ship itself. In any event, these destroyers were always on the alert for submarine incursions (as well as enemy aircraft attacks). As it turned out, these destroyer-pickets suffered serious losses due to Kamikaze attacks, both in damage and outright loss (sunk). The picture here shows a newer type destroyer, as witness it dual 5-inch gun mounts. It's hard to imagine that there are personnel inside that gun mount (loading the projectiles). When a 5-inch gun on a carrier fired, you could feel the whole ship shudder. How could a little ship like this destroyer survive something like that? So the impression presented by this picture is that this "tin can" (a Navy euphemism for a destroyer) is racing off into that big, wide expanse of ocean in search of an enemy that's concealed and bent on doing fatal harm. (What a juxtaposition with those nice fair-weather clouds overhead!). I can remember sometimes sitting "up stairs" on a beautiful day such as this one, when nothing else was transpiring below on the flight deck The beautiful cumulus clouds would "quench the soul". (These moments that have been referred to these last several pages were of necessity relatively few and far between. It was a matter of seizing the moment(s) when it was possible to do so). "Seize the moment!" , grab hold the opportunity, for how long will it remain? Yet what might happen if one were to move too precipitously? What gainsay hot haste? How now a glib response? Will deliberate delay save the day? It just happens that an accumulation of valid knowledge will stand you in good stead in such circumstances. There's no denying this true maxim. (School isn't such a bad idea after all.) While school isn't the only recourse, it's certainly the best first step in realizing one's future to one's benefit and the best way, perhaps the only feasible way, of gaining the proper perspective on life is through school. The simple secret of accomplishing a satisfactory passage through school is to develop an abiding INTEREST in things about you, especially those which are being given to you through the efforts of a lot of dedicated teachers who have your best interests at heart. While I'm not a betting man, I'll wager anyone that what has been stated above is your ticket to a life more satisfying than one devoid of the knowledge gained at school. My decision to to seek out the lookout's chair was an easy one. Yours will not be so easy because of the many choices. Choose well.

As this destroyer accelerates it appears to be fulfilling its responsibilities. If nothing else one should feel good about oneself when fulfilling one's responsibilities. Consider this: If you do fulfill your responsibilities you will, if even subconsciously, know that you are doing the right thing which in turn means that the "world will be a better place". Now who would not want to live in a better place? As they say "QED". This may sound somewhat smug but if it's true, who cares? I for one would certainly rather live in a better place. Responsibility connotes doing the right thing, especially when under stress (what is "right" is a large topic in itself).This is made very clear when at launch time the Airdales are to pull the wheel chocks. There was never someone telling them what to do and when to do it. No . The Airdale had the responsibility to pull wheel chocks. So he did so.


696

"BATTLEWAGON" ON THE PORT BEAM

This picture shows one of the Iowa-class battleships. There were only four of them in this class, and these ships were the last battleships to be built, worldwide. Even the cruisers (one is seen in the background) are extinct. Ships of these sizes are the "dinosaurs", and have been replaced by the smaller frigate/cruiser class. No more big guns, only missiles. Those big 16-inch guns of this battlewagon (Navy lingo) were used prior to troop-landings, and seldom, if ever, against other ships. The aircraft, from the carriers, took the place of those 16-inch shells. In addition to the big guns, a battleship was bristling with 5-inch and 40-mm guns for protection by putting up a shield against enemy aircraft. Notice the seaplane back aft on the battleship. It was used for purposes of searching for the enemy. But if it was in the company of a carrier, it probably wasn't used. And to retrieve the seaplane, the battleship had to come to a stop. In wartime, no ship ever wants to stop. Finally, the main reason I included this picture was because of its stark silhouette, a "thing of beauty". And again, we (the Antietam) were never in the company of a battleship. There weren't that many around (?) (I can remember seeing pictures of these behemoths, but I never saw one for real. Being a training ship, we "didn't need protection". But who's to say what lay just beyond that horizon?) Man-of-war or not, she's a beauty. Speaking of beauty, this is the Cherry Blossom Festival week here in Washington, DC. They are delightful when in full bloom as they circle the Tidal Basin at the Jefferson Memorial. These trees were the gift of the Japanese peoples long before the outbreak of hostilities as depicted partially in the pictures of this book. The trees represent the quiet dignity of the old Japan before the advent of confrontations that upset the peace of the world. To me that quality was exemplified by two young women from Japan, in modern garb to be sure, but nonetheless they reflect the quality of grace and dignity. They both participated in the 2006 Olympics, one as a Ladies singles ice-skater and the other as a pairs skater. The former won the Gold Medal by a large margin and the latter performed with great credit accomplishing a jump never before done in Olympic competition. They were both enthralling, an elixir to the soul. Their beauty and grace, with strength, their joyous composure was sheer delight. How could one possibly resist falling under their spell? Two Japanese women, Shizuka Arakawa and Rena Inoue, turned night into day. As was said, "the world will never be the same". The tradition of the gentile lives on through two Japanese women who gave us superb beauty and grace on ice. l will be forever in their debt How can anyone resist having our better nature addressed? I feel remiss in that I probably embarrass them. I apologize as I bow in deference to their beauty.

POWER. That is what this picture shows. That's all well and good when power is used for "good" purposes. The most of us would certainly agree to that. The problem is deciding what is "good". It is even more of a problem when there are multiple ideas as to what is "good", almost as many as there are people. A robber thinks it's good if he can rob a bank without being caught. An appropriate start to this conundrum would seem to be to do that which is best for the most people. However, what if most of the people think that it would be a good idea to do something demonstrably harmful to the minority? In other words, what of minority rights? How reconcile this? Are decisions always going to leave one party disgruntled? If both sides are honorable this should not be so. This then begs the question as to the meaning of "honorable". An honorable person fulfills his responsibilities with no hint of being "put upon". To do your duty, in the service or not, with quiet resolve is to represent an honorable person. To do your duty under stressful conditions is to be honorable. To suffer loss when enduring hardship in the name of what is right and correct is to be honorable.

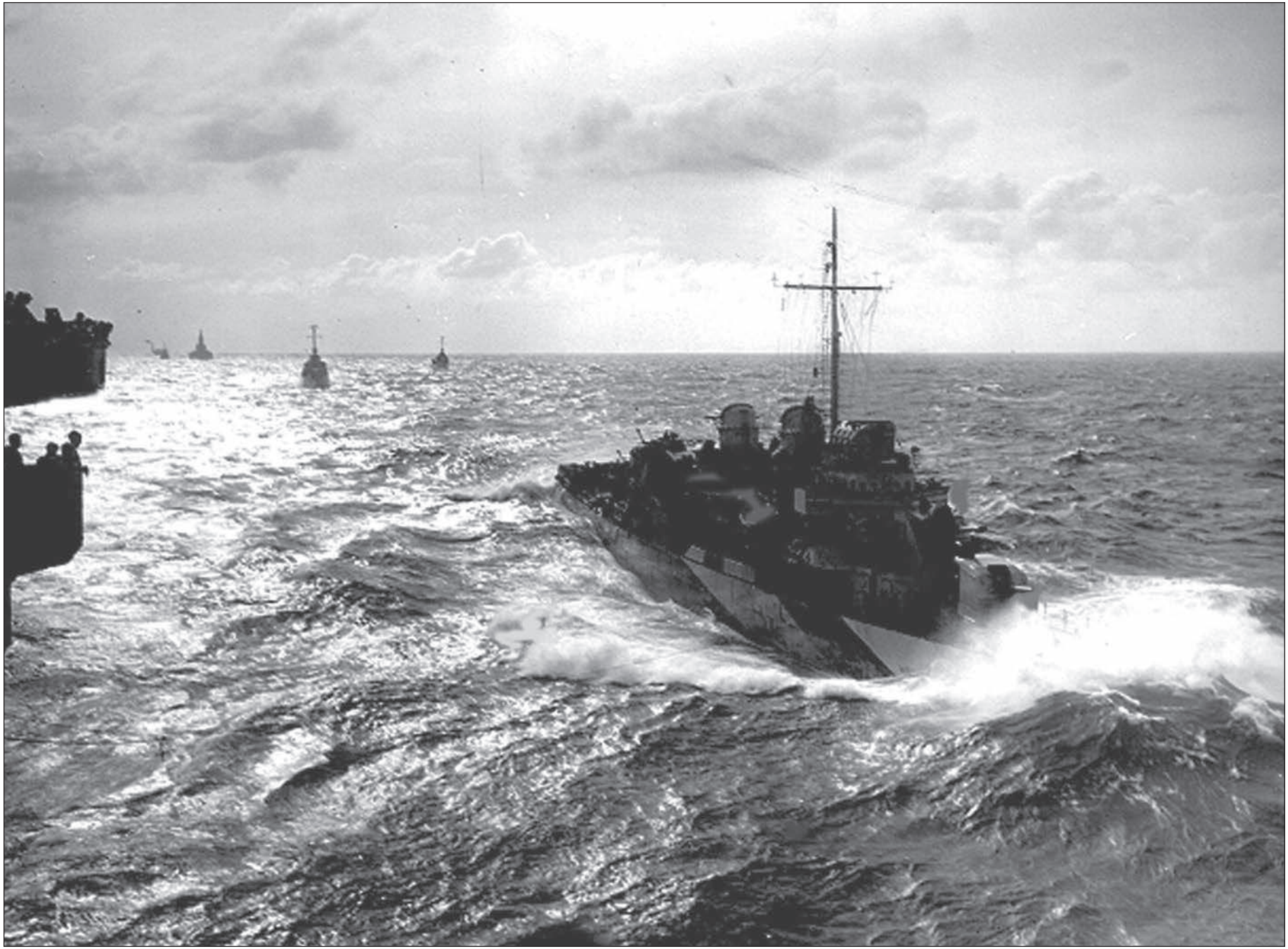
BATTLEWAGON SEEN FROM THE HANGER DECK

The "same" picture, but without backlighting. Those are probably hanger deck Airdales, or else aircraft mechanics. They're probably taking a break from working on some aircraft so that they can look at a battleship at fairly close quarters. The hanger deck is the aircraft maintenance area, and there was usually some kind of work going on, whether it was engine repair or structural repair or electrical repair or..... When the mechanics tested an engine by firing it up, and then revving it up full blast, the reverberations in that enclosed space of the hanger deck were, well, earsplitting in spades. Being topside most of the time, I was spared these insults to one's composure. When I was able to get down to the hanger deck, especially in the evening when most of the work was done, I was properly impressed with what these mechanics of such "tender age" were doing. And it also occurred to me that there was a lot of satisfaction to be gained by working with your hands. Turning now to the deck, it consisted of six inches of steel, thick enough to stop most all of the bombs that go through the flight deck. Also shown is a railing on which the sailors are leaning. This railing is about 30 feet above the water. The bracing above the heads of the sailors support the netting that goes around the sides of the deckedge elevator. The netting serves the purpose of a safety net. Also, although it isn't noticeable, there's a rolled-up steel screening just below the deckedge elevator. Its purpose is to enable the ship to be "light-tight" at night and also to keep the water out during heavy weather. Referring now to the battleship, it can be clearly seen that it has two seaplanes and a crane for picking up the seaplane when it returns from its reconnaissance flights. These excursions were not necessary, of course, when in the company of a carrier. You'll have to admit that she has nice "lines", if also somewhat intimidating ones. This was the ship (U.S.S. Missouri) on which the surrender was signed, and peace was finally at hand. I can remember standing there, looking out at the tanker or supply ship along side, but never was there a battleship there. Too bad. And yet, being able to observe the activity of taking on supplies from a ship while underway was always a treat. Realize, to observe and to be observant are two different functions (these are not functions as used in mathematics). The former function is usually passive while the latter one is active. Your being observant is an attribute well worthwhile not only for the increased enjoyment derived but also because your knowledge is increased (we've already mentioned how important it is to have a solid accumulation of knowledge). However, are your observations registering in a meaningful way, even if you're taking an active interest in what you observe? If not, the observation is merely another image in the passing array of essentially useless data. The mind can be a processor just as surely as is a digital computer: as with a computer, if the data input is useless and unclassified, so also will any output. Sad this, absorbing useless data that could well be useful. What should be done is to "ring" the input data with previously held data which in turn helps to assimilate the present input data (are we treading on shaky ground to compare the human mind with the processes of the hardware of a computer? Those in the computer neural network field don't think so). Perhaps I'm being too critical here since I was compelled (in my estimation anyway) to be hyper-observant of everything little thing that occurred in and out of my purview. I realize that this will seem incomprehensible, yet true nonetheless. In short, I highly recommend that one sharpen one's powers of observation not only for added enjoyment but also for added knowledge. You'll be glad you did.

DESTROYER MAKING WAVES

The greyhound of the sea, plowing through heavy seas. The carrier could handle heavy seas in a more modulated way than could the destroyers. The period of oscillation of a carrier's motion was 2-3 times that of a destroyer. In really rough weather you'd look out at the destroyer and sometimes it would disappear in the trough of a wave. Those on the "tin can" were the real sailors, in my book. This destroyer is coming alongside the port side, so there'll be no transfer of anything. Why they're doing this I don't know, because the carrier's bridge is on the starboard side. Thus, there'll be no talk-between-ships using megaphones. This picture is taken from the deckedge elevator, so what is seen on the left is a gun sponson below and the port side catwalk aft above the gun sponson, fifty feet above the water. Since we had these "tin cans" with us all the time, I obviously have been featuring them. I can remember these "greyhounds" slicing through the seas as they approached us. It was fascinating to watch as they pitched and rolled, heaved and yawed all at the same time, making one wonder how in the world could they shoot down a target as it moved about in 3-dimensional space. Some protection! The instability of the gun-platform brings to mind the three requirements of any automatic control system such as our automatic machine tools industry (those "first principles" of our economic infrastructure): stability, speed of response and accuracy. Stability implies reliability, and without reliability there can be no satisfactory social infrastructure. It's a "first principle" of the architecture of a stable society. A first cousin of reliability is the quality of consistency in thought and manner. This of course does not mean that one's actions and thoughts be cast in concrete although one must be careful when exhibiting the motto, "variety is the spice of life". To the extent that things are done within the confines of one's basic principles, fine. Stability of character is reassuring while stability of demeanor is moot (subject to discussion, as should be everything said in this that is not related to these pictures).

Just as this destroyer plows diligently through the seas so too should we be willing to exert full effort to those things that matter. So what matters? Doing your best at all times matters. The reason it matters is that there can be little improvement without it. They say that the most worthwhile things in life are those which require the most exertion. (I wonder: does falling in love require exertion? That's a trick question.) One thing that can be said is that the more you exert yourself to achieve a desired result the more you appreciate the result when you succeed. "How sweet it is" when, after much hard work, you accomplish that which you wish. A simple example can be found in the satisfaction obtained when you rifle a shot down the line and hit within inches of the corner of a tennis court. This does not come without hours of sweat and persistence. The better you play the more you enjoy and few of us can become better without the work of practice. Here one gets that for which one worked, in proportion. Satisfaction comes in many forms and many ways with one of the most satisfying in a job or activity well done. The better done the more satisfaction. Obviously playing the piano clumsily is far less satisfying than rippling a tune off with panache. Now be honest, isn't panache more fun than clumsy? Get a life!



THE NAVY HYMN

"Eternal Father, strong to save,
Whose arm hath bound the restless wave,
Who bidd'st the mighty ocean deep
Its own appointed limits keep;
Oh, hear us when we cry to Thee,
For those in peril on the sea!"

I can remember, during a heavy storm when most all of the aircraft were sent to "the beach", watching the flight deck undulate several inches every seventy yards or so. This flight deck wave-motion was what was supposed to happen during rough weather such as shown here. What puny mortals we tend to be when given up to the wrath of the willful sea. We quickly come to know how insignificant we humans seem when matched against the might of the restless ocean. The uncertainty inflicted on us upon the roiling sea does seem to call forth the practice of piety. Yet why must this be only when in a condition of duress? Could it be that there are those who will resist to the end the "weakness" of submitting to the requirement to call for help? It requires internal resolution by those with this problem. As has been said, pride goeth before a fall. A certain pride stands one in good stead the aforementioned pride borders on the childlike. We must all know that there are things bigger than us and that there is no dishonor in seeking help. The issue is, and will remain, knowing when it's required. The help here discussed does not concern itself with the emotional problems that may arise Rather, they are the foolish ones such as not wanting to ask directions and yet there are those who feel stupid to do so no matter the situation.

One is not able to allay the thought that a typhoon (hurricane at sea) is but the manifestation of the wrath of God. It is truly a fearsome thing even on a large ship such as a carrier whose flat flight deck is exposed to the insistent gales sweeping unobstructed. Should an Airdale be on deck at this time to attend to the lashed down aircraft he would have to exhibit extreme caution as the deck pitched and rolled and heaved excessively. When we had our confrontation with a typhoon all the aircraft had already been sent ashore since we were fortunate enough to be near enough to land and airfields. Being the curious sort I ventured topside to experience the elements on the flight deck. It was not dangerous but it was a revelation as to the power of Mother Nature. I was cautious and took no chances. I am definitely not a daredevil and consider those who are to be irresponsible. It turns on whether one has good judgment or not and difficulty is not the issue. I suppose I look at it from the perspective of a good manager: What are the cost-benefits? Is what you're doing worth serious injury? Are you doing the foolish because you are trying to assuage low self-esteem? Think on it hard and consider setting a good example. At the same time it's realized that progress in large measure is based on someone taking a chance (financially or otherwise). However, wise is as wise does and recklessness is not in that portfolio. If your self-esteem is low consider well before you leap.

THE NAVY HYMN 2

"Oh Christ! Whose voice the waters heard
And hushed their raging at Thy word,
Who walked'st on the foaming deep,
And calm amidst its rage didst sleep;
Oh, hear us when we cry to Thee,
For those in peril on the sea!"

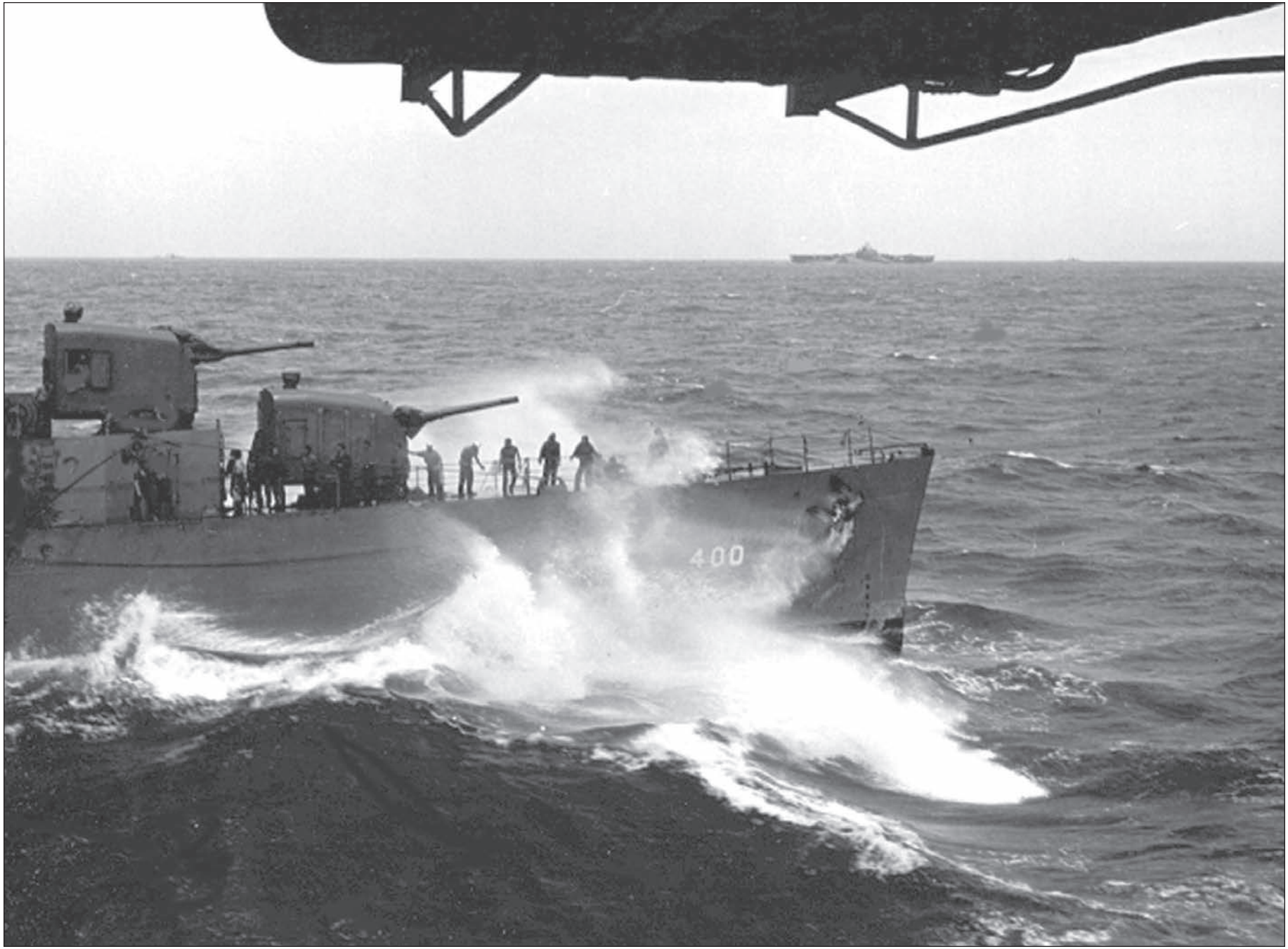
I can remember being topside during a strong storm so as to watch how well the destroyers were doing. I can tell you, "not well". There were times when they would almost literally disappear in a trough of the waves, and this from a flight deck fifty feet above the water. Being longer and larger the battleship and carrier are being pounded instead of tossed and turned. They weathered the storm though not without being thoroughly chastised by the immense power God had wrought through wind and wave. This leads to one of the themes of this book: can we as a culture weather the tendency of downward deviancy that a circumspect society should resist? Does character matter to a strong and vibrant society? Do we sink down into the trough of mediocrity? Is meritocracy a fiction? Is there such a thing as hedonism with restraint and respect? Will crudeness and coarseness prevail in a society of civilized people? Such conduct begets weakness of character and so weakness of the society. Can we weather the storm? Are we proud of ourselves? Questions can annoy while also being a wakeup call to be our better selves which in no way should impede our happiness.

I must confess that I am not strong on formal religion but I do feel an absolute resonance with the words of the Navy Hymn. The creator of those words was a master. In a way it is unfortunate that a great many feel no impulse toward the sacred unless and until they are pressed against the wall. Surely everyone should arrive at their beliefs unimposed and in their own way but also surely in some way it would seem that they would reach out to something that is greater than their wants and desires. Not many of us can be saints but we can all revere them, and thus be closer to that which we call "the Almighty". Surely we are all but tiny specks in the great scheme of things. When I was a youngster I went to Sunday school. I was not overtaken by what transpired but I did feel a sense of rightness (not righteousness). As I became older I went to church with my father and later with my wife and children (my mother, being French, was a Catholic and for some unknown reason I went with my father to the Congregational Church). I have since dropped out of organized religion with the point being that all peoples, from all parts of the world, if religious, seek the same God (I certainly consider myself to be in close touch with the sacred). It is my personal supposition, based on meager knowledge, that "all of God's children" believe in what is in fact the same God (under different names) and that all faiths are essentially the same (variations on a similar theme).
Also, I believe if you are an adherent of science you cannot not believe in an Almighty God.

DESTROYER COMING ALONGSIDE

With the U.S.S. Boxer in the background and the flight deck overhanging above, along side comes one of our destroyers for fuel. We, the carrier, did periodically provide fuel oil for our escorting destroyers. I'm not too sure why those sailors are where they are. They're performing no useful function. Maybe it was just so as to get a better view inside the hangar deck. To a purist, those on the bow of the destroyer were the real sailors, while we, the Airdales, were only sea-going aviation people, riding a usually fairly stable platform. I guess I'm harking back to that little eight-inch wooden model of a destroyer I had when I was ten years old. Now that was Navy! (Notice the flight deck overhanging.).I can remember when a destroyer came alongside us, we on the carrier would line the catwalk looking at them, and they'd do the same to us. Not much, if anything was said, because of the noise and distance between us. It was just a matter of something new and different. New in that their lives were quite different than ours, the Airdale. While we were aircraft-oriented they were the "salty" sailors of the first iron ships. Just so are differences found in peoples of one country and culture as compared to those of another country and culture. We strive, we should, to make our country and culture better than it is as do others in their countries and cultures. However, however we should in no way belittle those others because they are different. To the contrary, except that they are hostile to us we should seek to celebrate those differences other than societies depressed to the point of requiring support and sustenance. Here, whatever our political stripe, such does no one any good: in this day and age, what affects one affects all in one way or another. Would we care to have our direct neighbor verging on destitution? No. (I do not want to delve into political/religious subjects, but here the world is becoming too small to ignore our neighbors. While I believe in self-sufficiency, the Marshall Plan and the Japanese involvement were crucial to a better world for us all. Interference no, help yes, meddlesome, no.)

One could say that those sailors on the deck are there only because they want to feel "manly". It is also said that if a youth is old enough to go into combat in war they are old enough to drink "adult beverages" (alcoholic drinks). Never having the least desire to drink adult beverages (and never having had a drop while in the navy) I can only wonder at the proclivity to souse oneself. Is there some secret desire to "waste" oneself because one have no self-respect? No self-esteem? (I firmly believe that those who have a real, earned self-esteem will never do anything anti-social, and drinking to excess is definitely anti-social: Obstreperous behavior at a minimum and violence at a maximum (such as "murder' by drunk driving). I realize that there are those who say a small amount of alcohol is a medicament (but such is close to being degenerative). It's a sad thing that one can have a good time only by drinking and it becomes a tragic thing when that turns into an addiction. Let's face it: Heavy drinkers are weak, not manly. Heavy drinkers are self-destructive and self-indulgent. Heavy drinkers are stupid and a bore. Heavy drinkers are incapable(?) of shame and are a bane to society Not having been a drinker I suppose I am the least of those to talk of it. Maybe, but If I were such a person I believe that the best way out of that true predicament would be to find some (lawful) activity that I can embrace with gusto. Substitute the bad with the good, the good being captivating.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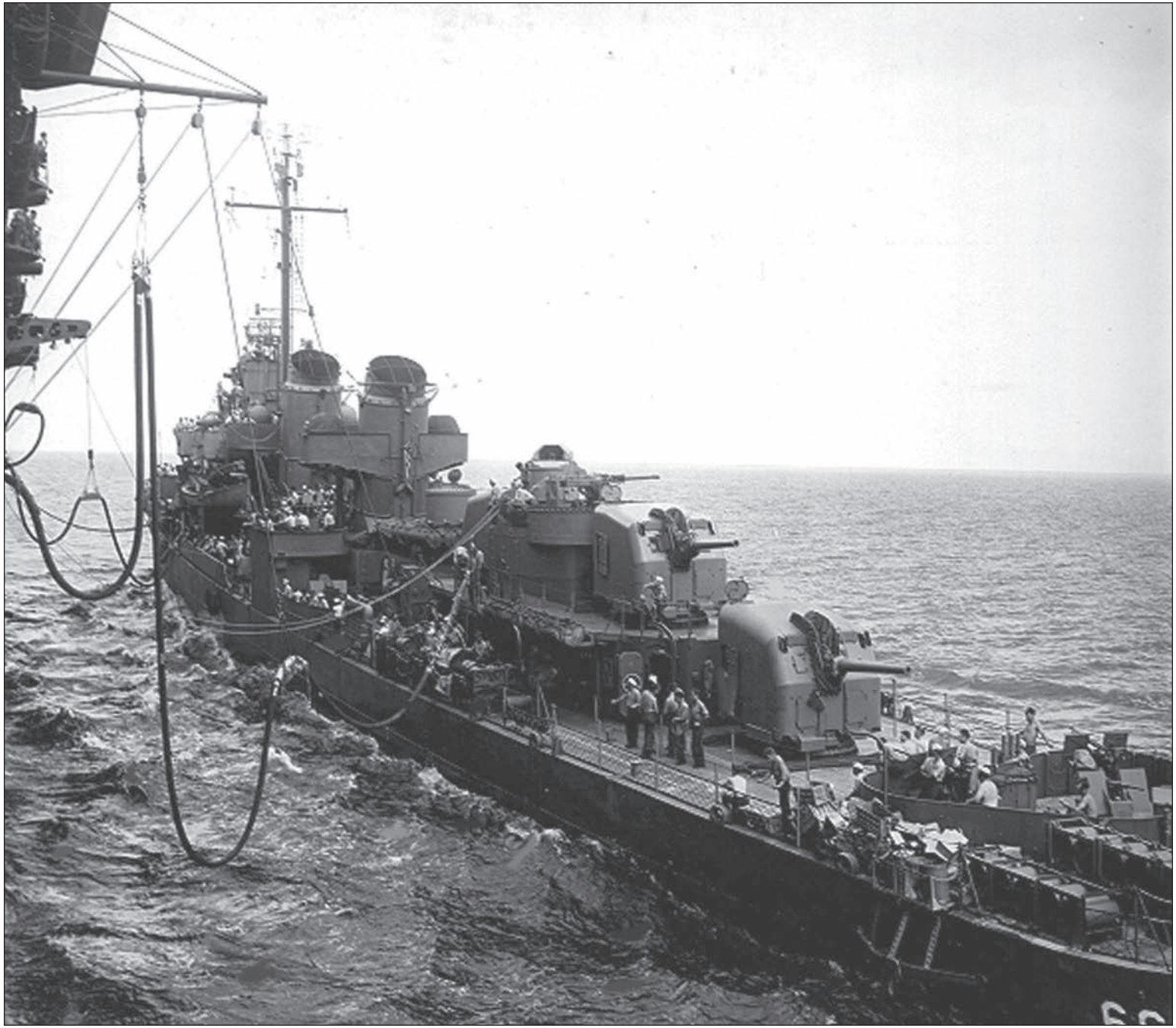
REFUELING TIME

This then shows the business at hand: take on fuel oil. To rehash, I believe you'd call those personnel on deck the "real" sailors. Certainly much more so than an Airdale. In fact, you could even say that a destroyer epitomized the "real" Navy. In heavy seas, this was what "sailoring" was all about. And I must say, to have been on such a small, "cramped" ship would have been, to me, a real ordeal. I can remember watching the replenishment crew on the destroyer lining up on the deck, rope in hands and running as hard as they could, pulling those large, heavy fuel lines over to the destroyer. All the work was done on their side; the carrier people only watched the show. In life, as has been said, too many "just watch the show". They don't engage, even if only intellectually. They observe but they aren't observant. For my part, ever since before my Navy days I've had to have been observant so as to maintain that even keel required to navigate around the shoals of my particular life. In my case part of that involved making room for some useful and necessary paranoia (encouraged by being isolated and alone with your tranquility under assault). No matter how much you ponder, and ponder, you can not reason how people can justify their actions (if they justify them at all). To take a positive note, notice how the big (carrier) nurtures the little (destroyer) as seen in this picture. Such as this metaphor rebalances the above comments. Part of this discussion concerns knowing what is of substance, and even of substantial substance (where substance refers to that which is of significant content of import). A certain amount of triviality in life is fine and recuperative, yes, but only as a temporary rest from what is substantial and important. Now then, just what is substantial and important? The more you learn the better able you are to answer that question. Is who wins the championship of substance? Perhaps to the participants. One measure could be the long-term impact of a given thought or activity. A book could be written about this subject; why don't you write an essay about it?

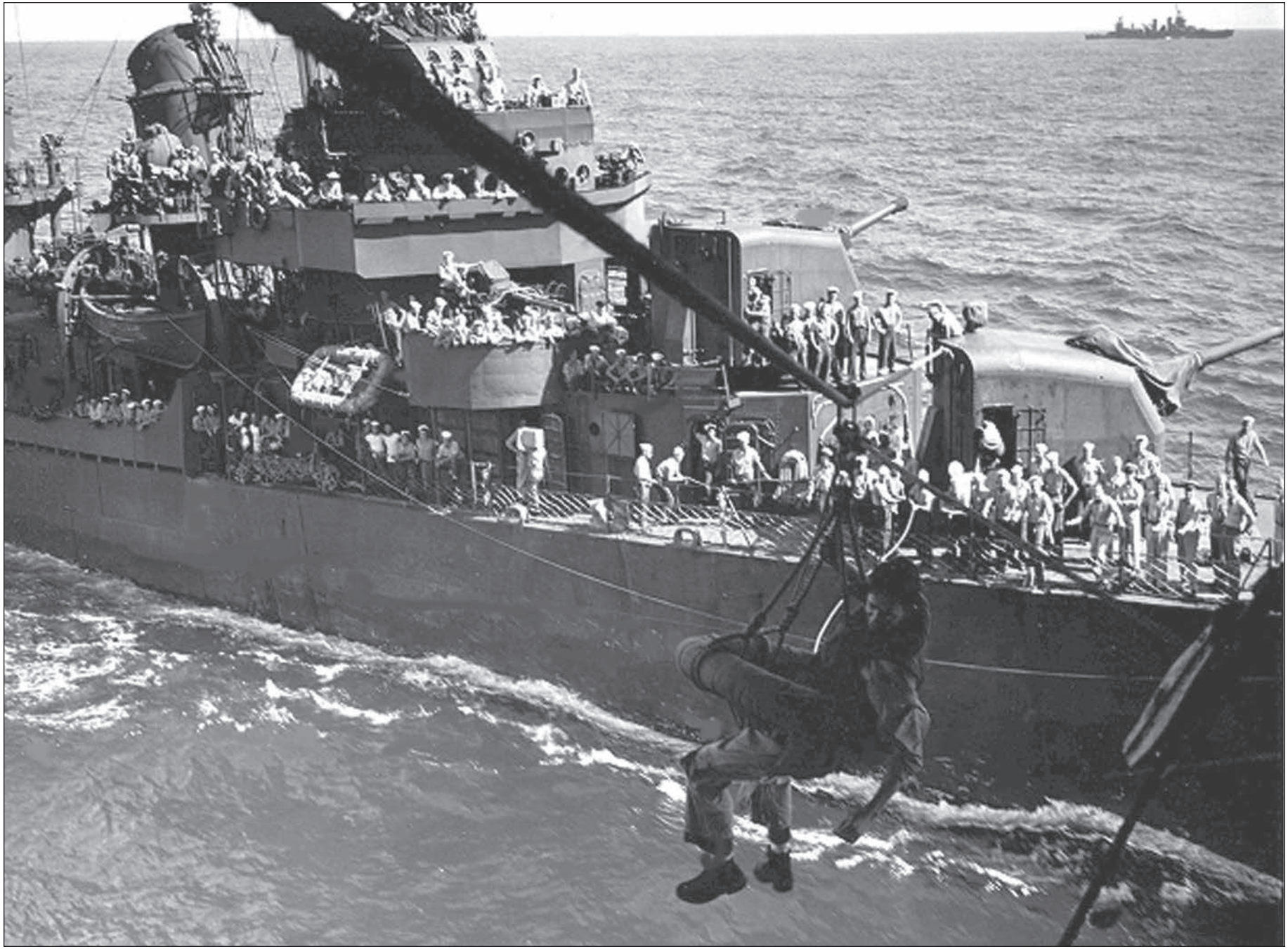
This destroyer moves along side the carrier to "get its periodic fix". In fact this is a slanderous way of putting it but it does allow for a segue to a very, very serious problem that parallels closely what was said on the previous page about that other poison, alcohol. Solid and injected drugs are no less pernicious. Well, actually they are more so, both to an individual and to society. They are destructive to all of us who come in contact with the takers of drugs. As well, the violence perpetuated by the purveyors of drugs is a. serious bane on society. To be charitable the takers of drugs are fools: why fry one's brain? Since this book is a "family book" I'll refrain from more colorful language. Why would anyone ingest a known poison? (and It certainly is a poison). It's more than unsettling when a supposedly sane person does an insane thing. (yes, "insane" is spot on). Why injure yourself? Why injure you family? Why injure society/ Why waste money? Why allow the vermin who sell drugs to do so? Why burden society with enforcement costs? Why corrupt the weak who buy drugs? (Yes, they ARE weak.) Why hang a yoke around your neck? Why be weak and give up the good fight? On second thought, and second thoughts are good, perhaps I've been excessively harsh. This does not exonerate bad behavior or soft-peddle the evil of nonprescription drugs. All it does is to recognize that some problems are more difficult than others and that I should not be sanctimonious.



AVIATOR RETURN POLICY

Now we see one of the two main reasons for having destroyer escorts: retrieving and returning downed pilots, as shown here, and patrolling and protecting the carrier against submarines and enemy aircraft. In truth, though, we (the carrier) had many more AA guns than they did. In fact, we had probably as much AA armament as did a battleship. I'll let the experts argue that. It looks like the entire crew is topside here. Who's running the ship? In a war area, this would probably not be done. Such an arrangement makes for too easy a target for the enemy, both submarine and aircraft. I can remember the occasional transfer of pilots who, for whatever reason, ended up in the water. It was pretty much the same procedure as when the fuel was transferred. There are some who would say that the transfer of fuel and supplies was more important than the return of the pilot but there is "nobody" who would say that the transfer of life is not the supreme concept (as this pilot who was pulled out of the sea is being returned to safety). This required the help of many people and is an example of helping those unable to help themselves. However, if possible, the credo should be to only help those who are able and willing to help themselves, no matter how much or how little according to the circumstances. To help yourself, to the extent that you can, is beneficial to one's self-esteem, that pillar of a salubrious (well-functioning) society. How can one have self-respect when applying less than your full energy to your situation? Wouldn't you feel ashamed if others did for you when you could do for yourself? Furthermore, I maintain that if a society consists primarily of those with a sound sense of self-respect there will be few interpersonal problems with which to contend. I have yet to have this disproved to me. Self-help and self-esteem go naturally hand-in-hand. Can you imagine a scoundrel having self-respect? (A scoundrel, one who is unprincipled, would for instance knowingly perpetuate a wrong). While the pilot here can't, this picture points up the concept of "only" helping those who help themselves.

Even though this pilot had to be retrieved from the ocean perhaps before he did so he accomplished a job well done (such as protecting his ship). This raises the question of accomplishments. It's a terrible thing to have gone through life without having accomplished anything worthwhile. At least that's how I feel about it (one could write a voluminous essay on what comprises "accomplishments"). We all set our own goals and for some the goals might be modest by others' standards. In any event, a large part of satisfaction in life is to have accomplished things that you yourself consider to be worthwhile. The higher the goal the greater the satisfaction when that goal is achieved. If the bar is set low the feeling of accomplishment tend to be low and so too the satisfaction. For most of us the optimum scheme would seem to be to set the goal just beyond our capabilities, each time the bar is set a little higher. We are in effect competing with ourselves, each time obtaining more enjoyment as the bar is raised ever higher. The higher the bar the greater the satisfaction. Thus it's not so much a question of bettering someone else but rather of bettering our self. That's the crux of satisfaction and accomplishment. [I would like to interject here that my comments on these pages are not meant to imply that "I have all the answers" Quite to the contrary. I am rather in the business of jarring the readers to confront these issues in a four-square manner. Self-contentment can be insidious and deleterious at the same time, so it's "wake up!" time.



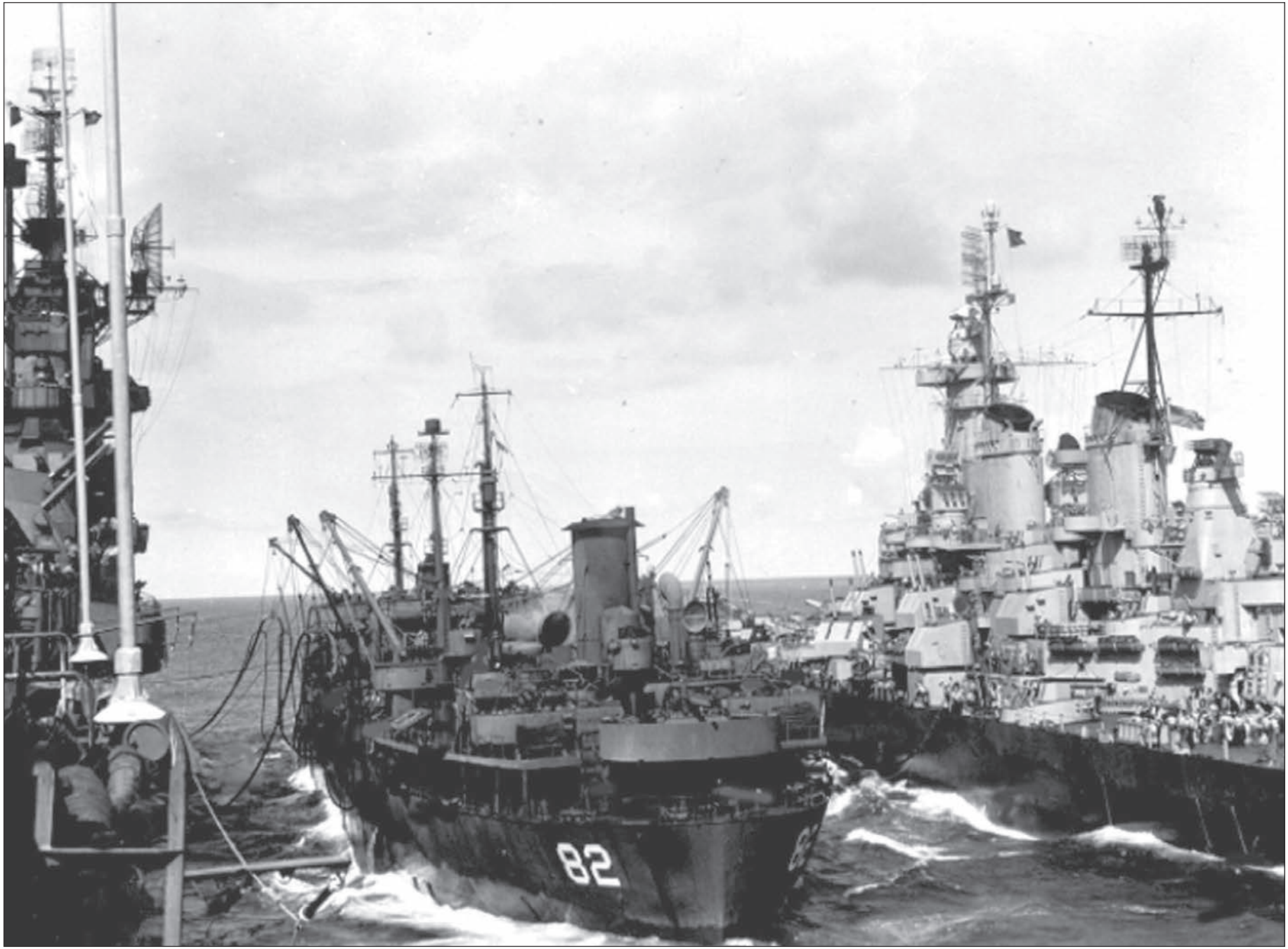
CARRIER ON THE LEFT, BATTLESHIP ON THE RIGHT

Eventually, even we run out of fuel oil, as does the battleship (of the Iowa-class, I believe). These tankers would just appear out of nowhere and pull up along side. In our experience, it was never a battleship on the other side, but rather, a destroyer. Apropos the previous page, notice the battleship is showing five dual five-inch gun mounts. So they have at least ten of them. But I think we had more 40-mm guntubs though. On the left of the picture can be seen two radio antennae, close up. We never had an occasion of refueling along with a battleship. In fact, we never did see a battleship while at sea. At Pearl Harbor, it was different. Since we always tied up at Ford Island, on the other side of battleship row, I was able to see the other ships of all types. Being on Ford Island meant we had to take a small boat to get to the mainland (and Honolulu and Waikiki Beach). But liberties were few and far between.

I can remember when, instead of the battleship, a destroyer would cut through the water and ease up to the starboard side of the tanker. It was interesting to see the tanker vacillate between the carrier on one side, destroyer on the other side, as all three ships plowed through the sea. This is a picture of cooperation underway, as well as service to those who need it and must be provided. Cooperation, and to some extent, service are the oil for the machinery of a properly functioning society. A prime example comes to mind when I think back to my thesis at college: the Benelux Economic Union which stated planning before the end of WWII. This union was the method of cooperation, economic, political and social, of Belgium, the Netherlands and Luxemburg. This could be considered the precursor to the present European Common Market, also a system of cooperation of contiguous people. Where there's cooperation there's strength whether between individuals or nations. To do otherwise is in the net self-defeating and deleterious.

Cooperation implies service and useful service requires cooperation: we are rightfully becoming a cosmopolitan world.

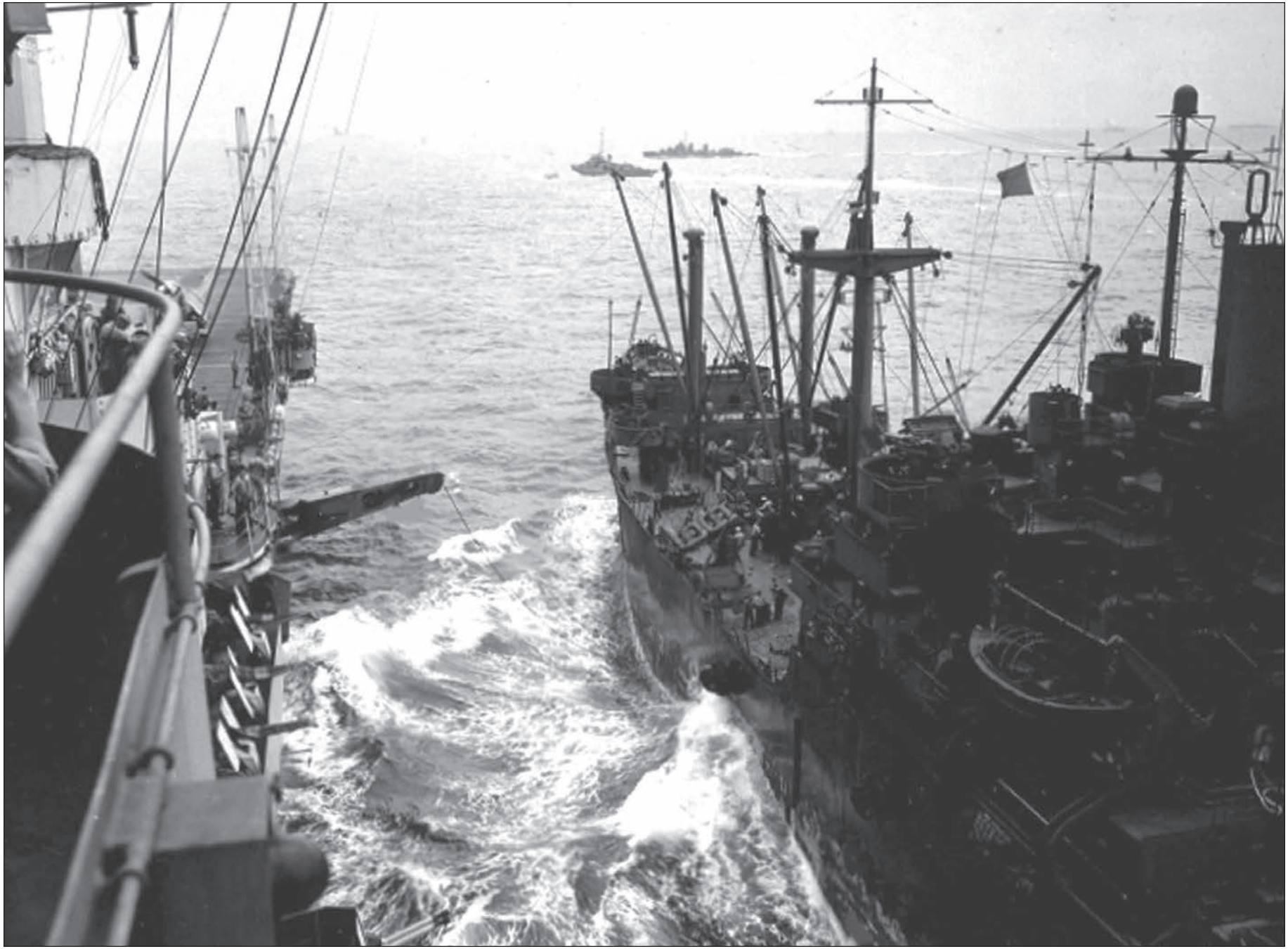
Consideration of others needs, that is what this picture signifies. At a minimum we should at the very least be aware of the plight of others. Without the attribute of empathy this would be an inhospitable world indeed. There is absolutely nothing weak about feeling benevolence for those less well off than we. Sometimes we can contribute to lessening others' woes, sometimes we can not. The latter does not excuse lack of understanding and sensitivity (this is a very powerful word). To be generous of spirit is to be human, and if not human then what? Not many of us have the wherewithal to rectify or help in a material way others but who can question that one would rather live in a world where others are happy? Consideration of others is the basis of a happy world. To the macho types I would say stop even for a short while thinking about yourself and your concerns. It will be ameliorative (beneficial). Honest. That brings up a whole new topic of honesty which deserves a chapter unto itself. One does not refer to "little white lies" here where flattery holds sway. No, here we speak of that honesty that breeds trust that in turn breeds affection and God knows the world it. My good and faithful friend Gemini attests to that.


82

BOMBS, NOT FUEL

This is a supply ship that has come out to meet us. They usually were bringing bombs and ammunition, but also at times some "housekeeping" supplies, including perhaps some food items, but most usually aircraft engines and parts. These were the "bread and butter" items. The lines (ropes) haven't been deployed yet, and because of the weight of the supplies (bombs and ammunition), a crane had to be used (notice the crane, on the left, extending from the carrier's hanger deck). Also note that because of the heavy loads involved, the ships are closer together than when a fuel ship, with its fuel lines, was alongside the carrier. I can remember being on the after-bridge, looking down on all the activities with this bird's eye view. I got a better idea of the teamwork involved in not only setting up the lines (hawsers, lines), but also the significant amount of work involved in "craning up" the cargo from the holds below. Teamwork. When one stops to think about it (and all of us should do more of it) one realizes that most all of life requires, nay, demands teamwork. I'm well acquainted with teamwork due to my participation in team sports as a youth. If nothing else this experience taught the full utility of working together toward a common goal. (At the same time I respect and greatly admire the courage of acting alone on your behalf with no one to turn to in sports such as skating and tennis. This self-responsibility calls forth nothing but admiration and is individualism demanding the highest respect.) Teamwork, in a way, also applies to countries. I for one believe that a nation without secure borders can not claim nationhood just as a nation without a required language seeks its own demise. "Give me your tired, give me your huddled ….." is all well and good under the proper circumstances, but without order and rules it will lead to descent and finally dissolution. Diversity is viable only under the umbrella of the assimilation of nationhood. Family, friends, compatriots, heritage are your HOME;: stay and build, augment and improve this land of your birth, and be proud of it. Half my relatives are proud citizens of France. So be it for all others who aspire to improve their lives, at HOME where the memories of youth and beyond are built on friendships and not living-standards.

The picture here represents a plan put into operation. It supports the purposes for which these ships were built. However, on a different level it also could signify that which seems to be woefully lacking in this self-centered society that seems to be overtaking us where there is not that sense of appreciation for our blessings. The blessings could be as mundane (but not simple) as having a grocery store well stocked and near at hand. The blessings are so many that it would take a book to elucidate them. We are immersed in them. Every day that we awake we should be grateful for even those things that seem inconsequential. How many of you could have survived during the days when the "West was won"? In the here and now, how many are appreciative of the thoughtfulness of others and make this known? Those who are self-centered seem to be incapable of being appreciative. Shameful! Appreciative, grateful, thankful, think on it. That's a dare For my part I am exceedingly grateful for all those technical people and engineers who have made of this society a place which most of the rest of use without a first thought. I'm particularly appreciative, and impressed, with those engineers who design the production lines that create the goods that so many take for granted. Bravo those who build bridges, etc., etc., etc.



FUEL OIL PLUS AVIATION GASOLINE

Here's a view from the catwalk. The catwalk was about fifty feet above the water, and the dimensions are clearly shown: cable handrail at waist height, flight deck at chest height, and catwalk with room for one and a half people. So a person passing on the outboard side was not that far from the water below, especially should the ship roll. For those who don't like heights, take notice. Down the catwalk are some 20-mm guns, some of the many. Notice the wave action between the two ships. It was most always there, and it was interesting to watch. As the ships proceeded forward, they (especially the tanker) would go though their usual motions of roll, pitch, yaw, and heave, but not in unison. So sometimes they'd come closer to each other, and sometimes further apart. It was almost like a slow-motion dance, and it required a "steady-hand" at the helm.I can remember standing right at this very spot, primarily watching the fascinating ebb and flow of the water as it would first "mount" the side of one ship, then of the other ship. The water confirmation and colors and transparencies were something to behold. This brings up the valid question: what is enjoyment? Here it of course refers to the enjoyment of the play of water, a very subdued form of enjoyment that probably would not appeal to most people (here too it perhaps is a reflection of seeking relief from the noise and tumult that is found on the flight deck much of the time.). On the other hand there are those who relish just such commotion. Fair enough. What is not acceptable are those whose enjoyment comes at the expense of others, the extreme case being the bully (either physical or non-physical). Part of this enjoyment derives from the lack of self-confidence born of a jealous nature. Now jealousy can be a palliative in that it inspires but when it's the result of lack of self-confidence, it becomes corrosive to self and society. Seeking, and gaining, competence in something will cure this very nicely.

The transfer of fuel oil and aviation gasoline was a periodic occurrence for the fleet carriers as they fought their way across the wide Pacific. These carefully orchestrated encounters brought the indispensable aid required to operate a wide-ranging campaign. Here was a case of a necessary transfer of goods. As I have already said I do not want to write about politics in this book (which book I consider to be timeless, not topical as are political matters). However, having said that, with conviction, I will on this page briefly consider a quasi-political matter. It has to do with aid and its disbursement. I have said before that it is my distinct opinion that giving people things has a deleterious effect on them in that they soon, too soon, come to expect it. They become dependent, a terrible condition as witness those on illegal drugs. Besides that it gnaws away at their will to fend for themselves , a lose that tends to be irredeemable. It also whittles away their God-given self-respect which in itself is a tragedy. It becomes difficult to hold one's head high when one is in effect on the dole. It saps their will. They lose gumption. They criticize when denied what others have worked hard to obtain. They become DEPENDENT. They become depressed, disgruntled and even abusive. They become a drag on society.

(continued next page)

A TANKER FEELS A CARRIER'S WAVES

Another picture of the wave action between the two ships. This static picture of course doesn't show the infinite variety of those waves. Not only were the give and take of the waves so interesting, but also the constant changing colors, from the pure white foam to all shades of the blues and the greens and the turquoises, sometimes opaque, sometimes translucent. It was fascinating to watch this wave-action between the interplay of the two ships as they rolled and heaved and yawed side-by-side. In a way, it was a kaleidoscope of motion and color, always different while always being the same. It was quite a show, especially with a bright sun shinning. And the spray that was picked up by the wind provided the salt-air aroma that added another dimension to the experience. It was a nice respite from the daily workday world. I can remember my admiration for the deckhands on the tanker contending with the power of the water awash. Here again the different nature of our respective jobs was clearly evident. They were the true "swabbies", those deckhands catching the sea as it was thrown up upon them by the larger carrier while we Airdales were a different breed up high and dry. Nations of the world are, again, different and unique one from the other due to place and heritage, making the world better and more interesting than if it were "homogenized". "Nation" implies a cultural heritage while "country" signifies a place. The differences between nations should be guarded and maintained as salutary attributes while the mild differences such as dialects and inoffensive customs which are found within larger nations such as ours give it a nice variation of character. Unique customs can be culture but the real defining aspect of a culture is its set of values as represented by a nations laws. It's a moot point whether customs reflect law or law reflects customs. In either case, the nation is stamped by its heritage and our heritage derives in large measure by the words and deeds of our "Founding Fathers" and the Constitution which they wrought. Fine-tuning , fine, but our heritage is our pillar of strength.

(continued from previous page)

This of course does not apply to the infirm, the elderly, the incapacitated, the indigent. The foregoing was said with the complete understanding that that society is best that is well situated. That is, to be blunt about it, it is to be devoutly desired to have a society made up of people well off financially. Who among us wants to live next door to squalor? The more pleasant the surroundings due to happy, contented, well-off people the happier we are (we're presuming here that there are none who have mental problems; all the mental problems due to lack of money will have been solved").

Thus we are all agreed(?) that the most felicitous society is that one which is populated essentially only by people well off. Now the problem becomes one of having available well paying jobs for everyone (this in turn presumes a well educated populace with most everyone willing and able to work in these jobs). From my perspective the most difficult problem we have is generating sufficient numbers of well paying jobs. It is here that we must stop hounding the employers who provide these jobs. Why in the world would someone want to kill the golden goose? (I must say that in my mind it is middle management that are the ones who make industry "sing" while the CEOs are way over the top salary-wise).

VARIATION ON A THEME

This picture adds no new knowledge to the subject of ship-refueling. But it does add a new image to those others that highlight the theme of ship-to-ship cooperation. Besides, it elicits fundamental visual emotions as the sea surges back and forth between the ships, changing, forever changing in color and texture, hue and saturation, from pure white to the azures and the deep blues and greens, forever changing its composition. Give your imagination free rein, and enjoy. I can remember being on the hanger deck, standing out of the way of the people doing the work, and noticing how quickly a finger-lift truck would take a load of supplies and scoot off down the hanger deck to a distribution point. From topside on the flight deck it seemed as if the efficient flow of supplies from ship to ship was due to the unsurpassed diligence of those working below on the hanger deck. However, it was the use of the fingertip trucks that were responsible for this apparent supreme diligence. Thus things were not as they seemed to be as is often the case in life in general). We can all take a lesson in this: don't jump to conclusions without just cause and which cause may be specious (deceptively correct) at best. Jumping to conclusions based on unsupported, invalid facts is a mistake made by us all at one time or another and it can be a grievous mistake at that. When the true facts reveal themselves more than embarrassment (should) ensues. Harm can be done to those who are faultless while the accuser "gets off scott-free.". Often the presumption turns out to be entirely wrong but the wrong has already been done. Giving a person the benefit of the doubt conforms with the law that says a person is innocent until proven guilty. This is part of the fabric of our culture and our heritage. Can we do anything less? Verity should be our watch-word in all things, personal and otherwise. "Look before you leap". This we should all know from childhood. Too many injustices are done otherwise.

For these two ships to meet in the middle of the wide Pacific requires adherence to impeccable scheduling. Scheduling is good, good for us and good for those factories of the previous page. People spend a life-time making time and motion studies of industrial processes. I schedule and you do too. However, to schedule the creative effort is an oxymoron. It can not be done and if it is done it is no doubt not a creative result. To be creative is usually to be quiet and reflective (though no doubt many a TV commercial has evolved from around the conference table as everyone noisily brain-storms" their free-flowing consciousnesses in a rousing free-for-all). My approach is quite different from the TV approach. I require quiet and a certain amount of solitude to put together thoughts that I think are cogent and with a modicum of good (correct, proper) writing that has clarity, succinctness, precision and that is seamless (easy to read). Sometimes it's easy and sometimes it is not (depending on the subject-matter). Creativity implies something new, something unique, something that requires new approaches or methods or ways of looking at things or ideas. Creativity can not be hurried but this does not mean that it can not evolve quickly. Consider Archimedes impulsive discovery of a floating body (which is buoyed up by a force equal to the weight of the displaced fluid).

"STEADY AS YOU GO"

I like this picture because it shows both ships while the water is very "attractive." On Sunday evening suppers, I'd take my sandwich up to the forward 40-mm guntub (you see the third guntub protruding from the side of the carrier), and have my supper there, on my "own private balcony." When the weather was good, this made for a very pleasant evening. You grab moments like these, because they're few and far between. Again, thoughts naturally gravitate toward home, toward what's happening at home, and whether "She'll be there" when I returned home. These were agonizing thoughts made bearable by evenings such as this .I can remember watching closely those on the tanker as they tried to maintain their status quo during a "water-incursion" such as this one. They seemed to manage, with difficulty, wet but no worse for wear. This picture provides a fine example of the reality of the interdependence required when conducting wartime activities in the middle of the Pacific Ocean. While I believe in the concept of individual independence and and self-reliability whenever and wherever possible there are certainly times when the conditions demand such interdependence as seen here. This picture can be a metaphor for the big and strong (the carrier) being dependent on the small and slow (the tanker) even in times of stress (the war). [Consider if you will the anxiety of those on the tanker vis-à-vis the submarine threat on approaching and siding along side the carrier. For that matter, conjure the devastation to be endured should a submarine catch both ships together. Fortunately, the aircraft are airborne now thus mitigating that situation.] To continue the metaphor, size is not the determining factor as to the worth of a thing, or a person, either actually or figuratively. One could even say that it is the small one, being small, that (who) tries harder and that essentially is the significant and important factor. Support, as shown here, is an integral part of our relationships and this is especially so as concerns a man to woman and woman to man. One without the other is usually a sad semblance of real happiness.

When these two ships were scheduled to rendezvous they could not be sure of the weather conditions. Except when the weather was too fierce the transfer had to be made. A carrier cannot operate efficiently with shortages. (Destroyers preferred a "full tank" as a means of ballast during rough weather.) This analogy carries over to life in general. We prefer optimum conditions in our lives but sometimes (too many times) we are bereft of the good times in our lives. We have rough patches just as ships have rough seas (see pages 44 and 46 for instance). I am of course not going to prescribe how to handle such situations but I can say that good preparation can be more than a little useful. It's not without cause that the Boy Scout motto is "Be Prepared". Be prepared for contingencies by understanding the dynamics of various situations. Knowledge of "how the world works" would be a useful tool in your kit. This in turn means that one should always be on the alert to learn more about what is happening around him so that he won't be taken by surprise by events. I certainly would not presume to advise in particular anyone at any time. However, the admonition to be prepared will stand everyone in good stead. If you will, it tends to cushion any shock that may arrive. My approach to this is to be constantly observant of what's going on around me. If nothing else, it's a good learning process.

A VARIATION ON A THEME II

It was many a time that I spent on the catwalk outboard the flight deck watching the "duet" of these two ships as they rendezvoused together out in the trackless Pacific. There was a pleasing fascination to the "effervescing" sea as it churned and surged back and forth between the ships, taking on the many hues and intensities from white to all the blue-greens. This action stirred up an invigorating wafting aroma across one's nostrils, never to be forgotten. If only we all were able to note and enjoy that which surrounds us. We see, and yet we don't see. For instance, I see the one ship "holding hands with the other ship" and it brings vividly to mind that wonderful day a couple of years previous when "my girl" and I were strolling down the lane and she casually took my hand in hers. That simple act generated such an emotional high that it remains with me to this day. The sensation was positively magical and delicious. [The mode today seems quite different and entirely misbegotten. Hormones today quite literally diminish and belittle and even destroy joy tomorrow.] Returning to the picture, the observant ones will observe (I.e., learn) that Mother Nature and her Laws are rampart here. For instance, can you imagine (I.e., learn) the thrill that Archimedes felt when he understood (I.e., learned) why a heavy object is able to float (a floating object is buoyed up by a force equal to the weight of the displaced fluid). There are so many manifestations of Her Laws that one can't help but be charmed by their "discovery" (I.e., learn). The wonder (I.e., learn) of it all is one of life's pleasures. One of our birthrights is the thirst for knowledge (I.e., learn). How many Laws (I.e., learn) can you find in this picture? I will make a bald-faced statement: All learning, that is all good and useful and difficult learning, is derived in the first instance from the genuine interest residing in the mind of an inquisitive person. Such learning is one of THE joys of life! Enthusiasm is the relish.

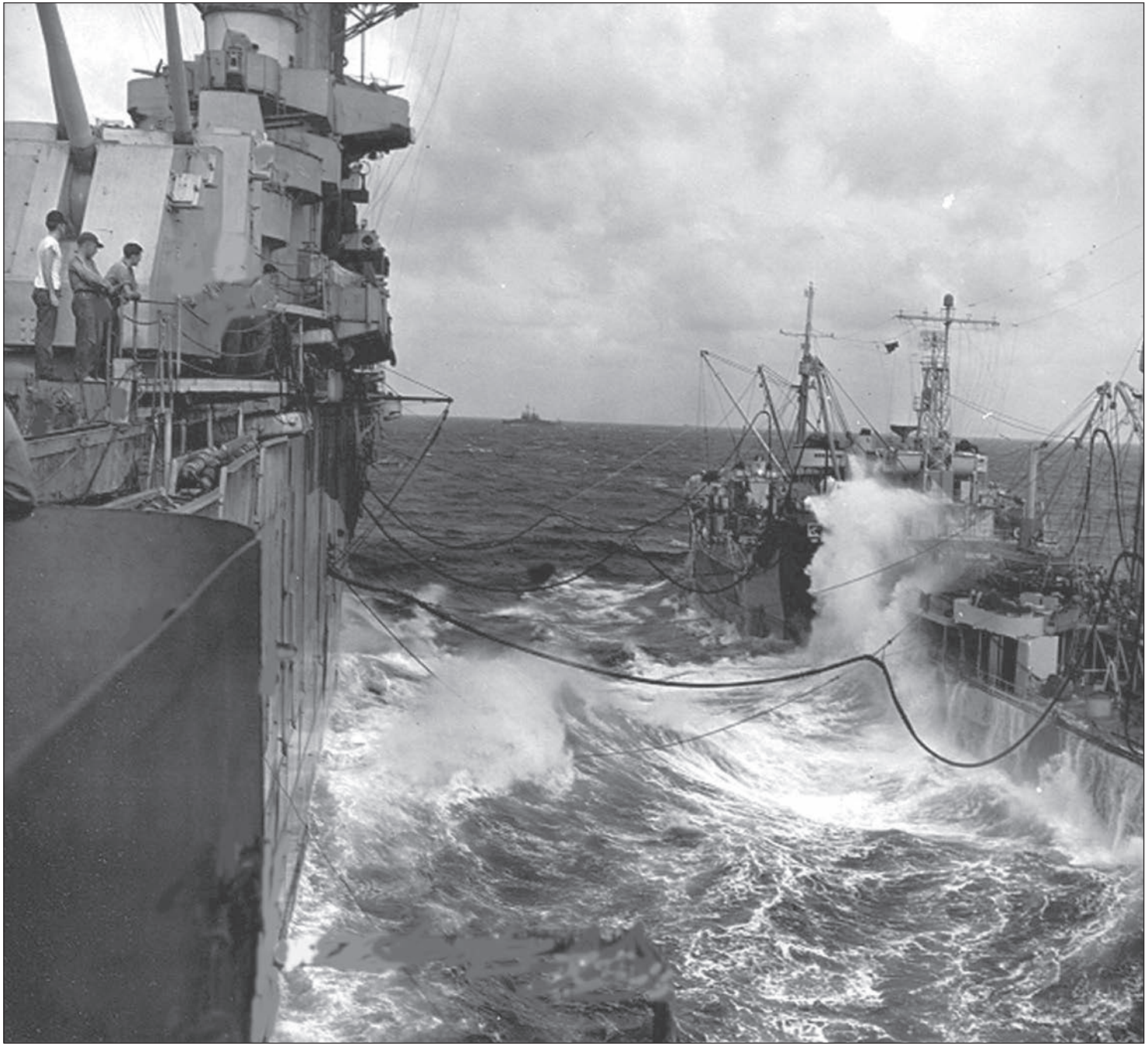
Refer to the comments in "A Variation On A Theme" of the previous page, and enjoy.

Here it's obvious that the two ships, side by side, should do the right thing: maintain the proper distance between each other. Often in life that "right thing" is not so obvious. There is a direct relationship between "the right thing" and honor. This raises the question as to what is honorable? Well, part of it is to do the right thing. This in turn begs the question, "What is the right thing"? Sometimes that "right thing" requires us to do that which is, or will be, a detriment to ourselves. Now then, are you going to do the honorable thing, the right thing, even if you will suffer unwanted consequences? This might mean NOT taking the easy way. We Airdales, were we so inclined, could have very easily taken a temporary hiatus from our flight deck duties unnoticed by others (we had no "roll call" before flight quarters); mental fatigue, you know. To my knowledge this never happened. The Airdales were responsible about their commitments. An Airdale did not take advantage of this easy out (from duty). They were unobtrusively honorable They were accountable for themselves (where there was never anyone "checking up" the whereabouts of others. An Airdale did not take advantage of this easy opportunity to malinger. Just so, an honorable person does not, does not, take advantage of others, especially the weak ones. Perhaps of most importance, an honorable person is honest. (Go to page 314 to review what it is to be honest, with an invitation to add to or modify this list). As I recall, the Navy motto is "Duty, Honor, Commitment". To my way of thinking, an Airdale embodied these attributes (values) to a fair-the-well, and all without the least bit of fanfare. There will be no more Airdales but there certainly can, and should, be a multitude of those whom we can call "HONORABLE".

WET WORK

Notice that this carrier doesn't have any 40-mm guntubs on the starboard side of the ship as did the carrier in the previous picture. They haven't deployed the other fuel lines yet either. The personnel are getting a good wetting down, a normal occurrence, even with the relatively calm sea. Obviously, there are no flight operations during these procedures. For one thing, the carrier must always head into the wind during flight operations, and if the wind direction changes, so must the carrier when it either launches or lands aircraft. There's not much "play" of the fuel lines, so if the two ships spread a little further apart, the fuel line would detach. This never happened though, and if it did, what the consequences would be, I don't know. But it would probably ruin someone's day. I can remember wishing that the refueling operation would take all morning, or all afternoon so that there'd be no flight operations. Never any such luck. They were just too efficient. Sometimes we had to await the tanker after all the aircraft had been launched. Too long a wait meant that the transfer of gasoline and fuel oil would not be complete before the return of the squadrons and landing operations with a tanker along side was not an option. Sometimes in life we must wait regardless of our promptness. Sometimes there are good reasons for this but other times there appear to be none. Sometimes it's temporary but sometimes it seems to be interminable, through no fault of ours. It is then that we watch and wait, wait and watch, until we come to know the lot of those left in purgatory (any condition or place of (temporary) punishment). It can be excruciating to wait and watch the sands of time flow inexorably downward to a seeming perdition. I can assure you, one and all, that to travel through life without even a modicum of achievement is a form of purgatory cum perdition. Don't let it happen to you, at your peril, especially when you have the disfavor of those who matter the most to you. I am guilty of playing the waiting-game, but only to a degree. I needed help and was denied it. My error? Being dependent.

Back in those days there was no GPS to guide a ship to a meeting way out there. They used the stars to guide them. I was part of the Navigation Division during the Antietam's shakedown cruise in the Trinidad Archipelago off northern South America where submarines could not molest us. It was the Navigation officer's responsibility to place us where the captain required. Now accountability becomes the hand-maiden of that responsibility in almost all cases such as this captain-navigator relationship. If this accountability is missing what purpose does responsibility serve? It so happens that the navigator did his job well and thus because of this dependability the captain could apply his concerns elsewhere. The more dependable the less does accountability matter. How many of us are so dependable that accountability is not a issue? Being strong insofar as being accountable is concerned enables others to trust you. What could be more satisfying than this? Yes, accountability becomes the bedrock of all relationships, the sine qua non of trustworthiness. There could be times when being accountable becomes very difficult. Fulfilling that trust is when your character becomes burnished. Don't lose it; it's golden. "I am accountable. I am trustworthy, thus I am a pillar". That should be your mantra.



A VIEW FROM THE TANKER

I included this picture because in addition to showing the magnitude of the ship it also shows the 40-mm guntub sponsons previously mentioned. Just to the right of the guntub sponson is a hatch (door) that leads directly to the Airdales berthing area. It's right there at the front of the sponson that I'd have my Sunday evening's sandwich. For some reason I was the only one to do this. Above the sponsons is the platform for 20-mm guns. Just above that is the Flag (Admiral's) Bridge, and aft of the Flag Bridge is Signal Bridge (signal lights and signal flags). Above the Flag Bridge is the Navigation Bridge where the Captain, OOD (Officer of the Deck), Navigation Officer, and others (including the enlisted Quartermasters) would hold forth. Directly above that was a 40-mm guntub. Farther to the left and above were navigation and fire control radars. Also, note the ropes going into the hangar deck. These will be used to pull the fuel hoses across. Right above those lines is one five-inch dual gun-mount. The openings to the hanger deck would be covered by steel rolldown curtains during foul weather and at night when "darken ship" was in force, which was most of the time. (It was in the evenings, and at night, that the aviation machinists, mechanics, et al., would work on the aircraft to make them ready for the next day's flight operations. This was when I'd nose around and see what was going on. It was a good way to spend an evening.)I can remember being enthralled (well, very interested) watching the mechanics climbing all over the aircraft, taking it apart, and wondering how in the world were they going to get all this mess reassembled for the next day. I thought it was a tremendous responsibility for these young mechanics, and I was properly impressed. These young people were fortunate to have learned and then performed such a responsible job. It was an experience that would stand them in good stead the rest of their lives, especially if they saw this experience as an opportunity to progress even further in their acquisition of the benefits of being given these responsibilities. Thanks, Uncle Sam.

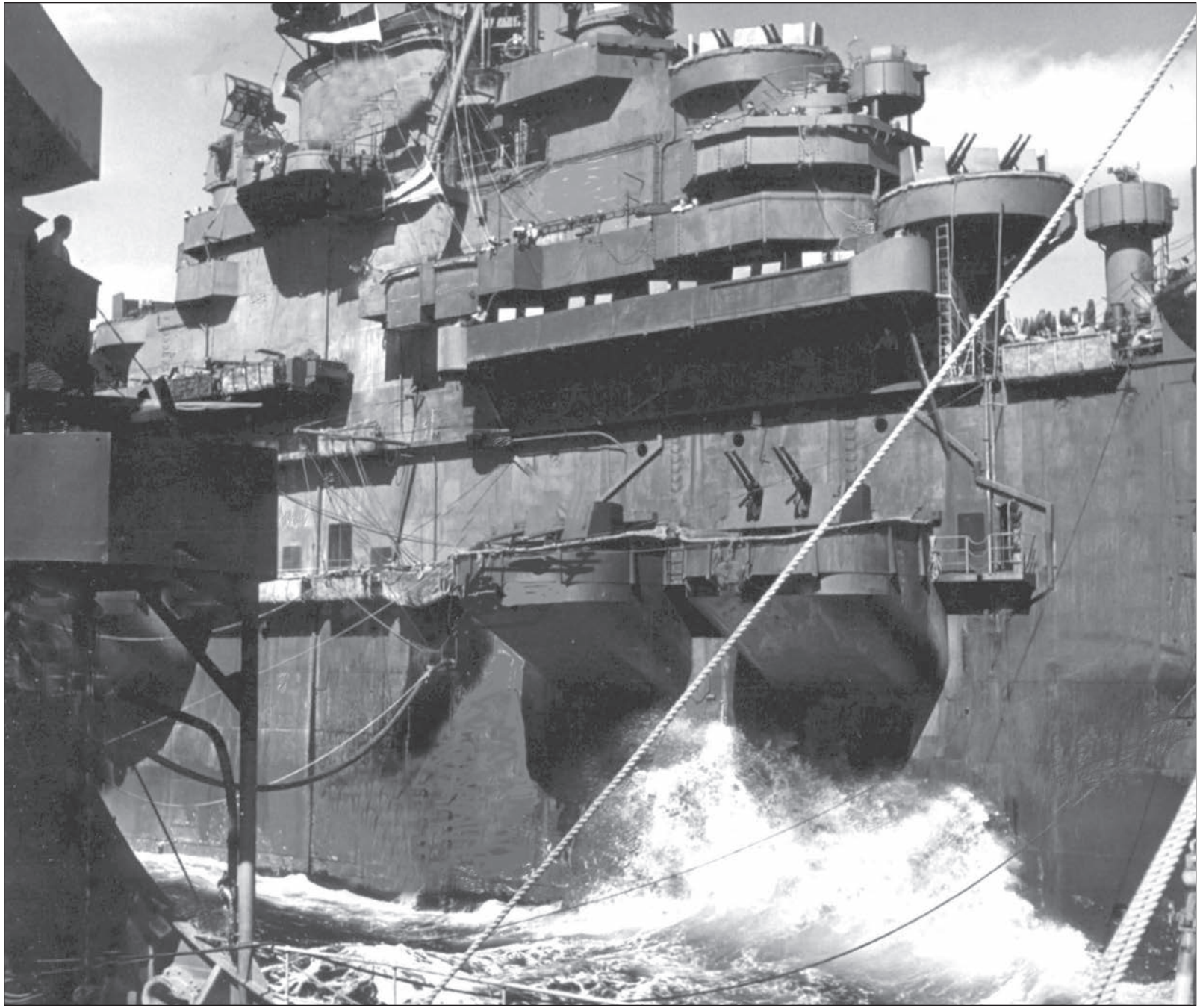
The carrier looms large over the attending supply ship. So too does character loom large in a person's relationship with others. Character can be defined in various ways but one way that also looms large is the ability of one to maintain self-discipline in the face of wayward paths being offered. This of course begs the question as to what is a "wayward path "? A wag could say that it is the easy way. That's certainly true in all too many situations. An obvious case is to be able to defer gratification when that gratification imposes on another (this is not to denigrate gratification (that does not impinge adversely on others)). Character implies that one do the right thing regardless of the difficulties incurred. Again, what's "the right thing"? One obvious answer is that which is fair. So what is fair? One example could be to treat others equally when all circumstances are considered. As before, books can be written about such as "character'. When are you going to write your book (instead of leaving it to others?)

The contemplative life is not a bad one. In fact it should be espoused by everyone in spite of the fact that we don't have time for it. The obvious answer is that it is so important that we should be obliged to do so. How in the world can a democracy survive bereft of a contemplative populace?

SAME TANKER, SAME VIEW

This view, from the tanker, is the same as the preceding picture except for one thing: notice the Flag Bridge on this ship is truncated because there's a 40-mm guntub in front of it. All the ships were modified by having this guntub removed and the Flag Bridge elongated. It allowed the admiral, if one was on board, to have a larger flag plot compartment. This compartment was filled with all kinds of communications equipment, for both internal and external communications. It also had a "sparse" couch in the compartment. I know this because at times I'd (audaciously, I guess) go in there to write letters. We had no admiral on board, and since it was just below the Navigation Bridge, and since I was in the Navigation Division (for several months), and since I was a "nosy" guy, and since no one ever came into Flag Plot, it was here that I'd seclude myself for about an hour or so. I didn't think much of it at the time, but now I can only say "Wow!" I can remember when I would spend my free time (when there was an improbable lull in flight deck duties) up there on that lower platform "inside" the tripod of the mast. There was just enough room to stretch out, which I'd do. There were times when, for some reason, after a while there, I'd feel strictly "out of it", i.e., I'd be "dead to the world". When the flight quarters bugle sounded, it would be a real, REAL effort to get down that ladder and to the flight deck. But duty called, the weakness be banished. I believe, now not then, that the fatigue I felt was most probably the result of the emotional drain I felt when confronting the (daunting) task of confronting the amassed aircraft when they were all fired up. You took the outward bold approach but inwardly you were full of trepidation for what might happen. I suppose it was similar to the feelings of someone scaling a sheer cliff with nothing but fingertips and a miniscule toehold between him and possible eternity. (Lord knows I would never do such a thing). Perhaps they feel a peculiar exhilaration in such situations but for most of the rest of us rational being such a predicament would be absurd.

To look at this picture one gets the impression of high self-esteem. It's been my thought that those who have a firm, earned self-esteem (NOT conceit) is one who would never do anything antisocial, either verbally or physically. For one thing they would have not the slightest need or inclination to do so. It is definitely an oxymoron that such a person would be antisocial. A person with self-esteem is never rude and/or crude, things which are as a banner being waved that says "I have no self-confidence, no self-assurance, no self-esteem". Character and self-esteem usually go hand-in-hand. Perhaps the most salient attribute of self-esteem is that it makes null and void that most poisonous of conditions, peer-pressure. One could even argue that the epitome of a democratic society is one in which peer-pressure is nonexistent. Is there anyone who can deny that peer-pressure in school can only be devastating? Self-esteem clearly is the antithesis of peer-pressure and that alone makes legitimate (earned) self-esteem golden. Consider a situation in which everyone in a school has this self-esteem. Would there be conflicts and rivalries? I strongly doubt it. No one would feel the need to be obstreperous. Would the students do better in their studies? Without a doubt. Self-esteem can be considered the most useful means to a satisfactory life.



ANOTHER VIEW FROM THE TANKER

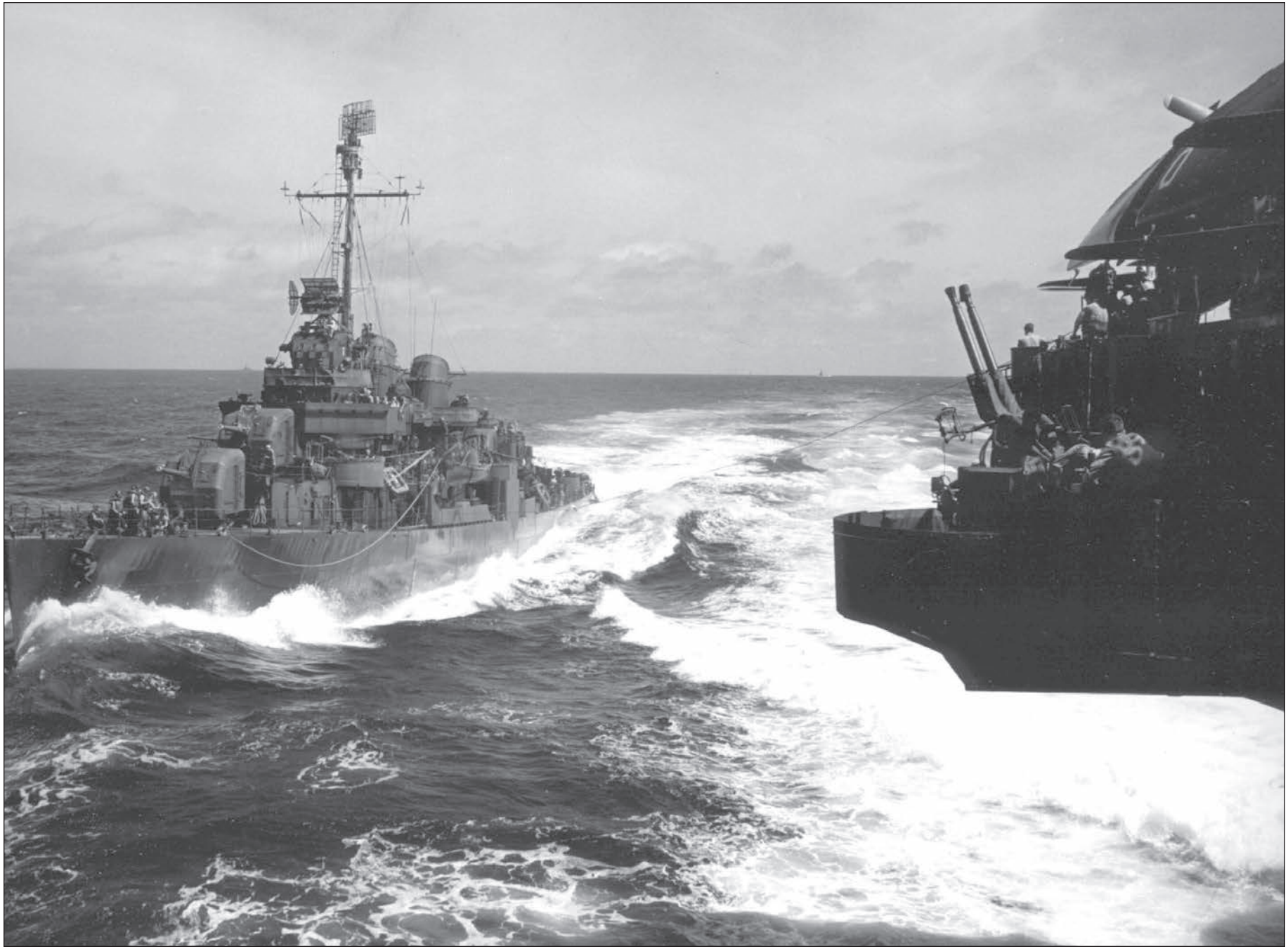
An interesting view, this. One can get a good idea of how the fuel hoses are deployed. Shown here are three of 40-mm guntub sponsons "tacked" onto the starboard side. There are two others similarly "tacked on" back aft. This ship has three radio antennae masts, where the Antietam and most others had only two. Since there are no flight operations, they are put in the upright position to allow for radio transmission. Notice the nearby fuel hose. It has plenty of room for "play" should the ships move further apart. Actually, those three antennae masts are in the upright position to keep them away from the tankers, in addition to making the aerial wire between them available for communication (low-frequency transmission). The upright pole-antennae were for the higher frequency, shorter-range communication.I can remember the personnel on the tanker being much more interested in our ship than the personnel on our ship being interested in their ship. I suppose they were miffed that there were no aircraft on board for their perusal, but at least they got up "close and personal" to a ship-of-the-line. How often are we able to know someone "up close and personal"? Not very often. It's probably just as well because in an effort to do so we would probably get it wrong. Part of the reason is that most of us are reluctant to reveal ourselves: most of us value our privacy since word-of-mouth becomes less reliable as it proceeds. No one wants to be misconstrued. This is reason enough for us to learn how to express ourselves with accuracy and conciseness (so the listener won't lose the train of thought). We must learn that certain words mean certain things in certain contexts. The English language has breadth of intent but that in turn requires a preciseness when expressing ourselves. It is this very breadth that risks our being misinterpreted. I'm sure that there are times in this book where the reader scratches his head trying to understand my meaning. If he does so, that indicates a lack of a well turned phrase on my part. We all need to sharpen our wits when speaking/writing to others.

The self-esteem of the previous page said nothing of how to achieve it. This should be fairly obvious: Learn to do something(s) well. It could be learning how to play the piano, a difficult accomplishment (and thus a solid boost to one's self-esteem). It doesn't really matter that others have a low opinion of your accomplishments. The key is the "self": If you think your learned skill is admirable then it is (to you). You are the judge and jury in these matters. The more skills you garner the happier you'll be with yourself. Some people might think that throwing a football well is of no consequence but if you think otherwise, then good for you. (I have no brief concerning what is and what is not admirable—to a certain degree). Yet again, it is your assessment as to the achievement that is crucial. You're a good basket-weaver. Fine. It could be said that the more difficult the achievement the more solid the self-esteem. Point well taken. To do well in an activity, be it mental or physical, is the key to a solid self-esteem: Keep raising the bar. We should be our most ardent competitors, measuring success in terms of what we once were. It is there that one finds true satisfaction and if there is to be satisfaction gained it should be at our own expense. It should be our achievement, not achievement gained due to others. Why depend on them?

A VIEW FROM THE CARRIER

This destroyer appears to be approaching the carrier to take on fuel. It always comes alongside the starboard side of the carrier because that's where the fuel outlets are. The fueling process takes about one-half hour, and the linkup of the fuel-lines takes about ten minutes. This is a well thought out process that never had any hitches that I ever saw. It was like watching a well-trained team doing something well. And besides, it was a nice diversion from pushing aircraft from here to there. This picture appealed to me, other than the obvious one of a Navy ship-of-the-line looking like a Navy ship-of-the-line, because of the silhouette of the carrier's 40-mm guntub overhanging the white foam below. Also note the aircraft, on the flight deck, just above the gun-barrels: the ubiquitous aircraft. But what else? It's the aircraft carrier and the aircraft that's the dominant interest of this book. Nevertheless, that "greyhound of the sea" coming alongside, churning up the water in the process, is a sight to behold. Now that's real Navy. I can remember the thrill (yes, the thrill) of seeing how easily and smoothly those destroyers sliced through the water, heaving and rolling and pitching as they approached. It was almost like a slow-motion dance, with the "little one" slipping along side the "mother ship", only to bound away again. A society that allows its able-bodied citizens to "feed at its mother's breast" too long before being weaned is a society suffers the risk of a nation that loses its vitality and initiative. It's a society that has lost the ability to ask itself, "What have I done of note, what have I accomplished of significance and value?" Once that attitude is lost and a dependency-attitude takes hold, a nation survives at the deference of the gods above. Work, smart-work, is what will save the day. Don't take the mind-set that someone else will do it. Don't come to depend on the "nerds" and "geeks" of the world to "pull our chestnuts out of the fire" for they are in truth in large measure the ones who make possible the progress that we all take for granted (besides foolishly belittling them). THEY enable us.

This destroyer "steps up smartly" to take on fuel. It seems to brim over with self-confidence. We all would do well to take on at least a modicum of such an attitude (this is NOT in any way a manifestation of arrogance, a particularly unseemly and unpleasant mode). During WWII there was a song titled "Accent The Positive, Eliminate the Negative, Don't Mix With Mr. In Between". Unsophisticated, yes, but fundamentally correct. In life people have varying degrees of negativity, inadequacy, hopelessness, helplessness, anxiety, pessimism, frustration, depression, defeat, failure, aloneness, dependency as well as defeat and stress. Quiet a list and maybe well taken. However, it can be rightly said that one is as happy as one decides to be. This is certainly not an easy feat and yet it IS doable. One can decide to arbitrarily shut out any negative thoughts. This is not to say that one should not at the same time shut down one's aspirations and the joy, yes the joy, of making the effort to achieve. It's not a sham: The journey can very often be the satisfaction, not so much the goal. I know, for I could easily say that my life has been a in general a failure if measured only by the results. It is very often true that the journey provides more satisfaction than the destination, or at least equally so. It need not be said, though true, that the effort applied to improving is in fact a learning experience, meaning thereby that one does in fact "grow" mid the trials and trepidations of the struggle, cliche or not.



ROUGH SEAS DURING REFUELING

This next picture was taken in fairly normal seas, and yet you can see how much wave-action there was between the two ships. The carrier of course wasn't that much affected, but the destroyer was almost always rolling and pitching. Its helmsman had to be "on the ball": too close would cause collision-damage; and too far would disconnect the fuel hoses. But there was always a lot of "play" maintained. I never saw either problem happening: good seamanship. There aren't many seamen topside here; only those that had to be there. On occasion, when not in the war-zone, the carrier would have a "band" on the hanger deck to play music for those on the destroyer. I don't think this was one of those days. In a war-zone, there was always the possibility of enemy aircraft, and refueling had to be stopped pronto, while band music was an unnecessary distraction (I would suppose). (Note the rakish smokestack in silhouette.)

I can remember wondering what it would be like to have been a sailor on a "tin can" (destroyer). Shown here is ample evidence that life aboard a tin can could be a demanding one. We were never near the water the way those on this ship were. They were the real "swabbies"). For the most part each of us has a designated function in life, not iron-bound as here, but nonetheless fairly well defined as here. The good news is that, also for the most part, we can move within and between the functions while those with more initiative will possibly do more moving. The good news is that we have the freedom to CHOOSE where we will go (at least theoretically).The bad news is that there are those who lack sufficient self-confidence to be willing to consider seriously making a change for their own betterment. There are many freedoms : of want, of opportunity, of mobility, of thought, of religion, of speech (be it responsible), etc. There should also be freedom from harassment and fear. These last two seldom if ever get their place in the sun and could be considered the most important of the freedoms for without them all the others are problematical and moot to the nth degree.

This destroyer seems to be in a rough patch here as it sidles up to the carrier to take on fuel. As the saying goes, "When things get tough the tough get going". One would not be far off the mark to say that all good things come to those who try (can we live by slogans? No, but they do help). I believe that one of the true pleasures in life is to take on a difficult task and overcome it. The task might be learning how to perform a physical activity such as a sport. This I have enjoyed. However, even more enjoyable is the acquisition of knowledge. To have that bright light come on as you finally clearly see how the basis of the calculus applies to the physics of motion is a joy. Everyone has their own "victories" in learning something new. I believe the crux of the matter of learning is very simple, very basic: if one can generate a real, a valid interest in a given subject or activity nothing but good things will derive. A bona fide interest in a subject is the sine qua non of most all learning. All else can only be peripheral (family support comes in second in importance, but it is a strong second). This begs the important and difficult question as to how one generates interest in the first place? It should not be "force fed" for the effect will be counterproductive. One approach could be to exhibit your own interest which in turn can be tricky since young people are by nature resisters. Hence, take it slowly.

COMING ALONGSIDE TO REFUEL

The next three pictures are my favorite ones of this genre. These pictures were probably taken from one of the 40-mm gun sponsons back aft. (See the one in this picture.) The water is the star of the show here, with the ships coming in a close second. Here the destroyer is "making wake" as it leaves after the refueling operation. Notice the carrier in the distance just in front of the destroyer. These distances were typical. This picture certainly is "Navy". I can remember looking forward to these rendezvous. Even though it was always essentially the same, it was never just the same. I enjoyed watching the seamanship of the ships, and the arcane refueling process, but most of all, it was the "water show" that was by far the best. The previous page made use of the word "responsible", one of the most important words in the English language. What is referred to here is not that someone is responsible for, is accountable for "washing the dishes". True, that can be considered a responsibility. What is meant here is the idea of the act of being responsible in all things (to be responsible). It is one of the most inclusive words: to be responsible is to know, and then do, that which is the correct thing under a given circumstance. Yet knowing the correct thing is not always clear and even if it is clear it is not always easy. That is one of the characteristics of being responsible: doing the right thing when it might be difficult to do so. At the very least, to be responsible requires that one abide by the constituted laws and adhere with the established mores of the society (the mores are the defined attributes of a moral society and it behooves one to understand the fundamental meaning of morals such as consideration for others and integrity of conduct toward others). To be responsible one needs the intelligence to know right from wrong and then do what's right, difficult though it may be, without the shadows of equivocation to mar the deed. To be responsible is the sine qua non of an equitable and worthwhile society. Do you have the fortitude, are you amenable, to making ours a more felicitous (pleasing) place?

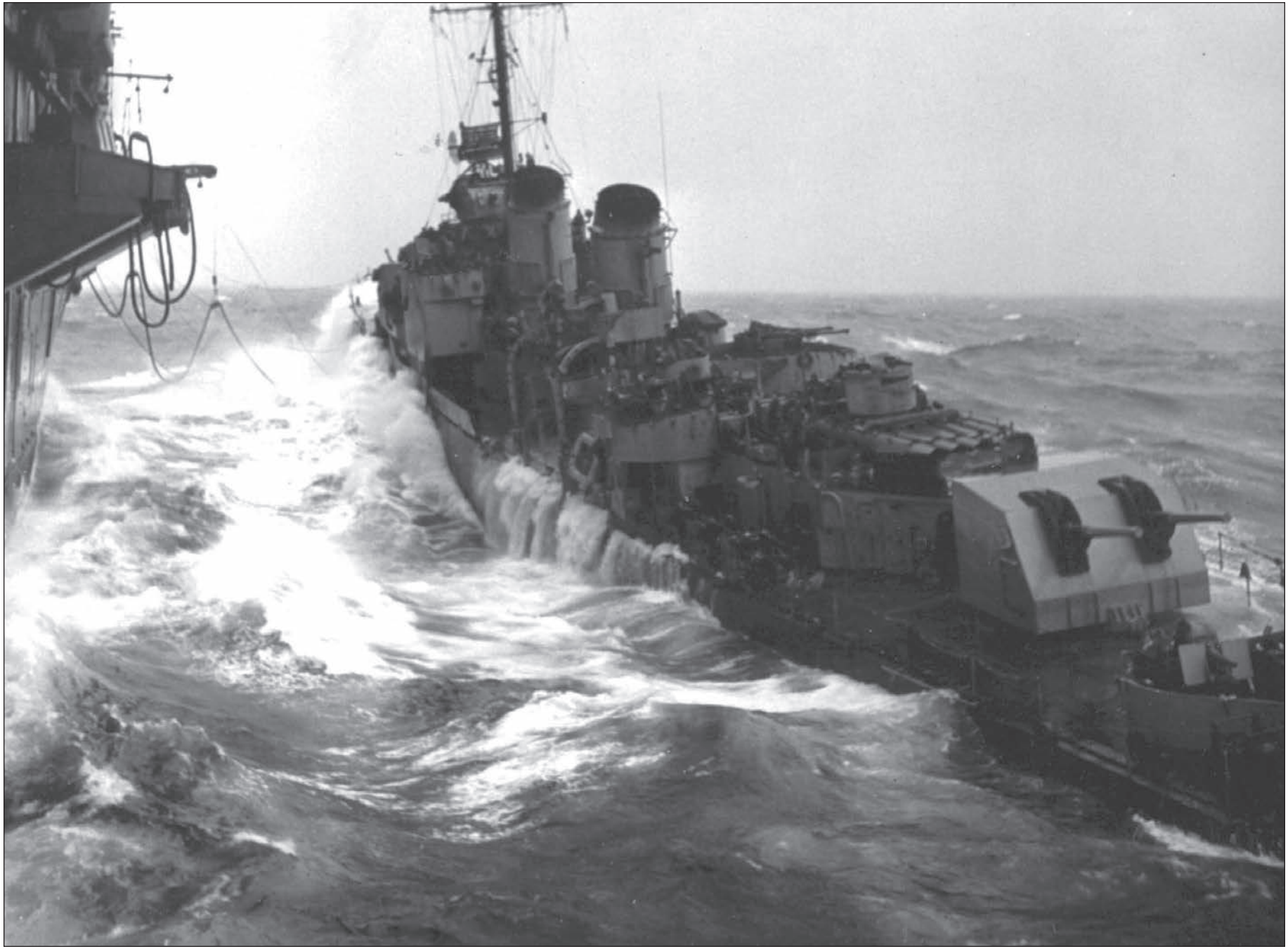
Cooperation. This is cooperation between the destroyer and the carrier. It's cooperation that makes the world go round. When we go it alone very little productive occurs. Yes, there are some relatively few thinkers who can do so and still accomplish much but for the most part we, society, need to work together. True, there will be the usual frictions among a group who work together but by in large, cooperation is the thing. This is obvious when building a house but not so much so when arguing a political point. There are those who seem never to compromise and yet without compromise the world would come to a chaotic standstill. At college we were required to write a thesis concerning our major. I chose the subject of economic cooperation in the Low Countries in Europe (Benelux) after WWII. This endeavor by those countries seemed so eminently correct that I pursued my project with vigor. One country had assets and attributes not held by the other and so they each mutually and individually benefited from the strong points of the other. Yes, cooperation makes the world go round. It also makes any group more productive and felicitous. One should not give up one's strongly held beliefs just to be cooperative but there's not all that much that requires strict intransigence (some things, yes, but don't be a hard-nose an everything that meets your peculiar fancy).


517

STARTING TO HOOK-UP THE FUEL LINES

Here is the picture of their disengaging the fuel hoses just before the previous picture. My recollection is that here, the destroyer is a little too close for comfort. But you can almost sense the surge of power coming from the destroyer as it "plows" through the water. Another interesting observation is that the five-inch dual mount on the stern of the destroyer is almost as wide as is the ship there. When those guns fire, the stern of the ship must rebound, a lot. I say this only because when we (the carrier) fired a five-inch gun, you could feel all 33,000 tons of the ship perceptibly shudder. Also, note the 40-mm guntub sponsons that are "tacked onto" the starboard side of the carrier.I can remember wondering how well I would do if I were the helmsman of that destroyer. Would I react too soon? or not soon enough? Would I enjoy it? or would I be only nervous? Sometimes I felt like I was vicariously steering that ship. Imagine the machinery required to allow a helmsman to apply a small force to a wheel that would move a very large rudder that in turn would cause that large ship to change direction. One person in a thousand would give that capability the slightest thought. How shallow we are to take so much for granted. Such things as that steering system do not "just happen". They are the result of the work and effort and diligence of the economic heroes of our economic society: the mechanical engineers, the chemical engineers, the electrical engineers and the civil engineers as well as those who maintain and repair our machines and equipment. Those are the heroes who generate the wherewithal to make this, our nation, so strong and habitable to a degree unimaginable to those mere generations back. We do not appreciate these heroes. Just last night I watched a TV program of various industrial companies as they formed and fashioned the products that we have come to depend upon (as a matter of course) Just consider the machines and tools that produce these products and the intelligence that went into their design and fabrication. I for one stand in awe of those who, unheralded, do with distinction.

Here we again see cooperation, in addition to mutual respect: The destroyer for the carrier's fuel and the carrier for the destroyer's protection. Yet, this is only properly prosaic because respect should be given for its own sake alone. In fact, everyone should respect everyone regardless of the circumstances (that are devoid of violence, both physical and verbal). Mutual respect, untainted by unnecessary criticality, is the lubricant of a felicitous society. In a word, be generous. There are those who are, not unjustly, suspicious of those who look unkempt. However, one's dress can be completely misleading (and maybe not). Yet, as long as others are civil there is absolutely no call to be disrespectful. Respect costs you nothing and disapproval can easily be misplaced. Is it not true that respect begets respect? The respect referred to here does not in any way imply laudatory conduct and certainly not effusive remonstrations. No, the respect here refers only to a quiet, sincere acceptance of one and all (there's no need to say that "we're all God's children"). They will tell you that people reject others because of race or ethnicity or the like. I disagree. I believe that most people accept (show respect) or reject others essentially based on a person's personality first and on their character second while ethnicity is, for the most part, immaterial. He's arrogant so you dislike him and race, ethnicity is irrelevant.



PRETTY AS A PICTURE

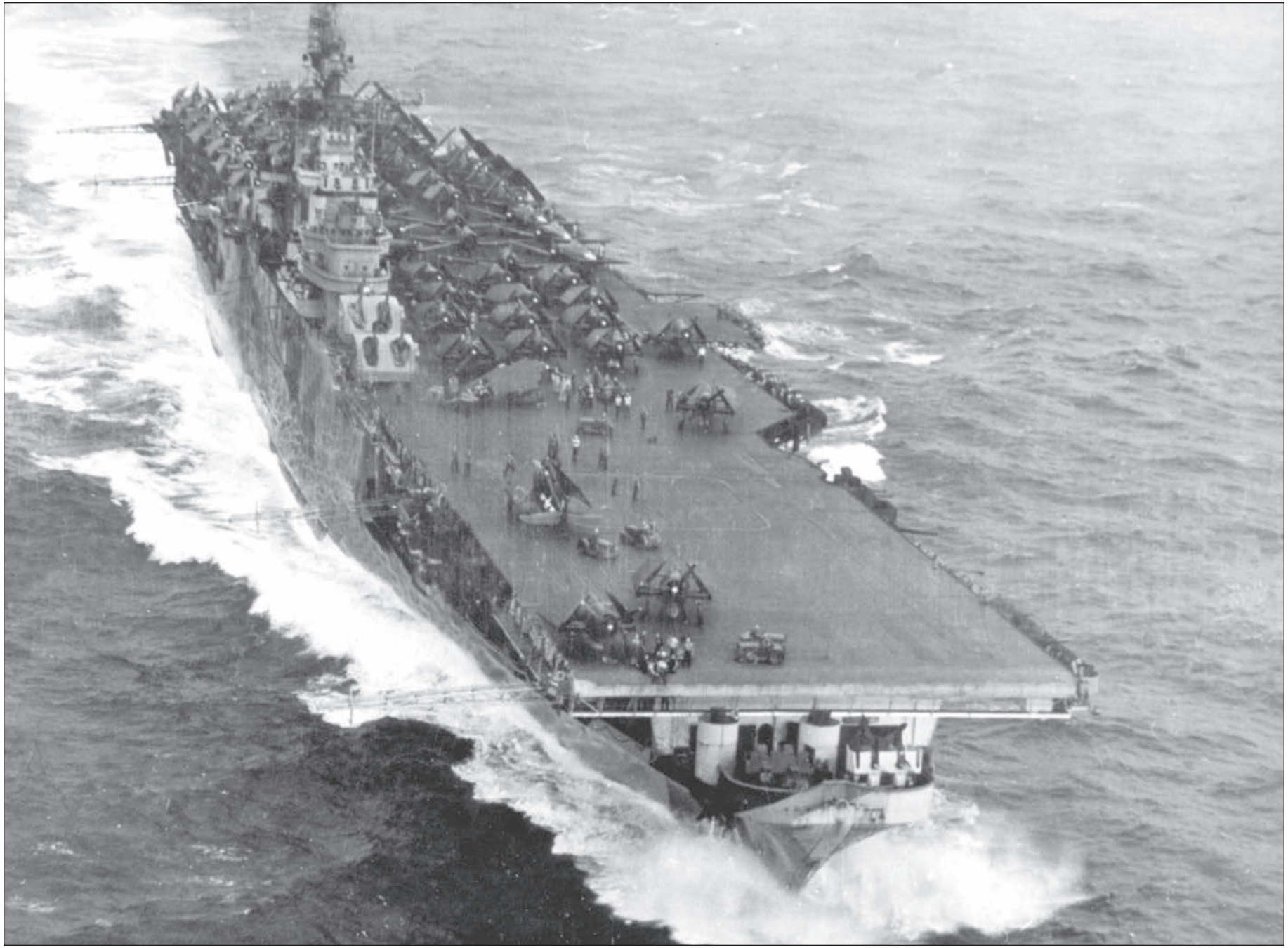
Here's the "piéce de resistance". If this were in color, what a perfect painting it would be! On a more mundane note, the angle of the destroyer is heading toward the carrier. What with the wave-action, the helmsman has his work cut out for him. Before leaving this picture, I think it should be said that some of the Navy photographers are truly artists, in every sense of the word, as witness here. This picture will be enlarged, framed, and put on the wall. (I'd like to have a "Navy Room," where the walls would be covered with enlargements like this, some in color, but others in black and white that provide for interesting silhouettes. I started this book for my family and myself, but as I progressed with it, it occurred to me that there might be some few out there who'd enjoy these pictures as much as I do. I'd like that.) I can remember how impressed I was when this "greyhound of the sea" almost launched itself forward after having disengaged itself from the fuel-lines. The wake it churned up was something to behold. It's remarkable that the great bulk of the carrier can cut through the sea as fast as can the little destroyer. Casual thought would scoff while rational thought would lead us to a different conclusion. So what then is it to be rational? To start, one thing can be asserted.: knowledge must precede before rational thought can prevail (abetted by intelligence, judiciousness, wisdom and sagacity if crucial conclusions need be obtained). To be rational is to think and do things that stand to reason. That is, to be rational is to be able to reason. This begs the question as to what it is to reason. To reason well is to be able to think logically and to think logically is to be able to frame situations into IF-THEN statements. That is, if the established premise(s) are determined then assuredly the conclusion. It might be necessary to string several such statements consecutively, one leading naturally to the following conclusion. However, in the beginning there must be an established database of knowledge (that is obtained, as always, by LEARNING. The more cogent (relevant, pertinent) the knowledge the more rational the result. There seems to be a dearth of those who are rational sufficiently to do the right thing. (Now what's the "right thing"? Books have been written about this so it will only be said that what benefits the most people without imposing on the others is usually the "right thing". Theologians, philosophers, intellectuals and the common Man all have their ideas as do you. Let's leave it at that for now.) Now, to rationalize is not the same as to be rational. It could even be considered the opposite. Suffice it to say that to rationalize is to conjure and devise devious reasons for dubious thoughts/actions of doubtful propriety. To rationalize usually means one is making excuses to oneself to justify that which is known to at best shade the proper and correct thought/action. One shuns what is known to be "right". One lacks the required strength to adhere to the honorable course.

The destroyer must make determined efforts to stay steady at the correct distance from the carrier lest damage be done. Determination is a marvelous attribute. Determination lends a certain zest to life and is a "commodity" that is available to one and all. The phrase "if it's worth doing it's worth doing well" is golden. Determination often times requires discipline which in turn is the mother-milk of accomplishments and self-respect. A special ingredient of determination that makes it all more doable is the quality of enthusiasm. Enthusiasm "makes the pill of determination go down". Ideally, if one has the quality of commitment then the quantity of determination will follow anon. In peace as in war fortitude is a necessary ingredient to most of what is worthwhile. If you apply due diligence to your efforts time is on your side. So I say, would that we all have determination in all that is good for society which wishes it so (and we all are "society").

RESPOTTING THE FLIGHT DECK

This is a transition picture, from "External Activities" to local activities. Shown here in this picture is the final phase of the respotting process. Envision that deckload of aircraft being en masse all the way up forward, as it was when the last aircraft had landed after landing operations. At that point they all had to be moved back aft, as in the picture, where the last few aircraft are being respotted. Some of the aircraft are pulled by tractors, and the rest of them are pushed by Airdales. This is a twice-a-day occurrence. We, the Antietam, had somewhat more planes than shown here, such that after the final "respot," the F6F Hellcats or the F4U Corsairs were close to the two catapults, one starting about twenty yards in front of the dual five-inch mount while the other paralleled it to the port side (running in a groove in the flight deck, fore and aft.) Of course some of the one hundred aircraft were on the hangar deck below, available by elevator. I can remember the feeling I had of being a part of a group that worked as a team to accomplish a useful task. I never really lost that feeling throughout those thirteen months I was an Airdale.

Finally the re-spotting process is almost over. Each of those thirty Airdales, those men-in-royal-blue, has been involved in manhandling about 100 aircraft from up forward to back aft in preparation for the next launch that afternoon. The yellow-shirts, the plane directors, made clear what aircraft went where but they did not, never did they tell an Airdale specifically what to do. Where, yes. What, no. The Airdales had to use their own judgment as to how to accomplish what he had to be done. This self-reliance was necessary because there was so much to do in a short time. True, it was not "rocket science" but it was an application of a group of people acting in a semi-independent way. This carries over into everyday life where one has to act independently on one's own recognizance. We all like to be independent (or at least we should want to be independent, presuming we are not infirm, etc.). There are situations, in real life, where people are made to be dependent, where they are not free to be independent. This placement of a person in a dependent condition is a terrible thing to do to anyone. While this book, a family book, is not geared to the political, I'm constrained to say that any governmental programs that place people in a dependent situation, on its largess, is a government that I deplore. It smacks of control. I'll say no more on this subject because I'm not keen on offending others. Enough said except to say that all of these little sallies on all of these pages are not in any way meant to be "the word". They are meant to present my views essentially as a "stream of consciousness" with the hope that they convey some sense. More than that though is the hope that these pages will engender some thoughtful responses by the reader; a learning process if you will.



TRANQUILITY

It's a sad thing certainly that such a tranquil picture has to be associated with weapons of war, and the results of war. But if one can merely look at this picture and appreciate the beauty inherent in the juxtaposition of the mechanism of man's ingenuity with the calmness of the mountains in the background, one has a benefactor. We need to enjoy these things where we can find them. They're out there. We just have to be more observant. I can remember, being young, what a marvel it was that these huge objects of metal could wing their way so smoothly through the air. What had nature wrought? How does one feel about this picture? I see it as one of utmost tranquility and even beauty as the smooth gradation of the sky merges into the soft undulations of hill and mountain. Yet perceptions vary: others of an aviation bent perceive the aerodynamic lines that support the lift of the aircraft, the drag of the air resistance, the thrust provided by the thrashing propeller, the weight-vector downward, the composite vector providing for level forward flight. They hear the everlasting, draining noise produced by the powerful engine. They feel the incessant vibration of the entire structure of the aircraft being transmitted to their now aching body as it is encased by the cramped confines of an enclosed cockpit. They smell the pungent gasoline/oil fumes blown into their nostrils. They feel the stiffness closing in on them as they try to reposition themselves in their confined quarters. They feel the fatigue of a long flight. They wonder, and worry, about the trouble that could be lying ahead just over the horizon. They try not to fret about the sickening decrease of the fuel gage. They see nothing but a vast ocean below and then pray that the engine, controls and radio do not fail them. They question whether the carrier will be where it said it'll be. They pray that there will be a carrier capable of receiving them. In short, they do not see the same picture that I'm looking at this very moment. We all see the same things, but do we all really see the same things? To many, perception is reality. Really?

Clean and serene, that's what I like about this picture even though there is the juxtaposition of the machine of war as against the beauty of the outlying mountains. There has been much said about the environment of recent years and who can deny that Mother Nature is to be revered. Some of the greatest pleasures in life are to be found in the beauty of nature, from the grandeur of the Grand Canyon to the marvels of the minute such as a drop of due on a blade of grass. Many an evening I would sit in the look-out chair up in the superstructure and drink in the gorgeous sky as painted on that huge canvas overhead. My room holds many large pictures of the glories of panoramic views of the mountains and the seashore. These I supplement those with music that could have been made in Heaven. As a youthful camper we were admonished that we should always leave a camp-site as clean as we found it. We can not deny that man does need to encroach to a certain extent on nature to support and sustain a growing population. Given this, we MUST be good stewards of what God has given us. It will not be easy but that is no excuse. We do not own the environment (except our houses) but we live in it. Do we want to live in an attractive place or do we not? This is a rhetorical question because the answer is not in contention. I ride my bicycle in the area of my home. In doing so I note trash here and there. At one time I'd pick it up and throw it away. Now, I don't have the wherewithal to continue this.

HOOKS DOWN, WHEELS DOWN

With tailhooks down, these Avengers are in the landing pattern, at about 1,000 feet. When abeam (opposite to) the ship, the lead aircraft, after 20 seconds, turns left until he's flying downwind. (The ship always heads into the wind during flight operations). He's about one-half mile from the ship at this time. All the following aircraft break from formation at 20-second intervals, emulating the leader. The pilot,when abeam the ship, would start a 180-degree turn towards the carrier, to get into his final approach leg. Once in the "groove" at about 400 yards astern, at the proper height and attitude, the pilot comes under control of the LSO (Landing Signal Officer) for the final touchdown. (I would guess the other carrier was about one mile away.) I can remember those first landings, as the squadrons of aircraft formed groups overhead, thinking that chaos was in the offing. No such thing transpired. The aircraft overhead looked like toys, but those "toys" grew large, and touched down without mishap. Yes! The carrier is there as pre-said. In a war-zone radio-contact over a distance was not an option due to enemy intercept. Thus dead-reckoning was required to find home-base on a trackless ocean. It was the squadron-leader who had to make the decision as to what course to take to the carrier. This dependence of the squadron on the squadron-leader is a characteristic of the military mode of operation, of necessity. Normally we prefer not to have to depend on others, or at least less rather than more. So, do we prefer more leadership and less independence, or the reverse? It's a quandary because as much as we desire the freedom of independence we also require the leadership of those who know more, much more, than we do. (Leadership implies setting a good (and moral) example based on clearly demonstrated, correct experience.) In time of war, both leadership and the dependence on those leaders is required. War, or times of need seem to bring forth those who have leadership qualities. That begs the question as to why tines of duress are required to "grow" those who are able to lead?

Yes, home at last! Actually, home is where the heart can be found and the heart, our emotions, are a powerful influence over our behaviors, often too much so. They tend to override our rational thoughts, too often to our detriment as well as society's. Curbing our out-of-hand emotions by "counting to ten" may seem prosaic yet some of our most profound ideas are just that, prosaic. It's similar to the advice that "brevity is the soul of wit": To define a meaningful concept in a short space will tax the inner intellect. In addition their seems to be a trend to belittle the application of scholarship to deeper issues. When well done scholarship is a necessary adjunct to progress of all kinds. Slogans alone will not do it. To be succinct and lucid, precise and seamless, is not a trivial undertaking and the inability to express oneself well with words will make one ineffective in the promotion of ideas, new and old. This section started with "home" and migrated to "scholarship" an example of how not to process ideas in a coherent way. To write an "essay" in this short space is a challenge (but we like challenges, right?). Essays should be succinct, precise, lucid and seamless (as well as coherent and accurate). It also helps to be comprehensive but then we risk not being succinct. I believe these "essays" are too short to be called an essay.


95
82
82

LIBERTY'S OVER

Liberty's over and it's back to the ship. I can't place this, but since it was typical, I included it. As a matter of fact, when we had liberty in Tokyo, we took one of these landing craft from our ship up the Tokyo Bay to Tokyo. Since it was winter, we were in "blues." It took one-half hour to get there, and it was cold! We only had liberties, i.e., a 12-hour pass, but never a leave (multiple days). As a consequence, except for a leave in January 1945, 1 spent every night for the next seventeen months on board the Antietam. It really was "home". (For some reason this picture reminds me of Yokosuka, Japan, one of our liberties, but in "blues," not "whites.") You'll notice that there are no officers here. They had their own means of transportation, and in the military, "rank has its privilege." There was none of that "noblesse oblige" stuff in the military. In fact, it was just the opposite. But I never saw that as being a problem. I can remember well each one of my liberties, and I can remember that there were enticements that could be found at each one. Being "engaged", I had no desire in pursuing those enticements beyond the process of investigating their existence. More succinctly, how say this discretely and properly? In Hong Kong I found myself in a large park well within the business area and surrounded by townhouses. The girl-older woman pair outnumbered the sailors by about 100 to 1.To be sure, there are millions of pretty girls of age throughout the world but those in Hong Kong, in their demure clothes were especially attractive. I guess it was the oriental look that appealed. Those in your presence "demanded" your attention, so much so that your feelings of self-worth swelled. How resist such a charged situation? I'm here to say, in all candor, that even with the newness and stimulation of it all, I did resist. The temptation was palpable, but I restrained myself from the insistent call designed by Mother Nature. Why? Well why not? I was fairly secure in my notion that the physical act between a man and woman should, would, always be subservient to its representing the expression of an emotional and intellectual love that was much more pervasive than isolated physical unions. The former is continuous while the latter is intermittent (marvelous though it may be). Furthermore, to besmirch and tarnish and belittle the former by a loveless latter, the former would be in serious jeopardy of losing its emotional "kick". Once found, to lose it would be a tragedy. I fully understand the strain such an attitude places on those just realizing the designs of Mother Nature but why taste momentary pleasures when by that very act one will lose something far more enduring and far more pleasurable? I make no case for those of a religious bent because this book shall not invest itself with the causes of any religion. That is not my venue nor my "expertise". To me religion deals with faith and morals. The former is off limits here, the latter is decidedly not, nor should it be for the readers.

This reminds me of Yokosuka, Japan. As I remember I had eight 12-hour passes while aboard the Antietam: two in Hong Kong, one in Manila, one in Tsingtao, China, one in Tokyo, Japan, one in Yokusoka, Japan and two in Pearl Harbor. At each location except Pearl Harbor I came upon or was hailed to an encounter with a local girl. I will say straight out that in none of these instances did I have a "relation" with them even though this was the obvious purpose of the "encounter". Money was a part of the exchange. It is my firm recollection that I did not even so much as touch any one of the girls. My purpose was only to satisfy my curiosity as to the nature of these girls. Back home these girls would have been called "bad" but out there I thought of them as victims. However I also did not believe they were forced into these situations even while they did not want to do what they did. I had the impression that they did what they did with their eyes wide open and without feeling put upon. It was "merely" a job to them (I thought).

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PA74-8

WHEN DAY IS DONE AND NIGHT IS COME

"When day is done and night is come..." (You'll have to indulge what's to follow because it was an integral, on-going part of my Antietam experience.) After chow (supper) I'd go high up into the island superstructure and sit in a lookout's seat. For some reason no one would be topside after chow. This was perfect. I'd have the whole broad expanse of the ocean in front of me, and the big sky overhead, usually cloudless. When the clouds were there, it was as if they'd been rendered by an artist. All was peace and quiet. These were restful times, these were times to refresh and renew. It was as if I had entered a different world: the one noisy, turbulent, threatening, the long day-world while this other was quiet, reflective, sad, the short evening-world. This evening-world engendered long periods of reminiscing, which in turn inevitably led to long periods of ruminating, which in turn led to crushing anxieties about what was happening back home. It was as if the mind was in a vise, as if it was in an infinite maze, as it tried to figure out what was, and what was not, the situation back home. And there was absolutely no hope of help in this matter, while there wasn't the slightest intention of giving up. Since the letters from back home were not at all frequent, (and they were perfunctory at best), there was never any resolution to those anxieties. But at the same time, these quiet times allowed for a form of catharsis, a form of purging, if you will, and the quiet night's work was done. In this way, there was a form of renewal to be used in preparation for the next day of tumult, where it was incumbent on one and all to be alert and diligent, to be aware and vigilant. To be otherwise could well be to be grievously injured or dead. (Actually, though thoughts of home were not evident during the day, the pervasive feelings of depression due to those thoughts of the night before WERE a constant companion. That depression just became an integral part of my "personality". That's just the way it was. Though I wasn't unpleasant, I was NOT a congenial person to be around, and for that, I'm very apologetic. It was not excusable.)I can remember, at day's end, how grateful I was to have had this time to myself. It was just what I needed, a time to handle the sheer desperation and fear I felt about losing "my girl, my very life". It was also a time when I'd recall the peculiar combination of fear and poignancy that I felt after having spent an abbreviated week-end with her at Wellesley College in January 1945, with the haunting backdrop of the ballads "I'll Be Seeing You", and "Dream" and "I'll Never Smile Again" by Tommy Dorsey and the Pied Pipers wafting dreamily through my mind. When I left her that evening I knew "my day was done, my night had come". My lament was palpable.

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I had absolutely no intentions of indulging in physical relations at any time. It wasn't just a matter of replacing temptations with other acceptable desires. To be frank, it was primarily due to my having been deeply, deeply enamored of the loveliest girl imaginable. In no way would I ever betray that emotion, no matter where I was. Beyond that I firmly believe that, for every encounter devoid of love there is an equal diminution of joyous pleasure to be had at a future encounter WITH love. The two types of encounters are inversely related. As the former increases the latter decreases. In addition I believe self-control and abstinence are societal imperatives in support of firm future marriages (where a marriage is and always has been the basis of a felicitous society). The act of "playing around" before marriage strongly suggests that this behavior will continue after marriage. This in turn will by nature diminish the bond of marriage to the detriment of society traditionally based on marriage.

AFTERTHOUGHTS: The subject here will be Responsibility. Actually, this is a dual subject with Accountability as the counterpoise to Responsibility. The two words go hand-in-hand. In turn, there are essentially two forms of responsibility: specific and general. The former refers to, for instance, the assignment by a superior to do a specific job while the latter refers to one's own conduct. In both cases with the establishment of responsibility there arises an account which has to be met. The specific responsibility enjoins one to a specific account while the latter, personal responsibility is much more general and encompassing. The former responsibility is well defined and measurable while the latter is much more nebulous and iill-defined. The former variety can usually be seen by others while the latter type can "slip under the radar."

It is for this reason that we will only consider the latter form of Responsibility. As a Boy Scout we had a so-called Scout Oath. It included the following "On my honor I will do my best to do my duty to God and Country; and to obey the Scout Law; to help other people at all times, to keep myself physically fit, mentally awake and morally straight." In addition the Scout Law states "A Boy Scout is Trustworthy, Loyal, Helpful, Friendly, Courteous, Kind, Obedient, Cheerful, Thrifty, Brave, Clean and Reverent." The Scout Motto is "Be Prepared." Given all of the above a Boy Scout has a great deal of responsibility placed on his shoulders. And there is even more Accountability he is required to fulfill. Well, for a youth to do so might be considered to be problematical. That may be and it is also quite "a load." However, the expectation is not necessarily a perfect record (Account) but rather a genuine recognition and acceptance of the Responsibility. There is no expectation. That is, a young boy would not ordinarily be expected to fulfill such a fulsome set of requirements. Rather, he would be expected to acknowledge his Responsibilities and make a reasonable effort to accommodate them. This is doable, or at least should be.

To the chase: As implied by the foregoing Responsibility is all about "doing the right thing." Certainly the Boy Scout is admonished to do the right thing. Certainly the employee is required to "do the right thing (as specified by his/her boss)." If one does not agree with the admonition/requirement then he/she is obliged to make this clear and thus "clear" oneself of the Responsibility. In other words, everything should be "above board." There should be no "contact" between two parties and as such there is a quasi sense of trust between those involved. There may even be a written contract between the parties but this gets into the legal arena. This discussion is primarily about an "understanding" between others who never know each other. Responsibility does not imply a "contract;" the situation at hand is usually understood (by people of probity). This in turns begs the question of probity. What is "probity?" It's defined as being upright and honest. It also implies being aware of what is and what is not correct under the circumstances. For instance, we all know that it is the responsibility of a husband to take care of his family. This is a "given." What's not so "given" is whether he's also responsible for taking out the trash. So there usually is a degree of responsibility. Very high on the scale is the responsibility that of driving a car. For most people this is their highest responsibility and Accountability here is severe. So do your part by BEING RESPONSIBLE!

FLIGHT DECK ACTIVITIES

One thing that never happened on the Antietam was sunbathing. There was never any time for it. What one did see were activities involving the respotting of the flight deck in preparation for launching aircraft (another chapter). This would happen just after the aircraft had landed (another chapter). They would then be moved back aft (respotted) (another chapter). This launch-land process, along with the respotting, happened twice a day. Since each flight included about ninety aircraft, there was plenty to do, every day. The respotting process made use of five tractors, and all the Airdales, pushing first this, then that aircraft. Sometimes an aircraft had to be taken below for servicing. This meant shuffling the aircraft in a limited space , i.e., on a crowded flight deck. Whenever aircraft are shuffled, a lot of time was spent pushing aircraft. Hence the term "plane-pushers" (Airdales).

Another activity that went on between flight operations was gunnery practice. A target-sleeve would be towed and the gunners would "have at it". There were two dual 5-inch guns in front of the island superstructure, two dual 5-inch guns aft of the island, and two single, open 5-inch guns at the fore and aft port side, one level below the flight deck. Thus there were twelve 5-inch guns on board. There were sixty 40-mm guns arrayed around the ship in form of "quads" (four 40-mm guns in one guntub): one quad was on the forward top island, two quads on the aft top island, two quads on the bow and two on the stern, five quads "tacked onto" the starboard side of the ship, and four quads on the port side one level below the flight deck. The 20-mm guns were on both the starboard and port side, outboard of the "catwalk" (the walkway four feet below the flight deck running along the length of the flight deck and which was fifty feet above the water down below). As an aside, I once participated in a gunnery drill as a replacement for a discharged gunner (the war had been over). Mention of this is made later, but essentially it was merely a matter of passing ammunition clips to the one who passed it to the loader. Yes, they were noisy as all get-out! Some mention should be made of the island superstructure, since it dominated the flight deck, and was the place from which the Air Officer controlled the flight deck operations below. First, one level up, forward, was the Flag (Admiral) Bridge, back aft of that was the signal bridge where the signalmen used a blinker light for communication between ships. They also had signal flags that were hoisted up the halyard. Right above the Flag Bridge was the Navigation Bridge (where the Captain of the ship and OOD (Officer of the Day) ran the ship.) Inside this bridge was the Pilot House that contained radio and radar equipment, as well as the helm ("steering wheel"). Right in back of the Pilot House was the Navigator's Chart House. It was right outside of this, just aft of the Navigation Bridge, that the Air Officer's Bridge was located. He was the Air Boss, in control of all activity on the flight deck during flight operations. Farther back aft, on the same level, was the After Bridge, to be used in case the Navigation Bridge was hit by enemy action. Above this level were lookout stations, 40-mm gun directors, and above this, the five-inch gun radars and directors, fore and aft. Finally still higher were the communication antennae, the search and navigation radars, the IFF (Identification Friend or Foe) antennae and various other sundry things. At various stations around the flight deck were the aviation gasoline outlets. These were manned by the red-shirts, while next to the island were bomb elevators and a torpedo elevator, manned by red-shirted ordnance men. Finally, to be discussed elsewhere, were the aircraft elevators, catapult equipment, and arresting gear, all manned by the green-shirts. (The blue-shirts were the Airdales, and the brown-shirts were plane-captains, while the white-shirts were the medics. All flight deck personnel, at least on the Antietam, wore a colored shirt, a cloth-helmet of the same color, goggles, and flight deck (non-skid) shoes. These were the basic elements that made up the military airport at sea. The actual launching and landing activities that happened on the flight deck are covered in their own chapters.

A QUIET DECK

A quiet deck of TBM Avenger torpedo aircraft in the foreground, and the F4U Corsair fighters in the background. Notice the closeness of the Corsairs parked up forward. This is normal and typical. It's also the way they parked back aft preparatory to being launched. This shows quite well the closeness of quarters that the Airdale must negotiate when he makes his way to a wheelchock during launch operations. The Launch Activities chapter later on will discuss this in further detail but keep in mind that the propeller tip reaches as far as the wheel. The Airdale, being at the wheelchock, thus has his nose about four feet from that propeller-tip as the engines are warming up in preparation for launch. (The bombers allow a little more room for moving about among the parked aircraft during launch operations.)I can remember standing on the Navigation Bridge (right where that officer is standing) when I was still a quartermaster striker, being in awe of all that "hardware" below, all that concentrated power that was soon to roar into action. Consider the devastation that could be meted out by just one aircraft that's loaded with 2,000 pounds of bombs as it roars in at you at 300-mph. (At the end of the war, the F4U Corsair could carry 5,000 pounds of bombs.) Just that ONE aircraft represents so much destruction, it's chilling to imagine what a deck-load of such aircraft could do to someone else! even given this day and age. What hath Man wrought?!

NOTIFICATION: All pages that have "gray text" (as below) will present a single subject that will follow the above "white" text and will precede the "gray text". This single subject will concern the subject of a carrier's "fire control system". While carriers have their own aircraft to provide protection overhead (CAP -- Carrier Air Patrol) they also require protection of their antiaircraft guns. These guns are the 20-mm and 40-mm rapid-fire guns and the larger 5-inch guns, which will be the subject to follow. The control of the fire of these guns is what is called "fire control" (not the fighting of fires on the flight deck). The Gunnery Department has this responsibility. (cont.)

Lest we forget, this chapter, at least, will outline the carrier war in the Pacific. First though, it will be prefaced by a very brief summary of the most significant and imposing events of the 20th Century.

Beginning in 1936, when I was 10 years old, Italy's dictator Mussolini invaded Ethiopia in search of conquest, already ruling Libya in North Africa. That same year Spanish Nationalists under the eventual dictator Franco started a civil war. The Loyalists, supported by men and material from dictator Stalin of the Soviet Union were in turn confronted by men and material from dictator Hitler's Germany and dictator Mussolini's Italy. After years of vicious fighting Franco's forces won the war in 1939. From that point on Spain was quiescent vis-à-vis the rest of the world. However, at that time war broke out in Europe between England, France and their allies (Canada, Australia, New Zealand, the Poles and many, many others) versus the Axis of Germany, Italy and their allies. This conflagration widened to include the United States on the side of the Allies and the Japanese Empire on the side of the Germans and Italians. It was indeed a world at war, not to

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FLIGHT DECK PACKED

This is a fully-packed deck. Again, all's quiescent. Land is nearby, so they're probably heading for an anchorage. The five-inch guns are in the foreground, and the officer shows off the size of the aircraft (TBF/M Avengers). I've seen it said that the Avengers were the largest single-engine aircraft of WWII. You'll also notice, in other pictures, that all the carrier aircraft have radial engines, as opposed to in-line engines as used by the Army Air Corps. This was because, so I've read, a radial engine, being air-cooled, doesn't have the extra weight of a water-cooled engine. Also, it was said that radial engines are easier to maintain (easier access to the engine parts). I'll leave it to the experts to decide which type had better performance, though there are those who say the Corsair was the best fighter in the world. Whatever I can remember, while still a quartermaster striker, walking among those parked aircraft and REALLY being in awe. I felt small, I felt humble, if you will. I was in downright wonderment that all this would soon be airborne.

The fire control situation provides a very difficult problem: Consider the following elements of this problem: The ship has a course of 10 degrees and a speed of 30 knots. It's in the process of turning at 360 degrees per minute . The ship's in a pitching and rolling and yawing mode as it's heaving. Now consider the target's motions: It's moving at 270 mph in a direction of 260 degrees with a rate of change in the x, y and z coordinates of 10, 12 and 30 mph per second. The target slant range is 2 miles and its bearing is 45 degrees from the ship. Add to these quantities the parallax of the gun and the radar/director, the wind velocity and direction and finally the ballistics of the projectile (gravity as a function of target range and elevation). (cont.)

The Carrier War in the Pacific, continued from previous page.

stop until 1945 with the unconditional surrender of the Axis powers. With no disrespect to the monstrous "Great War" (WWI). that overtook Europe in 1914-1918., WWII engulfed the entire globe except South and Central America, Mexico and lower Africa.

To quote from the book "Atlas of the Second World War" by the Times Books, London (1996): "The Second World War was the greatest conflict in the history of the world. Scarcely a corner of the globe was unaffected. Immense armies, navies and air forces from the USSR, America, Germany, Japan, the British Commonwealth, China, Italy, France and countless other nations were engaged in military operations of every size and type from small commando raids to massed tank battles. Huge numbers of individuals and families, not engaged directly as military combatants, suffered appalling damage and loss; whole communities were destroyed.. Innumerable new weapons and methods of destruction were developed as the world was engaged in war from sea bottom to the sky above." Hardly an individual was not affected, one way or another, by this conflagration. Whatever happened, "C'est la guerre".

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HELLDIVERS OUT FRONT

We're now looking at the "business end" of the aircraft, the SB2C Helldivers. A peculiarity here is that an SB2C is facing back aft. This is very strange. Again, it's quiescent time, maybe chow time. Notice that the SB2Cs put a lot of space between their respective propellers. This is good for the Airdale. Not so the F6F Hellcats and the F4U Corsairs. Another oddity here is that the SB2C bombers are in front of the fighters, which require less deck with which to launch. The usual flight deck configuration is the bombers back aft, and the fighters up forward. Not so here, and I don't know why. On the Antietam, this would be chow-time (lunch), between the morning flight operation and the afternoon flight operation. I can remember, now that I had just recently been made an Airdale, walking among the aircraft with a more critical look. "Actually, how close are those propellers? Why is this wheelchock inboard, while that one is outboard? And yea, these machines really ARE big (now that I have to attend to them)".

The preceding fire control conditions as defined on the preceding page presents a monumental problem for the naval engineers. This geometric problem as defined above has been carefully outlined in Volume 2 so it will not be repeated here. Now it must be remembered that during WWII the technology was not "digital" as it is now. In fact it was not even electronically analog. All the calculations had to be done by mechanical devices such as levers and gears and cams and the like. It made use of electrical synchros of various designs to detect and transmit signals representing geometric quantities. (All this will be discussed further on). Back then we were in an analog world as opposed to the present digital world. The former dealt with analogs of a quantity: An electric voltage represented a distance which in theory was exact but in practice was not.

The Carrier War in the Pacific, continued from previous page.

With the advent of 1939, Germany's Hitler invaded Poland from the west and Stalin's USSR invaded Poland from the east. With both countries having broken their pacts, WWII had begun with England and France declaring war on the Axis, in a pact with the USSR as an ally. By 1940 northern France was occupied by Germany and the air Battle of Britain was won by the English, with massive destruction of parts of London. Lend-lease of goods from the US to England at this time started the Battle of the Atlantic in which the US sent war materiel to the Allies fighting the Axis. Terrible loses were had in ships and personnel but supplies did get through to the English and USSR. In 1942the conflict spread to North Africa with the British fighting the Germans and Italians for control of the Mediterranean Sea. The US entered this area of conflict since it was just previously brought into the war by an attack on Pearl Harbor by the Japanese. During this time the Balkans were invaded by the Germans while at the same time they took the precipitous step of also invading the USSR. There were to be many fierce, massive battles fought in this theater with the German victories to be reversed.

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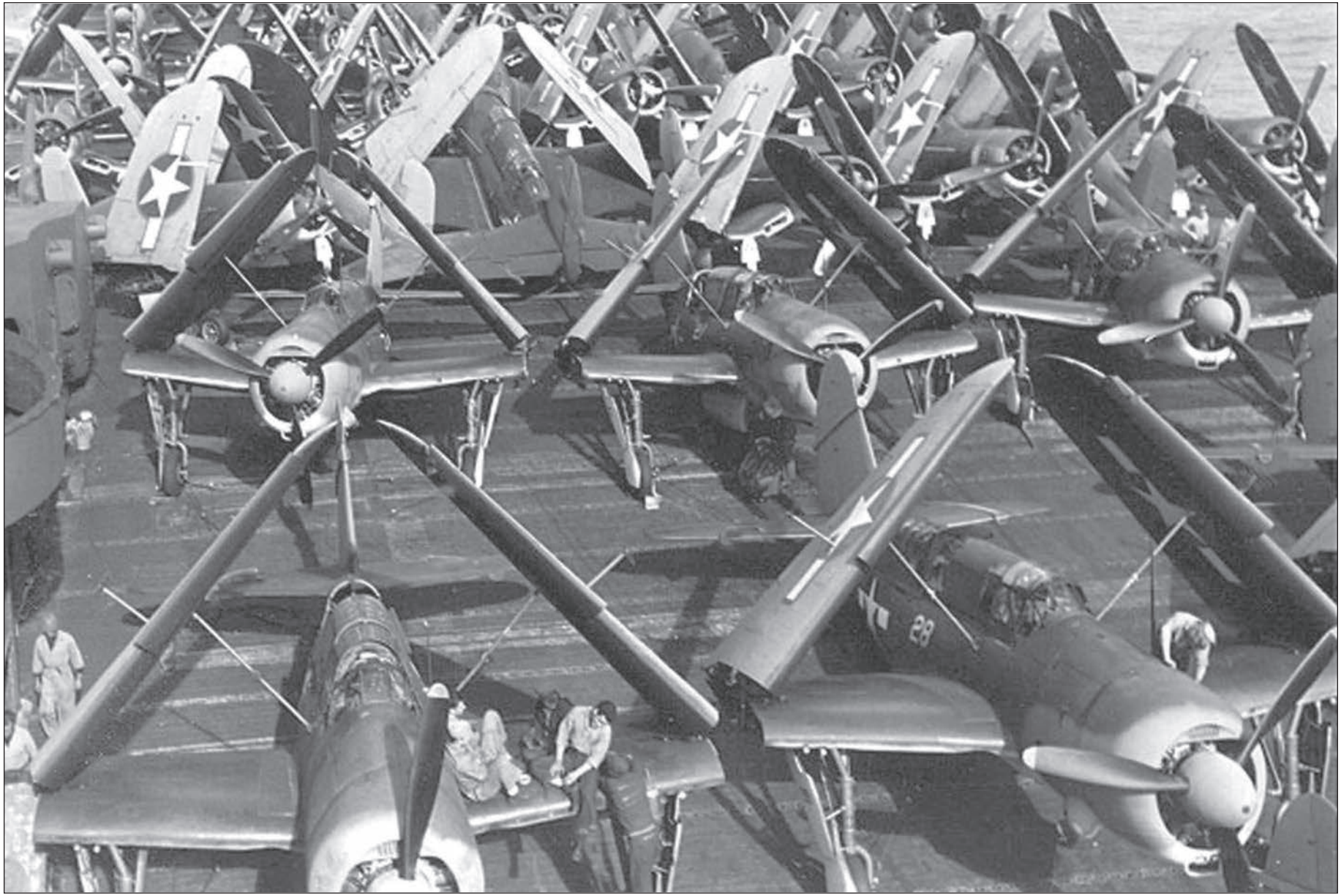

FLIGHT DECK AT REST

(In the front is a F6F Hellcat, and behind it a TBF/M Avenger torpedo aircraft. Notice the dimensions of the F6F's propeller, about 13 feet in diameter. It can be seen that the propeller-tip reaches out as far as the wheels. This is important in the next chapter . The Avenger to the right is being worked on by mechanics. Again, this probably shows the quiescence of chow-time. If an aircraft required major repair, it would be down on the hanger deck. I can remember standing next to that F6F Hellcat and "measuring" myself against the propeller-blade. "Uh-huh, it IS bigger than I am!" You take note of these things when you actually have to attend to these "brutes".

The digital world represents quantities in terms of 1/0. With today's integrated circuits great accuracy can be obtained. (In fact, analog circuits are faster than digital circuits but since digital can be very, very fast, its accuracy wins the day.) In any case, whatever computation method is used the computing device requires quantities on which to work. Here sensors are of course essential to detect distance, speed, acceleration, angles, time, etc. These too will be discussed anon. There is a 234 page manual devoted exclusively to defining the symbols used in the fire control problem. (Standard Fire Control Symbols, OP 1700 (Volume 1), Bureau of Ordnance,). This manual designates quantities in both spherical and cartesian coordinates, about 340 diagrams for the former and 210 of the latter. These figures are made up from the following designators: A , angular movement in elevation (The difference in elevation from the horizontal plane between the present line of sight and the line to the future target position, (cont.)

The Carrier War in the Pacific, continued from previous page.

With the attack on Pearl Harbor the U.S. had the formidable task of confronting the strong Japanese Navy that had spearheaded the expansion of the Japanese Empire throughout the orient and southeast Asia. The U.S. Navy could only mount a holding action until it could, bring its economic might to bear in building up the most massive war machine extant. One of these actions was the Battle of Midway on June 4-5, 1942. With the loss of four carriers in this battle the Japanese were no longer in an offensive mode, but nevertheless they were still a potent foe. (The war in the Pacific Theater will be more fully discussed after this WWII synopsis.) In the meantime there was fighting in Scandinavia, in Greece, Southeast Asia and the Atlantic submarine warfare among others.

The Allies, having retaken North Africa, invaded Sicily in 1943. Thereafter it was Italy that felt the brunt of Allied invasion as they sloughed their way up the Italian boot, receiving a welcome from very many Italians. At this time the USSR was reversing the german invasion and by means of titanic battles they slowly pushed the Germans back toward Germany. Now it was 1944 and the

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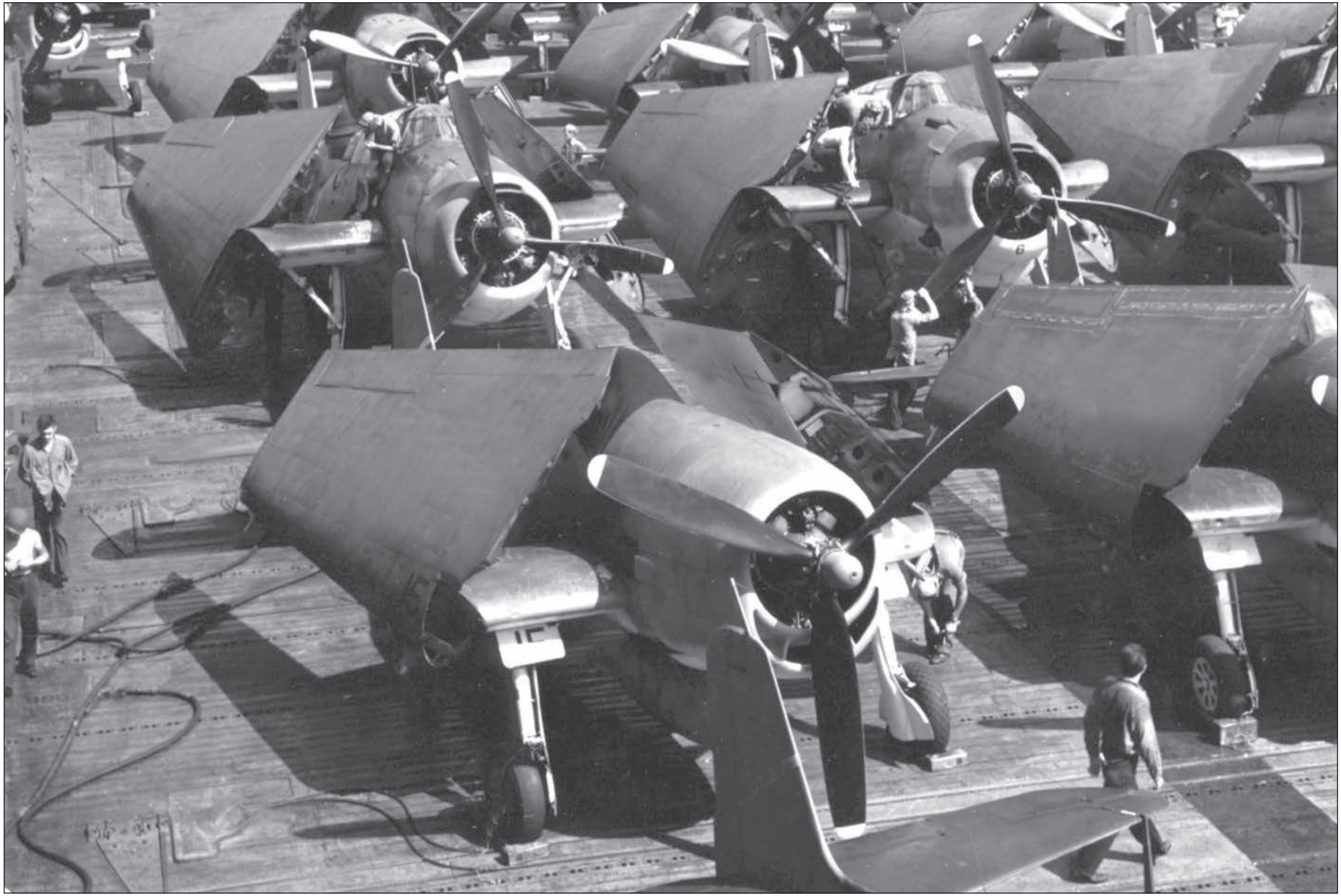

AIRDALES ASSEMBLED

These are the Airdales doing I'm not sure what. There are some yellow-shirts (plane directors) to the left. The Airdales are wearing cold-weather gear and it can be seen that there's a strong wind blowing (notice the clothes). There's almost always wind on the flight deck due simply to the ship's motion and/or the ambient wind. They're all eighteen or nineteen years old, and I'd bet none of them are regular Navy. The yellow-shirts, for the most part, are not commissioned officers, but instead are non-commissioned officers, such as chief petty officer or warrant officers (a step below a rank of an ensign commissioned officer, the lowest-ranked commissioned officer). All those blue-shirts (Airdales) are to a man probably seamen 1/C (first class), a rank above seamen 2/C, which is what you become when you leave boot camp (the first step into the Navy). So, they are all undoubtedly 18-19 year olds, but they could be older. I can remember that every once in a while we'd group together like this to "get the word" from the yellow-shirts. I would always be part of the group, but I was never "buddy-buddy" with anyone. It would be "work-talk", but never "buddy-talk".

measured upward to the line to the future target position in a vertical plane). B, bearing. C, course. D, rate of. E, elevation. Ei, level. I, angle of inclination. J, jump deviation. L, sight deflection. M, linear movement. P, gun parallax base length. Ps, director parallax base length. R, range. S, lateral angular movement. T, time. U, velocity. V, sight angle. W, wind rate. Z, cross level. The modifiers are the following: "a", apparent. "b" bearing. "d", deck. "e", elevation. "g", gun. "h", horizontal. "k", earth. "o", own ship. "p", prediction. "q", heading. "r", range. "s", line of sight. "t", target. "v", vertical. "w", wind. "x", east-west. "y", north-south. "z", cross level. (cont.)

The Carrier War in the Pacific, continued from previous page.

crossing of the English Channel on D-Day, June 6, 1944, was the beginning of the end for Nazi Germany. Preceding this were the mighty air battles over Germany that cost thousands of American lives (the English losses were fewer because they conducted night operations). The destruction on the ground to the military and civilians alike were staggering. Germany paid heavily.

The destruction was devastating and the Marshall Plan was a God-send (the U.S. supplied goods and means of production to get Germany back on its feet to preclude the mistake after WWI.) The Allies air bombing was comprehensive but so was the destruction wrought by the advancing armies of the USSR. Peace finally came to Europe after a year of hard fighting including the Infamous Battle of the Bulge (during which my brother was wounded). June 5, 1945, a day that will live always. This has been a very rough outline of the war in the west. Ever since Pearl Harbor there was another war in the east, the Pacific Theater. It was decided, not unnaturally, that the European war had priority but now all attention was directed to the east: termination of Japanese dominion.

(Continued on next page)

AIRDALES TO WORK

"There I am, number '3'". These Airdales are respotting the deck and look to be going to "get" another aircraft. That yellow-shirt pulling on the propeller is only directing where that Hellcat's going. There are a bunch of Airdales, out of sight, who are moving that aircraft, to be sure. The flight deck is slick with a previous rain, and during flight operations, this will be a problem when trying to maintain a firm footing against the propwashes. It's bad enough on a dry deck, but on a slick deck, it could be treacherous. That's when you stay particularly low (on your hands and knees) and grab for those cleats seen going across the flight deck. Notice how close together those two Hellcats are. This leaves precious little room between them when an Airdale has to get to a wheelchock during launch operations. This is because the tip of the propeller reaches out as far as the wheel of the Hellcat, and the wheel is not that far from the extension of the folded wing. Sometimes there's only about a couple of feet between your shoulder and that propeller-tip. (But these things are part and parcel of the chapter on Launch Activities. I can remember, when I first started as an Airdale, watching what the others did, and didn't do, so as to "be part of the team". I also didn't want to do anything that would spell disaster for myself, so being a copycat was being smart.

Prime ' before quantity. Prime ' after quantity. Double prime ' before a quantity. Double prime ' after a quantity. "1", present position. "2", future position. "3", advance position. "4", aiming position. "5", fuse. The quantity modifiers are: "a", advance. "b", ballistics. "c", computed or generated. "d", designated. "e", estimated or error. "f", function. "g", dead time. "i", increment. "k", earth. "f", initial. "m", relative motion. "o", observed or measured. "p", gun parallax. "ps", director parallax. "q", corrective input. "r", rate control. "s", selected. "u", initial velocity loss. "w", wind. Now I will present one example of a spherical and a cartesian coordinate (cont.)

The Carrier War in the Pacific, continued from previous page.

There was essentially a two-prong strategy in the Pacific: The army would fight its way to the Philippines (which it lost soon after Pearl Harbor) through the islands of the southwest Pacific (such as Guadalcanal) while the navy, both ships and marines, would island-hop westward to the shores of Japan for a final monumental invasion of the Japanese islands (which would be very bloody indeed).

In the meantime there was a good deal of fighting ion the southwest mainland such as Burma and that entire area. The British had substantial forces in this region because of their pre-war presence there. They also had naval units to protect India and support their ground troops in Burma and environs. One of the prime efforts was to builds a road through here to supply China with materiel. The Japanese of course contested this and thus there was much fighting in the inhospitable jungles. The same can be said of Guadalcanal and area fighting. A keen focus of this theater, though, was the westward move across the Pacific toward Japan. This was an American operation essentially from start to finish and primarily a Navy one (including the marines). During

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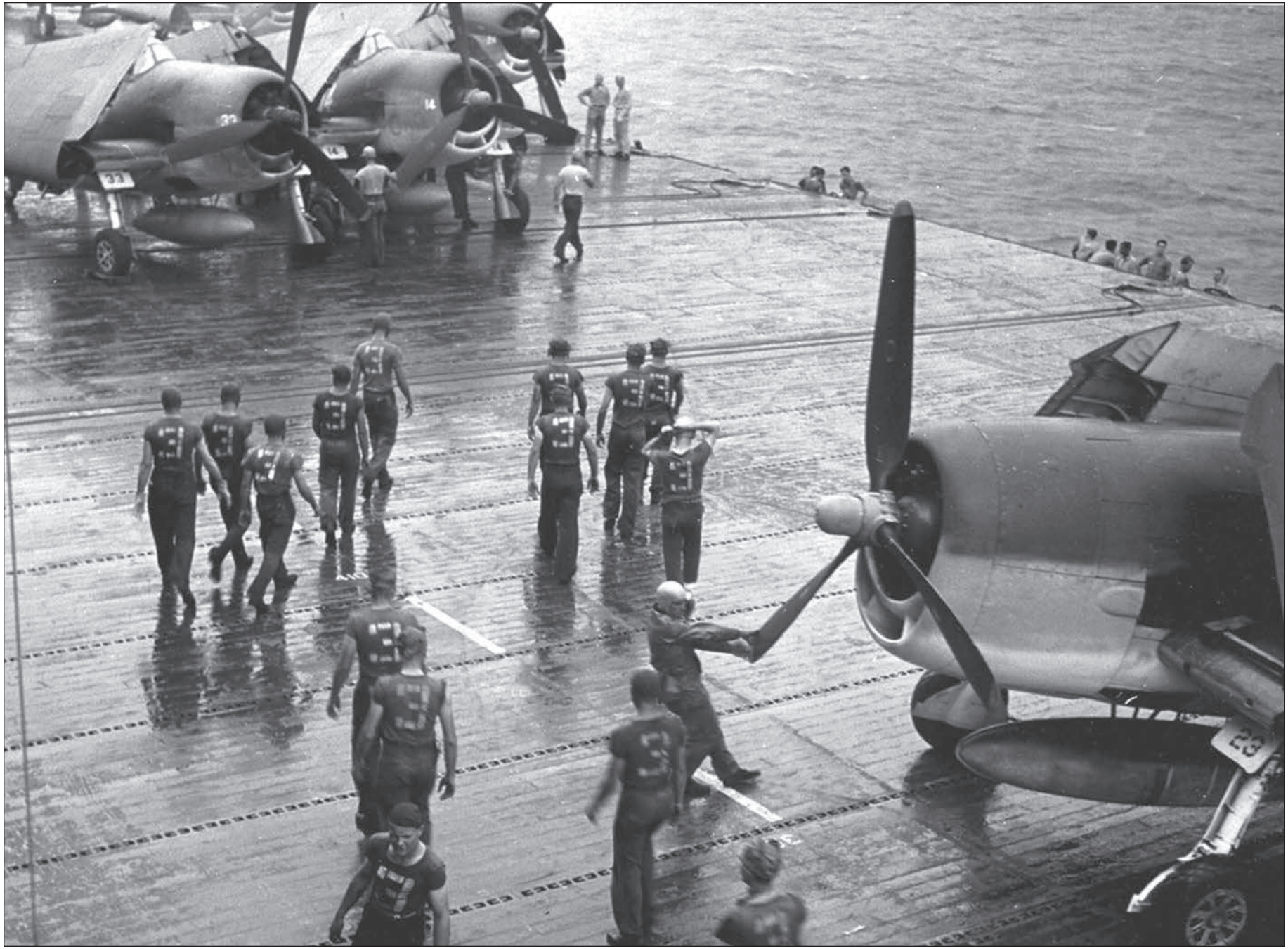

AIRDALES AT WORK

This is a close-up of a previous picture to show more clearly the respotting exercise. Tractors are used to do some of the aircraft moving. The close-in work all has to be done by hand (and arms and shoulders and legs). As each plane is moved, someone's in the cockpit to apply the brakes, if necessary. Once, we were respotting the flight deck during a typhoon. For some reason, we were pushing the aircraft at an angle, very close to the catwalk. Just as the aircraft was about three feet from the edge of the flight deck, the ship rolled excessively. The Airdale in the cockpit wasn't able to apply the brakes quickly enough and the left wheel went over the edge of the flight deck and onto the catwalk. An Airdale next to the aircraft's fuselage was trapped between the wing and the flight deck. He didn't survive the night (in sick bay). I remember someone saying he was having problems at home, and so was never alert about his duties. The home distractions thus did him in, it could be argued. Notice how close to the front edge of the flight deck that the Airdales are doing their work. With gusty winds and an unstable platform that's fifty feet above the water, this could be a problem. We never lost anyone this way, but diligence was always the watchword of the day. Since the work on the flight deck was never, essentially, repetitious, you couldn't afford to let your mind wander. (And there was no workman's compensation.) I can remember, while working during the respotting operation, how I enjoyed the fresh sea breeze. It was pleasant in that respect. But naturally, there was also the cold, the hot, the wet, and the windy with which to contend. You take the good when it's there for you.

configuration: First the spherical example: Dbsd, Angular Bearing Rate in Slant Plane (The angular rate of the line of sight in the slant plane through the line of sight and through the director elevation axis in the deck plane, measured with respect to the initial position of the line of sight at the instant of firing. The initial position of the line of sight is fixed in the reference frame used by the fire control system to measure the angular rate). The next example will refer to a cartesian coordinate configuration. (cont.)

The Carrier War in the Pacific, continued from previous page.

the latter stages the U.S. Air Force (part of the army then) contributed strongly with their new and large B-29s that wrought terrible havoc on the Japanese mainland. So now we will concentrate on the carrier air war as the Navy fought its way from island to island toward Japan and ultimate victory.

The discussion now will be concerned only with the westward campaign across the vast Pacific as opposed to the southern one taken by the U.S. Army and the U.S. Navy marines, with naval support, through the New Guinea Islands to the Philippine Islands (recall that at the beginning of hostilities on December 7, 1941 the Japanese Empire consisted of the following wide area: Japanese Islands, Korea, Manchuria, very large areas on the China coast, Okinawa, Formosa (Taiwan), all the Philippine Islands, Indochina (Vietnam, Cambodia, Laos), Thailand, Burma, Malaya, Sumatra, Java, Borneo, Celebes, New Guinea, New Britain, Solomon Islands, and then the Islands further north such as Gilbert, Wake, Mariana (Guam, Saipan, Tinian), Caroline, Marcus, Iwo Jima, and others in the west central Pacific (to the east was the U.S. held Midway and to its east are the Hawaiian

(Continued on next page)

AIRDALES RESPOTTING FLIGHT DECK

I like this picture mainly because of the effectiveness of the silhouettes. I believe the photographer recognized this and "caught it." This is a straightforward example of Airdales pushing aircraft (SB2Cs) from their landing positions to their launching positions. Sometimes the pitching ship helps you, and sometimes it hinders you. You take the good with the bad. Again, notice the ample space between the parked SB2Cs. This picture was no doubt taken just after the morning's landing operations, as witness the shadows. All the 90 or so aircraft had to be respotted back aft (as here) to their launch positions before lunch so as to be ready, right after lunch, for the afternoon's launch operations. Although we had a certain amount of free time after a launch operation, there were still various aircraft that weren't launched that had to be moved someplace. So it was a fairly busy day that we had (every day). I can remember that pushing these SB2Cs was significantly harder than pushing the F6Fs and the F4Us. That applied even more so to the TBMs, the biggest single-engined aircraft of WWII. But I never remember having an had an aching back. It was never aches, only fatigue.

Mrd, Linear Movement in Deck Range (The linear movement during the time of flight in the deck plane and in the normal plane through the line of sight, due to relative motion between own ship and target in the frame used by the fire control system. [Note. 1. To express the same quantity due to own ship motion, modifier "o" is added: Mrdo2. To express the same quantity due to target motion, modifier "t" is added: Mrdt3. To express the same component of displacement to advance position, modifier "3" is added: Mrd3. 4. To express the same component of displacement to aiming position, modifier "4" is added: Mrd4. The foregoing details were only presented to provide a flavor or the complexity involved in defining the fire control problem. An accounting of all these variables must addressed. (cont.)

The Carrier War in the Pacific, continued from previous page.

Islands).This was a large Empire in area and population,said to be needed for the natural resources that the Japanese Islands lacked. The stage for the carrier air war has been set.

The first six months of the war with Japan saw it complete the Empire as enumerated on the previous page. The Japanese admiral who orchestrated this predicted expansion also said that the bombing of Pearl Harbor would also awaken a sleeping giant (in the form of a huge U.S. response). The "Navy Phase" of this response, the push to capture the islands to the west of Midway Island on the way to Japan, was under the direction of that taciturn Texan Admiral Nimitz while the southern approach to the Philippines was under the control of the somewhat vainglorious General McArthur. The goals were the same, the approaches were very different.

With the loss of so many American battleships and the comprehensive success of the Japanese naval aviators, the carrier immediately became the "capital ship" of the fleet. It also thereby became the prime target for both sides; thus the carrier was a "marked man" to be hunted down and destroyed. This is why the

(Continued on next page)


10

CLEAR THE DECK TO LAND AIRCRAFT

Presumably these are aircraft that weren't launched, for whatever reason. Probably some kind of engine trouble such as insufficient oil pressure. They'll be pushed to elevators to be taken down to the hangar deck where the mechanics will work on them. Notice the outline of the aft elevator in the middle of the picture. Also notice the screen at the farthest aft and port side. The LSO (Landing Signal Officer, a pilot) stands in front of this screen to protect him from the wind. Just to the right of the screen is a net which he uses, if necessary, to jump into should a landing aircraft force him to do so. The aircraft to the right is facing back aft because it's being pulled by a tractor. Things are pretty relaxed here, but that's good, after the exertion of the just finished launch operation of about 90 aircraft. Notice the Hellcat, just in front of the number "15," taxiing under its own power, as opposed to being pulled by a tractor, or pushed by Airdales. He probably was warming up (revving up) for launch, and decided something was wrong (low oil pressure?). So instead of launching, he's taxiing to the elevator to go down to the hanger deck for repairs. Also notice an Airdale, wheelchock in hand, escorting the Hellcat as it's being directed by yellow-shirts. I can remember, at the start of my tour as an Airdale, thinking how pleased I was to be an integral part of the main function of this ship, lowly though my job was. And after all, this was where the "action" was.

This manual divides the fire control problem into five sections: Present Target Position, Motion, Wind, Linear and Angular Offsets and Gun Orders. The first section deals in horizontal and deck planes in addition to reference lines: Vertical, perpendicular to the horizontal planes or normal, perpendicular to the deck plane. It also references own ship centerline or the N-S line. The second section 2 refers to motion between own ship and target in terms of the basic inertial frame or the earth frame or own ship frame or the stabilized frame which moves with own ship motion except for the rate of own ship indicated by the ship's pitometer log (speedometer). (cont.)

The Carrier War in the Pacific, continued from previous page.

Central Pacific campaign became a "carrier war" (with of course the heroic sacrifices endured by the marines who had to take islands from often fanatical enemy soldiers To them it was do or die.) Initially, the naval action centered within the Coral Sea near New Guinea, McArthur's domain. This battle was the first major naval engagement between the two combatants (prior to the bulk of the naval action taking place among the islands of the West Central Pacific, Nimitz' domain).

As of the start of the war in the Pacific, December 7, 1941, the Japanese had superior experience on their side. They had a stronger navy now that the U.S. had lost four battleships with another four badly during the Pearl Harbor strike that December 7th. They had six large carriers and four smaller ones compared to the four large carriers of the American fleet (none of these were Essex-class carriers). Japan's pilots had war-time experience while those of the U.S. had none. AS Admiral Yamamoto had said, during the first six months of the war they would run wild in the Central Pacific and South East Asia. He was right with the Americans losing the Philippines during that time. The Japanese

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DOWN ELEVATOR

This is a good example of the use of the aft elevator. It appears the launch operations are finished, and that those SB2C Helldivers are being held in reserve. (The Antietam, having been a training ship, most always launched all of her aircraft. We did this as standard practice.) Before aircraft can land, those SB2Cs will have to be respotted up forward to make room for the returning aircraft. This, of course, is one of the Airdales' duties. They are back aft doing this, as can be seen. Once the SB2C on the elevator is lowered below, it'll be pushed off the elevator and pushed to a place by the hanger deck Airdales. The flight deck personnel will have about two hours to respot the flight deck before the airborne aircraft return. (I can remember, at the beginning, what a "charge" it was to be on an elevator, riding it up and down. This was the "real deal", to use the vernacular (which will of necessity appear throughout this book).

The measurement of motion in fire control system comprises the expression of: 1. Linear motion of own ship and target, 2. Angular motion of the line of sight, 3. Motion between frames of reference, and 4. Courses, headings and Target Angles. The third section concerns wind. All that will be said about wind is the following: Reference planes used for measuring wind quantities are horizontal plane and deck plane while the reference lines are own ship centerline, N-S line, line of sight and line of fire. The wind classes are bearings, courses, rates and jumps. Section 4 concerns linear and angular offsets. These refer to future, advance and aiming positions. The reference planes are horizontal and deck while the reference lines are line of sight and elevation axis. Section 5 deals with gun orders used to position the gun along the line of fire. The coordinates used for this are the same as (cont.)

The Carrier War in the Pacific, continued from previous page.

were truly an Empire in SE Asia. Added to this fact was the superiority of their aircraft. Their fighter, the "Zero", was more maneuverable and faster than the American Wildcat because it was lighter. This also gave it greater range.

The Wildcat was rugged with self-sealing fuel tanks but otherwise the Japanese had the better fighters and pilots at the start of the war. The differential between the torpedo aircraft was even more severe. The Japanese "Kate" was superior in all respects to the outmoded American torpedo aircraft Devastator. Even the Japanese torpedoes were superior than those used by the U.S. However, the American dive-bomber Dauntless surpassed the Japanese dive-bomber "Val" which had shorter range, smaller bomb loads and was somewhat slower. The Dauntless, and their pilots, showed their excellence at the Battle of Midway. However, the Vals took a heavy toll at Pearl Harbor. This then was the lineup at the start of the hostilities in the Pacific at the time of Pearl Harbor. Japan ruled the seas.

Things would change with respect to the ships and aircraft. While the Japanese retained their original arsenal of ships and air-

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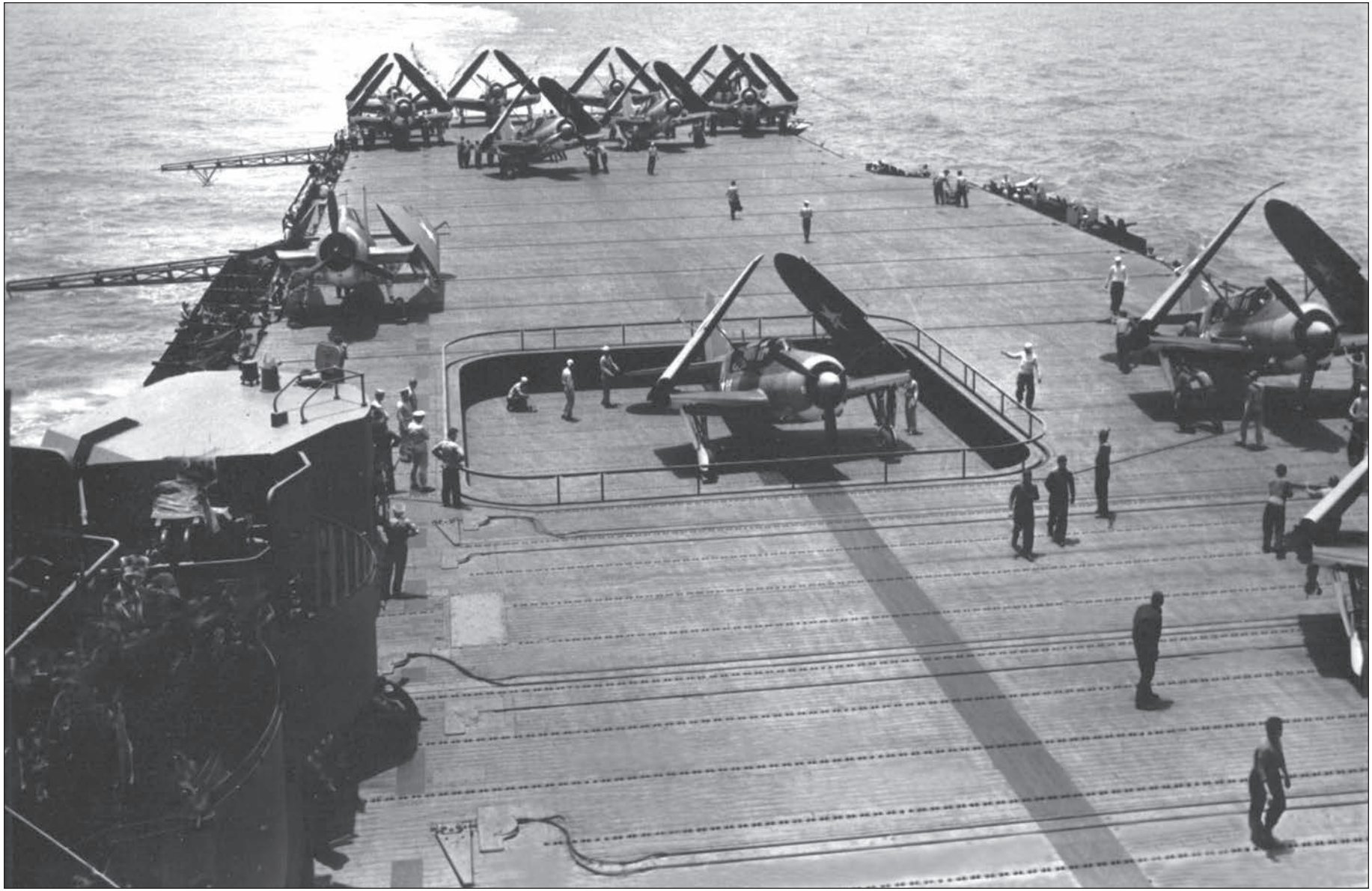

FLIGHT DECK ELEVATOR IN ACTION

This is the aft elevator, apparently bringing an aircraft up from the hangar deck, in preparation for an ensuing launch. I never saw anyone shirtless on the Antietam as is the person on the left. Actually, he's probably not even an Airdale. But each ship had its own "personality," I suppose. On the Antietam, only flight deck personnel were on the flight deck during the day while at sea. That's just the way it was. And on the Antietam, everyone was wearing his "colors": blue for Airdale, green for arresting gear and catapult, red for armaments and fueling, brown for plane-captain [like a squire to a knight (pilot)], and yellow for plane-directors (traffic cop). This was strictly observed on our ship. But again, every ship had its own personality (and captain). I can remember being somewhat reluctant to lean on the rail as these Airdales are doing. But nevertheless, I did so, so as to watch the goings on below.

those used to measure the location of present target position. To give a flavor of the symbolization for "gun train": In horizontal plane from vertical through OSCL (own ship centerline) to vertical through LOF (line-of-fire) is Bg. Gun train in deck plane from vertical plane through OSCL to vertical plane through LOF is Bdg. Gun train in horizontal plane from N-S vertical plane to vertical plane through LOF Bgy. The gun train in the horizontal plane from vertical plane through OSCL to normal plane through LOF is Bg'. There are eight such symbols for gun train: Bg, Bg', Bgy, Bgy', Bdg. Bdg' , Bdgy and Bdgy'. For gun elevation there are Eg, Eg', Edg and Edg'. There is the level angle between the horizontal and deck planes in vertical plane through LOF (Eig) plus Eig'. So it goes Zg, Zdg', R4, Ry4, Rh4, Rhy4, ……, Pvd, Phy,….. The combinations and permutations overwhelm. (cont.)

The Carrier War in the Pacific, continued from previous page.

craft but U.S. production capability developed and produced the Essex-class carriers of which fourteen participated in the war. The first such carrier was the U.S.S. Essex, CV-9, commissioned on 1 January 1943. There were also produced the much improved fighters F6F Hellcat and the F4U Corsair to replace the inadequate F4F Wildcat. The TBM Avenger torpedo aircraft replaced the outmoded Devastator and the SB2C Helldiver dive-bomber superseded the fine Dauntless dive-bomber. Thus by the beginning of 1943 a new war was to take place even while the Japanese remained a formidable force with which to reckon. We now move to the Coral Sea.

The Battle of the Coral Sea took place during May 1942 when I was almost sixteen years old (my birthday is July 23, 1926). This was the first battle between ships in which the ships were out of view and range of each other. A new war, a carrier war, had begun.

In early 1942 the Japanese had taken the large base of Rabaul on New Britain in the Solomon Islands, uncomfortably close to Australia, one of our allies in this war against Japan. This was a real concern to the Allies requiring one of our first engagements

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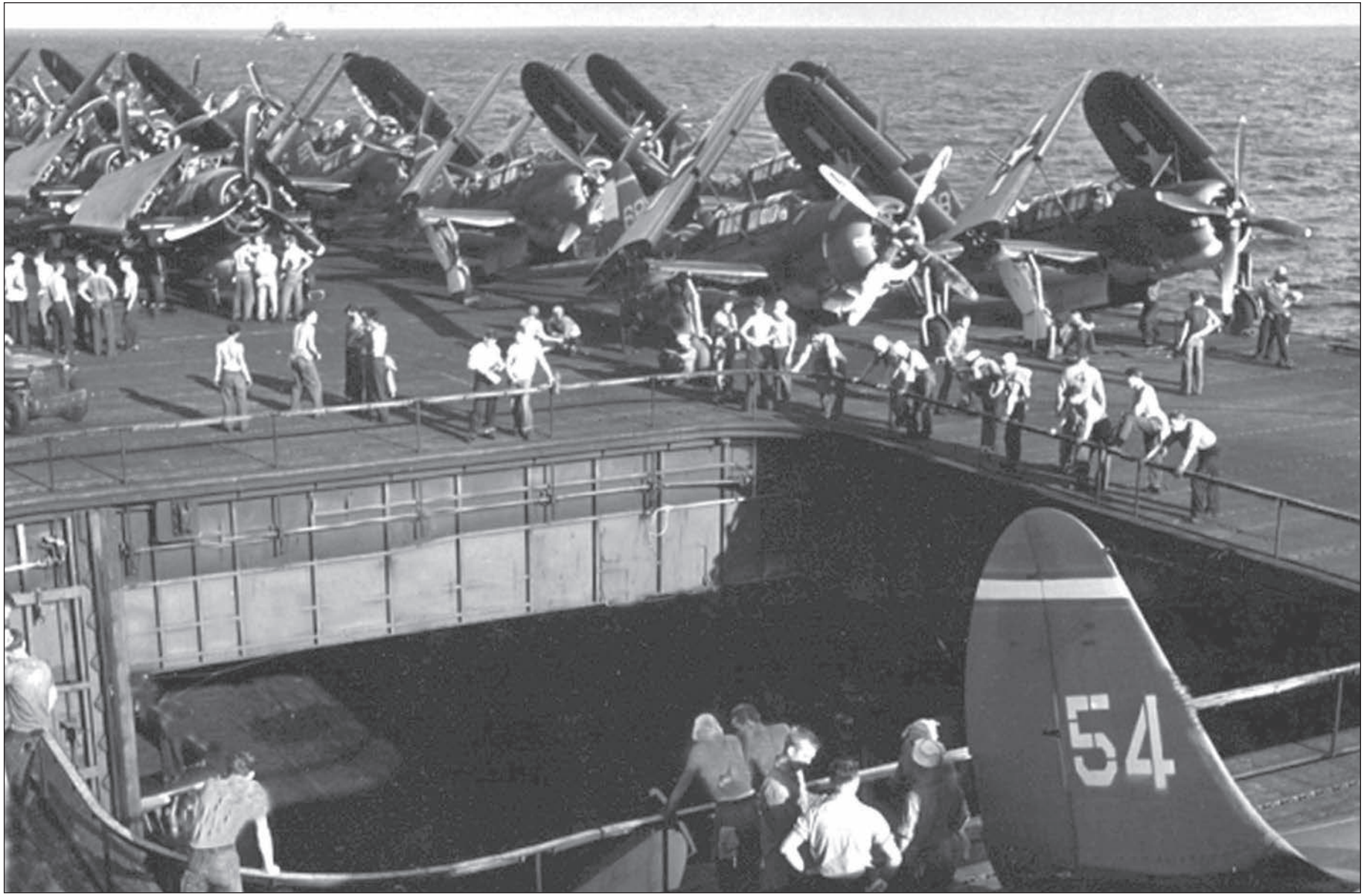
54

THE BEAST

The pilots called this SB2C Helldiver "the beast". It's not clear whether they were the Helldiver pilots or the pilots of the other aircraft. In any case, it was a hefty aircraft, a "load", in the vernacular. Thus, if it had to be moved a long distance, a tractor, shown here with tow-bar, was used. An Airdale, with a wheelchock in hand, was always at the ready to put the wheelchock down, bracketing the wheel, if the aircraft started to roll too far due to the ship's pitching and/or rolling motion. In heavy seas, the plane-captain (the brown-shirt) would be in the cockpit, ready to apply the brakes. Here, the Helldiver is being pushed onto the deckedge elevator, amidships and on the port side. It'll then go to a certain location on the hanger deck for maintenance. On the other hand, maybe it was being moved to the hanger deck below to make room on the flight deck for other aircraft. These were fairly quiescent times. There wasn't much of a rush, as during other times, because almost all the aircraft were airborne, doing whatever it was that they did. We (I) were never privy to what these things were except that they never came back with their bombs, and the "scuttlebutt" never included that subject. (Even though I was basically a "loner" I certainly did talk with the other Airdales about "work" and the like. It's just that I never got close to anyone. My problems, my inner thoughts, were not of a nature to be shared with anyone, and certainly not with an Airdale whose interests were primarily toward the opposite sex, in a grossly cavalier manner. My interests in that area were much too fragile to tolerate that kind of talk, what with my very tenuous relationship with "my girl" back home. But that certainly is personal, not to be discussed here, in this journal. This is a pictorial essay, and so it will be.) I can remember pushing on these SB2Cs and (our) getting nowhere, until the ship either pitched or rolled in the right direction to allow our being able to get "the Beast" moving.

THE FIRE CONTROL SYSTEM. The last five pages were devoted to the Symbols Manual. We'll leave that presentation to now restate the fire (cont.)

The Carrier War in the Pacific, continued from previous page.

of the war (for the next two years) including the debilitating struggle by the marines and army in the jungles of Guadalcanal. Thus the naval forces combined with the land fighting to dislodge the Japanese, in the process of which ensued the naval Battle of the Coral Sea.

The U.S. determined that the Japanese were going to try to extend their domain further eastward by sending forces from Rabaul to capture Port Moresby on New Guinea directly across from Australia and sending forces from the small island of Tulagi in the Solomon Islands U.S. aircraft were sent from the U.S.S. Lexington (CV-5) against Tulagi. They sank some small ships but did not detect the carrier "Shoho" nearby. The Yorktown then joined up with the U.S.S. Lexington (CV-2) to intercept the enemy at Port Moresby.

The Japanese, now alerted, sent the carriers "Shokaku" and "Zuikaku" to contest the American carriers. During the night the two sets of carriers passed within 70 miles of each other, unbeknownst by either. The next day scout aircraft from both sides detected each other. The Japanese sighted and sank a destroyer

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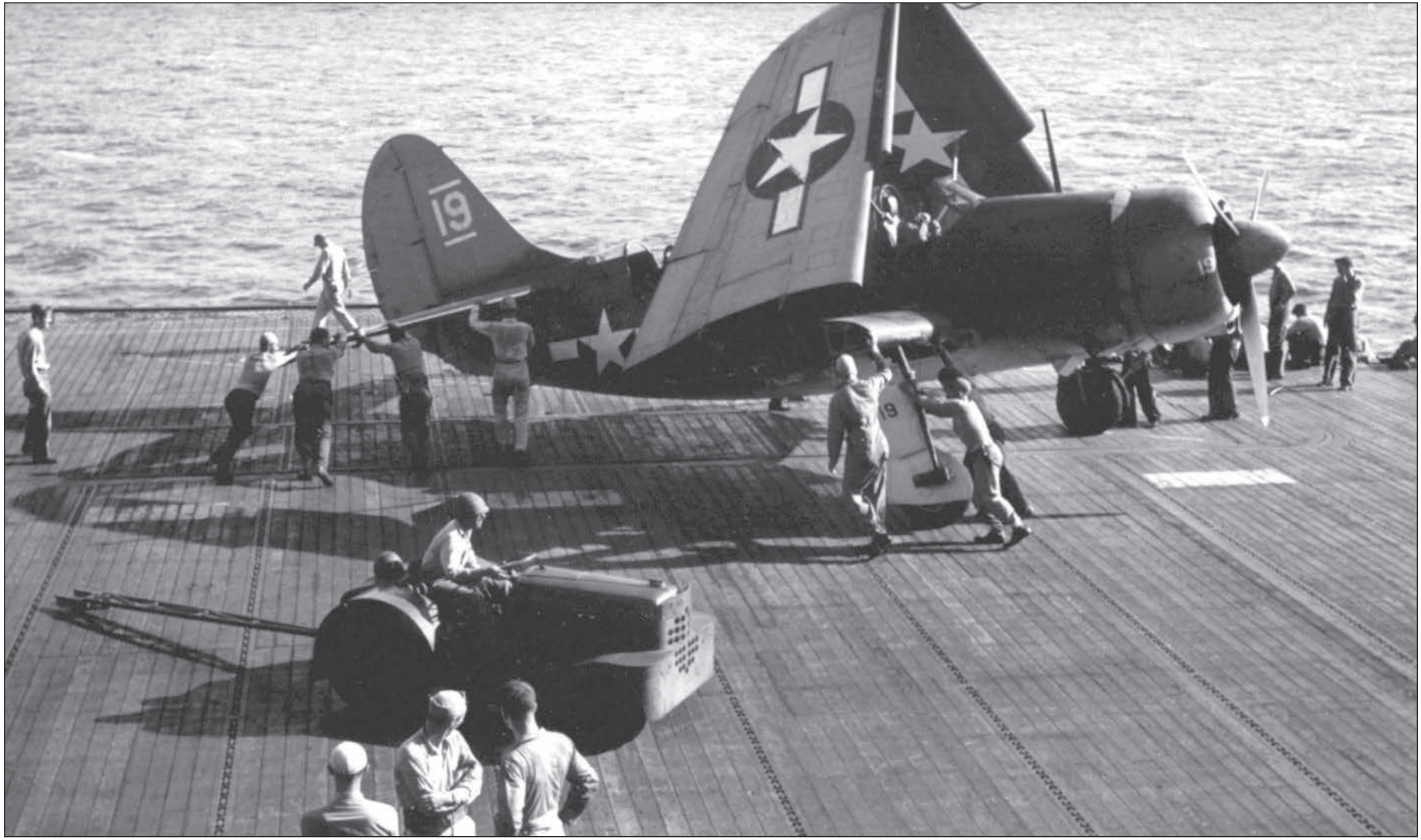

HELLDIVER BEING DELIVERED TO FLIGHT DECK

This picture should probably be in the next chapter because it shows an SB2C coming up the elevator with engine under full power, all ready to launch. This could be the forward elevator, and the SB2C is going to the catapult just ahead. But then the question is, "Why is the TBF/M sitting over there with its engine off?" Maybe it's going to use the right catapult later on, and the SB2C is going to use the left catapult now. Who knows? That's a 35mph wind coming over the front of the flight deck that's ruffling the yellow-shirt's pants. Notice he's in position to give the pilot hand-signals to move the aircraft to takeoff position on the catapult. As the SB2C reaches the flight deck, the yellow-shirt will move back, because he'll be too close to the propeller. (Keep in mind that 35-mph wind at his back.) But then on the other hand, maybe the SB2C had just landed and then taxied onto the elevator to go down to the hanger deck. That would partially explain the TBF/M just sitting there. It's one or the other. I can remember closely watching the yellow-shirt and his hand signals, because in that way you could anticipate the aircraft's movement. This was basic "Airdale 101".

control problem and how it's resolved. The situation follows: Our ship is steaming at 25 knots due north and has commenced a hard turn to port. We have moderate seas generating continuous pitching and rolling motions. In addition the ship undergoes a moderate heaving while also yawing during the turn. At this time a "boggie" (enemy aircraft) is 2 miles away bearing 80 degrees at a slant range of 2.6 miles and heading at 330 degrees. Now it banks to the left and starts to accelerate. The wind is from the NW at 20 mph. The CAP is to the east chasing other boggies and thus of no help. There are other boggies lurking nearby (20 seconds away). (cont,)

The Carrier War in the Pacific, continued from previous page.

and damaged an oiler sufficiently that it had to be abandoned. The American scout aircraft sent an erroneous message indicating two carriers when in fact were two cruisers. Based on this the American admiral sent a full strike force from both the Yorktown and the Lexington on an ill-advised attack, not knowing the location of the Japanese carriers.

By chance a scout aircraft sighted the Japanese forces. Thus Yorktown and the Lexington sent a large contingent of strike aircraft to attack the two Japanese carriers. Pressing on, the U.S. torpedoes that the Devastators launched were too slow to hit the evading carriers. Those few that did hit the "Shokaku" failed to detonate (the "Zuikaku" had already slipped into a rain squall). Following Dauntless dive-bombers scored hits.A second bomb found its mark and the "Shokaka" was aflame. At about this time the Lexington's radar (the U.S. had superior radar and so was able to detect the enemy before sighted) detected aircraft..With only eight fighters available, seventy Japanese aircraft mounted a raid on the Yorktown. Evasive action spared the ship most of the armament thrown at it (both bombs and torpedoes) but it took a hit

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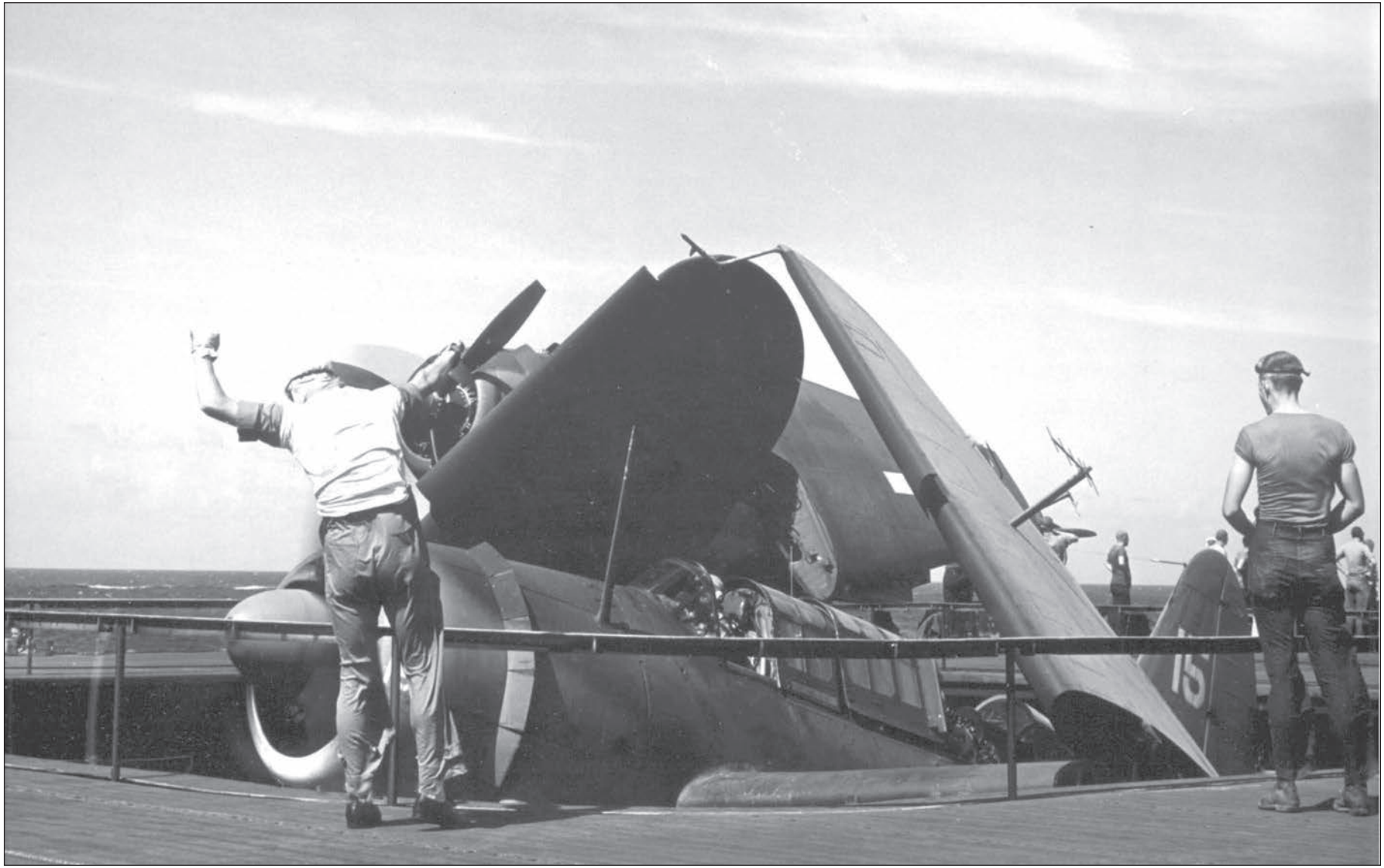
15

HELLCAT BEING DELIVERED TO HANGER DECK

No explanation needed here: hangar deck personnel pushing the F6F Hellcat off the aft elevator, the Airdales above being onlookers. Hanger deck personnel were the same as flight deck Airdales, except they worked on the hanger deck. Two things were different though: first, when an aircraft warmed up on the hangar deck (not that often), the noise was horrendous, and second, if a bomb smashed through the flight deck and exploded on the steel armor-plated hanger deck, the casualties would be very extensive. Personally, I was glad to be topside on the flight deck, where the action was, and where I was doing something I thought was of some (marginal) importance. I can remember how glad I was to be "up here, and not down there", because "up here" you could feel the wide open spaces of the ocean and the sky and be a part of all the activities going on, rather than being cooped up "down there".

I'll now reprise a segment of text that can be found in the Volume 2 book. I have no room for the diagrams so I'll briefly describe them to aid in reading the text. The first element is the radar-director. It is essentially a 5-foot cubic structure with a 3-foot dish radar antenna affixed to the top of the director which in turn is attached to a trunnion which can rotate 270 degrees. This trunnion is also horizontally stabilized. For this purpose a signal, the cross-level, is sent to it from the stable element (a high performance gyroscope). The director also receives a "predicted change in target bearing and elevation" signal from the mechanical analog computer. Signals sent by the director are "estimated target rate of climb", "target elevation", "spots" (how close are the shell bursts from the target), " target range and (cont.)

The Carrier War in the Pacific, continued from previous page.

and 66 personnel were lost. A mile away the Lexington came under attack also. Eleven torpedoes were launched against the Lexington from both sides. Being less agile than the Yorktown, two torpedoes struck home.

The Lexington was seriously damaged but continued flight operations an hour later. However, aviation vapors in the bowels of the ship were ignited by a sparking electric generator and explosion after explosion wracked the ship to such an extent that it had to be abandoned with the loss of 216 personnel. Thus the final tally was the Lexington, the oiler Nessho, the destroyer Sims and the badly damaged Yorktown versus the light carrier Shoho and a few small ships at the Japanese base of Tulagi. The Japanese won the first battle fought by ships that never saw each other: aircraft did all the damage. The "Shokaku", though badly damaged made it back to port under its own power. Both sides lost a number of aircraft and pilots though some were picked up by destroyers. Thus in the "big picture" the Americans won a victory in that they stopped the Japanese from further consolidating their hold on the fringes of their empire. The Battle of the Coral Sea was a tactical

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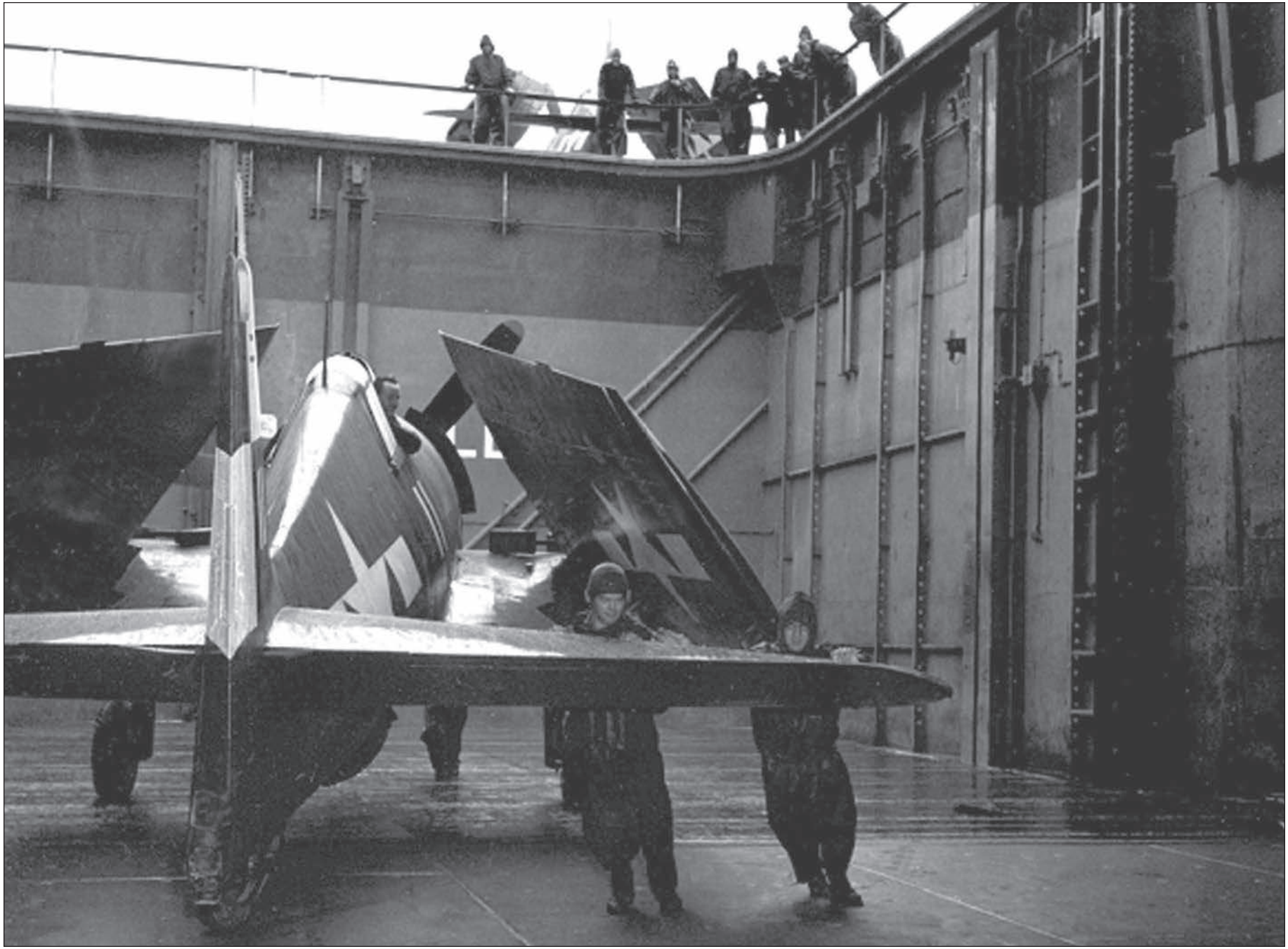

HANGER DECK AIRDALES

Here then are the hanger-deck Airdales pushing an F4U Corsair onto the elevator. They've positioned it so that it'll be facing forward. Under the fuselage are two auxiliary fuel tanks, an unusual arrangement. On the Antietam they would have only one auxiliary fuel tank. The bomb-load shown here is a fairly light one. By the end of the war a Corsair could carry five thousand pounds of bombs, albeit with a reduced range. At the end of the war there were Corsairs that were packing 2,800-hp in their engines. I believe the Antietam carried those, and since we were a training ship, we were the first to carry the Tigercats and the Bearcats, neither of which saw wartime duty. If I'm not mistaken, those are 100-lb bombs on this Corsair, much less than it's capable of carrying. Also, note the space under the flight deck. In that space were housed various offices. This was called the gallery-deck. I can remember that sometimes they'd call for two aircraft on an elevator at the same time (either the smaller F6F or the F4U). This speeded up the process and kept us on our toes, and it made things more interesting.

bearing", "estimated target course and speed". These five signals form the basis of the problem solution. The second element of the system is the computer. It receives level and cross-level from the gyroscope element. All five of the signals generated by the radar-director are sent to the computer. The computer also receives "own ship speed" from the pitometer log and "own ship course" from the ship's gyro. (Level and cross-level are derived from the Stable Element, also a gyroscope). Finally, the computer sends "fuse order", "sight angle and sight deflections" and "gun elevation and train orders" to the gun. It should be said that during the war there was developed the proximity fuse by which an integral radar in the projectile detected closeness to the target to cause detonation. Previously, the fuse had to be preset prior to firing to detonate based on a time interval. (cont.)

The Carrier War in the Pacific, continued from previous page.

loss but a strategic gain and it gave the American side a reason to believe it could reverse the Japanese hegemony in the Pacific. Next in this process will be the turning point of the war: the Battle of Midway.

We'll now take leave of the Southern Campaign as it existed for the next two years in the misery-evoking jungles of New Guinea and environs. It was a multi-task endeavor involving the marines, the army and the navy in a two year effort. The Philippines followed.

No we move north to the Battle of Midway that followed the Battle of the Coral Sea by about a month. The U.S. partially broke the Japanese code and was thus able to decipher portions of their messages. Based on this intelligence and an educated guess, Nimitz determined that the Japanese were planning to attack Midway Island in early June 1942. Midway is about 1,000 miles to the northwest of Hawaii (Pearl Harbor). Yamamoto assembled a gigantic force of ships to oppose the Americans in his quest to take Midway.

The huge 70,000-ton battleship "Yamoto", four large carriers, 11

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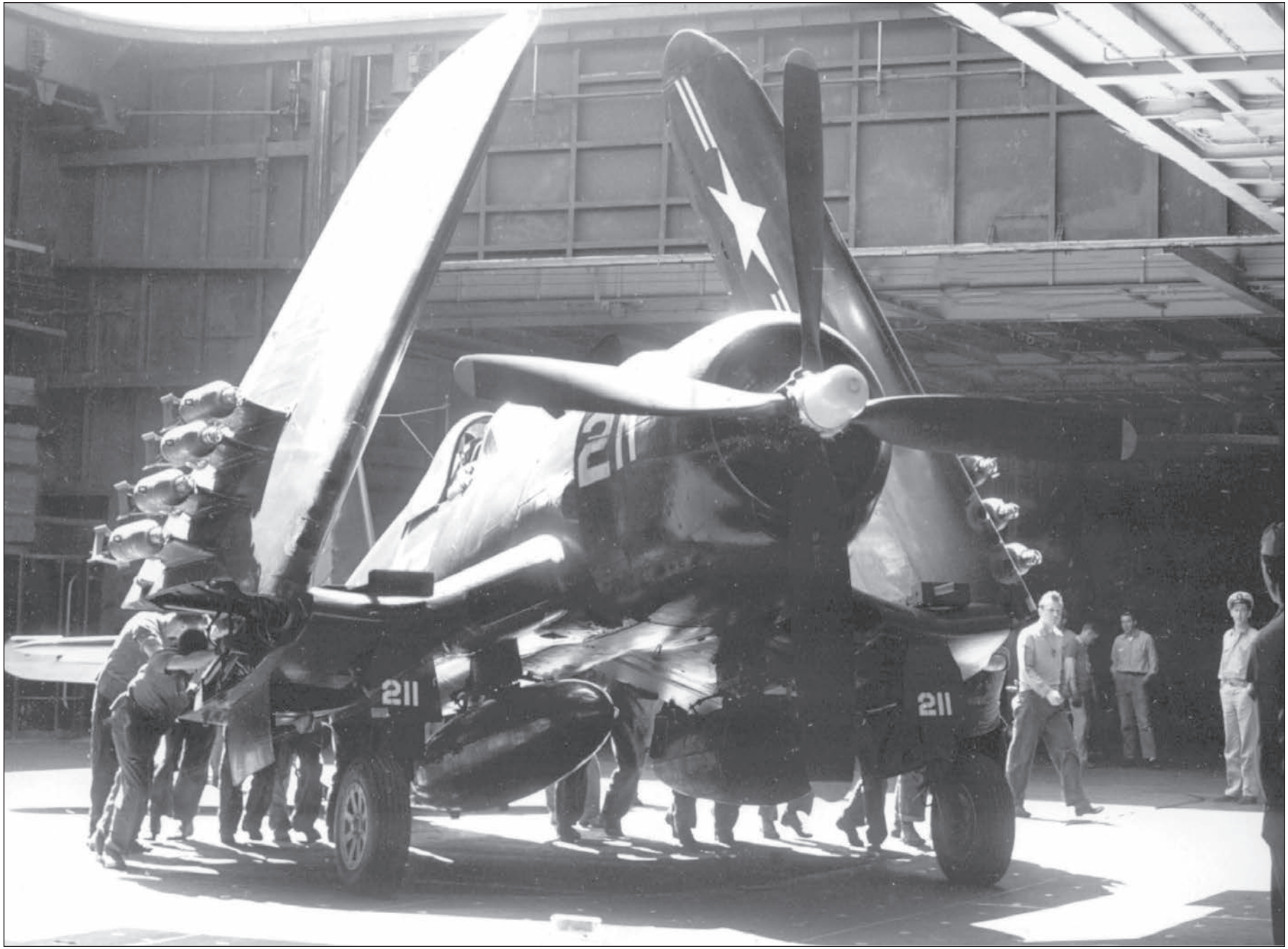
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HANGER DECK AIRDALES USE DECKEDGE ELEVATOR

This time the aircraft (TBF/M Avenger) is going up the deckedge elevator. These are hangar deck personnel who are doing the pushing. Notice the vertical cables on the right that hydraulically pull the elevator up to the hangar deck. Again there's someone in the cockpit to apply the right-wheel brake so that the tail will swing toward us, to fit the aircraft on the elevator. And again, I think this picture is more effective, and descriptive, by being essentially a silhouette. You get a better idea of the size of the aircraft, and the effort involved in moving it. Sometimes the ship's roll helps, sometimes it hinders. The same can be said for the ship's pitching motion. Also notice the slick deck. It appears that there's a rain squall, and some rain is being blown into and on the hangers deck, diminishing ones footing. I can remember thinking that today the hanger deck Airdales have it better than the flight deck Airdales. Some days were good, and some days were bad (rainy). However, it must be said that we didn't get that much sustained rain. The Pacific isn't the Atlantic.

The first order of business will be the radar/director because it's the origin of the original parameters to solve this geometric problem. The steps involved are: Determine continuously the present target position in relation to own ship; predict future target position in relation to own ship (line-of-sight LOS displaced from line-of-fire LOF by time-of-flight Tf and corrections); stabilize the various units; calculate required corrections to gun train and elevation; and transmit data to the gun (post haste: get him before he gets you). So, the system must determine target range (slant), bearing, course and speed and make corrections for own ship's course and speed and motions, wind, drift, pitch/roll/heave, and ballistics (the higher the target the more effect gravity has on the projectile). Even though this is in large measure a mechanical system, expeditiousness is a must. (cont.)

The Carrier War in the Pacific, continued from previous page.

battleship and some 200 other ships including cruisers, destroyers, oilers and troop ships with 5,000 soldiers to occupy Midway Island. Yamamoto's scheme was complex: first a diversionary force would attack the Aleutian Islands in Alaska to draw the American forces away from the Midway Islands.

The next day Japanese carrier aircraft would strike at midway and the day after that ground forces would surge ashore to capture the airfield there. Meanwhile the Americans would certainly abandon the Aleutians to rescue Midway. However, by the time they reached Midway-four days after the first shots were fired-Yamamoto reckoned that Midway would be securely in his hands and he could then turn his attention to sinking the American carriers. Any ships that escaped his aircraft would be destroyed by his formidable fleet of surface ships. He considered this plan very adequate for eliminating the Enterprise and Hornet, the only carriers he presumed fit for duty after the Battle of the Coral Sea (where the Yorktown was severely damaged. However, the American code-breakers intervened and Nimitz took advantage of this even while it was not an assured thing that Yamamoto's plans were ade-

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AIRDALES CATCHING A CATNAP

Very often, too often, fatigue, excessive fatigue, would gain the upper hand. It seemed to be all out of proportion to the work that was done, although that work did encompass the better part of the day. But it wasn't muscle-fatigue that was of importance. It was instead an energy-deficit that permeated not only the body but also the spirit. This was a serious defect during aircraft launch operations because propeller blades were unforgiving, and there were no second chances. (Incidentally, my catnaps were always by myself, far from the others, because I was the quintessential loner while in the Navy. But that's another account.) To expand on the above, an Airdale's job was not all that physically demanding, even though physical exhaustion could not be dismissed as a factor in the energy equation. Part of this equation, and perhaps the dominant part of the equation, could be allocated to that which was caused by mental weariness. That mental weariness was engendered by the requirement of daily confrontations, and the ensuing trepidation, when entering that "netherworld" of behemoths whose infernal propellers never let up, and where there was monstrous noise and overwhelming propeller windblasts. That the job had to be done day after day, week after week, month after long month, elicits the saying "There's no rest for the weary". This unspoken nervous tension of facing up to the uncertainties in confronting "raging" aircraft was a breeding ground for an insidious mental weariness, a weariness that led to a debilitating condition that added woefully to the physical fatigue. (However, who's to say that in some perverse way it was energizing to some Airdales? And no doubt there are those (NOT the author) who are exhilarated by danger. One must say that they're a "different breed of cat", and that presumably there are times when the world needs their services (bridge-builders, for instance). Does a pilot do what he does because of his exhilaration in doing it, or because it's a dirty job that has to be done? or some of both? That's a subject in itself.) At any rate, jeopardy has a way of insinuating itself into one's psyche when it's there on a daily basis, and when the mind will not allow itself to acclimate itself to that jeopardy. Finally, there was a personal, unknown phenomenon (probably depression due to the "homefront") that at times sapped both my energy and my strength to almost imperceptibly low levels. This, to be sure, had significant and serious consequences during aircraft launch operations. (It also scared me because, after all, I was a "healthy" teenager.) But I was able to do whatever it took to not miss one day's work, ever, for any reason. Onerous though that work was, pride alone would allow no less. I feel like I fought the good fight in not missing a day, and I won't shrink from saying so (because of the circumstances underlying that condition). So, endure the Airdale did, because endure the Airdale must: no aircraft left the flight deck, ever, unless and until an Airdale pulled its wheelchock. That was axiomatic, pure and simple. I can remember, yes, I can remember it well, those endless days of sheer exhaustion and fatigue, and the anxiety engendered by this happening to a "healthy" teenager. "Why? What was happening?" (I probably should have had it checked out at sick bay, but I wasn't SICK. And I wasn't going to succumb to whatever it was that was trying to put me down. I wasn't going to give in to "it", ever.)

The Carrier War in the Pacific, continued from previous page.

quately revealed.

Because this, the Battle of Midway, was the first clear-cut victory for the Allies in the Second World War, we will follow it in fairly close detail. As said, the Americans had partially broken the Japanese Code and thus were in this respect at an advantage. The Americans also had more sophisticated search radar than the Japanese. In all other respects the Japanese had the advantage: number of ships and control of when and where the action would

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INSIDE THE HANGER DECK

This picture was included to show the dimensions of the hanger deck. There was overhead space for the Corsairs and Helldivers whose wings fold upward. The deck consists of thick steel to prevent bomb penetration of the decks below. As a consequence, if a bomb reaches the hanger deck, it'll explode there, and the ensuing concussion would be devastating to anyone on the hanger deck at that time. To the left middle are "port-holes" looking out over the hanger-deck. This is Hanger Deck control. In the middle of the picture is a row of auxiliary fuel-tanks. These are not jettisoned, but a "part of" the aircraft. If there's fuel in this tank and a crash occurs upon landing, a large fire will occur: time for the Airdales to "put on their fireman's hat." Also note that the wheel (foreground) is not only chocked, but also the aircraft is tied down (rough weather must be imminent). I can remember when this picture was taken. To this day, I remember thinking at the time, "Why is he taking a picture of this? It's topside where everything is happening." (I was still a Quartermaster Striker at that time, and so was just looking around while off duty. As a matter of fact, when I saw him aiming his camera at me (at the right), I speeded up to get out of the picture. If this isn't the same picture, then there's another one out there somewhere that's exactly like it.

First, the radar/director and its LOS (line-of-sight) must be stabilized to counteract the effects of the ship's pitch and roll (so as to obtain stabilized measurements). To do this the pitch and roll are resolved into level and cross-level so that the LOS remains in the vertical plane. This will be seen in the diagram to be described. The Mark 6 Stable Platform measures the level angle L and the cross-level angle Zd used to maintain the radar antenna and director perpendicular to the horizontal plane. (surface of the ocean) thus keeping the LOS in the vertical plane (a requirement for the geometries to follow). This is done by using the characteristics (cont.)

The Carrier War in the Pacific, continued from previous page.

take place. In terms of ships the Japanese had Nagumo's 1st Carrier Strike Force of four large carriers, several battleships, multiple cruisers and many destroyers. Japan's 1st Fleet Main Body consisted of the huge 70,000-ton "Yamoto", several other battleships, multiple cruisers and destroyers and a medium carrier under overall command of Fleet Commander Yamamoto. The Invasion Force Main Body under command of Admiral Kondo consisted of troop ships containing 5,000 troops, a light carrier, multiple battleships, cruisers and destroyers. Rounding out the massive Japanese flotilla was Admiral Kurita's Close Support Group of battleships, cruisers and destroyers. Against this armada the U.S. could array much less than half the number of Japanese ships. It included Task Force 16 consisting of the large carriers Hornet and Enterprise escorted by six cruisers and nine destroyers. They were commanded by Admiral Spruance. There was also Task Force 17 under the command of Admiral Fletcher. This group was made up of the quickly repaired Yorktown that was damaged at the Battle of the Coral Sea. Included in TF 17 were two cruisers and five destroyers. An uneven fight was shaping up.

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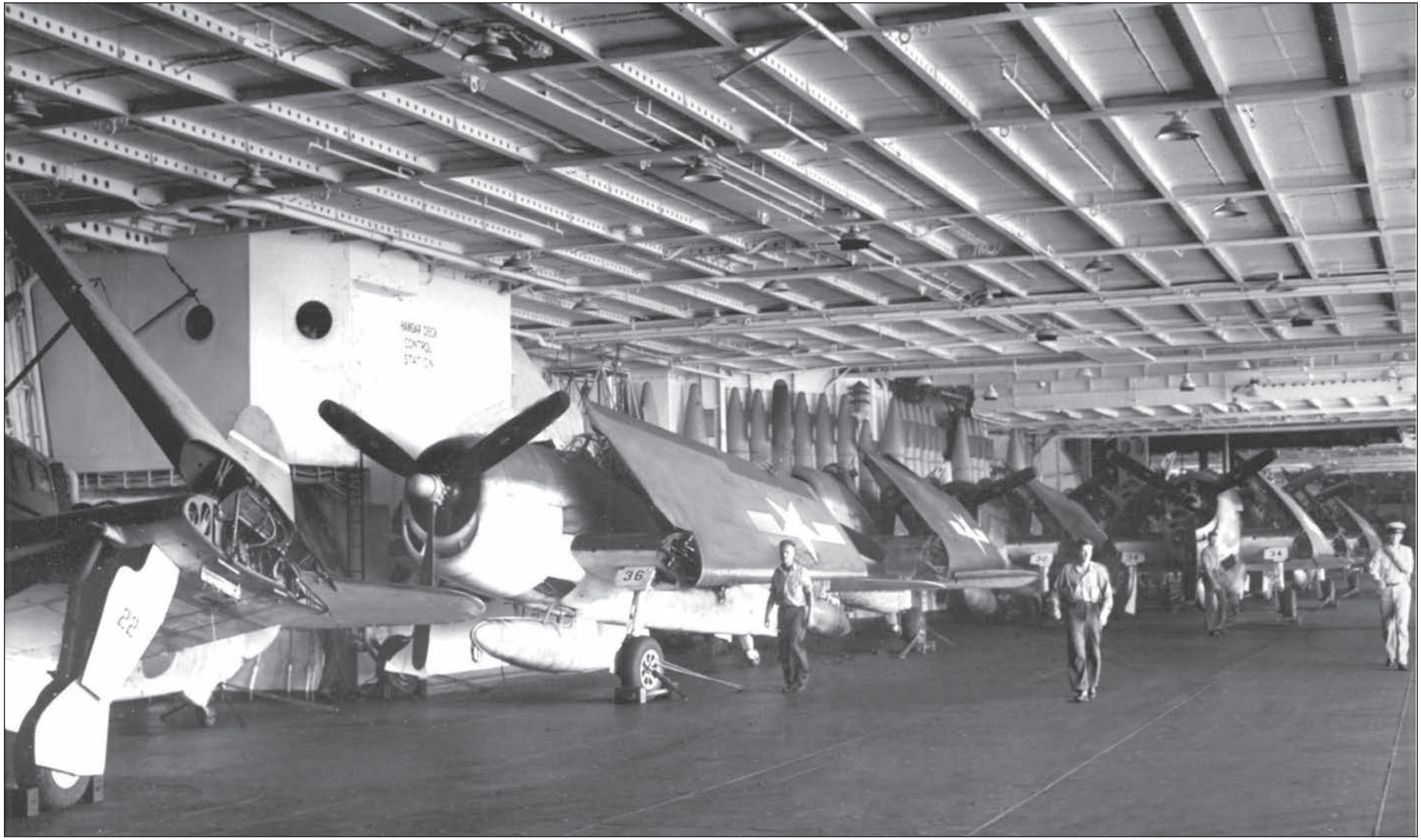

DECKEDGE ELEVATOR AT PIER LEVEL

This is an unusual procedure, one that we never did. The deckedge elevator has been lowered below the hangar deck level to enable an aircraft to be available directly from the pier/dock. The F6F Hellcat is on the hangar deck. I suspect those pushing the F6F are from the shipyard, and not part of the ship's company. It they were, they'd be wearing blue shirts and blue cloth-helmets, although the hangar deck people didn't wear the cloth-helmets because the aircraft on the hangar deck weren't "fired up" that much. It looks like the Hellcat on the hanger deck is being chocked (chocks being put around the wheels). They need it, being so close to the edge. You get a good view of the trim-tab on the rudders of the Hellcat being pushed. This trim-tab is adjusted to compensate for the aerodynamics of the aircraft: perhaps the weight-distribution is such that, with a neutral rudder position, the aircraft tends to veer to the right (as indicated by the tab-setting). I can remember that when we came in contact with shore-based personnel, as here, I'd feel, unjustly, just a little "more with it". And besides, look how neat and clean they are. We Airdales were never like that, as witness the picture two back. It was crass and superficial on my part, and I knew it, but it went with the territory. It was the old "sea-going" vs. "shore-based" thing, and it was stupid.

of a gyroscope. A gyroscope's rotor is the rotor of an induction motor that spins at 140 rev/sec, to establish a vertical and its associated true horizontal planes. A gyroscope has the properties of "gyroscopic inertia" and "precession". Because of inertia a spinning gyro tends to keep its axis pointed in a fixed direction at right angles to any force applied to it. The gyros' spin axis is maintained in the vertical automatically by two memory tanks connected by a tube. As the gyro wheel goes out of the horizontal plane, one tank fills as the other loses mercury. The added weight of the filled tank will cause precession to return the gyro wheel to the (cont.)

The Carrier War in the Pacific, continued from previous page.

The following description of the battle will be described chronologically because the outcome depended so much on this timeline: at 0430 of June 4 Nagumo sent a bombing force against the lightly defended Midway installations. At 0545 an American reconnaissance aircraft sighted the Japanese carriers. At 0630 the Japanese strike force began the bombing of Midway. U.S. B-17 bombers and others had already sought out the carriers but had unsuccessful results. By 0650 the raids against Midway were completed but not adequately successful. Thus a second Japanese attack would be required. At 0750 a squadron of U.S. Devastatot torpedo bombers attacked the Japanese carriers. Not one hit was made.

While the by now obsolete Devastator from Midway scored no hits they also were all shot down by the Japanese carrier air patrol of superb Zero fighter aircraft. At 0755 a contingent of dive-bombers from Midway also scored no hits and neither did the B-17 bombers from Midway score. At 0830 the Japanese force changes course after landing the aircraft that attacked Midway. After having detected the Japanese carriers the Hornet and

(Continued on next page)


22
22

MOVING AIRCRAFT ABOUT

In the center of the picture you'll see a tractor hooked up to a TBF/M, to be pulled back aft. Another TBF/M is on the deckedge elevator. After flight operations we didn't necessarily wear our helmets, as is evident in this picture. But neither are they wearing blue shirts. So I would say that is one of the earlier carriers. On the Antietam, the blue shirts and blue helmets were the uniform of the day, every day. We had about five tractors that were used to pull aircraft, usually from one end of the flight deck to the other end. They could be pulled by the rear of the aircraft using one tow-bar, or by the front of the aircraft using two tow-bars. When a yellow-shirt wanted an aircraft moved, he said what he wanted done, and then we (the Airdales) did as we saw fit to accomplish that task. That is, "move this Hellcat in front of that Corsair #21 over there," and then that's what we did. So, they told us what to do, not how to do it. I can remember thinking about how involved it was to get an aircraft from a large group other aircraft. Many moves had to be made to get just one aircraft from out of many, what with the limited space available to do all the shuffling. The yellow-shirts had to solve these "puzzles" all the time. (One of the aircraft had to be serviced, and so it had to go down below to the hanger deck.)

horizontal by means of a "gimbal rotation motor". The stable element receives "own ship's course" Co and "target bearing" B'r from the computer to orient the gimbals to LOS. It transmits "cross-level" Zd to physically stabilize the radar antenna dish to the true vertical LOS2. The diagram of this action is shown in a diagram (Volume 2): the top view show the level and cross-level vectors at right angles and the pitch and roll vectors at right angles with both of these pairs displaced by an angle determined by the ship motion. The side view shows the level L and cross-level Zd out of the horizontal/ vertical with LOS1 out of vertical and LOS2 in the vertical. (These are provided only for completeness, not for clarity. (cont.)

The Carrier War in the Pacific, continued from previous page.

Enterprise sent 37 Devastator torpedo-bombers against the Japanese carriers with 24 of them being shot down. At 1000 the Yorktown sent 12 Devastators against the carriers and 10 are shot down. The Hornets torpedo bombers fail to find the carriers and so return to the ship. Then at 1016 the Enterprise launched its Devastators to attack the Japanese carriers. The failure of the Devastator attacks could not be blamed entirely on the obsolescence of those aircraft. A large part of the lack of success was the lack of coordination of the attack: both torpedo-bombers and dive-bombers were to attack together along with fighter cover. This did not happen. Another contributing factor was the relative lack off experience vis-à-vis the Japanese pilots. In any case, the torpedo attacks failed utterly: The slow moving Devastators were easy targets at low altitude for the nimble Zero fighters. However, their sacrifice, "by the luck of the draw", was probably responsible for a near-miraculous turn-around of fortune: As the Zeros were shooting down the Devastators "on the deck" it so happened that the Dauntless dive-bombers made their appearance. This fortuitous turn of events allowed the Dauntlesses freedom to dive

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RESPOTTING A HELLDIVER

The Antietam didn't have jeeps on board, as shown here. We had tractors instead. This is a SB2C, with its bomb bay doors open. Notice the Airdale standing on the bar (next to the aircraft's right wheel) that's attached to the jeep. He has a wheelchock setting on the wing, and will chock the wheel once the aircraft has been "spotted." Jeep or no, a couple of Airdales are pushing but they're there because once the aircraft has been moved forward, they'll be needed to "jockey" the aircraft up close and tight next to the other aircraft. I can remember wondering why some few were the ones to drive the tractors. But since I was a "Johnny-come-lately", and because I was a "loner" by disposition, I didn't give it that much thought at all. They could do their thing, and I'd do my thing, and let it go at that.

[A description of the Stable Element diagram from Volume 2 follows: The shaft of the gyroscope's rotor has a magnet atop of it and this in turn is located under an "umbrella" containing wire coils in four quadrants. As the ship pitches and rolls the rotor axis precess under the "umbrella" thus generating electric currents as a function of its position under the "umbrella" which represents the ship's pitch and roll. These currents are used to right the "umbrella" as well as provide pitch and roll signals for the computer. The Stable Element thus measures and generates the level L and cross-level Zd (pitch and roll) angles used to maintain the radar dish antenna perpendicular to the horizontal plane (surface of the ocean), thus keeping its LOS in the vertical plane. Perhaps a clearer picture is as follows: The magnet on the rotor is the primary and the "umbrella" is the secondary of a transformer. When the ship's deck is perfectly horizontal the rotor magnet points directly at the intersection of the level and cross-level (cont.)

The Carrier War in the Pacific, continued from previous page.

unopposed on the Japanese carriers Thus from 1020 to 1025 it was a "pyrotechnic show" as the dive-bombers scored multiple hits on three of the Japanese carriers ("Kaga","Soryu" and "Akaga"). In addition to the above situation described the Japanese commander made a fatal mistake: he was in the process of removing the torpedoes from the aircraft that were to be used against the U.S. carriers so as to arm the aircraft with bombs to be used against land targets on Midway. He did not realize the proximity of the U.S. forces. (until the appearance of the Devastators). Thus the Japanese carriers not only had a deck-load of aircraft but also all the armament (both torpedoes for enemy ships and bombe for land targets on Midway) were topside on the flight deck, providing a tinder-box ready for the fuse (consisting of enemy bombs). The Gods of War conspired to have the squadrons of Dauntless dive-bombers arrive at just these moments when the Japanese protection was at sea-level and the flight decks were laden with bombs. At 1020 the Dauntlesses made their bomb-runs and within four minutes scored multiple hits on three of the four carriers which sank with the finality only experienced by those who did

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RESPOTTING A HELLCAT

Now these are the tractors I was referring to in the previous picture. So it's seen that the aircraft can be pulled forward or backwards. The two in the foreground are officers, so they're "supervisors." An aircraft is being pulled onto the deckedge elevator, to the left. Notice the vertical white bar on the tail of the aircraft. Each squadron had its own distinctive markings. I can remember being intrigued by the efficiency that the yellow-shirts displayed in deciding which aircraft had to moved where to eventually get to that lone aircraft that had to go below for maintenance. This was not trivial, and how smart he was determined how much work we did doing the pushing.)

coils, and the voltages induced in the coils by transformer action are equal and opposed so no current flows. If the ship is titled (pitch and/or roll), however, the gimbals move and the magnet then points at some location on the "umbrella" thus creating unequal voltages. These level and cross-level voltages are transmitted to the follow-up motors to reposition the gimbals to their undisturbed condition. The cross-level voltage represents the value sent to the radar antenna motor that in turn maintains the LOS2 in the true vertical plane (the LOS is generated by the radar equipment).] Now that the Stable Element has physically righted the radar antenna in the true vertical plane, the director/radar generates the target's slant range R, elevation (Eb, elevation of the antenna LOS above the deck measured in the vertical plane through the LOS), and bearing (B'r, the angle between the vertical plane through the fore/aft axis of own ship (OSCL) and the vertical plane through the LOS measured in the deck plane clockwise from the bow of own ship) of the target from the ship. This is a tracking radar whose function is to follow a moving target wherever it goes (as opposed to a search radar that keeps track of all ships (cont.)

The Carrier War in the Pacific, continued from previous page.

the deed. In a very real way, those intrepid pilots flying those obsolete Devastators were the tribute paid to the Gods of War. They were heroes all.

The remaining Japanese carrier "Hirya" was in a mood to seek retribution for the calamity that happened in its presence. This would come at 1205 of June 4th.the "Hiryu" sent bombers and torpedo aircraft at the American carriers. The aircraft that penetrated the defensive screen pummeled the Yorktown causing serious damage. causing it to eventually sink. Then at 1700 aircraft from the Enterprise attacked the "Hiryu" , hitting it hard. It sank a short time later. The Japanese now form up the remaining ships to track down the American fleet for a surface engagement The American commander will have none of this against a far superior force. Yamamoto then reluctantly turns for home , having to explain how such grand initial plans turned into "dust". The consensus by all is that this battle, on June 4, 1942, was the deciding turning point of the war in the Pacific. It's amazing how just four minutes could determine, could signal, a turn of events that would alter the course of history. It also fulfilled the prophesy that

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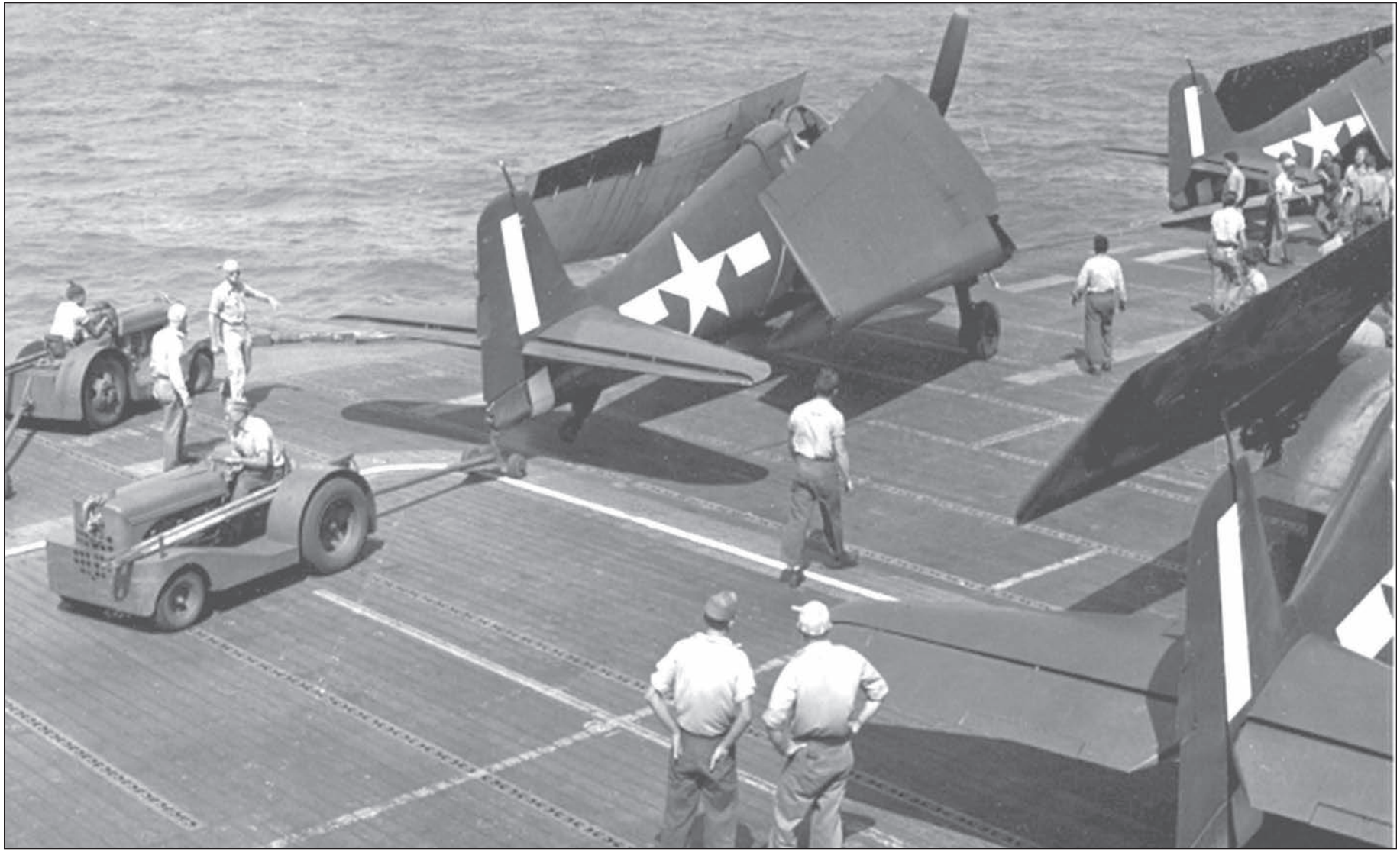

PULLING'S EASIER THAN PUSHING

This is a nice view of the island superstructure. The lower left bridge is the Admiral's Bridge. A ladder from there leads to the "Air Boss' Station" (the Air Officer). He directs the overall activity on the flight deck during flight operations. Perhaps "oversee" is a better term. Forward of the Air Boss is the Captains Bridge (Navigation Bridge). Back aft of the Air Boss, down that catwalk, is the "Batt Two," or the after Bridge in case the forward one is damaged. Below the catwalk is the Signal Bridge where Signalmen use the signal-light (blinker) and flags on the halyard to communicate with nearby ships. Above the Navigation Bridge is a 40-mm guntub, and back of it is the five-inch gun fire-control radar and director. Aft of it are other radars and communications antennae. Down below, a tractor is pulling a F6F Hellcat, and a TBF/M is in front of it. (That shirtless fellow would never be on the Antietam.) The Airdales on the tractor are going with it because once they move the Hellcat up forward, they're going to have to "jockey" it into a precise spot. That's because space is at a premium with 100 aircraft on board, and about 100 yards open deck is needed to launch an aircraft. (The first part of the flight operation is usually accomplished using the catapults up forward since this requires less up-forward space.) I can remember that, initially, I was up on the Navigation Bridge (underneath the loudspeakers) looking down on the activity below. Little did I suspect I'd soon be down there doing those things. I was fascinated then. Later, I wasn't fascinated, I was just resigned, resigned to do that which I had to do.

and/or aircraft in the area). A radar detects targets by sending out pulses of UHF radio waves from a high-powered transmitter. These pulses are concentrated into a narrow beam by means of a conical or parabolic antenna (such as a high-powered searchlight). This returned energy is detected by a radio receiver (cont.)

The Carrier War in the Pacific, continued from previous page.

was made by Admiral Yamamoto that his forces would run wild on all fronts only to awaken a sleeping giant. Now the productive capacity of the U.S. would gear up to create up to 24 of the magnificent Essex-class fleet carriers (the first was the Essex, CV9, commissioned 1 Jan 1943). Only 14 of these ships were active during the war, the remaining 10 available if the war had exceeded the additional 2 1/2 years of WWII.

The preceding text was, for the most part, expository rather than explanatory. That is, the facts are presented in lieu of the factors that defined the actions. Very briefly (since the space in this book is limited) one of the most significant factors of the Battle of Midway was the plight of the pilots in their now obsolete Devastator torpedo-bombers. Recall that the attack by the Americans on the four Japanese carriers was completely disorganized: normal procedure required that both the torpedo-bombers and the dive-bombers attack simultaneously. For various reasons that won't be considered here; this did not happen. What did happen was that the Devastators made their run on the four Japanese carriers before the Dauntless dive-bombers arrived on the scene.

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A ROLL TO THE STARBOARD

The listing shown here is no doubt caused by the ship making a hard turn to port, and not due to the action of the sea. But in heavy weather the ship would indeed roll to this extent. Both F6F Hellcats are positioned on their respective catapults. But flight operations haven't started as yet. Once the ship has completed its turn into the wind, then flight operations can start. I must say that that's a pretty sparse deck. On the Antietam, aircraft would be positioned all the way up (almost) to the aircraft sitting on the catapults. Notice the Hellcat on the right, and notice the tip of its propeller reaching as far as the wheel. This then made the position of the wheel your "marker" whenever you were around an aircraft during flight operations. A folded wing would extend a little bit wider than that wheel, so aircraft could be packed (parked) fairly close together. Notice the big round search radar in the upper left part of the superstructure. I can remember, when I was a Quartermaster Striker at the helm during gunnery practice, being given the command "Right full rudder". I vigorously spun the 2-foot diameter wheel several times till the rudder was 30 degrees right, held it there, and sure enough, the ship heeled over more than what's shown here. Then to left full rudder, hold it, then to right full rudder, hold it, and then ease off to amidships. It was great!

and then translated into a form of usable data on a radar console (similar to a computer console). Since radio waves travel at 186,000 miles/second the elapsed time of transmission and return of the reflected wave can be converted into the range that the target is from the ship. That the transmitted radar beam is narrow and directional, so too can the direction of the target be determined (by recording the direction of the director/radar antenna at the time of detection of the target). The radar system consists of the following: modulator (a timer that synchronizes the transmitted pulses (cont.)

The Carrier War in the Pacific, continued from previous page.

Consequently, the fast, nimble Zero fighters piloted by experienced aviators were able to have a "field day" shooting down the Devastators. Not only did the Devastators not make any hits, they also were almost all lost. Mere minutes later the Dauntless dive-bombers appeared and the "rest is history". The untold story here is that these intrepid Devastator pilots in their slow, lumbering aircraft set their course on an unwavering path though they surely knew that harm would befall them. After all, they were pitted against thoroughly experienced Japanese pilots who had already shown their skill at the Battle of the Coral Sea to say nothing of their rampaging through South East Asia before hostilities commenced with the U.S One by agonizing one they were picked off as they splashed into the sea. One by agonizing one they were sacrificed to the Gods of War in their unswerving dedication to their cause that seemed to last an eternity.

They "stuck to their guns" to the last knowing full well that their task was well nigh hopeless. These then were the unsung heroes of the Battle of Midway, unsung but for completion of their duty. Hats off, heads bowed, to the dauntless Devastator

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ONTO THE DECKEDGE ELEVATOR

Here are some Airdales pushing an F6F Hellcat onto the deckedge elevator, to go to the hanger deck. The Airdale crouching and holding the bar is guiding the rear of the F6F by redirecting the tailwheel. Usually the wings are folded before going down to the hanger deck. My only thought is that there's a problem with the wing-folding system. Notice the wheel-chock on the wing to be used once the aircraft is put into its "spot". And again, with the sun's direction, there's a nice silhouette of the Airdales pushing the F6F. That carrier on the horizon is probably 20 miles away, much more than usual. That's a "netting" on the outside edge of the elevator. It's there to provide safety to anyone too close to the edge. Sometimes we moved two F6Fs at a time on the deckedge elevator. This would make for crowded conditions on the elevator, and hence the need for a safety-net as the aircraft were maneuvered on the elevator. Remember, the flight deck was 50 feet above the water, and the ship was moving at a fairly fast pace, so finding someone who had fallen would not be that easy, presuming he survived the fall. And again, there was always the ship's motion that had to be factored in (before the fall). We never lost anyone that way. It was merely a matter of paying attention, and using common sense. I can remember, when using the deckedge elevator as here, the unique perception of being suspended over the water, because there was nothing on three sides of you. It was not a big thing, but it was a new sensation as you sped over the water.

with the indicating units); transmitter (generates short, powerful radio pulses); antenna system (radiates the pulses in a narrow, directional beam and receives any returned energy from the target); receiver (amplifies the weak returned signals from the target reproduces them as video on the displays (indicators)); indicator (cathode ray tube, similar to a computer screen) to provide a visual indication of returned pulses that provide the required data for continuously tracking the target); power supply (provides all the regulated dc and ac voltages required by the system). The range measurement is determined by applying the transmitted pulse (cont.)

The Carrier War in the Pacific, continued from previous page.

pilots who gave all.

As it turned out, fortune did not serve the Americans well concerning the ill-fated Devastator torpedo-bombers: literally days after the Battle of Midway the torpedo-bomber TBM Avenger became available to the fleet (some arrived at Pearl Harbor the day after the Hornet set sail for Midway although six were flown to Midway by six volunteers). Concerning the other aircraft, the F4F Wildcat fighter was replaced by the F6F Hellcat by March of 1943The Dauntless dive-bomber was succeeded by the SB2C Helldiver in February of 1944 and the F4U Corsair joined the fleet in December of 1844. Rounding out the replacements the first Essex0class carrier was the carrier of the same name (CV-9) which was commissioned on 31 December 1942. Twenty-four were to follow but only fourteen of them saw combat action in WWII (the Antietam was commissioned on 29 January 1945 and saw no action vs. Japan).

What with the intractable situation in the South Pacific (the New Guinea area) and the fierceness of the Battle of Midway (June 1942) it was clear that the war in the Pacific was going to

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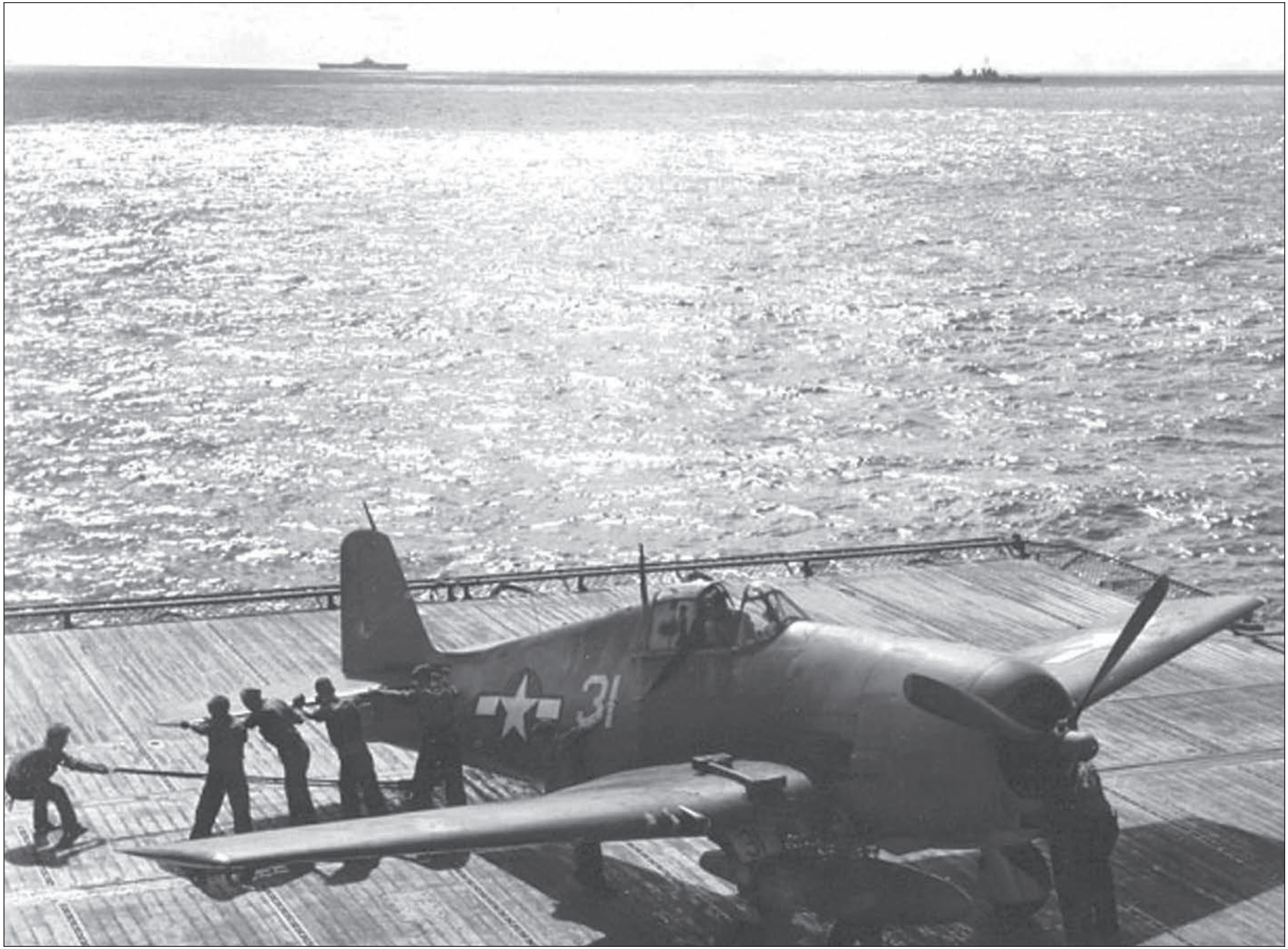
31

ON THE DECKEDGE ELEVATOR

These Airdales are in their cold weather gear. The "netting" on the outside of the elevator is more clearly shown here. This is a later model F6F because it has two 20-mm guns in its wing instead of three .50 cal guns. Also notice how crowded it would be with two F6Fs on the elevator at the same time. The elevator-operator is at the right, on the elevator, but out of sight. I don't recall whether he was a blue-shirt or a green-shirt (the ones who operated the hydraulics, i.e., the catapults and the arresting-wires and crash-barriers, as described in the launching and landing chapters.) I can remember the sudden drop of the elevator as it went down. It was as if it was "released", and then "caught" itself. At first it was somewhat disconcerting, but then you got used to it, as you did to everything else (EXCEPT going to a wheelchock at launch-time, and walking next to an aircraft as it was being parked. Those two things were definitely and always "touch-and-go".)

to the indicator (CRT) along with the received pulse. There is a time-scale on the horizontal axis of the CRT that indicates the time for the pulse to go out and back. This in turn is applied to conversion circuitry to provide the range of the target from the ship. For elevation and bearing, returned pulses are greater or less in magnitude in in direct proportion to the target's offset from the center of the narrow beam. The transmitting feed-horn at the center of the dish-radar is physically rotated about the LOS at a 5 degree angle, and at 10 cps (cycles per second). The radar's modulator generates two 10 cps voltages separated by 90 electrical degrees (sine and cosine). The returned beam is modulated at 10 cps (a high value when directly on the target and a low value when off the target). This return beam is demodulated (the sine-wave component is removed from the UHF component). (cont,)

The Carrier War in the Pacific, continued from previous page.

be long and hard. The "tally" through 1942 was the following: five Japanese carriers sunk versus four American carriers sunk: the Lexington (CV-2) in the Battle of the Coral Sea (Apri11942), the Yorktown (CV-5) in the Battle of Midway (June 1942), the Wasp (CV-7) to submarines in the New Hebrides (September 1942), and the Hornet (CV-8) in the Battle of Santa Cruise in October of 1942. The balance of power was still with the more capable Japanese until well into 1943 when the first Essex-class carrier (U.S.S. Essex CV-9) was commissioned in January of 1943 to be followed eventually by 24 other Essexes, 14 of which saw action before the end of hostilities in August 1945. Among those Essexes were the new Lexington (CV-16) commissioned in March 1943, the new Hornet (CV-12) and the new Wasp (CV-15) both commissioned in November of 1943. Of the original carriers the Saratoga (CV-3) and the Enterprise (CV6) still remained intact. Thus the year 1943 saw only two large U.S. carriers available to oppose a still strong Japanese fleet even with the victory at the Battle of Midway.

The foregoing brief listing gives a "big picture" statistic: nine

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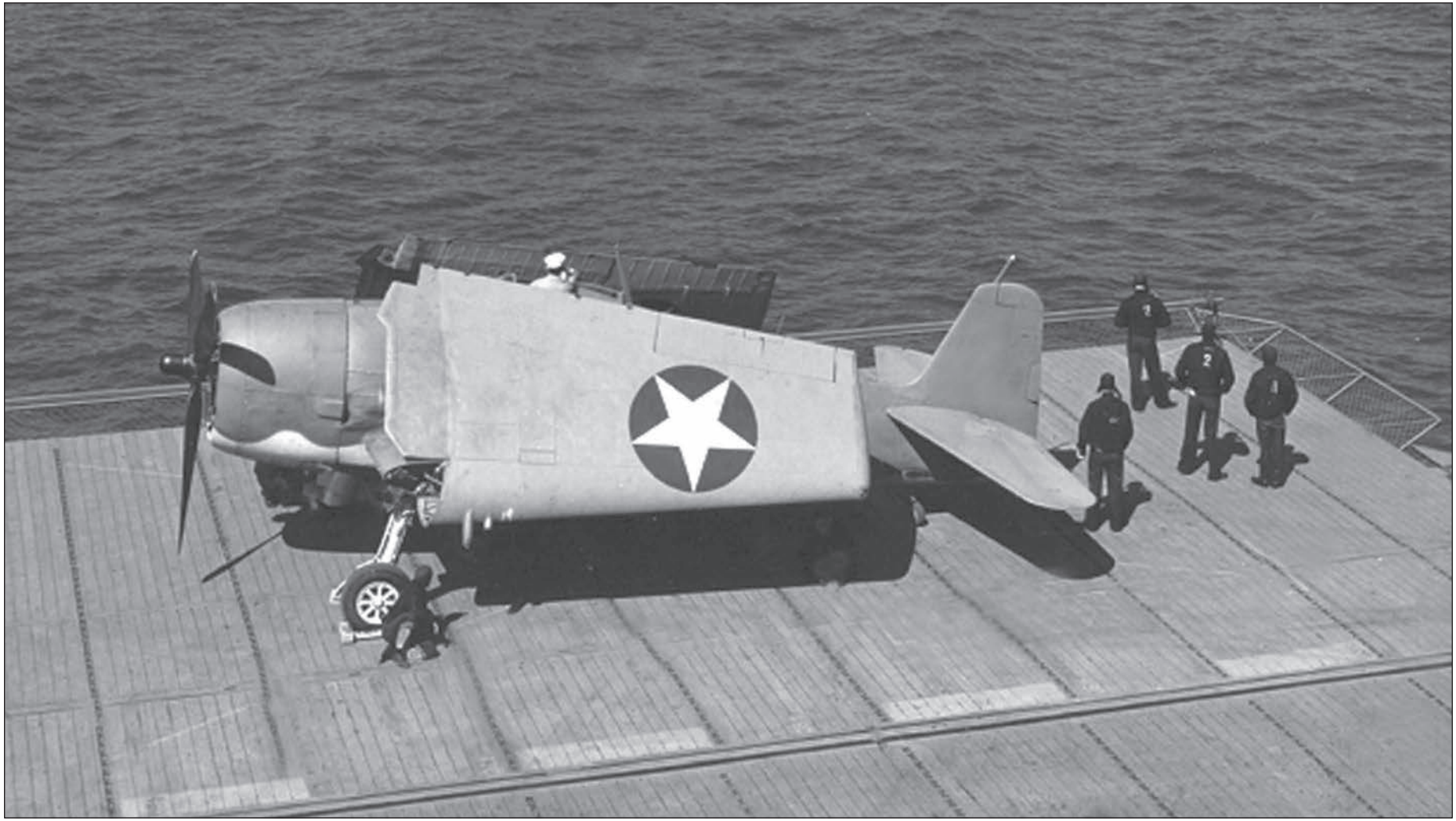

PREPARING FOR THE NEXT FLIGHT

The Airdale who's leaning over is guiding the bar connected to the swivel tailwheel, which in turn guides the tail of the aircraft, which is being pushed by Airdales. The yellow-shirt is giving the orders, while the officer in the foreground is keeping track of something, such as what aircraft are where. This respotting of the deck probably took most of our time, but was obviously much more benign than were the launching and landing operations. I always felt like the "new boy on the block," because I joined the V-I-F Division (Airdales) several months after it was formed (back at the Newport, RI Receiving Station). Although it isn't, that could well be yours truly, without the cloth helmet, after I was transferred to V-I-F and before I was given the flight deck shoes, and shirt and helmet. ("V" is air, and "F" is flight deck.) I can remember how the yellow-shirts would respot the aircraft "cheek-to-jowl". That meant that at launch-time, those packed-in aircraft were that much harder to reach, unscathed, requiring the "hands-and-knees" method of approach.

Now this demodulated wave is compared with the generated sine and cosine waves. The greater their phase difference with the returned demodulated wave, the further the beam is from the target (sine= vertical, cosine=horizontal). These two differences are error signals which are used to drive a motor to bring the beam (and the director/radar) back into coincidence with the LOS. As the director moves, it moves the rotor of a synchro (electric "generator") whose stator windings' voltage represent the director/radar's elevation and bearing. The presentation to follow will refer to a diagram in Volume 2 but here it will be described when necessary. The fire control problem that must be solved includes continuously determining the present target position, performing ballistic corrections whereby (cont.)

The Carrier War in the Pacific, continued from previous page.

carriers sunk in a year's time. However, those statistics provide only a passing hint of the dire circumstances of those members :on the flight deck: if one was not rendered by the explosion, one was consumed by the fire; if one was not consumed by the fire one was committed to the fifty foot drop to an unforgiving sea. One found himself literally between the devil (the fire) and the deep blue sea. Statistics do little to reveal the palpable and visceral ways of dying, when caught in the confines of the conflagration of a stricken carrier (true, this concerns relatively few).Yet who among us has the temerity to shrug his shoulders, saying "that's what war is all about"? The point to be made is that statistics too often in no way reveal the agonies endured by those who are "statistics". Never lose the true meaning of a set of numbers where lives are concerned.

After the Battle of Midway the war in the Central Pacific turned to a quiescent stage as both sides retired to "lick its wounds". The remaining large carriers Saratoga and Enterprise spent most of the remaining 1942 and into 1943 supporting the land operations in the New Guinea area (including Guadalcanal). During this interim both sides continued their carrier building

(Continued on next page)


47
58

MORE OF THE SAME

This is a good view of an Airdale using a tailwheel bar to guide the aircraft. There's more involved here than just pushing an aircraft, because it has to go to just the right spot: space is at a premium and so the aircraft have to be packed as closely as possible. At the same time, they can't be packed TOO closely because during flight operations Airdales have to maneuver their way among the aircraft to get to a wheelchock. No aircraft is going to move unless and until the wheelchock has been removed from the wheel. But this is part of the next chapter. It can be seen here that there aren't too many places against which one can push. And the aircraft being so big didn't make things any easier. I used to get to the wheel-strut because it was here that you could really push against something. Since I was the "new boy on the block," I never did use the pole or drive the tractor. But that was OK with me. I wasn't looking to be a professional Airdale. I can remember how surprised I was when an aircraft as large as a TBM could be "swiveled on a dime" using the tow-bar as shown in the picture. The same effect was accomplished by applying the brake to one wheel or the other, as was done during the parking operation.

the axis of the gun is offset from the LOS; performing corrections for the gun platform motions of pitch and roll; making up gun orders; providing corrections to the inaccurate solutions of the analytic problem and for equipment inaccuracies. The target position is of interest at three specific times: (1) present target position, (2) target position at any given instant (generated target position) and (3) the target position at the end of a specific time, that time being Tf (advanced target position at point of impact with the projectile). The analytic solution starts with determination of target position with respect to own ship: (1) Present range R along LOS from ship to target in the horizontal plane; (3) Target Elevation E of target above ship (cont.)

The Carrier War in the Pacific, continued from previous page.

programs which for the U.S. produced the Essex-class carriers, the first of which was the U.S.S. Essex commissioned in January 1, 1943 (it would not see action until September of 1943). Both the U.S. and Japan were girding themselves for the showdowns to come in 1944. In the meantime both the Saratoga and the Enterprise sailed to the Central Pacific to attack the Gilbert Islands during November 1943. The newly minted Essex made raids on Marcus Island on 31 August 1943 and Wake Island in October of 1943 as well as the Gilbert operation in November of 1943. The new Yorktown accompanied the Essex in these raids that closed out the Central Pacific action for 1943.

The first half of 1944 included the support of the Saratoga for the occupation of the Kwajalein Islands in February and the support of the occupation of the Eniwetok atoll in February. The Enterprise also served this operation against Kwajalein. The Essex and Yorktown also joined these actions. There were many such small islands in the Central Pacific held by the Japanese. The U.S. sent carriers against many of them to soften them up for future invasion or to support an invasion of these islands. The marines

(Continued on next page)


32

SOMETIMES IT'S PUSHING UPHILL

The only thing wrong with this picture is that they're not wearing their blue shirts and helmets. I believe that that little antenna sticking out from the star on the wing is for the IFF (Identification Friend or Foe). I may be wrong about the antenna, but I'm not wrong about each aircraft having IFF. Without it, the returning aircraft might be shot at by the ship. The wire over the cockpit is for radio communication. With the SB2C here, there are many more places to push the aircraft, as opposed to the TBF/M on the previous page. The pilots called this aircraft "The Beast," I guess because they considered it so big and "ungainly," as opposed to the hotshot fighters (F4U and F6F). But actually it had nice lines even if it did look somewhat dumpy. The tail-section has nice lines as can be seen in the picture. ("Beauty is in the eye of the beholder.") I must admit, though, that one wondered how it got off the deck. But it did, and very nicely. I can remember learning not to push an aircraft on its moveable flaps (tail-flaps and wing-ailerons). But it was alright to push on the brake-flaps as shown here. The aircraft were very solid, but moveable parts were "fragile".

along LOS. These values are continuously provided by the director/radar. The ship's speed So is continuously provided by the ship's pitometer. The values of the bearing angle A, the target's horizontal speed Sh, and the target's vertical rate of climb are all estimated by the fire control officer's visual observation of the target. The values for dRh (rate of closure of target to ship in the horizontal plane) and RdBh (rate of change of the bearing of the target from the ship in the horizontal plane) are obtained by simple geometry (from the diagram in Volume 2). These values will be used in following calculations. Mention must be made as to how these and other computations are accomplished. There were no digital, or even electronic analog, computers, with all their speed and accuracy, back then. (cont.)

The Carrier War in the Pacific, continued from previous page.

were the troops that went ashore to defeat the resident Japanese troops, often at a terrible cost. The supporting carriers were subjected to vigorous attacks by the defending Japanese aircraft. This process was implementing the strategy of sweeping the Central Pacific clean of opposing forces in preparation for the big showdown at the vital Mariana Islands (Guam, Saipan and Tinian). The first half of 1944 saw raids against Truk (the Japanese "pearl Harbor"), Palau, Yap, Ulithi, to name a few. It was called "island hopping", a misery.

The Intrepid was also involved in some of these raids. (Except for the Saratoga and the Enterprise, all the carriers mentioned from here on out will be an Essex-class carrier.) These raids were necessary to provide close-in aerial support to the troops below Without this support the job of dislodging the Japanese troops would have been much more difficult. As would be expected, the Japanese would not allow the U.S. carriers free rein. Thus Japanese aircraft were unrelenting in their attacks on the carriers. However, the worst was yet to come. The strategy of the Americans was to advance steadily across the Central Pacific,

(Continued on next page)


14

AIRDALES ARE PLANE-PUSHERS

What can I say. Doing this once is not hard, but doing it a good part of the day can be wearing. Notice the Airdale in the cockpit. He was often the plane-captain, usually a mechanic, who was assigned to one given aircraft on the ship. He was the pilot's "representative," as I saw it, and when the pilot wasn't flying, the aircraft was "his." He was a brown-shirt, and he was also an enlisted man, probably 1st class petty officer with a mechanic's rating. But a blue-shirt would also sometimes be in the cockpit for the purpose of applying the brakes when the aircraft needed to stop. It was a responsible job because aircraft could be damaged if the "braker" wasn't alert. Although I was an Airdale from April 1945 to May 1946, I never once did I do this. Also, notice the cleats in the flight deck (running vertically in the picture). These are used to tie down the aircraft to the flight deck during heavy weather. I can remember there was never an occasion when there weren't Airdales ready, willing, and able to push an aircraft. They (the Airdales) never had to be "rounded up". Never.

What was available was an ingenious device that made mathematical calculations using mechanical instruments (a range keeper, the Mk 1A computer). These instruments were, (1) shafts whose rotations represented a number, (2) gears whose teeth generated ratios (a gear is similar to a simple lever whose lever-arm and force-arm formed ratios that were essentially a multiplying operation (the inverse would be a division operation)). (3) differentials that performed addition and subtraction, (4) cams that represented nonlinear functions, (5) component solvers that resolved vectors into right angle values, (6) integrators which multiply a constantly changing value, such as time, by a variable such as range rate, the output being a continuous value of their product which can be accumulated (cont.)

The Carrier War in the Pacific, continued from previous page.

island by island, to the very shores of Japan. One of the main stumbling blocks to this plan was the heavily fortified Islands of Guam, Saipan and Tinian. This was to be the next big "naval battleground" and it was set for the middle of 1944. Without Guam there would be no further progress across the Pacific. Both sides knew this confrontation was coming and both sides made assiduous preparations to be victorious. "Roll up your sleeves".

The stage was now set for a key undertaking in the westward march across the wide Pacific: the return of the Mariana Islands to American control. One reason was the intention of sending B-29 bombers from there to overfly the Japanese home islands so as to destroy its productive capacity. Thus it was that the two fleets would meet in the Philippine Sea to settle the status in a definitive way. The U.S. amassed a large force (Task Force 58) to not only support the landings (130,000 marines) on first Saipan, then Guam and Tinian but also to soundly defeat the Japanese fleet. The Americans assembled 7 large fleet carriers, 8 smaller carriers, 7 battleships, 8 heavy cruisers, 13 light cruisers, 69 destroyers, and 956 carrier aircraft. The Japanese were able to gather only 5 large

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THERE'S NO REST FOR THE WEARY

I included a lot of these pictures because I did a lot of this on board the Antietam. Although we had about five or six tractors to pull aircraft around the flight deck, the fact of the matter is that most of the time we moved the aircraft by pushing them. Yellow-shirt enlisted men (mid 20 years old) would take control of what was happening after he got his directions from a flight deck officer (also a yellow-shirt). These officers would be concerned with where each aircraft was spotted at launch-time, and they in turn would get their instructions from the Air Officer, with a rank of Commander. After the Captain, the Executive Officer, and maybe the Navigation Officer, I believe the Air Officer was the senior officer of the ship. After all, it was the Air Officer and his squadrons who carried the "punch". And the Airdales worked to make things go smoothly. (I can remember I never was in the cockpit working the brakes. Usually it was the "plane-captain" (brown-shirt) who did that, but sometimes an Airdale would do it. Since it was a fairly responsible job, I presume those who did do it were trained to do so. A runaway aircraft was bad news.

as a shaft rotation, (7) multipliers which can take two continuously changing input values and deliver an output that is proportional at every instant to the product of the two changing inputs. This range keeper has tracking, prediction and correction sections. There are many hand-cranks to manually, continuously, input values. Quite a mechanism! What ingenuity! The director/radar can measure only changes in range along the LOS., changes in target elevation perpendicular to the LOS in the vertical plane containing the LOS, and changes in the target bearing at right angles to the LOS in the horizontal plane (the letter "d" before a quantity means "time rate of change", such as mph). The diagram in Volume 2 shows the following geometric identities (where a, b, c, and d are segments of a right (cont.)

The Carrier War in the Pacific, continued from previous page.

fleet carriers, 4 smaller carriers, 5 battleships, 11 heavy cruisers, 2 light cruisers, 28 destroyers and 473 aircraft (some were land-based on the islands).

It has been two years since the Battle of Midway and the "cast of characters" has changed except for the Zero that has performed so well in spite of some shortcomings: it did not perform that well at altitude and it had difficulty turning to the left when in a steep dive. Otherwise all the players have changed: both the F4F Wildcat and the SBD Dauntless dive-bomber were replaced by the F6F Hellcat and the Sb2C Helldiver dive-bomber respectively The former came into service in 1944 and the latter in 1943. Both of these aircraft could fold their wings allowing a much larger complement of aircraft to be carried in spite of their larger size. The TBM Avenger Torpedo aircraft, which replaced the outmoded Devastator torpedo aircraft, was available at the time of the Battle of Midway but only six land-based ones took part in the battle. It too could fold its wings. Thus, an Essex-class carrier was able to carry up to 100 aircraft (usually 30 Hellcats, 30 of the new Corsair fighters. 20 Helldivers and 20 Avenger.(the Corsair made

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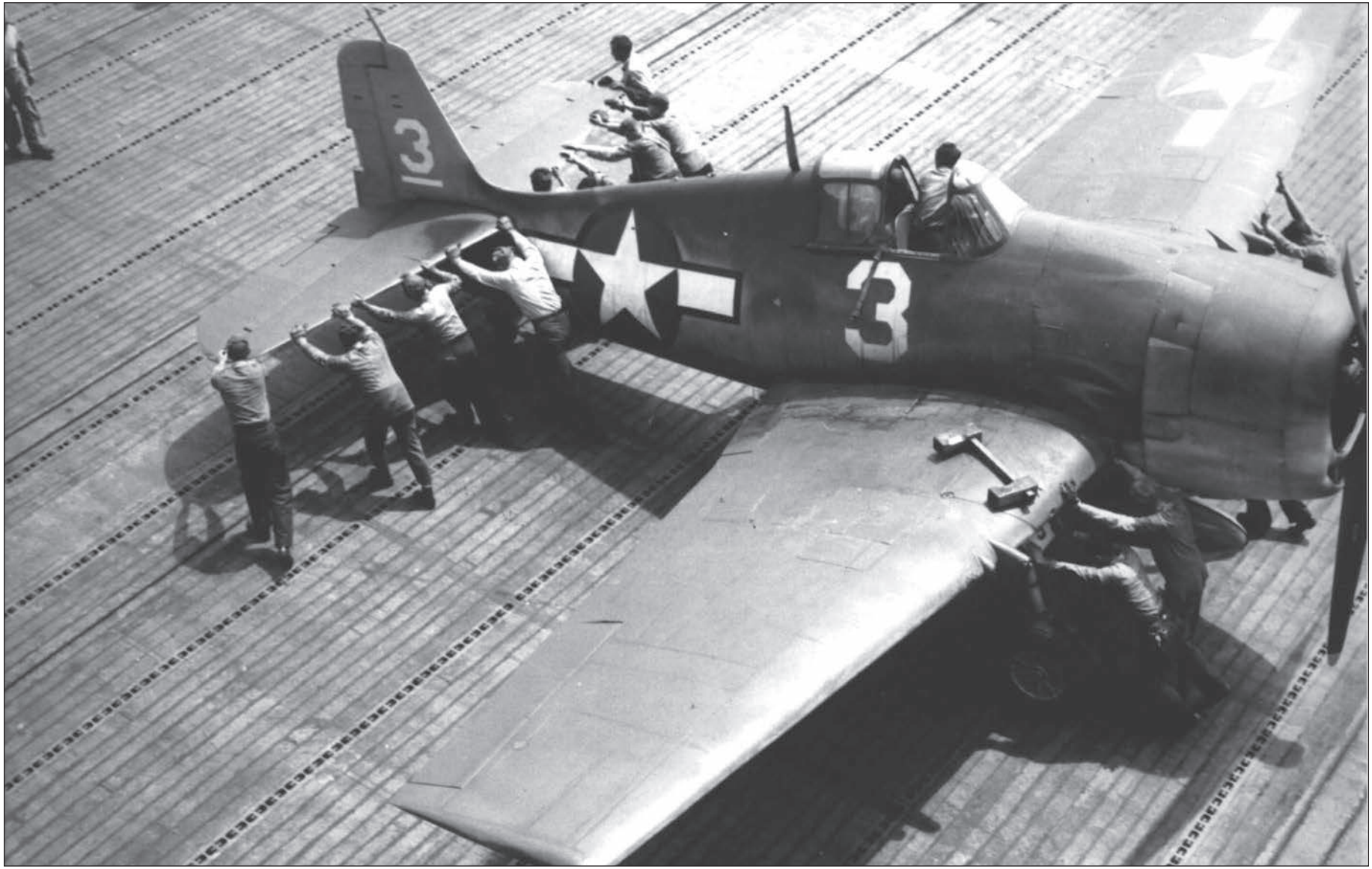
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SOME PUSH, OTHERS WATCH

It never ended, this plane-pushing. And so it was, day after long day, week after long week, month after long month. It wasn't that much of a chore, this plane-pushing, but it was tedious. This wasn't what I had in mind when I enlisted in the Navy. I had in mind learning a technical trade such as radio or electronics, especially since most of my schoolmates were going to the V-12 program to become Naval officers. But actually, I was quietly pleased to be directly involved in doing something that was specifically "useful", simplistic though it was. Notice the numbers "470" and "480" (to the left of the aircraft) painted on the flight deck. There had to be at least 420 feet of flight deck to safely launch an aircraft under its own power, while the catapults only needed a little more than one-half that distance. The Air Officer would be up above the flight deck at the 470-foot mark as he controlled the launch operations. I can remember that all the effort on the flight deck was always workmanlike, but I don't remember any particular camaraderie among the Airdales (during working hours). This could have been because, having been a loner, I didn't notice any. But there was no lack of amiability. It's just that during working hours, jocularity was nonexistent.

triangles. Here are the identities derived from the diagram: a=dRh(sinE), b=dRh(cosE), c=dH(cosE), d=dH(sinE), RdE=a+/-c, dE=RdE/R, dR=b+/-d. The diagram shows how the linear rates of change in range dR and elevation dE are obtained (they are both in the vertical LOS plane). The components dR, RdBs and RdE form the basis for the generated rates and predictions of future target position. Three steps are required if accurate values of gun train and gun elevation are to be continually and accurately computed: (1) checking and correlating the FC Officer's estimates of target movement (angle A, Sh ,dH of a previous page); (2) maintaining a reliable figure at all times for the present value of target range, bearing and elevation of the future position of the target. Having dR and dE, it remains to obtain dBrso so as to compute the generated (computed) target position (cR, cBr, and cE). The value dBs is measured in the LOS slant plane ("s"), but it is necessary to find (cont.)

The Carrier War in the Pacific, continued from previous page.

its appearance in 1944)). The Japanese replaced their torpedo aircraft with the "Jill" in 1944 and their dive-bomber with the "Judy" in 1943. The Hellcat, and later the Corsair, were responsible in large measure for the one-sided U.S. victory in the Battle of the Philippine Sea vs. "Judy" and "Jill".

The Americans had the advantage in the coming Battle of the Philippine Sea in that they had partially broken the Japanese code and also because they had better search radars. However, the Japanese in turn had the advantage in these three respects: first , their carrier aircraft, having no extra weight of armor or self-sealing fuel tanks, had a longer range. That is, the Japanese aircraft had a search range of 560 miles and assuming a normal expenditure of fuel they could attack targets up to 400 miles away (the carriers, their airfields, can move). The Americans could search to only about 350 miles and so could attack targets only 200 miles away. The second advantage the Japanese had was that they planned to keep the battle within the range of their land-based aircraft on Saipan, Guam and Tinian.

Finally, coming eastward from Japan they would be steaming

(Continued on next page)


480
470

A TYPHOON'S ON IT'S WAY

Airdales are tying down the F6F in preparation for a coming typhoon. Since the wheelchocks are in place, they're not moving it. Or, perhaps they're going to move it to a less exposed place. In any case, bad weather is on its way and precautions for the aircraft must be taken. With weather like this, it makes for feelings of isolation on that big ocean. A wet deck, howling winds, a pitching, rolling, heaving platform 50 feet above the water, and a minimal catwalk makes for hazardous conditions, but not unmanageable ones. It's merely a matter of paying attention, which is hard not to do. We never lost an aircraft overboard, but we did have damage done. The main thing that's apparent in this picture is how exposed you are, remembering that a typhoon is a hurricane that's found over the Pacific Ocean rather than the Atlantic ocean. I can remember rain being a vexing situation in that the deck would be slippery. This was especially so where grease and/or oil spots were present on the deck. A solid footing on the deck was always very important. But it should be said that rain was not all that prevalent, and if it did occur, it was for a short duration.

the value in the horizontal plane (dBr). Thus, RdBs is divided by R(cosF) to obtain dBr. Now the generated target position is derived from cR=jR+#T(dR), cE=jE+#T(dE) and cBr=jBr+#T(dBr), where "#" means a change in that quantity during some specific time (I.e., it's an increment of something) and the letter "j" means a correction to a quantity (the difference between generated and observed change in range, bearing and elevation). Now predicted target position refers to "the diagram on the next page". Based on the assumption that the present rates of relative motion dR, dE and dBr will remain constant for very short periods of time, they can be used to predict the target's position at the end of the time of flight (Tf) of the projectile. The results may be far apart. (The time of flight Tf may be computed thus: Tf=Range/Rate=27,000 feet/2600 feet per second=3.46 seconds.). The future target position is indicated "on the diagram on the next page": RdBs is the rate of change of the target between (cont.)

The Carrier War in the Pacific, continued from previous page.

into the wind thus not necessitating a change of direction to launch and land aircraft (which requires a wind over the bow of the ship). One further consideration is that the Americans, desiring to invade the islands of Saipan, Guam and Tinian, were "tethered" to that area to provide protection and support to the marines during and after their landing on the "beach". This battle, the Battle of the Philippine Sea, was to be the largest naval battle ever fought in the history of naval warfare. There were large mythical battles in ancient times but this battle was in no way a myth, and there was more to come.

One other consideration should first be mentioned, namely that very many of the Japanese pilots were essentially neophytes because they were not sufficiently trained. Since the previous year severe fuel shortages and the lack of aircraft made it impossible for the pilots to receive the preparation they had acquired previous to and in the early days of the war. Instead of logging 700 hours of pre-combat flight time they once had, pilots flew only 270 hours before being sent into combat. Moreover, new pilots never were able to benefit from the more experienced pilots. The American

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ROUGH WEATHER AHEAD

The slick deck implies that rough weather is on its way. This may look harmless enough, but it could be in fact treacherous. As mentioned previously, the deck is pitching and rolling simultaneously here. The aircraft is being pushed forward, and to my way of thinking, much too close to the edge of the flight deck. The person at the left, arm upraised, is right at the edge, with only a three-foot wide catwalk back of him, four feet below (and 50-feet further to the water below). If they're going to pivot the aircraft around the left (braked) wheel (see Airdale in the cockpit), there is no room for the right wheel as it swings CCW. In addition, if while it's swinging around, and the ship rolls in that direction, it might be one lost aircraft, not to mention various and sundry Airdales. In my humble opinion this is a grossly unsatisfactory situation and I included this picture to show the same. (I can feel the ship rolling right now and I don't feel good about it. In fact, I feel very uncomfortable with what's happening, especially as I look at that Airdale, third from the left, with a foot showing. I'll never understand why there are people who "like to live dangerously." Fools make for folly; or is it the other way around? Anyway I don't think we had any fools in the Airdales. At least, none that I saw. I can remember when we were pushing a disabled F6F Hellcat during a typhoon. For some unknown reason we were pushing it forward toward the edge of the flight deck, at a 45 degree angle to the deckedge. The ship rolled, the plane-captain in the cockpit of the Hellcat was not quick enough on the brakes, and into the catwalk it went. One Airdale also was not quick enough, or alert enough, and he paid by being crushed between the Hellcat and the flight deck as the wheel went down "onto" the catwalk. He did not survive.

LOS1 and LOS2 where R2=R+dR(Tf), E2= E2+E+RdE(Tf/R2) and bearing Br2=Br+RdBs(1/cosE)(Tf/R2). The next order of business is to *(cont.p.170)*

The Carrier War in the Pacific, continued from previous page.

sent their veteran pilots temporarily to the rear to train the new pilots. The Japanese did not have this "luxury". Their pilots had no relief from tensions of combat: they were worn thin. The die was cast on on 6 June 1944 when the fast carriers sortied from their base to the east in advance of the landing force that was to retake Saipan (and Guam and Tinian) on the 15 June. During the preceding February Admiral Mitscher had raided Saipan as a softening up operation. also allowing the accomplishment of a photoreconnaissance mission. In the process the raid destroyed 168 Japanese aircraft. On the11th of June a raid netted 150 land-based aircraft, most of which we re caught on the ground. Over the next few days tension mounted as the two opposing fleets moved ever closer to the impending Battle of the Philippine Sea. Even if the enlisted man didn't know what was happening, the scuttlebutt and the sight of innumerable ships across the horizons told the story of momentous things to come. Admiral Mitscher wanted to go straight to the enemy for a confrontation but Admiral Spruance was given the mission to defend the landings as his first priority. This would require him to keep the fleet somewhat close to Saipan

(Continued on next page)


133

THE TYPHOON

The typhoon has the ship in its grasp. All the aircraft are tied down to provide a modicum of security. The Airdale at the left is finishing his job of securing all the loose gear on and about the deck. Since the flight deck is 50 feet above the water, and since that wave appears to be level with the flight deck, it can be inferred that the ship is in a 50 foot trough. When "that" wave goes under the ship, it will heave the ship upward, maybe 50 feet. So one is on an "elevator" that goes up and down maybe 100 feet. And then back down, …and up…and… Add in the pitching and rolling motions, and you have the makings of an interesting ride. Albeit a slow one.

(I can remember seas of sufficient magnitude that a ship the size of a carrier was in effect "being toyed with". When I was at the helm (NOT during a typhoon) steering the ship, this wave motion, of a lesser amount, made for a lot of corrective adjustments to the rudder. Actually, it was fun, reacting quickly and properly to the sea-swells, especially when the wind came at the ship from an oblique frontal direction. (I said "fun", but it was definitely not a game.)

In quiet tones, it's appropriate to render a part of the Navy Hymn:

"Oh Trinity of love and power;
Our brethren shield in danger's hour;
From rock and tempest, fire and foe,
Protect them where-so-ever they go,
Thus ever more shall rise to Thee
Glad hymns of praise from land and sea."

The Carrier War in the Pacific, continued from previous page.

which in turn would allow the Japanese to send their carrier aircraft, from the east, against the American fleet and then on to the adjacent airfields of Saipan or Guam. The result would be that the Japanese would be able to attack the U.S. forces while essentially remaining out of range of Mitscher's aircraft. Dawn of June 19 found Mitscher's flagship U.S.S. Lexington (CV-16) less than 150 miles southwest of Saipan. There was as yet no sign of enemy ships or aircraft. Therefore Spruance recommended that Mitscher send some Hellcats to neutralize the airfield on Guam, reasoning that the Japanese would want to use it for refueling during the coming battle. In the early morning a succession of aerial dogfights broke out only to soon be interrupted by the detection by radar of the Japanese fleet 150 to the west and closing. Just before 10 o'clock in the morning Mitscher turned into the wind to launch fighters to meet the incoming Japanese aircraft. Hundreds of fighters were sent aloft to meet the 16 Zeros, 45 fighter-bombers and 8 torpedo aircraft. At least 25 of the attackers were shot down in the first skirmish. Forty or so pressed on and of them 16 were "splashed". Only 24 Japanese aircraft survived this first assault.

(Continued on next page)

TYPHOON WORK

These Airdales are setting up a chain across the flight deck. Why, I don't know. No one's going to be there except them. That's a precarious spot, as will be noted in the next picture. During a typhoon we were in, the squadrons of aircraft flew off the ship to go to a safe haven elsewhere. This left an empty flight deck. Being on the flight deck in this weather to "taste" the elements, I looked down the length of the flight deck and at first thought I was seeing things: the entire flight deck was undulating in a wave-like motion (think of a belly-dancer and you'll have the picture). This was in fact happening, and it was what it was supposed to be doing. The ship was built so that the flight deck was in sections, specifically allowing it to undulate in heavy weather so that it wouldn't crack under stress (as it would if it were rigid). Clever, those nautical engineers, making ships flexible.

(I can remember the ambient wind conditions on the flight deck so strong, and the ship's rolling, pitching, heaving, yawing motions so pronounced, that being on a platform fifty feet above the water was definitely an unpleasant experience, catwalk or not. These were not life-threatening experiences (necessarily), but they were at times unnerving ones.)

This picture strongly evokes another stanza of the Navy Hymn:

"Most Holy Spirit! Who didst brood
Upon the chaos dark and rude,
And bid its angry tumult cease,
And give, for wild confusion, peace;
Oh, hear us when we cry to Thee,
For those in peril on the sea!"

The Carrier War in the Pacific, continued from previous page.

Battleship "South Dakota" was hit by a bomb, that being the only damaged sustained. The Japanese sent another strike against the Americans consisting of 128 aircraft. Of those, 98 were lost. The Japanese sent two more strikes against the U.S. fleet both of which met similar fates as the first two. The poorly trained Japanese pilots were no match for the Hellcats and they paid with their lives.

The Japanese made five separate raids against the Task Force 58 that was primarily interested in supporting the marine landings on Saipan. However, the Americans put up an offensive defense to counter the Japanese with the result that the Japanese lost 350 aircraft (and pilots) as against 30 by the American side. The newest and largest Japanese carrie, as well as one of the Pearl Harbor carriers, were lost to American submarines. Task Force 58 had acquitted itself well but the Battle of the Philippine Sea was not yet over. The U.S. forces were not interested in just supporting the invasion operation being conducted by the marines. This was an opportunity to confront the Japanese naval forces in a showdown that would certainly result from the American presence: finish the job.

(Continued on next page)

SECURE AIRCRAFT, TYPHOON IMMINENT

This is not a storm, but rather, just a fairly normal sea. This happens when circumstances contrive to bring a heavy pitch with a heavy swell. Anyway, it appears that the Airdales are tying down the aircraft to the cleats in the flight deck, in anticipation of heavy weather. Notice the "bull's eye" above the five-inch gun mount. This is used if the automatic gun director is knocked out of commission. I never did notice that windsock, but maybe they put it up only in rough weather. The aircraft are F6F Hellcats, most always at the head of the pack. In a typhoon, as in the previous pictures, the destroyers, being relatively small, would "ride" the waves, much as a cork would. This would mean that sometimes they were on top of the wave, and sometimes they'd be in the trough, sometimes disappearing from view. But they'd bob back up, to repeat the process. A carrier, on the other hand, being long, would tend to extend from one wave crest to the next one, and then the next crest would pound the ship to such an extent that the entire ship would literally shudder. The next picture bears this out. I can remember weather that generated waves of dimensions sizable enough to slow down the launch operations to more than the standard thirty minutes. Launching aircraft when the ship is pitching downward is a recipe for "wet feet" (for the pilot).

determine the gun orders E'g and B'gr as modified by the ballistics of the projectile (gravity, drift, wind, loss of initial velocity and certain geometric errors introduced by the fact that the motion of the gun is limited to train in the deck plane while elevation is perpendicular to the deck. That is, the guns are affected by the ship's pitch and roll as well as the director/radar. Since the target is relatively close these errors are less significant than with ship targets (at say 20 miles range instead of less than 2 miles). The sum total of the ballistic offsets from the LOS is called the sight angle (Vs) and sight deflection (Ds). Vs is the difference between elevation of the (cont.)

The Carrier War in the Pacific, continued from previous page.

The Japanese withdrew As the sun set on the 20th, Mitscher launched an unprecedented 300-mile strike assuring that the 216 aircraft would return after dark, if their fuel supply would let them returned at all. Most of the pilots had never made night-landings. In spite of this mental burden the pilots performed admirably. Hellcats shot down more of the remaining Japanese aircraft, while the Avengers sank a carrier, and Dauntlesses and Hellcats heavily damaged two other carriers. As the returning pilots approached the Task Force Mitscher ordered all the ship's lights to be illuminated in spite of possible lurking submarines. Destroyers picked up 52 of the 101 pilots who made a water-landing. Some pilots were lost on crashing on the carrier decks. The Americans lost about 30 aircraft to the Japanese during this operation while the total Japanese losses overall were 480, both carrier and land-based. [The numbers given here are not hard and fast because the references used were not consistently stated. However, the essence of the victory of the Americans at the Battle of the Philippine Sea is accurate: it was a substantial victory and assured that future American landings would be successful, though not

(Continued on next page)


99

THE TYPHOON LEFT ITS CALLING-CARD

This is the result of a typhoon. It indicates the incredible force generated by water crashing down on a very substantial structure, and also the force of the wind to generate the wave that did this damage. What probably happened was that as the ship was heaving upward due to wave-motion amidships, another wave up forward was breaking downward, and so there was no "give" by the ship. Carriers received damage in these heavy storms, but for destroyers, it was something else. There have been instances where they capsized and all hands lost at sea. Though not "lost in action," they were lost due to the action of the seas. No formal burial for them; no marker at their grave. It's a lonely phrase, "lost at sea." I can remember that during preparations for securing aircraft and gear (tractors, etc.), a huge wave broke over the front of the flight deck, causing consternation, but not the harm shown here. We were able to get through the typhoon essentially unscathed.

gun axis (LOF) above the horizontal plane (not the deck plane) and the elevation of the line-of-sight LOS above the horizontal plane (not the deck plane) measured in the vertical plane through the LOF. Ds is the angle between the vertical plane through the LOS and the vertical plane through the LOF, measured in a plane perpendicular to the vertical plane through the LOS. [These vectors and planes are fully shown in the OP1700 manual in terms of spherical and cartesian coordinates.] Ds is the angle between the vertical plane through the LOS and the vertical plane through the LOF, measured in a plane perpendicular to the vertical plane through the LOS. (See the figures on page 748+). Since the (last) figure does not show the deck plane, E'g=Eb+Vs instead of the final value of E'g=Eb+Vs+Vz, where Eb=E+L and Vz accounts for the gun tilt due to the cross-level Zd (cont.)

The Carrier War in the Pacific, continued from previous page.

necessarily easy. This will be proven out in the battles to come as the U.S. approaches nearer and nearer to Japan proper.]

By August 1944 the ground forces had all but cleared the Marianas of opposition thus allowing airfields to be built to accommodate the large strategic B-29 access to the Japanese mainland in the Fall of 1944. While the above was going on, MacArthur's forces in the South Pacific were advancing westward trough New Guinea By August he was ready to address the Philippine invasion to fulfill his promise of "I shall return". Thus MacArthur and the fast carrier fleet had a rendezvous at those islands in the near future that will be known as the Battle of Letye Gulf. However, there were things to do beforehand such as isolating Japanese-held islands in the area.

Through August of 1944 the raids and occupations of Guam and Tinian continued until they were secured. This involved heavy fighting on land against Japanese troops that embodied the "do or die" attitude. For the remainder of 1944 the U.S. conducted raids against the many Japanese-held islands in the Central Pacific such as Kwajalein, Trun (the Japanese "Pearl Harbor", Palaus, Marcus

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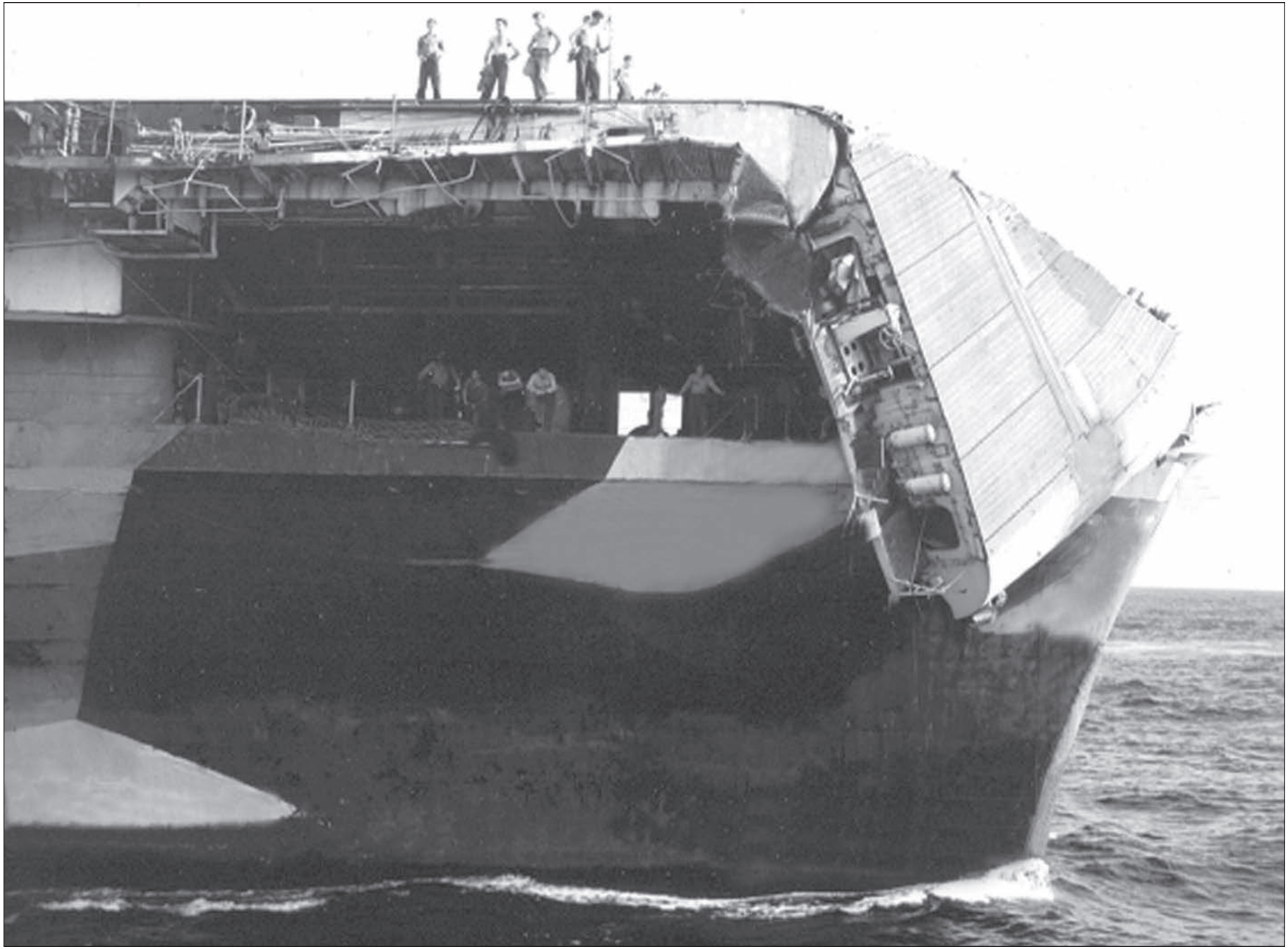

RED-SHIRTS DELIVERING THE "STOCK IN TRADE"

These are the ordnance men, the red-shirts, the ones who load the bombs in the aircraft. The bombs come up on special elevators to the flight deck. This is the ordnance men's only job, but one that requires a great deal of care. This is especially so when they arm the bombs after they are loaded. This picture shows 250-lbs bombs, ones that can be loaded under the wings of the fighters (F6F Hellcats and F4U Corsairs). Our squadrons would take on bomb-loads, but not for every flight operation. The aircraft never came back with the bombs, so presumably they used them for bombing practice at various unoccupied islands. Since we were a training ship, it would seem that not only the pilots needed training under wartime conditions, but also, so would the ordnance men, and the catapult men, and the gunnery men, etc. (The gunners would practice by shooting at target-sleeves that were towed by aircraft used for that purpose. The 20-mm and the 40-mm guns have a tracer every 5th bullet to visually track the target.) I can remember being somewhat in awe one day as the red-shirts appeared, bombs "in hand, marching" to the waiting aircraft. And I was impressed with how casual they appeared about what was transpiring. The pilots would use the bombs for practice bomb-runs.

(pitch and roll). Similarly, B'gr=B'r+jDd+Dz, where Dz accounts for the same cross-level Zd. Vs, Ds, Vz, Dz and jDd will be explained later. In the figure of E and E2 predicted change of range dR(Tf) equals Rt. The predicted angular change of elevation RdE(Tf/R2) equals Vt and the predicted angular change of relative bearing of range from the ship RdBs((1/cosE)(Tf/R2) equals Dt. Thus, Vs=Vt+Vw+Vj+Vfm+Vf-Vu-Vx where Vt is the elevation prediction, Vw is the wind elevation correction, Vj is the visual elevation spot of the projectile explosion, Vfm is the initial velocity elevation correction, Vu is the air density correction, Vf is super elevation correction, (the higher the target, the more correction *(cont. p244)*

The Carrier War in the Pacific, continued from previous page.

and Formosa (Taiwan). These raids were strongly opposed by the resident Japanese forces and land-based aircraft leading to the inevitable battle for the Philippine Islands by MacArthur's forces and those controlled by Admiral Halsey (under Admiral Nimitz). This naval battle was to be called the Battle of Leyte Gulf, one involving massive naval forces, the largest naval battle of all time (I inadvertently previously called the Battle of the Philippine Sea the biggest; that was big, just not the biggest). Many Japanese held.

Islands in the Central Pacific were not only raided during the last half of 1944 but also many were invaded by the marines as supported by the fast carrier Task Groups, several of which make up a Task Force. Ships were bombed, some were hit and casualties were taken not only by the marines on shore but also by the personnel on board the supporting ships. Thus in October of 1944 the Americans were ready to invade and retake the Philippines to cut off the Japanese supplies from Southeast Asia. No invasion is easy but the invasion of the Philippine was to be especially difficult and costly because of Japanese imperative to hold it: the Empire demanded it.

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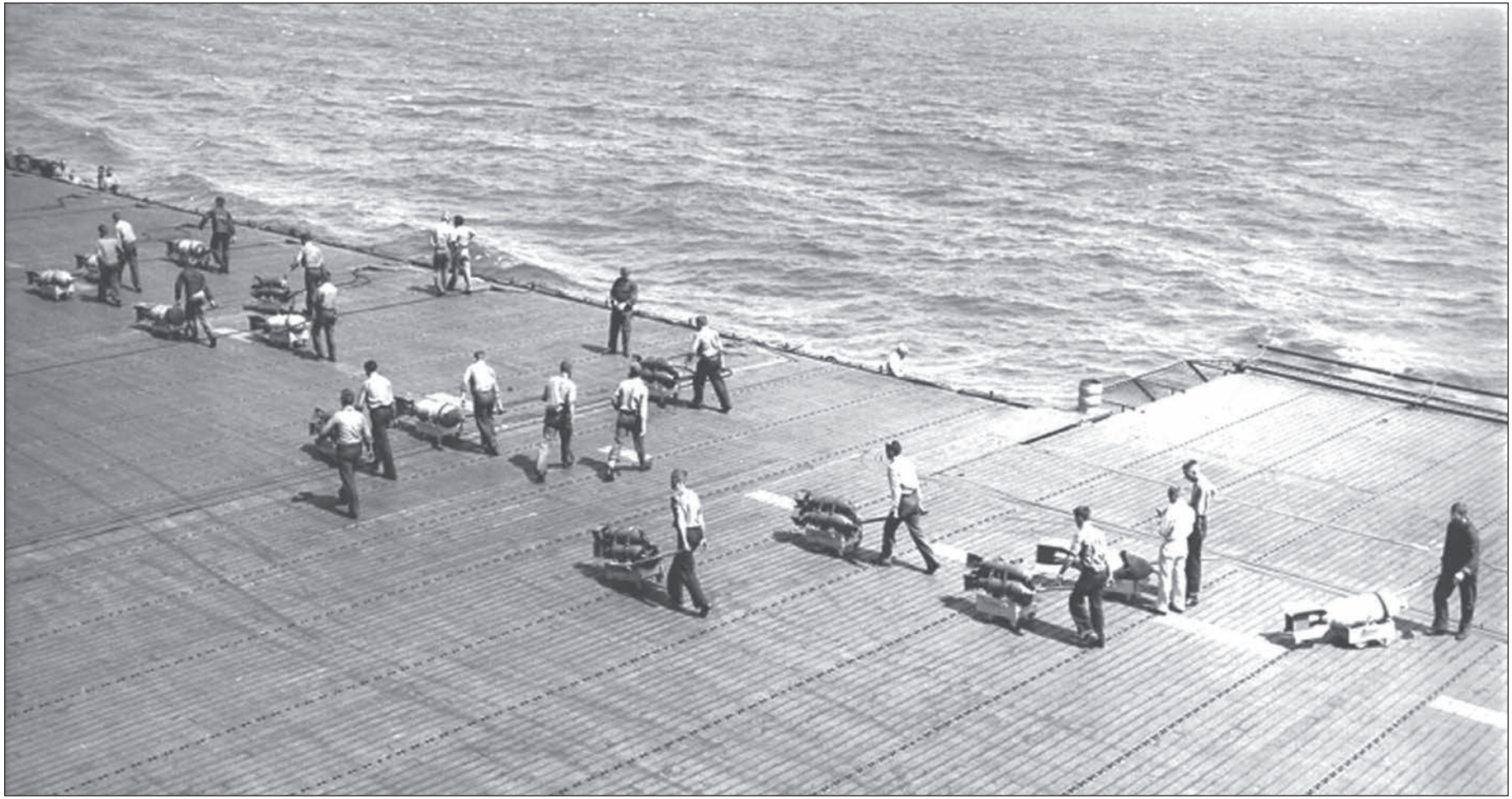


THE "STOCK" GETS BIGGER

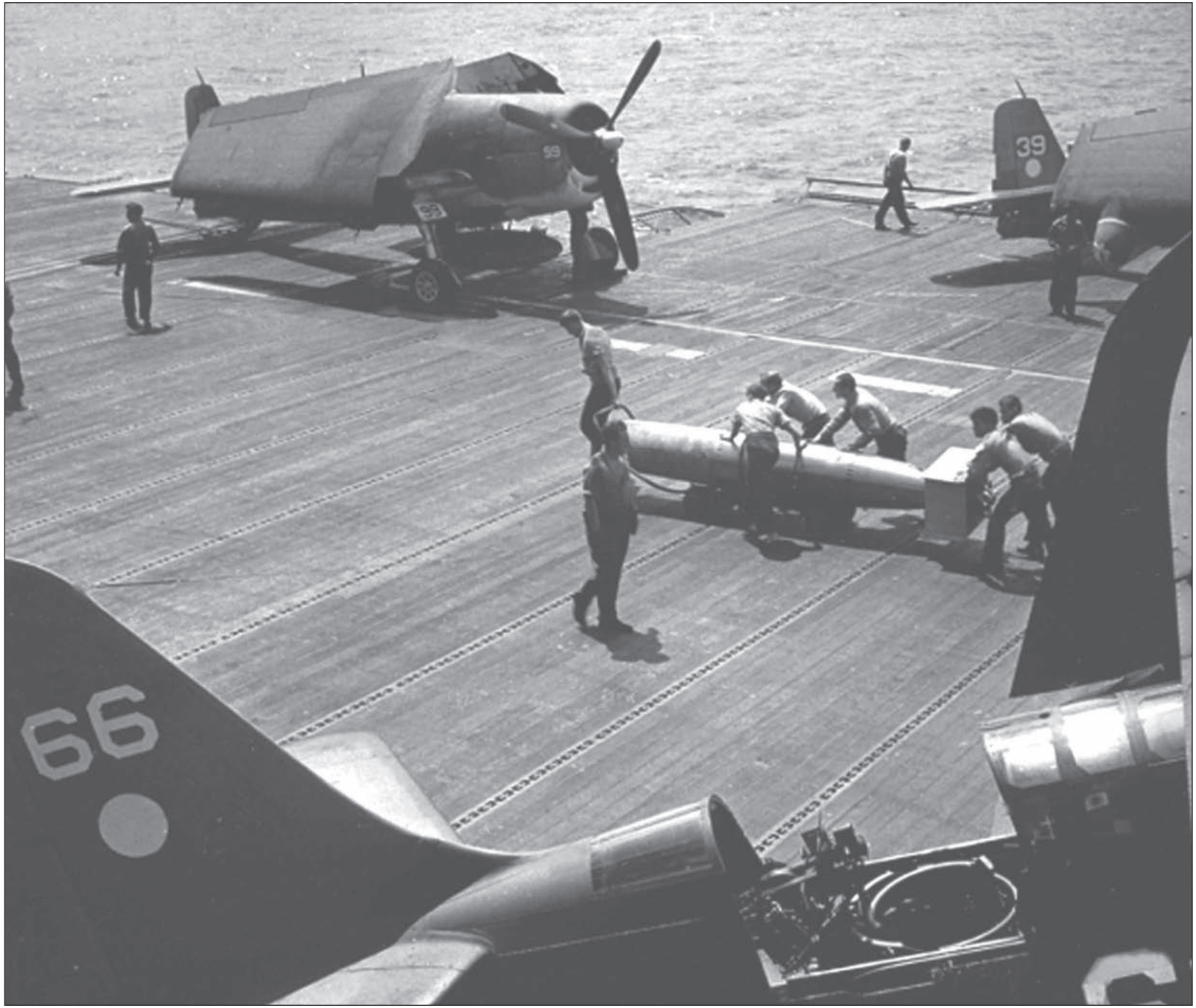
These are the 500-lb. bombs. The largest are 2,000-lb. bombs, and then of course there are 2,000-lb. torpedoes. (Notice the wheelchocks at the edge of the flight deck.) These larger bombs don't have special elevators, as do the 250-lbs bombs and rockets of the previous picture. So the deckedge elevator is used. This picture, being a silhouette, makes it more stark, and thus more menacing, as I believe it should be. Consider this, it took only a couple of these 250-lb bombs to wreak havoc on the U.S.S. Franklin. Of course it's true that those two bombs landed on a deckload of armed and fueled aircraft, which was a fearsome amount of "kindling." (See the last chapter.) I can remember, on looking at those 500-lb bombs, that serious things were afoot. And I was somewhat surprised, and concerned, at how young these red-shirts were.

Bombs, lots and lots of bombs being trundled over to awaiting aircraft after having been brought up from the hanger deck below. In effect these bombs are the "point of the spear". This is the raison d'etre of a carrier's life: To rain death and destruction on those below. One could say that this function is a "necessary evil". However, is this accurate? Just what do we mean by "evil"? What can be said of "evil"? Could it be the deliberate infliction of damage and pain on others simply for that reason? Could there be levels of evil in that such behavior is orders of magnitude worse when done to the innocent (let's not here define "innocent")? Can there be fundamental evil as well as inadvertent evil? Could it be that the former occurs when the evil one does it for his perverted satisfaction while the latter case represents an ancillary result? It's difficult to scale evil; "evil" is evil, the worst sort of human conduct extant imaginable. Back to the bombs. Perhaps they are a necessary evil when one considers that evil must be obliterated thus making these bombs necessary. What can bring bombs close to being evil is their aptitude for raining death and terror on noncombatants. Now this could be called a type of evil despite the protestations of unavoidable "collateral damage". There are those many who say (and said) that the two atom bombs were a necessary evil. I have never yet accepted that contention: Why civilian targets?? Why not military targets?? I say this as one whose ship was on its way to bombard Japan at war's end. The Japanese leaders could be called evil, but were their civilians innocent dupes? In a controlled society, yes, and so they could be called innocent (in a controlled society the civilians have no control). Is it politic to win the war while losing your soul? Is it politic to decimate the enemy with whom you will later interface? Are civilians responsible for the bestial acts of their leaders.? What profit victory on the battlefield if that carnage will leave scars for generations?

THE BIG ONE

A TBF/M Avenger is going to get this torpedo, which weighs 2,000 pounds. These torpedoes, too, have their own elevator to the flight deck, though I've seen them, as well as bombs, being brought up on the aircraft elevators. The fighter aircraft (F6F Hellcat and the F4U Corsair) also carry bombs (up to 2, 000 pounds). Those bombs were attached externally to the wings and under the fuselage. (That's an external fuel tank attached to the underside of the Hellcat in the background. These were standard equipment for the F6F and the F4U.) The torpedo aircraft made their bomb-runs just above the "deck" (water) while the divebombers (SB2C Helldivers) in the foreground made their attacks at a 45-degree angle. Which type aircraft had the better success I'll leave to the experts (pilots). It should be noted that at the end of the war there were some F4U Corsairs that had 2,800-hp engines and they were thus able to carry up to 5,000 pounds of bombs. Presumably their range and speed suffered. No wonder there are those who say the Corsair was the best fighter of WWII. Both the F6F and the F4U carried four 20-mm cannons and could also carry eight rockets (but then, a smaller bomb load). What I found amazing was that they could "tack onto" the wing that much weight! (What holds the wing up?!) Note in the foreground the SB2C and its circular gun mount. This is where the other type "Airdale" held forth. They were also radiomen. I can remember, on seeing the torpedoes, thinking "now here are the big ones". And those red-shirts were still young looking. Oh well, I had yet to be introduced to the really big one, a 2,000-lb chunk of a bomb that looked really, really big. "What aircraft could carry that!?"

Does one have to be in a fit of anger to set this torpedo against an enemy ship? Or can one do so in a strictly professional manner? In situations as technical as this, probably the latter is the preferred method. Is a "fit of anger" ever to be condoned? Or is it much more desirable to have a "controlled anger" and thus see much more clearly? Should we ever be angry? For my part, visceral anger is to be deplored while controlled anger can be not only correct but also imperative. Is it not correct to be angry at injustice? At unfairness? At denied, valid rights? Most all of us would agree to this. Sometimes it takes a controlled anger to "get off one's duff". We could well be angry at ourselves for not doing well, for not trying hard enough, for not overlooking wrongs, for any number of things. The key here is to not let one's anger "take charge". That is, constructive anger can be good while destructive anger deleterious. Do we have the wisdom to know the one from the other? It's much too counterproductive to allow anger to be too effusive because I believe it tends to generate a counter anger. We are angry at the enemy, yes, but consider the fact that the enemy is made up in large measure (not totally certainly) by people very similar to you who wants to be married, have children and live a "normal" life. So now you and he (the enemy) have to kill each other. [I know, countries make war, not people.]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39

THE RED SHIRTS MEAN BUSINESS

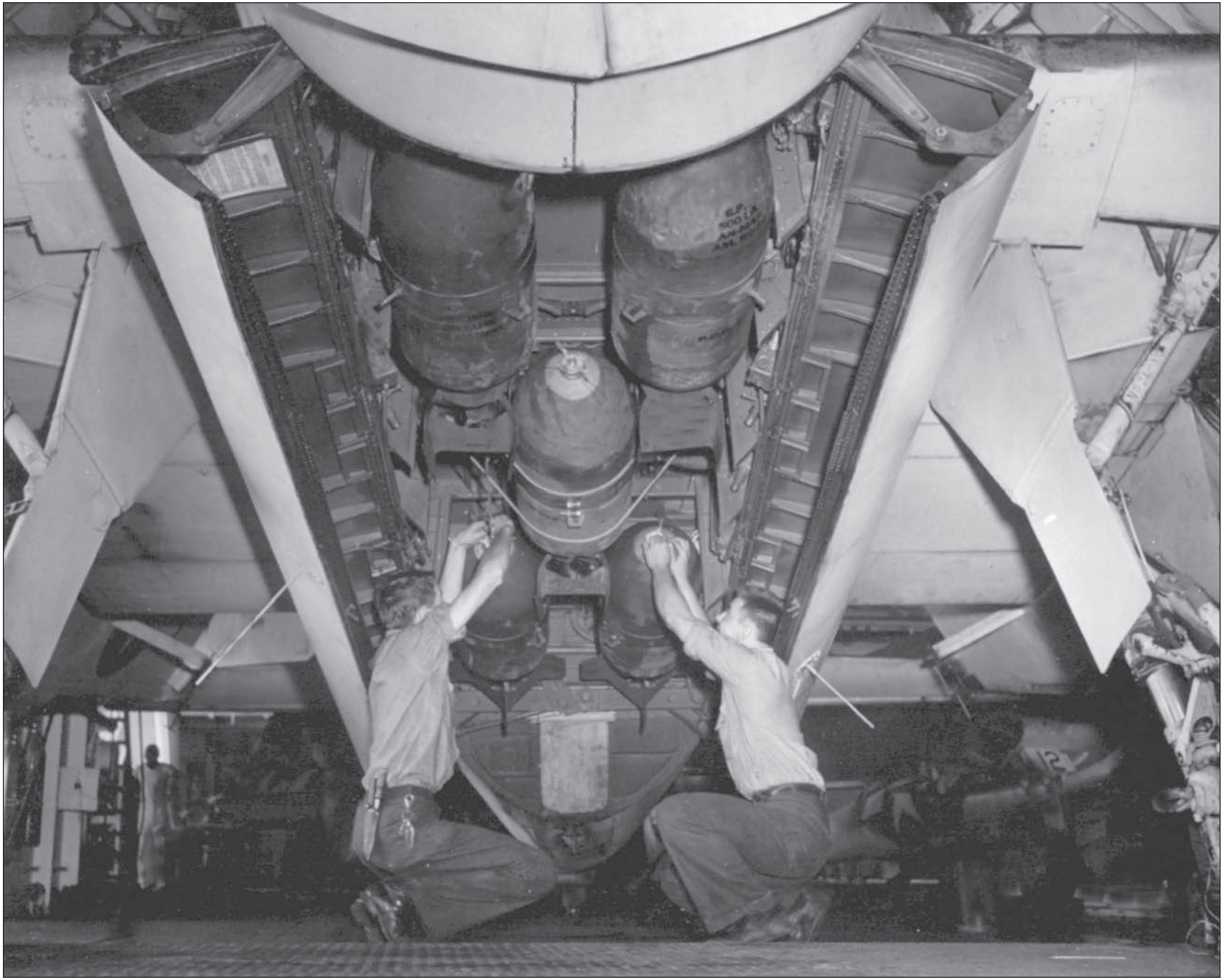
Shown is a 1,000-lb. bomb being moved to a TBF/M Avenger torpedo aircraft. Though designed to take torpedoes, it also obviously takes bombs (see the next page). It was fascinating to see these ordnance men loading bombs into the aircraft. It seemed to be a very responsible job for people who didn't look much older than I was. This was a training ship, yes, but did they have to be so young? Nothing untoward ever happened, fortunately, and at this stage (in the picture) the bomb wasn't armed yet. But so young?! These red-shirts had my respect. While on this page, mention must be made of the engine's exhaust pipe. No mufflers here! (The sound of unmuffled, revving up engines is unremitting torment. And we had no ear mufflers the way they do today. But they really need it; a launching jet aircraft makes noise beyond loud!) (I can remember wondering how they could possibly attach a 1,000-lb bomb to the aircraft so that it would stay put. And beyond that, how in the world were they going to lift that 1,000-lbs?

A bomb this size certainly gets your attention, or at least it should. Two thousand pounds of high explosive and metal make for a potent combination. In this case it's obvious but in many, many others we tend not to be attentive to the world around us. More specifically, I'm referring to our tendency to not be observant. One of the most important attributes of learning is the ability to absorb what we observe. Thus if we do not observe we do not learn. Usually we observe that which is unusual or new, eschewing the usual. However, if we'd only dig a little deeper into those things already familiar to us we can mine a wealth of new data. ("Data mining" in the field of computer neural networks is, as I understand it, a prime method used by the search engines. This is technically obtuse but what's the matter with being technically aware? In our growing society we ought to be alert for all these new technologies. How can we have an intelligent electorate without it? As has been said previously, without a correctly and fully informed citizenry we will have only the shell of a democracy, our "crown jewel".) This has taken us a long way from that big, fat bomb whose sole purpose is to kill and destroy. I often wonder about those whose jobs keep them constantly in the presence of weapons. Does this color their outlook on life/ If so, how so? Unfortunately, present day weapons seem to have a technical fascination for many. I'll stand by that non-technical weapon of pepper-spray where the relatively weak are put on a more even level with the brutish thugs who prey on others. I have an uninformed opinion that the worst offenders of civil conduct are those who are of low self-esteem and small of stature. In essence they are taking out their feelings of inferiority on those they think they can best. Am I right?

ARMING EACH OF THE BOMBS

Here's an Avenger loaded with five 500-lb bombs that are being armed (the bombs are having the "trigger cocked"). This is not a job for the squeamish. Even though no mistakes were ever made doing this, the potential for a mistake was always there. That these people were in their early 20's was not particularly reassuring to someone who was 18-19 years old. I was impressed with their professionalism though. One thing I noted was that if someone was wearing his keys on his belt, he was, de facto, an old-timer, and thus the whole thing was not so unnerving as it might have been. So I admired their "savoir faire" concerning their job. And let's face it, seeing 2,500-lbs of bombs in one place gets one's attention. Another thing I thought was disconcerting was the fact that there was only one cable holding that bomb in place. To me, that was a cable that was too thin by far. But as was said, there were no mishaps, and no bomb ever fell as the aircraft was given full throttle and rumbled down the flight deck for launch. It all seemed to work alright, and as time went by, one got used to it. One became an "old timer". I can remember thinking that these red-shirts were too young to assure confidence in "fiddling around" with those fuses to 1,000-lb bombs. But I must say that they were very professional about everything and I did not sense any anxiety on their part. Thus I felt none of my own (reflecting their "leadership").

These red-shirts, these youngsters not long out of high school, have a very responsible job in loading a two thousand pound bomb held only by a few wires. Realize that these bombs are (or will soon be) armed, ready to detonate. This is not your every day type of responsibility, to be sure. Here we ask, we assume, that these young people are fully trustworthy (not your every day type of responsibility). In fact, they have a surfeit of responsibility. We so often hear in the media talk about this right and that right. These may be all well and good. However, I believe that every time someone mentions a "right" that person should be obliged to enumerate the attendant "responsibility". In addition, as part and parcel of responsibility is the attribute of accountability. We must be held accountable to our responsibilities. A "responsibility" can be a stand-alone but a "right" must be paired with responsibility. As an ancillary, we should get off the wagon and start pushing the wagon. [As an aside, I fantasize that everyone be required to spend a year on the factory floor of a manufacturing plant following a cost accountant around as he records costs of producing an item. They would then see that there are no free rides (nor should there) and that items do not " just magically appear". Hard work and intelligence make them appear. Responsible people make them appear and make "rights" available. GET OFF THE WAGON AND EARN YOUR RIGHTS BY PUSHING THE WAGON! This will also have the beneficial effect of instilling at least some self-respect. It puzzles me that anyone would stay essentially inert when their ego is very low. Wouldn't such a person be ashamed to be a dilettante? In my day there was such a word called "shame".



DON'T DROP IT!

Now we're back to the first Avenger again, with that 1, 000-lb bomb. No, they didn't use muscle power to lift these bombs. What they did use was a pulley-device that has a very large mechanical advantage. (I guess they could have used a device similar to a car hydraulic jack, but I believe that would have taken too much time. The pulley device had a handle on a wheel which wheel in turn was geared to another wheel. So as they turn the crank (of about six inches), the bomb slowly rose to its final position. This process took several minutes. Now two small-sized cables were attached around the bomb and secured to a hook-assembly on the aircraft's fuselage. Next the bomb was armed, and the "doors" were closed. Everything was ready for launch. I could never understand how those two cables, and the hook, were strong enough to hold up the 1,000-lb bombs. It still amazes me. Again, on the Antietam these ordnance men wore red shirts and red helmets, just as did those who pumped gasoline into the aircraft.) I can remember looking at those two ("thin") wires holding up a 2,000-lb bomb, and wondering "Is that all there is?!" Talk about being unnerving. Well, it soon became "old hat".

More of the same. How would you like to be in this situation in which many people depend on you in a very crucial way? Is there anyone out there who does not like and admire those who are dependable? A phrase that is sometimes bandied about is that "my word is my bond". Besides implying honesty it also represents dependability. Sometimes dependability is more important that at other times but it is always a satisfying character trait we admire in others. If you are genuinely reliable you put people at ease, a true gift. Dependability, reliability, the bulwark of a satisfactorily functioning society. Dependability, reliability are the sine qua non of trustworthiness which in turn is the basis of honor. Businesses can not function properly devoid of these attributes. Often we feel obliged to do something and if we don't we are called on it. However, dependability transcends simple obligation: Dependable people can be depended upon to do the right thing, knowing what the right thing is without its being spelled out. Know this, one of one's most treasured attributes is that others can depend on you. They feel comfortable that you have the character traits to take the best course of action (which is also known as leadership). If you are found to be reliable you will stand tall in the eyes of all who know you. Again, your word is your bond. Live it. There is something reassuring about those who are reliable, dependable. We tend to trust these people and find them reassuring. It is their gift to us and we should appreciate this gift always. More than that we should do our level best to emulate them in this respect. That's how we grow. That's how we learn. As a camper I was fortunate because of this.

CAN'T BE TOO CAREFUL

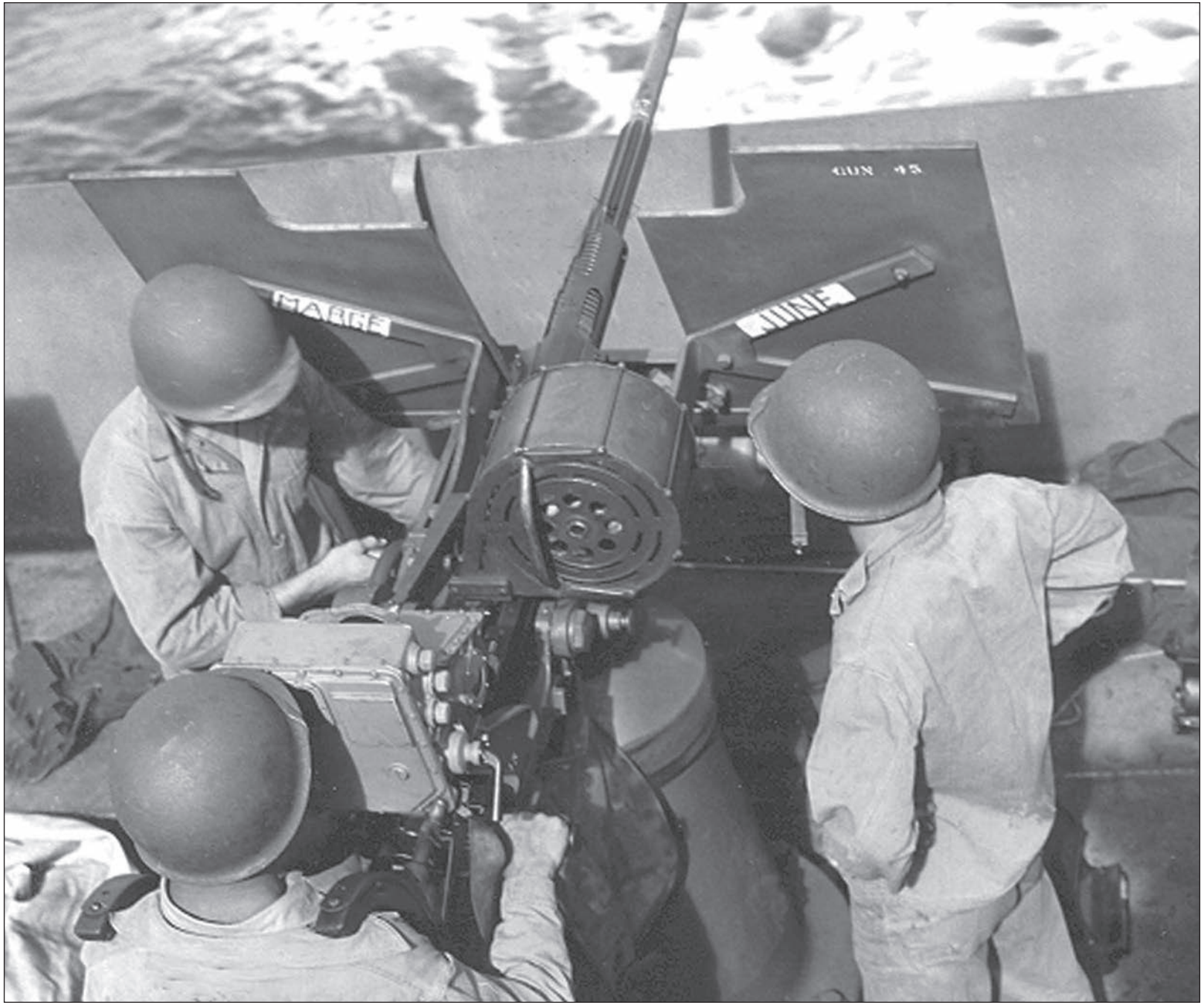
Checking out the installation of the previous page. Unlike the Airdales, who were all seamen (unrated), the ordnance men were all rated: Ordnance-man 3rd class to lst class to Chief Petty officer to Warrant Officer. The man in the back, with the hat on, was a commissioned officer, probably an Ensign or 2nd Lieutenant. This was serious business, and it happened fairly often on the Antietam, but probably more so on the carriers that were actually attacking the enemy. Now that we Airdales had finished our job of respotting the deck (moving aircraft from up forward to back aft in preparation for the afternoon launch), the red-shirted ordnance men appeared with their bombs. Consider that there were 20 SB2Cs that each took 2,000 to 2,500 pounds of bombs, and 20 TBF/Ms that took the same amount of bombs, and that the 30 F6Fs and the 30 F4Us took about 1,000 pounds of bombs each, and you have a serious number of bombs strewn about, in a crowded area. Add to that a bunch of rockets, and it's hard to make your way from here to there. In truth, I suppose I overstate the situation, at least where the Antietam was concerned. But the carriers on line must have been something like the above description. This in turn meant that supply ships had to make many rendezvous with the carriers to keep them supplied with bombs. But here again, they didn't carry out raids and missions on a daily basis. (However, the Antietam DID carry out two flight operations each and "every" day: we were a training ship. What we needed was fuel oil and aviation gasoline, although we did get a pretty good ration of bombs.) I can remember watching the red-shirts working under that 2,000-lb bomb and thinking "No sensible person would, or should, be under there". But again, it became "old hat".

Teamwork, a group of people all working toward the same cause. Teamwork is one of the reasons I played and enjoyed team sports such as football, basketball and baseball. (I also enjoyed playing tennis, the best sport of all, and I was pretty good at archery and some soccer. Sailing and canoeing were fun and on my camp swim team I was just behind our team's other three swimmers. My sporting life never included fishing and certainly not hunting. I played golf once but I enjoy the environment of a golf course. Badminton was fun and ping pong is great. I did all these things well enough to enjoy them and to remember that enjoyment.) Yes, teamwork is for the most part what makes the "world go round" The star player on the team most always is not a star without the others clearing the way (in football). The saying "one for all and all for one" is not too far off the mark. I think it can be equally said that the "sum is greater than the parts". Other times there would be no satisfactory outcome without all the parts operating in unison toward a common cause or goal. Teamwork's the difference and as I type this I hear the song "We've Only Just Begun". Remember that saying, "The longest journey starts with the first step". Sometimes these sayings fit the bill very nicely, as here. My objection to the above, however, is the implication that it's a journey with a termination. There should be no termination.

MARINES MAN A 20-MM GUN

Pictured here are some marines at 20-mm gun practice. There were about seventy marines on board, presumably to be "available to quell an uprising," but in practice to man some of the 20-mm guns. This obviously is an automatic gun (see the round magazine). The "shooter" is looking through an electronic aiming device. The guns are of course to repel enemy aircraft. This was essentially their only duty on board ship, as was true for all the gunners. We of course had Navy personnel manning most of the guns (20-mm, 40-mm, and 5-inch). Part of the gunners' duties was to maintain the guns in good working order. Because they were in a salt-air environment, this meant more than the usual amount of such activity. This was another form of diversion when I was working on the flight deck, which was most of the time. (There were at least forty-five 20-mm guns throughout the ship.) I can remember watching a marine gun-crew disassemble a 20-mm gun. With all the parts spread out everywhere, I figured they had a problem. I was wrong.

This 20-mm machine gun was called "the revenge weapon" because it could not reach the incoming aircraft until after it had released its bombs. Nevertheless, these guns were important for the simple reason that they did not want this same aircraft to make a return visit. That part's simple. What's not so simple is the emotion of revenge (for it's unfortunately a source of a great deal of antisocial behavior). It would seem clear that there can be no revenge without the attendant emotions of hate. Eliminate hate and revenge will be negligible. Why eliminate revenge? The primary reason is its being based on emotions. Most decisions are problematical if based on emotions and hate is one of the most corrosive emotions of all. The desired rule of law in turn is based on the intellect and the intellect trumps the emotions almost every time in matters of justice. If for no other reason, revenge is bad because it's "circular" because it's based on hate which perpetuates itself. Society can ill afford this. Lawful restitution yes, revenge no. Another bad thing about revenge is its propensity to draw in others who normally would be outside that "circle of hate". The tit-for-tat nature of revenge also tends to grow over time with no end in sight. Except in the most egregious cases the manly thing to do is to turn your back on that "circle" with all its ramifications. Who needs such debilitating baggage? Not you I hope. Much of psychiatry seems to be the effort to unload such delimiting "baggage". I for one believe that "baggage" can be shed by one's own efforts. What I do (did) was to keep asking myself questions until I drilled down to the underlying cause of the problem. Perhaps inefficient but it is effective.


GUN 45
MARINE

NAVY GUNNER MATES MAN THESE 20-MM

These are Navy Gunners Mates. The guns are the same. Everything is the same as the previous page. Note the edge of the flight deck on the left. Most of the gunners were rated (had "gunners mate" ratings) while the Airdales, to a man, were unrated ("seaman" only). After all, how does one get a rating for pulling and putting wheelchocks and pushing aircraft? Now when aircraft fires had to be put out (by the Airdales), that was a little different. Nevertheless, there was also no rating for being a "fireman". (It just "went with the territory.") So everyone on board ship was either rated, or "striking" for a rating, except the Airdales. Hence, we were at the very bottom of the totem pole. I can remember the Navy gunners doing the same thing as the marine gunners (cleaning their guns). They too had no problems.

There were many such guns spread out around the periphery of the ship defend and protect it. This was after all our "hearth and home". and we had no place to hide from encroaching enemy aircraft bent on sending this ship, our home, to the bottom of the sea. There's a swearing in oath " to defend, honor and protect the laws of the United States of America against all foes, foreign and domestic, so help you God". Though this ship is not America it is a part of America as defined by the Stars and Strips waving overhead from a short mast just over the after bridge and always visible from the aft flight deck. That is to say, there is in effect more to defend than just this ship. There is this part of the USA, far from home, that needs defending as an extension of our nation. To defend one's ship is tantamount to defending oneself. To defend one's honor is part and parcel of this. Why defend one's honor when it could result in harm to oneself? One way to do this is to be of such a level of honor that it will never be put in question. Leading an honorable life should be way of life. The Boy Scout code provides one way of accomplishing this: On my honor I will do my best to do my duty to God and my country and to obey the Scout Laws; to help other people at all times; to keep myself physically fit, mentally awake and morally straight At a later time these statements will be elucidated as I interpret them (presuming they even need interpretation). Know this, to defend these attributes requires that one first fully understand and agree with them. Believe in what you defend. There are many facets to this oath that the Boy Scout is not to slur over. Yet it's foolish to believe that only Boy Scouts commit this oath to memory. A scout perhaps needs help in understanding the full meaning of this oath but an older person should have no trouble in this regard. The key is to take it step by thoughtful step and then embrace it.

NEVER TOO MANY GUNS

Another Navy crew. During gunnery practice when all those guns are going at once, one couldn't hear oneself think. Staccato, and loud! I guess it's true, some people just plain LIKE noise. I was definitely not one of them. I believe I'm in the majority, but who knows? But one thing is sure, you, everyone, had to adjust to this environment, or else. These guns are on a platform just below the level of the flight deck (seen on the right). Those gunners are therefore "right out front." No concealment for them. The gunner, second from then left with a large helmet, has a pair of earphones on and is in contact with a gunnery officer somewhere up in the island superstructure. I can remember watching these 20-mm gun-crews having gunnery practice against a 4-foot wing-span drone that flew like a moth around a flame. The drone wasn't touched, but who can touch a moth?

We at times had gunnery practice between launches and landings as the marines and sailors "showed their stuff". An aircraft would tow a target- sleeve and the gunners would have at it. It was fascinating to watch as the tracers rounds arched upward chasing that sleeve. It was a good show. It was also a show filling the air with a terrific racket. With all "due" regard to the young people of today it sounded not unlike their music concerts. At times I will listen to one of those concerts as I channel-surf to peruse the offering on TV or radio. I must be brutally frank. What I hear is an abysmal cacophony of noise punctuated by a group of people jumping around as if they have ants in their pants. I try to be charitable here but I can only feel genuine sympathy for the young people in that they have been deprived of music. No, really. Not only have they been deprived but they have also had real music hijacked by the producers in NYC or Detroit or wherever. Their "singers" consistently shout at the audience and the louder they do it the more "talent" they think they have. Now I'm not one for a lot of the opera singers but at least they have a legitimate singing voice (also often too loud). Get a life and listen to the Big Bands of the 30's and 40's.. They had both ballads and upbeat music whose precision makes today's "music" sound like screaming children. My personal preference was (is) to be found in the ballads. Some of them had a richness that challenged the best of opera. For instance, a classic is "Stardust". both into and the song itself. It was the Big Bands that fueled the souls of the WWII generation. WWI songs were top flight also. It's fairly remarkable how a song, with its lyrics, can inspire one. It's been my observation that the lyrics of yesteryear are much more meaningful than those of the last couple of generations (presuming you can even understand the lyrics of the recent musical generation). Today is there anything even remotely comparable to, say, "The Impossible Dream"?

GUNNERY PRACTICE

The last 20-mm gun picture. The technical-data for the 20-mm isn't given here because it's superfluous to this book. But it can be said that they fired 450 rounds per minute to a range of 1,000 yards. The projectiles were of the explosive type. Later versions used a lead-compensating gyroscopic sight to replace the manual ring-sight. All of the guns had a tracer-bullet each fifth round. This of course enabled the gunner to track the target. The sack under the round cartridge magazine was to collect the spent casings. The shield in front of the magazine was to provide (minimal) protection. This looks like gunnery practice because of the two bareheaded sailors (middle left). They are probably gunner's mate strikers, learning the "trade" so as to become gunner's mates. I can remember what a confounded racket these guns made when firing all at once. One gun was loud, and multiple guns were LOUD.

All together now. Though these gunners fire at will they are in effect all working together but not directed by any "overseer". They fire at their own recognizance; they are not told what to do and when to do it. This is a case of taking on responsibility. Here th3 responsibility is well defined but vert often, for most of us, responsibility is not so well spelled out as here. One's character grows as one leans one's responsibilities and accomplishes them. It not possible, and it's surely not favorable to have someone monitor your every action. This puts one one step from being constantly hectored. "Big Brother" we abhor but thoughtful responsibility we admire. This thing we call responsibility implies that we know right from wrong. This begs the question as to what "right" is. As a start, "right" can not be restricted to a template because life is in fact a kaleidoscope of actions, situations, feelings, backgrounds, thoughts, mindsets and the like. What would be correct in one situation might be wrong in another situation. So how does one know right from wrong? Practice, practice, practice. We are, or should be, always evaluating occurrences that happen in life. As a matter of fact, stories and narratives present such occurrences, fictional or not. These can also be seen on television shows (some of which, to be charitable, provide a very skewed example). We evaluate a show's veracity as we watch it. Fine, but choose the message well. [I will go out on a limb and say, almost categorically, that women do this much better than men (but men certainly bring other strong points to the table). Probably the consensus is that women are more sentimental while men are more pragmatic. In truth both approaches are necessary in most all situations (one more useful than the other in differing situations). However, can we really function as an optimum society without BOTH men and women being BOTH sentimental and pragmatic?

LOOKING FOR THE ENEMY

This is the platform that contains the five-inch gun director. It's out of sight to the left, while in front and below is a 40-mm gun guntub. (All 40-mm guntubs are "quads.") Notice the 40-mm ammunition clips below the officer's foot. Also on this platform is a phone-talker, to the left, and a lookout, down to the right. There's a F6F sitting on the catapult, ready to launch should it be needed for air cover. Since no one is wearing a helmet, I presume this is gunnery practice. If it were an enemy-action situation, I doubt that the gunnery officer would have his feet on the bulkhead. (This is a fairly good view of the catwalk next to the flight deck with some 20-mm guns next to the Hellcat sitting on the catapult.) Usually most of the Airdales disappeared during gunnery practice, but I liked to stay to watch "the show". I can remember sitting in that lookout's chair gazing at the wide expanse of the ocean and enjoying the distant cumulus clouds on the horizon. This was "quality" time during the evening.

With the lookouts on station and the Hellcat sitting on the catapult this is a picture of being on guard against incursions by enemy aircraft. The 40-mm gun quad pointing upward lends o feeling preparation, always a good idea when in enemy waters which these fleet carriers did as they "marched westward across the Pacific to the shores of Japan. The dominant word here is "preparation". It's not for nothing that the Boy Scouts' motto is "Be Prepared". So be prepared for what? A simple-minded but extremely important example is "to be prepared for that idiot who's driving 20 mph faster than anyone else in heavy traffic". I know the macho types heap scorn on this but it's true, speed does kill (and there's no "taking it back"). Apparently they think they're showing the world how skillful they are. Actually they're showing 5% skill while the engineers who designed and built the car put in 95% of the skill. What these speed-demons don't remember (know?) is that even with instantaneous reactions a speeding car will travel a long way after the brakes are applied based on Mother Nature's immutable Law of Kinetic Energy: K.E.=½ m(v)SQUARED. What benefit all their super quick reflexes? And since when has a quick reflex been considered a skill? Have you ever seen a skilled ping=pong player? Now that skill with a capital "S". Once I speeded in a dangerous way and I have yet to forgive myself. Yes, SPEED DOES KILL! Shape up or ship out, all you speed-idiots and GROW UP!!. Your enjoyment should not, WILL not, be the cause of others' despair. What's with you guys who feel so emasculated if you can't drive fast (and recklessly)? Get a life before you take one. If the life is yours, too bad. If the life is someone else's, you nudge infamy! Why do you people constantly feel you have to make a fool of yourself?!

40-MM GUN PRACTICE

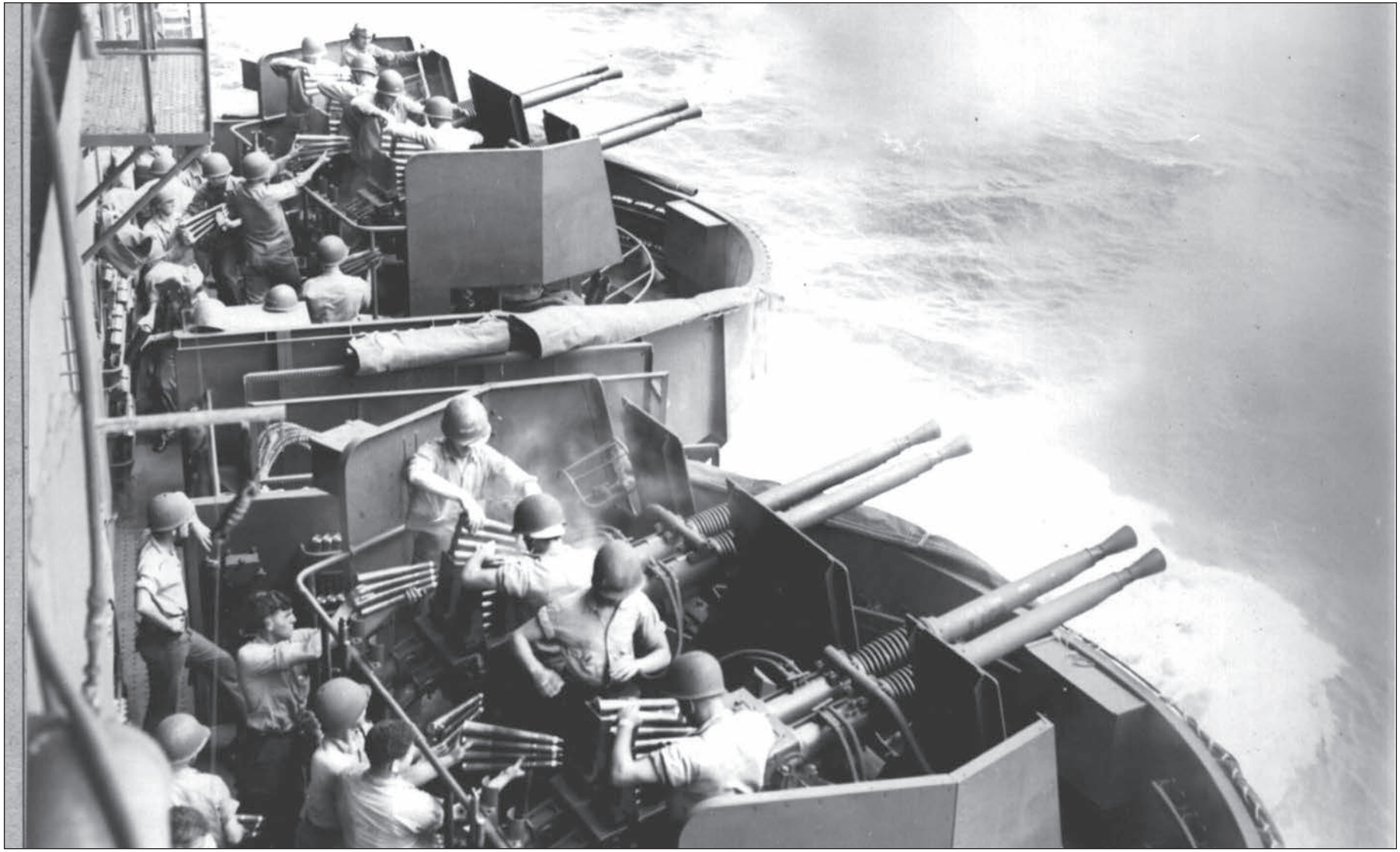
This picture caught my attention because of the following: in early 1946 personnel were being sent back to the States for discharge. Many of them were gunners. One day there was to be gunnery practice, and since they were short of gunners, they needed some non-gunners to fill the ranks for gunnery practice. I was one of those picked. My job was to hand ammunition-clips to the gunner who handed it to the gunner who put the clips into the gun. Fine, no problem. But after the practice, everyone disappeared. I didn't think much of it, and I then started to clear away the spent casings as was done after every practice that I watched. I didn't mind doing this by myself; I had nothing better to do. To make a long story short, I was standing in the guntub at a place closest to the 5-inch guns, pushing the spent casings down the chute. These guns were pointing directly away from the flight deck such that I could almost reach out and touch the closest gun barrel. Then, with absolutely NO warning, the gun fired. It was a physical force that slammed into me. The sound was truly ear-shattering. It took me about one second to realize what had happened. Almost simultaneously with that, I pulled both of my feet up and dropped horizontally. I was partly stunned, but mostly DARNED mad! Why didn't I get the word (that there'd be 5-inch gunnery practice)? But that's me, always the last to know. (That incident has stayed with me, vividly, to this day.) (My thoughts were probably elsewhere when they said there'd be 5-inch gunnery practice. Not good!) I can remember standing in that lower guntub, all alone, right next to those 5-inch guns that were pointing directly away from the ship. All of a sudden, completely unannounced, they FIRED! Talk about "hitting the deck"! I was down there in an instant, using the so-called "salty talk" to a fare-thee-well (I never used such talk out loud, even when alone). After peeping over the edge of the guntub to assess the situation, I was out of there quick-time. However, keep in mind that the Americans had to not only oppose any possible naval opposition but also prove support for the ground forces as they went ashore and thereafter (both gun bombardment and air strikes).

It was fascinating to watch these gunners during their drills but it was even more fascinating watching the guns function as 4-round clips were continuously fed into the breech of the gun. I would wonder at the ingenuity of those who designed and fabricated such a machine. I marvel at what man has wrought in terms of the creation of machines that make our world such a pleasant place in which to live. It is this capacity to wonder that is the genesis of all that follows in these endeavors. To wonder, to muse, to be in the thrall of all that is wondrous is that which imbues richness to life. We grow when we are in awe. If ever we lose that capacity we diminish our life, we diminish ourselves. There are wonderful things all about us if only we'd observe. All too often we'd see but we would no comprehend the magnificence of such things as nature revealed or man-made objects daily about us. "What is so rare as a day in June, then if ever…….". When there's a beautiful day that has been presented to us, when the sky is a deep blue, the clouds great billowy cumulus giants and the air is fresh we should feel compelled to savor this, God's gift. Unfortunately we can not do so at our whim what with work constraints, etc. Yet we should at least acknowledge it.

TEAMWORK

Perhaps it can be seen that there were four-round ammunition-clips located around the inside of the guntub. One man retrieved a clip from this location and handed it to what I'll call the "feeder", who in turn handed it over to the "loader" (he who drops the clip into the gun's magazine). Each gun fires these four rounds so fast that the three people aforementioned had to always stay in motion feeding the gun. As a result, the gun fired in a rapid, staccato manner. With four of these guns firing "at once", it was LOUD! The four guns "trained" as a unit (that is, all four guns pointed at the same target at the same time, and moved in unison). Every fourth round was an incendiary, causing it to be a "tracer" bullet (the bullet was "on fire", enabling the gun-director to be able to see its trajectory). Finally, the person who trained (directed) the gun was, in this case, elsewhere, where he was sitting at a gun-director. As he trained the gun-director at the target, the gun-mount followed this motion by means of electrical cables. He would always lead the target, because as is obvious, the target was moving, sometimes erratically, in a 3-dimensional space. The fire-control problem, especially on a ship that's rolling, pitching, yawing, and heaving, all at the same time, was a daunting one. With the tracers, it was less so for the 40-mm guns. But with the 5-inch guns, which shot one round at a time, there was no way to make a direct hit. What was done in this case was that proximity fuses were used. (This is discussed later.) I can remember looking down on these gunners and being impressed with their composure amongst all that din. No big deal. Just pick up a clip, hand it over to person A who hands it over to person B who simply drops it into the slot. (Once, when they were short of gunners, after the war, I was assigned to help out. My job was to hand the clip to person A.

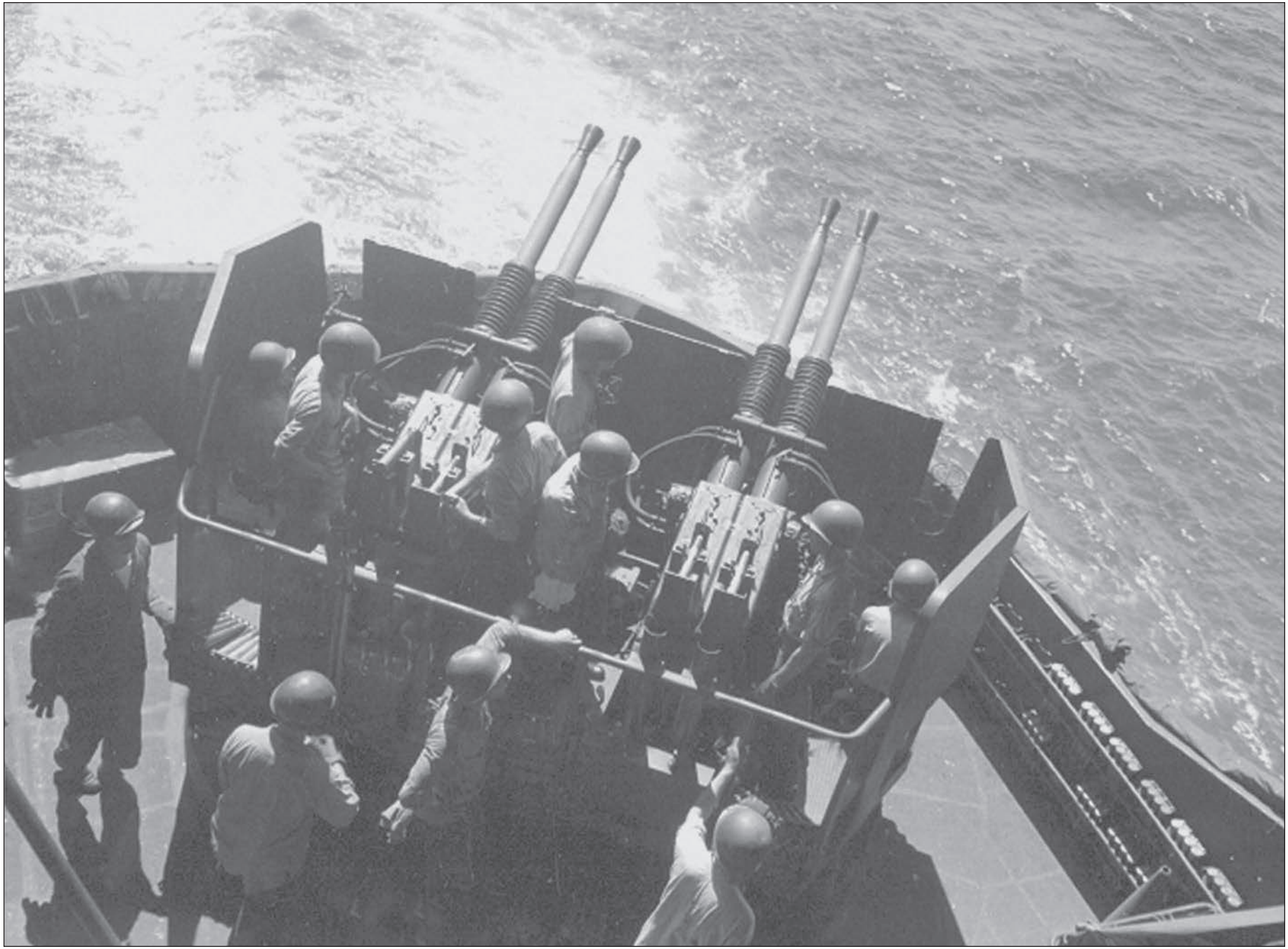
One of the aspects of the "show" that these gunners put on periodically was the way the tracer bullets would curve to the right or left as the guns were trained horizontally (Of course they also curved downward due to the force of gravity which is the gravitational constant times the mass of one object times the mass of the other object both of which are divided by the distance between the two objects, squared.) The apparent curvature of the tracers were of course due to the following bullet being fired fractions of a second after the preceding bullet (just as the water from a fire-hose curves as the hose is sprayed back and forth. Child's play, but the force and pounding of the guns as they recoiled at each firing of a round (bullet) was not child's play. At least here, with the 40-mm guns, there was no recoil to be absorbed by the gunner as was the case of the 20-mm gunners who were strapped to the gun. That'll rattle your teeth. Here only the entire gun-carriage was vibrated at staccato pace. In any case, let's not overlook the wonders to be found all around us if only we'd be observant. The knowledgeable ones are doing so. Some people see problems where other people see wonder. Which are you? My personal preferences are those things which rely on the laws of Mother Nature, things such as cloud formations, the working of mechanical machines such as an production line of constantly moving robotic devices, etc., etc.



40-MM GUNS AT THE READY

This picture gives a good view of a quad's configuration. Like the 20-mm gun, the 40-mm quads are automatic firing. Those gunners are subjected to a terrific pounding noise. It's definitely not a recreational sport, like skeet shooting. But at least they didn't have to do this that often. In fact, I thought they must have been bored out of their minds. However, since their duty stations were topside, most of them were populating the catwalks during flight operations to get their daily diversions. Then of course they had to clean the guns, dismantle the guns, reassemble the guns, teach the gunnery strikers about the guns, and etc. (There were at least sixty 40-mm guns throughout the ship.) I can remember watching gunnery practice and enjoying the diversion it provided from doing Airdale work. Since we didn't have gunnery drills that often, I wondered what the gunners did the rest of the time. I suspect that many of them watched the flight operations.

*Once, when the war was over and personnel were being sent home, I was called upon to help man a 40-mm gun tub during gunnery practice. My position was that of handing a 4-round clip to the gunner who in turn fed that clip to the gun's breech. After practice, everyone disappeared. This puzzled me but nevertheless I remained in the guntub to push spent shells down the chute to clear the guntub area. It so happened that this guntub was right next to one of the 5-inch gun mounts aft of the island superstructure. The closest 5-inch gun barrel was almost within my reach when it was trained directly amidships (which it was) There I was, alone, "fat, dumb and happy" doing my little cleanup bit in the guntub right next to that 5-inch gun barrel. Then, with no warning whatsoever, there was a tremendous blast.: No one had told me that 5-inch gunnery practice was to take place immediately after the 40-mm practice. With a grimace I squeezed my eyes shut and in one second I yanked my legs upward and threw them outward to assume a horizontal position, hitting the deck about a half second latter. What the *@#!*& (sorry about that) was going on?! I peered over the edge of the bulkhead and in a "flash" I climbed out of that tub, into the next tub and up and onto Bat 2 (the after bridge) where I had some sanctuary. I don't know if it was cause and effect but to this day I still have ringing in my ears. I can't imagine the 40-mm gunners doing their job of defending the ship while those adjacent 5-inch guns boomed theirs. (No, ear-plugs were not available then). Some people like noise, the more the better. I'm just the opposite, the less the better. Such a situation did me no good when I was on the flight deck during flight operations (which was every day, day after day). However, once one accommodates oneself, as in most other things, the noise became an acceptable part of life. It was somewhat the same as adjusting yourself to the constant pitch and roll and heave of a ship under your feet.*



PRACTICE MAKES PERFECT

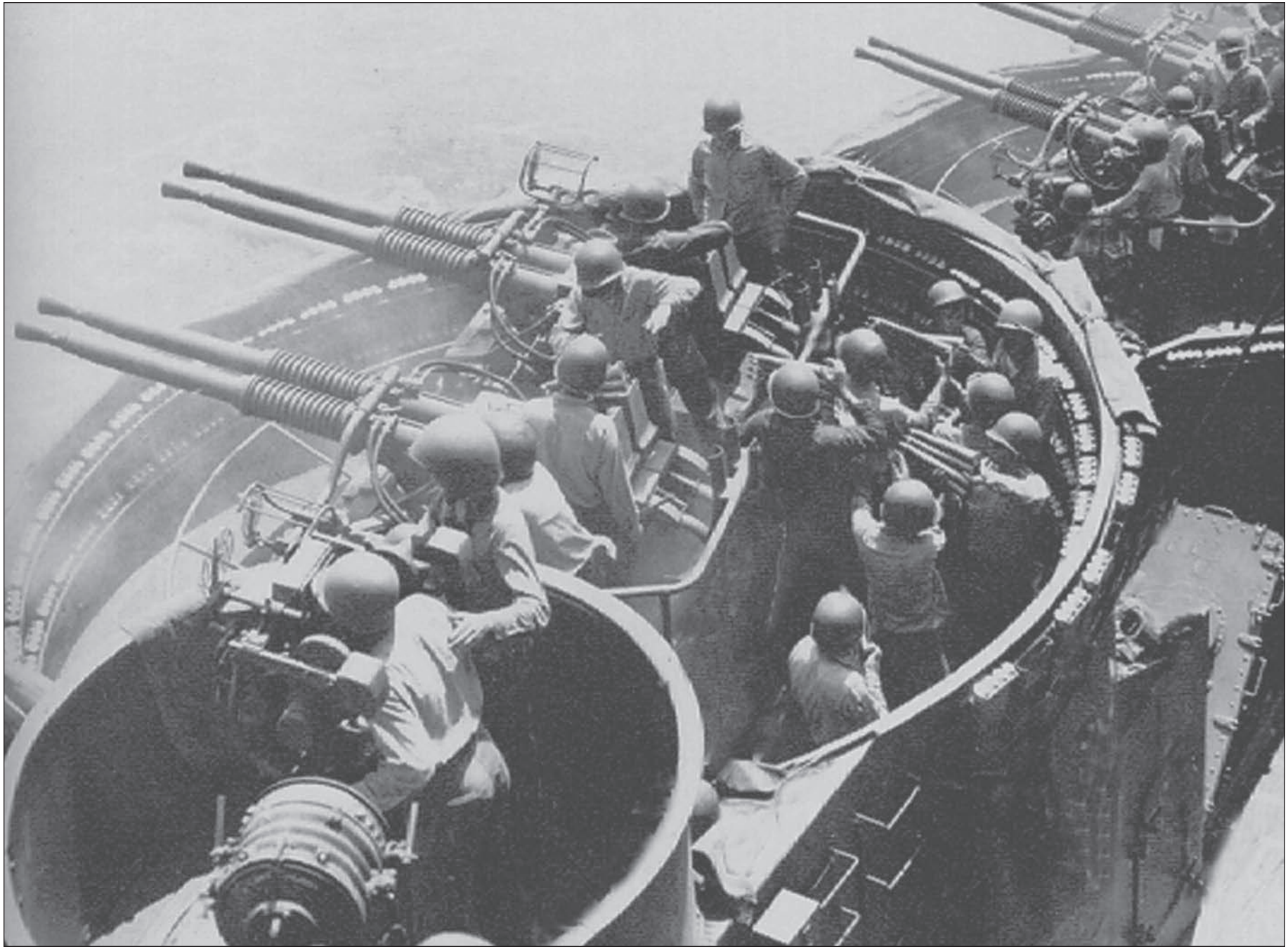
By the direction of the gun barrels, the target is low. It's possible that they're shooting at mines that are floating at the surface. We (the Antietam) used to do this occasionally. I say this is probably practice because the two personnel with head-phones on seem to be very undemonstrative. My job, when I was involved with gunnery practice, is shown by the gunner passing the ammunition clip of four cartridges to another gunner who in turn passed it to the gunner who dropped the clip into the magazine of the gun. The gun, upon receiving the clip, automatically fired the rounds. It brings to mind the song "Praise the Lord and Pass the Ammunition" that was popularized during the war. The ammunition was passed so smoothly that the gun would fire continuously, and with four guns per quad, it was a constant din. There were those who liked that. Good, let them be the gunners. I can remember thinking that there were a lot of gunners in that one guntub. But it must be realized that there were four guns that needed "feeding", all the time. They were a team, in every sense of the word.)

These sailors know full well that they might be the ones who save the ship from harm when the time comes to defend the ship. And yes, I know that I have previously said that the gunners will feel more than a little satisfaction if they shoot down enemy aircraft. And yes, I know that I said that one of the prime satisfactions in life is to be able to do thing(s) well. This is such an important factor in life that it needs repetition, over and over. This does not refer only to doing well in things you are expected to do, such as school work or business work. It has likewise to do with being accomplished in some activities that have no direct compensations except the knowledge that you are competent in this or that. The satisfaction only grows as you improve over time. This is cause for looking forward to becoming older and older (because you are not restricted to only physically defined activities). A good example of deriving satisfaction over time is the ability to create an embroidery. With time one becomes better and better and so becomes more and more satisfied. Perhaps the area of the most satisfaction is that in which you create an object, such as an embroidery. Those who do carpentry projects as a hobby can find immense satisfaction, perhaps the more so because they have created a tangible object that lasts (as opposed to physical abilities). I have found that acquiring knowledge can be of tremendous satisfaction even in spite of the fact that I have "nothing to show for it". Although you can't touch it (the internal knowledge) it is not transitory as is a physical capability. Everyone must find their own niche. I make myself seem as if I'm a walking encyclopedia, which I am definitely not. Such a thing would be bad news because in my view overload of facts detracts from the ability to "manage" those facts. In effect one sees the trees instead of the forest. Leave the "trees" to the experts would seem good advice.

NOW IT'S SERIOUS

This picture clearly shows the 40-mm gun director on the left. Next to the one directing the gun is a phone-talker who's connected to someone who has overall control of all the 40-mm guns. Those coils around the gun barrel are to absorb the gun's recoil, about one every one and one-half seconds. The range of the gun was 2,500 yards, and the trajectory of the bullets was indicated by every fifth round (bullet) being an incendiary. The four gun barrels moved as one unit. With each of those four barrels putting out a round every one and one-half seconds, one guntub generated quite a hail of bullets (I guess the purist would say that a bullet that size is a "round.") Round or bullet, it must have looked fairly lethal to an incoming enemy aircraft. Apparently, they flew right over the ship on their bomb runs (or for the Kamikazes, right into the ship, or a group of aircraft for maximum effect). I can remember being intrigued by how those gunners in the foreground could aim that gun-director, and voila, the guns would move in unison as if by magic. (Sometimes I think that it was this that put me in the mode to want, much later, to work with servomechanisms and automatic controls. But I digress.

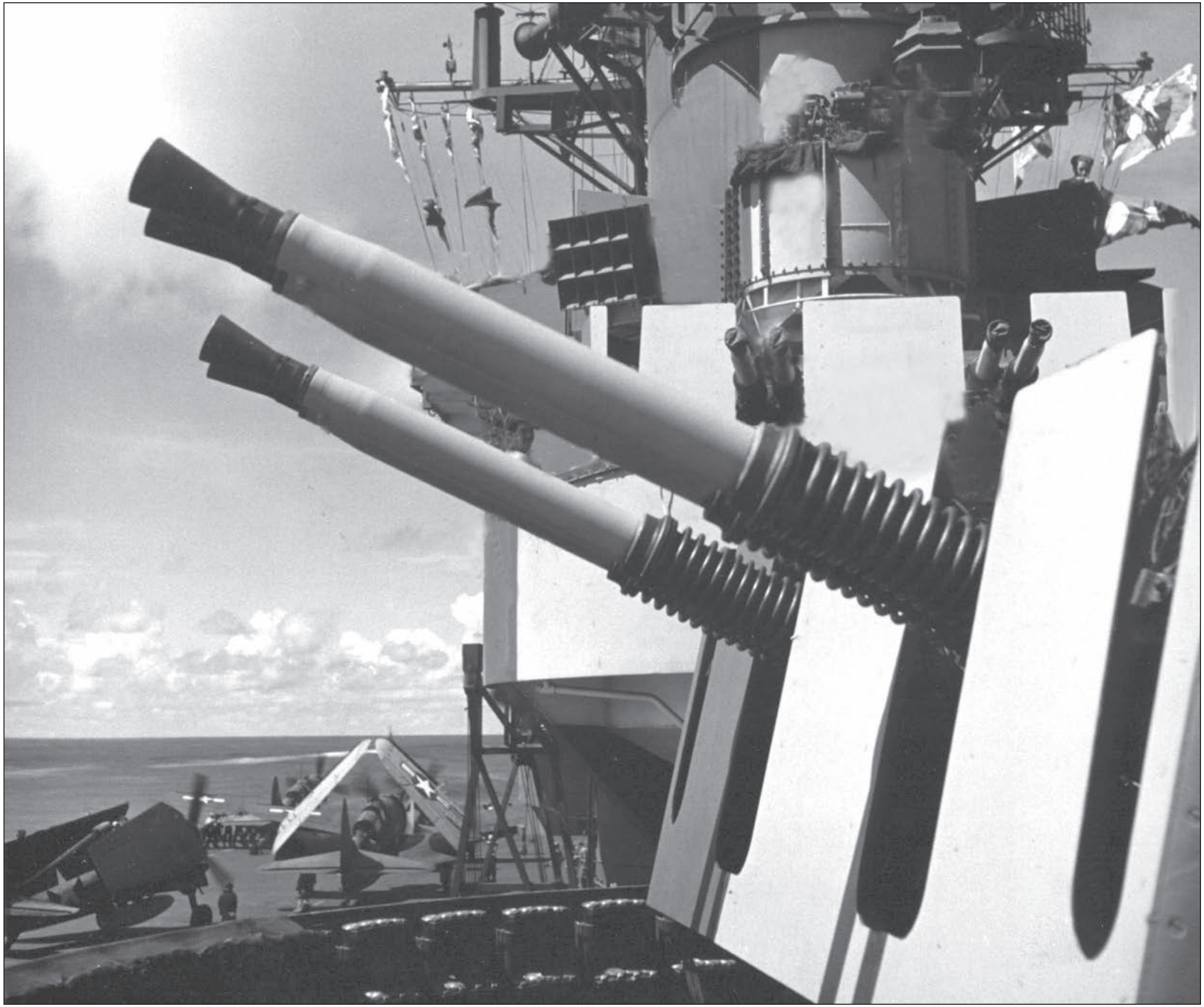
These gunners, as were all 20-mm and 40-mm gunners, exposed to the wrath of the incoming enemy aircraft. They had no shielding and certainly there was no place to hide (ships, once found, can not hide; they will be hounded usually until one side or the other is wounded or killed; such is the destiny of a ship at war; that we, the U.S.S. Antietam, was named after the bloodiest day in American history (23,000 casualties) was a badge difficult to bear). These gunners were not the only ones who were (are) exposed. A leader, by definition, is always exposed to criticism simply by virtue of being a leader. If a leader is unable to withstand the slings and arrows of disapproval then that leader should find a different occupation. Leaders can be found as good, bad or indifferent and sometimes as all three at once. In a way we can all be good leaders by setting good examples in a genuine manner. This requires that we have sufficient qualities of good judgment to know and understand what are the right, the proper, the correct things to do and espouse. This, it can be said with verity, is not necessarily all that easy for the simple reason that life throws an almost infinite set of circumstances at us. "My friends", that is why wisdom grows with age. It takes practice, practice, practice and not all that many have the perseverance to do so. One useful device in this is to think outwardly, not inwardly (not to discredit the drive and self-incentive generated by inward thinking; think in terms of "balance" between inward and outward thinking). Before leaving with the elitist image in your mind let me say that most all of us grow "wiser" with age; it's unavoidable, and it won't hurt (too much). It's a result of a person's constantly processing, consciously or subconsciously, facts and data with the passage of time. Who knows, you might even become smarter.



THESE 40-MM GUNS MEAN BUSINESS

Looking closely, one can see four gun-barrels. These mounts are called "quads", as mentioned previously because there are four guns that train simultaneously, in unison. Beyond these guns is another quad, pointing right at you. At the bottom of the picture can be seen clips of four "rounds" (or bullets). The gunners, again, drop these clips into the guns' magazines and they fire automatically. Those springs around the barrels are to absorb the guns' recoil. Those two shirtless sailors above are in the gun-director space. This gun-director controls the 40-mm quads. (Again, there were no shirtless sailors on board the Antietam.) A gunner's mate would look through a sighting-mechanism of the gun-director, following a target. As he moved this gun-director while tracking the target, all four guns of the quad would also track the target. There were electronic circuits (using electron tubes) in the gun-director that would automatically compensate for the ship's motion (pitch, roll, yaw, heave, and forward motion), and also the target's motion in three dimensions (the x, y, and z coordinates and the coordinates' rate of change, i.e., their speed). With all these motions taken into consideration, the gun-director would calculate where to point the guns, and also how fast to move the gun-barrels as they tracked the target. The faster the target moves, the faster the gun-barrels have to move to lead the target. A nice "little" mathematical problem, that. One thing that helps out here are the tracers that are shot every fifth round. When the Kamikazes made their appearance, they could still crash onto a ship even when hit by the AA. It makes one stop to think: one man, the enemy pilot, could destroy many, many people with one "shot". (This will be considered briefly in the last chapter).

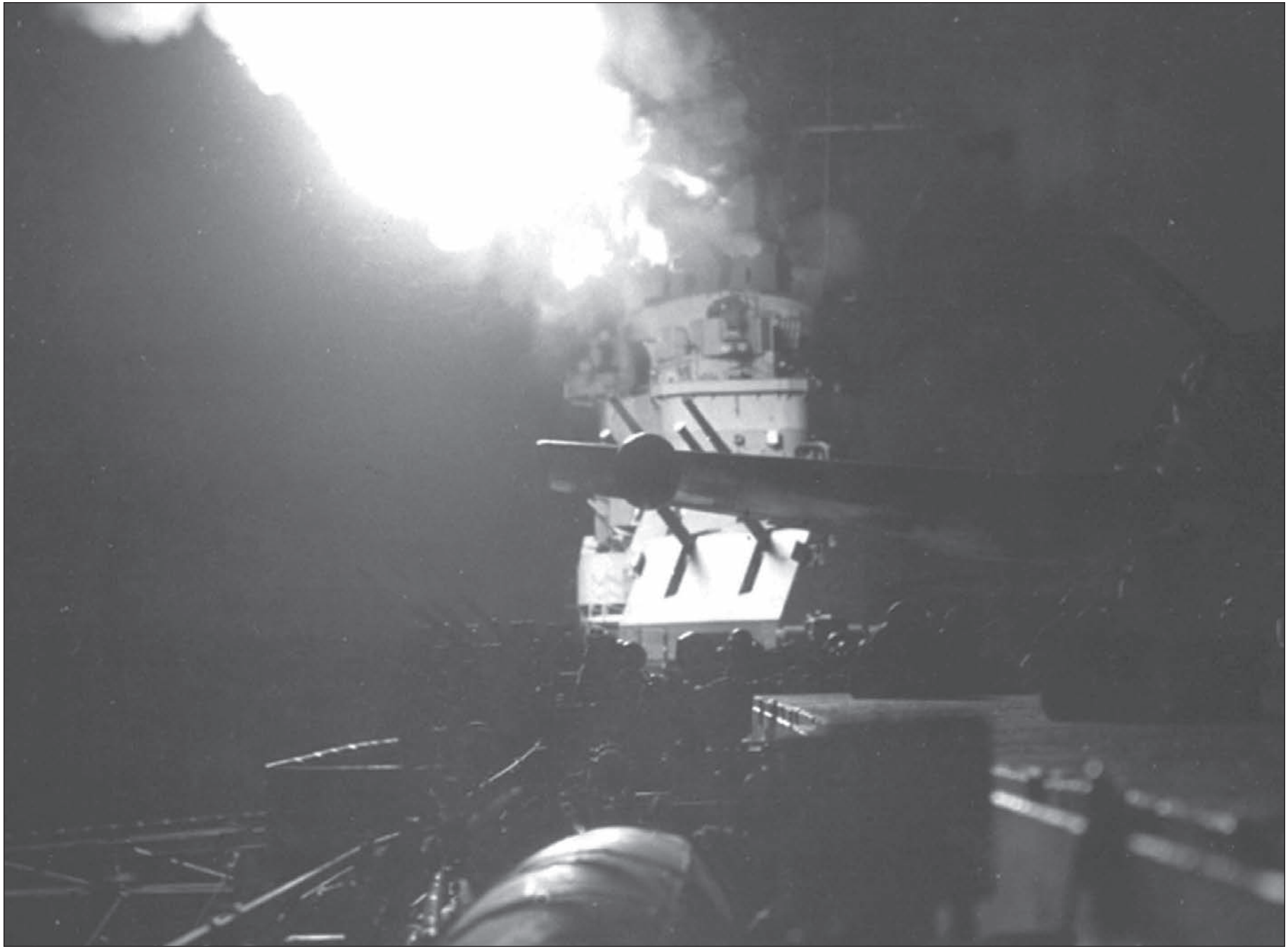
Yes, this is a 40-mm quad gun even though it appears to be a dual mount at first look. First appearances, first impressions, can turn out to be woefully errant. This is why it's so important to give those with whom you disagree the benefit of the doubt at the beginning. Due to our flawed thinking we often, too often, besmirch others with the most meager of input (remember that computer truism: "Garbage in, garbage out"). Also it might be appropriate to remember to review that Biblical admonition: "Judge not lest ye be judged". It might pay to realize that people make mistakes and know they did so, not requiring your hectoring. There is something unseemly about those who have a 'holier than thou" attitude. It comes close to showing off one's arrogance. One of my pet peeves is not allowing others with whom they disagree to speak The moment they detect something with which they disagree they shout them down and pillory them in the most arrogant and ad hominem manner possible. Do they lack the conviction of their ideas? It would seem so. It would be far better to let the other person speak his mind and then constructively expose his faulty thinking (if it be faulty). To do otherwise is rude, crude and socially unacceptable (and without class). I will admit that to do this (let the other person speck his mind uninterrupted) is sometimes (often) very difficult. For one thing you allow the courtesy of his speaking and for another you have a chance to evaluate his possible errors. Also, speak at a modulated pace so that the listener absorbs everything before continuing.



RADAR-CONTROLLED 5-INCH GUNS

Since the five-inch guns were radar controlled and directed, they could be used for night defense. Their maximum horizontal range was 18,000 yards and the vertical range was 37,000 feet. The normal slant range for anti-aircraft fire was about 10,000 yards. Crews were required to load the guns, and a normal rate was 15 rounds per minute. The projectiles were both impact-fused and time-fused. Later on, proximity fuses were used. It consisted of a miniature radio transceiver (transmit/receive) with its own power supply. After firing, the fuse's transmitter emitted high-frequency radio waves. When a target came within effective range, the transceiver picked up the reflected waves and activated an electronic switch that initiated the detonation sequence. This device made the five-inch gun practical for anti-aircraft work. (Without the proximity fuse, the 5-inch gun was not very effective. Technology came to the rescue just in time.) As is seen in this picture, the 5-inch gun made quite an impact. So much so that, when one was fired, the 30,000 ton carrier would "jump" perceptibly. I can only imagine its effect on a destroyer when it fired its 5-inch guns. (There were four open-mount 5-inch guns on the portside of the ship, just below the level of the flight deck. There were 12 5-inch guns throughout the ship.) I can remember that 5-inch gun that fired when I was in the 40-mm guntub. And I can still wonder why I was still there when everyone else had left. Why didn't I get the word? Was it because I was so preoccupied with my own thoughts that I wasn't aware of the "word" that was put out? Being unaware on the flight deck during flight operations was a sure ticket to possible oblivion.

These 5-inch guns were strictly for air defense with a range against high flying aircraft of 10,000 yards. The 55-lbs. shells were proximity enabled (discussed elsewhere) and manually loaded. The normal rate of fire was 15 rounds per minute. Now, consider that this gun was set on an unstable platform whose motions included pitch, roll, turn and heave all simultaneously. In addition, the target had motion in three dimensions, not to mention the ambient wind. This was a gun fire control problem that had available only electrical and mechanical devices to train and elevate the gun-barrel. These included a mechanical gyroscope to detect pitch and roll, compasses to detect changing directions and gears, cams, levers and other mechanical devices to compute the fire control problem. Some of the input to this mechanical, analog computer were obtained from the fire control director which in turn provided electrical signals as derived by the tracking fire control radar. The equipments were large and bulky compared to today's miniaturized, digital equipments and they were relatively slow However, these fire control equipments were ingenious and they were our shield along with out CAP (Carrier Air Patrol) and they set me on the road to study servomechanisms. I take a very great delight in watching a complex production line in operation as those automatic machine tools and programmed robots quickly and tirelessly assemble items. To move a mechanical arm in milliseconds to a position with micro inch precision is a sight to behold. Call me a fool but I get a genuine thrill to observe such ingenuity.



"PILOTS, MAN YOUR PLANES"

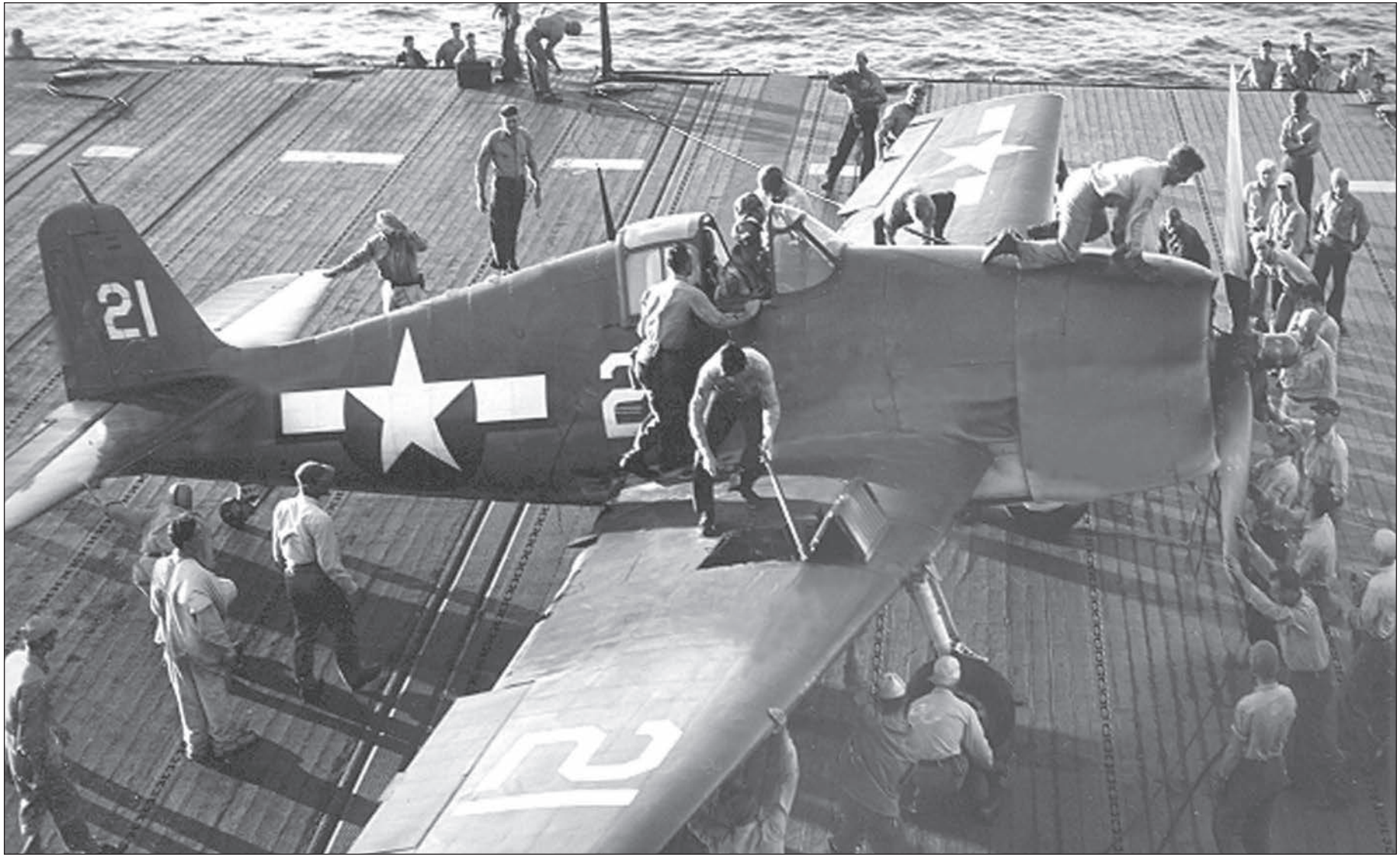
Flight Quarters has sounded and the pilots have left their Ready Rooms, here walking along the catwalk to the flight deck. It looks like there's serious business ahead. This picture shows the barrier (triangular device) lying flat within the flight deck. It swings up vertically to hold up three cables stretched across the flight deck. These are to stop an aircraft that misses the arresting wires. The arresting wires are "played out" of the circular device in the foreground. More about these two items in the "Landing" chapter. The tie-down cleats are also seen. But it's these pilots and their aircraft that justify the magnificent carrier. This looks like a somber group, as well they should be. Although not clearly shown, the pilots are wearing a life-vest (if they go into the water) and of course, a parachute. They also carry a knife and probably a revolver, along with earphones in their flying helmets. Perhaps they look somber because they know it's a big ocean out there and there are no landmarks to get them home. In fact, their home (the carrier) is not stationary, and may not be where it's supposed to be, for various reasons, such as enemy encroachment. It can be a problem. I can remember noticing the pilots, as they appeared "out of the depths", looking somewhat grim while going to their aircraft. I remember wondering what they were thinking right now. And I remember wondering if I could do what they were going to do: fly over the great expanse of the ocean and then somehow find their way back, without radio communication (to obviate the enemy snoopers.

These aviators are part of the main battery, they and the aircraft they fly. Battleships have their 16-inch guns, carriers have their pilots and aircraft. They file out of their ready-rooms on the gallery deck (just below the flight deck), walk along the catwalk as here and ascend into their assigned aircraft, grim faces and all. There is no joy here and we can understand this. To fly over vast tracts of unmarked ocean seeking out those who would do harm is a grim reality. We should also understand that there can be much joy to found in our overcoming obstacles that might be impeding us. For one thing it ratchets up our own self-esteem, that jewel of our makeup (if it's an earned self-esteem). To best reasonable challenges, often just out of our reach, is to gain satisfaction that resides indefinitely in our psyche.. [I certainly don't recommend foolish challenges, presuming you're smart enough to know what's foolish.] Is not this why people like to participate in athletics and sports? Why not carry this attitude over into all our activities? People enjoy entering contests to test their mettle (and I must admit to win money). Yet it is the act of overcoming impediments to life's trials and tribulations that perhaps provides much of our satisfactions. Right? To some this might seem a harsh way of approaching problems: Who needs problems? Most of us don't but some of us make a living solving problems. The point here is that since personal problems are inevitable why not "make the most of those situations" by looking at them as do those who do cross-word puzzles?

AIRCRAFT-CHECK AFTER BARRIERS CRASH

This F6F requires a lot of attention after having run into the barriers. (It usually takes several barriers to stop an aircraft that isn't able to hook one of the arresting-gear cables.) The pilot's still in the cockpit even while the repair personnel are swarming the plane. But the first order of business is to clear the flight deck: there are other aircraft that need to land. This doesn't seem to be happening. That open panel on the right wing is where the machine-guns (or 20-mm cannon is located.) One wheel is chocked, the other is not. Maybe the right one is being unchocked. Actually, it's not clear what's going on here, but this picture was included to show how everyone is involved, or trying to become involved. This is good. They want to promote progress, get things done, have a "can do" attitude. This was typical of the Airdales, at least it was on the Antietam. Notice at the lower left the man with a white suit. He's wearing an asbestos suit so as to be able to rescue the pilot, or help him get away from a burning aircraft. (I can remember being amazed at how the mechanics would climb all over an aircraft as if it were a jungle-gym. "After all, weren't they fragile?" Well, apparently not. These were military aircraft after all.

You might say that this aircraft is receiving an a lot of attention, and you'd be correct. There's the engine, the ammunition, the fuel, the fuselage, the control linkages, these all need attention as for all the other 99 aircraft. We must all groom ourselves to be in the best of condition (yes, even cosmetically). I speak primarily to our character, that repository of trustworthiness, the ability to know right from wrong and the courage to embrace it against all odds. Courage comes in many forms and perhaps the highest example of it is to be found in one's standing tall in the face of difficult situations. Courage is not just that pilot who flashes across the sky in mortal combat with a skilled enemy. No, courage resides in those who stand up for their convictions in the face of the multitudes who unjustifiably intimidate them. Courage is holding to the truths you know be correct in spite of badgering by those who deny you. "If you can keep your head when all about you are losing theirs and blaming it on you,….."tells it succinctly. It takes courage to hold fast as the ignorant and uninformed would deride you. Courage comes in all flavors and sizes, sometimes out there for all to see and praise vociferously. Then again there are those who do deeds equally as ennobling but known to God alone. Which is the more admirable? Hands down, the latter. If you can be courageous where none can observe then it is that that builds your emotional sinews the most. Remember, courage is a state of mind, not a physical phenomenon or attribute. The weakest among us can also be the strongest because the strength of the mind can outlast and outmaneuver the strength of the body. In this day and age such a statement is probably derided as nonsense. Those who think so should take heed of all the accomplishments of the mind and not forget that saying "that the pen is more powerful than the sword".


21

AIRDALES CLEARING UP, CLEANING UP

A mobile derrick is being used to move an aircraft whose landing gear is damaged. (If it wasn't damaged, the aircraft could be pushed out of the way.) In the right foreground is someone with a mop, perhaps used to clean up a gasoline/oil spill during the accident. Being an F6F Hellcat fighter, it comes in faster, and thus lands "hotter" than do the bombers. This means more crashes than the bombers, which have a slower landing speed (the larger the wings, the more the lift, and so the slower the allowable landing speed). Apparently the propeller chewed up the wooden flight deck because those Airdales at the left are making some repairs. (Again, the backlighting gives a nice silhouette image.) I can remember how adept the noncommissioned officers were at handling a disabled aircraft with those cranes (derricks). I couldn't understand why the crane wouldn't tip over with such a load as heavy as an aircraft. But it didn't tip over.

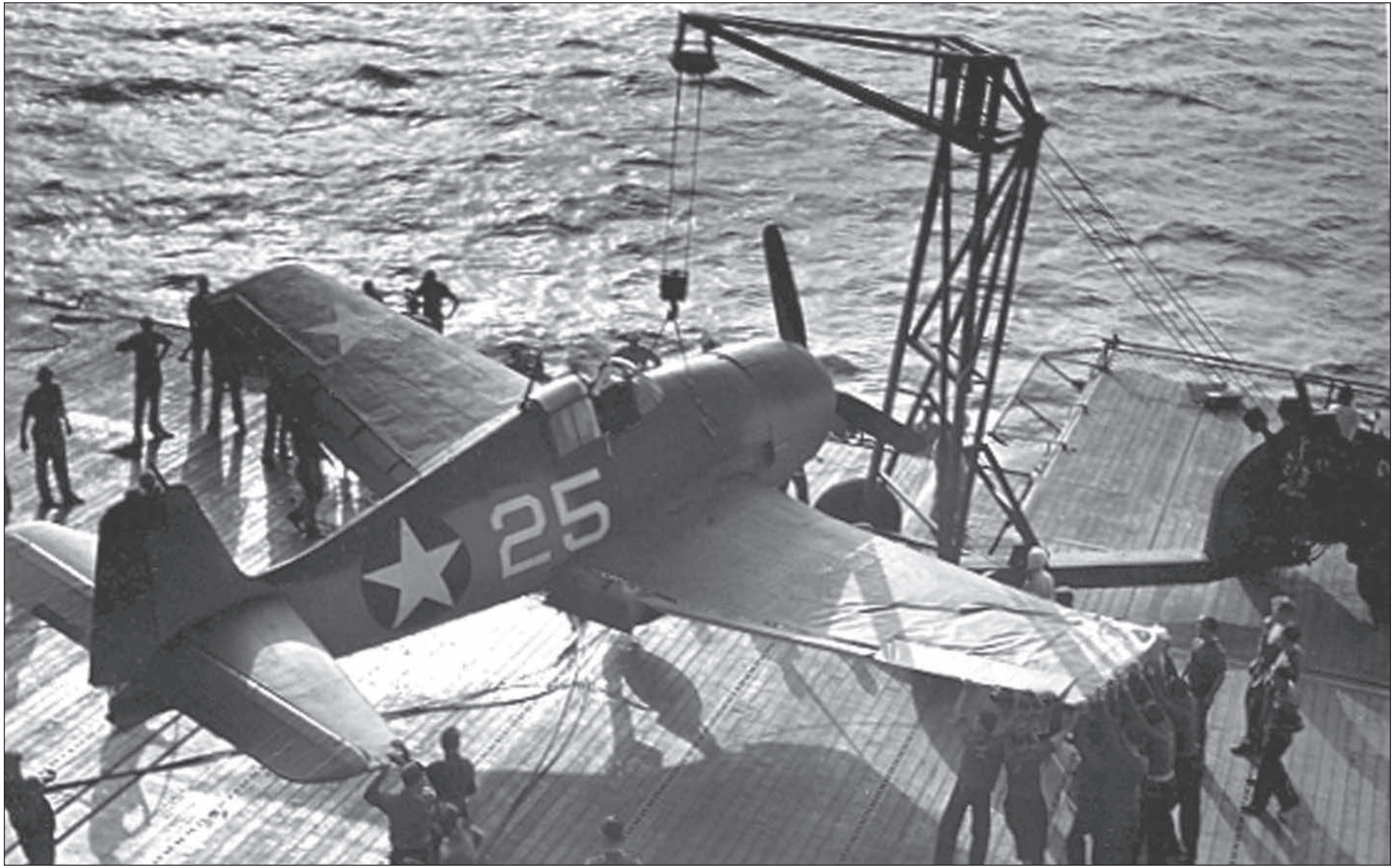
Silhouettes can often be the most effective of portrayals because there are the fewest of distractions. We are given the essence of the picture. We are not distracted by detail that adds nothing. To reach the essence of something requires separating the wheat from the chaff. "Unfortunately" this requires the effort of reflecting on the subject at hand (which in turn means some quiet-time). In this world of seemingly unending activity such quiet-time would seem to be unattainable. For many this is a legitimate excuse but for many others this is laziness. Clearly periods of reflection is not laziness or slothfulness. When we were young if we developed good study habits we would know all about how to be reflective. I remember when I was young I thought I had to find the answer to a math word-problem post haste. As a consequence I did not get to the underlying aspects of the problem and so took a longer time to reach the answer. If I had been more reflective I would have arrived at the answer much sooner and in a better mood. (math whizzes can ignore the above, I guess). Many an argument has been lost because there has been no inclination to devolve down to the essence of a situation or problem. The road to the goal is most direct and less of a drain when one dispenses with the chaff and reaches directly for the essence of whatever it is that one does. It also makes life simpler and more productive and less argumentative. What a relief! There are not many times when reflection instead of impulse is not the way to go. The answer tales longer to achieve but the result is far better. The phrase "shooting from the hip" is apt in almost all cases. For one thing, one often is unable to retract that which has been said or done with resultant great damage. "Think before you leap".


25

AIRDALES FINISHING THE JOB

This is the same F6F from a different angle. In the meantime, the rest of the aircraft that haven't landed are flying around the ship in the standard, "race-track" pattern, so time is of the essence here. Most, if not all, of the people shown here are Airdales. The derrick probably is taking the Hellcat to the deckedge elevator, seen middle right. The safety netting around the elevator is clearly seen. Sometimes, when the aircraft is completely wrecked, the derrick will just swing around and drop the aircraft over the side ("deep six it"). However, most of the time they'll scavenge parts before "deep-sixing" it (pushing it into the ocean). Being a mobile airfield, parts are scarce on board a carrier. But here, it's basically just a matter of clearing the deck as fast as possible. I can remember being pleased that I was part of a team doing a useful job. It was probably a mundane job, as an Airdale, but heaving on a wing, as here, was satisfying because it was something that needed to be done.

The service people will have to make a decision as to want must be done with this aircraft, usually on a cost/benefit basis as is done in manufacturing enterprises back home. Decisions permeate life in various ways from simple to complex. Decisions are based on discrimination as honed over the years. In a well functioning society the ability to discriminate well is crucial. Unfortunately, in this day and age, the word "discrimination" has taken on a pejorative connotation. We discriminate against this group or that group. Discriminate seems only to refer to being against something or someone. "To discriminate means to denigrate" in the popular lingo. WRONG! To discriminate has a much nobler meaning: It refers to being able to make good choices and to recognize quality: Two beautiful pictures are on the wall for all to behold; are they equal in quality? Maybe yes but also maybe no. Those with discriminating taste, those with a well developed sense of quality, are able to identify the superiority of one over the other. They discriminate. Their evaluation of quality is a result of a well honed discrimination. Salvage the word "discrimination". It is much too valuable to be besmirched by assigning it as a pejorative. In the future, don't say that "he discriminates" thereby meaning that he puts people down. Modify the use of the word "discriminate" and you'll be doing all of us a favor. Lack of precision using language can be upsetting if not downright disruptive or even worse. To me, to discriminate implies to be of high quality. [In these mini-essays I try to be as precise and as clear as possible. Clarity of meaning can only benefit both speaker (writer) and listener (reader). If you are not clear in what you say/write you might be better off if you said/wrote nothing. As is said in the computer world, "Garbage in, garbage out".]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HARD TO STARBOARD

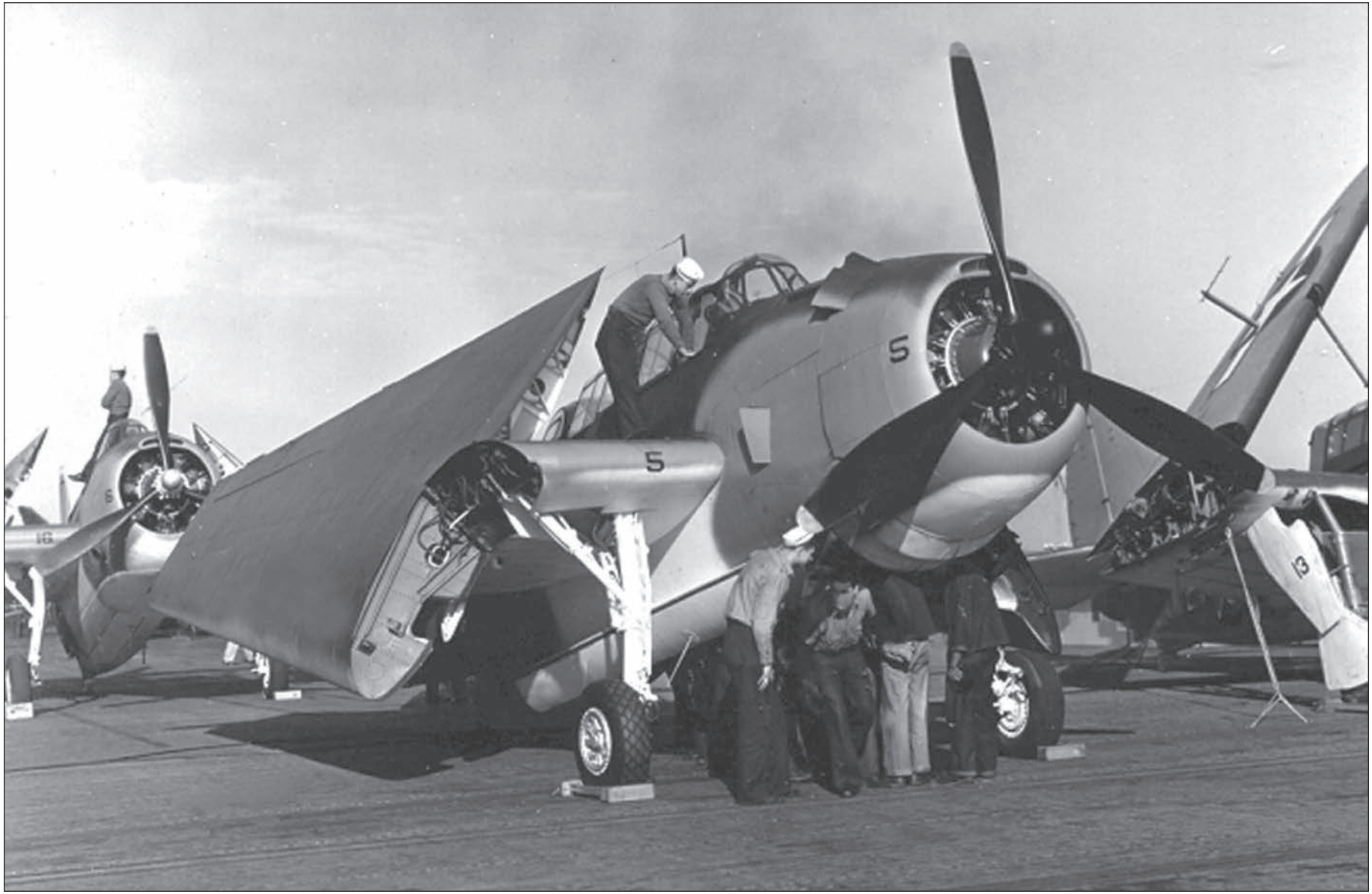
I included this picture because it shows the amount of heeling (listing) the ship does when it's put into a fast, tight turn. (It certainly isn't a roll due to wave-action.) I also included this picture because it reminded me of when I was at the helm during gunnery practice (before I was transferred to the Airdales). The Gunnery Officer requested the OOD (Officer of the Deck) to give the gunners a realistic situation, such as evasive action. So the OOD gave the command "Right full rudder". At that, I spun the helm ("steering wheel") around, vigorously, 2 1/2 times until the rudder-angle indicator showed 30 degrees (meaning that the rudder was at a 30 degree angle from straight ahead. (The helm was about two feet in diameter, so it was easy to spin, but it gave enough resistance to take a little over two seconds to do so.) Did the ship respond! The flight deck quickly heeled over at least as much as shown in the picture after only about five seconds. After about fifteen seconds of this, the OOD commanded "Left full rudder!" So from full right rudder I spun the helm sixty degrees to full left rudder. The ship responded just the way it should have, and after about fifteen seconds she was heeling over to the right by the same amount. A few additional times of doing the above, and even the "old salts" were impressed, because this was the Antietam's shakedown cruise (first trip) (off of Trinidad). Actually, it was not only a test for the gunners, but also for the ship itself. No problem. It passed with flying colors. In any event, it was a huge experience to feel that huge ship respond to my actions. To everyone else, it was just business as usual; but then, they were all old hands, such as a Quartermaster 1st Class, a 2nd Lieutenant, a 1st Lieutenant, and maybe a Lieutenant Commander, and me, a Quartermaster striker, Seaman 1st Class. That's when I was on the top of the Totem Pole (at least for an enlisted men). I can remember, when at the helm during target practice, making the ship heel over this much. I can remember this well, and the inner pleasure it generated. Trivial, and yet, not trivial. In any event, I felt "privileged" to have been allowed to have done this. End of discussion.

The "playing field " here is being titled. Is this fair? Sometimes life certainly is not fair under the general concept of fairness. Here nothing can be done about the field being titled (actually they can by holding the helm ("steering wheel") amidships). Fairness can be maintained by having the 150-lb. team play another 150-lb. team instead of the varsity. Thus the basic concept of fairness is equality of conditions and the adherence to the laws (although laws have been known to be patently unfair). If fairness can be accomplished by equality of situations (not outcomes), all well and good. However, sometimes life does not allow for that: One area gets pounded by a hurricane while an adjacent region basks in the sun. Is that fair? Fairness should be sought but realistically it is often but an ideal (just) out of reach. One could say "that's life" and that "life's not fair". Both of these are true and our charge is to minimize unfairness as much as possible. The laws of the land are supposed to be a prime vehicle for such but laws can't and shouldn't cover everything for it's not feasible to dictate fairness in all cases.

MECHANICS AT WORK

This picture was included essentially because it provides a sense of the size of the Avenger. Those people are mechanics doing a small job. Otherwise, they'd be doing it in the hangar deck. Note the SB2C to the right is tied down. This wasn't usually done unless foul weather was approaching. Since we had two flight operations every day, it would have been too much to do to tie them down after each flight. It usually wasn't necessary anyway. Actually, the prime use of those cleats in the flight deck was that they were available to the Airdales as he made his way to a wheelchock during launch operations. They were there to grab hold of when downwind of the prop-wash (which was anytime you were past the first row of aircraft.) The cleats, then, were very much your friend. I can remember enjoying "snooping" around as the mechanics did their work. For a neophyte such as myself, all this disassembling and assembling was a show that was very interesting to watch. And, in a way, it was somewhat humbling. These mechanics were not much older than I was. A responsible job, this.

This segment will proffer a set of "one-liners" because of limited space herewith. We'll start off with a big aircraft that brings big results. Big results provide motivation for even bigger results. Also, pride in one's accomplishments encourages, motivates, one to achieve even better results. Doing well as a result of motivation provides positive reinforcement. As one does better one becomes more apt to do better. This should be motivation to continue. Practice, practice, practice. Some things are more difficult to do than other things but if competence is gained it becomes easier and easier and satisfaction becomes greater and greater. We motivate ourselves by the pride we obtain from doing something well. At the same time living up to our potential is satisfying in itself while giving up should then be a source of discontent. Self-improvement fortifies one's willpower. It's a weakness to stop trying because of fear of failure. Having goals provide a stabilizing influence. As a matter of fact being enthusiastic about what you're doing is great therapy. Motivation stands as a prime determinate of one's success. Thus, what defines and generates motivation? Certainly self-esteem stands out as perhaps the biggest factor. That is, it is not what the world thinks of you that should motivate you, it's what you think of yourself. How high do you set your standards and are you brave enough to seek those standards regardless of what may befall you? It can be said that only the brave can motivate themselves. Do you agree? Are you truly brave? If not, why not? Too often bravery is associated with physical prowess while in fact there are more acts of bravery that are unseen for the very reason that they are not physical phenomenon. These are acts that are often known only to God and so these are the bravest of all. They are the ones that stand tall.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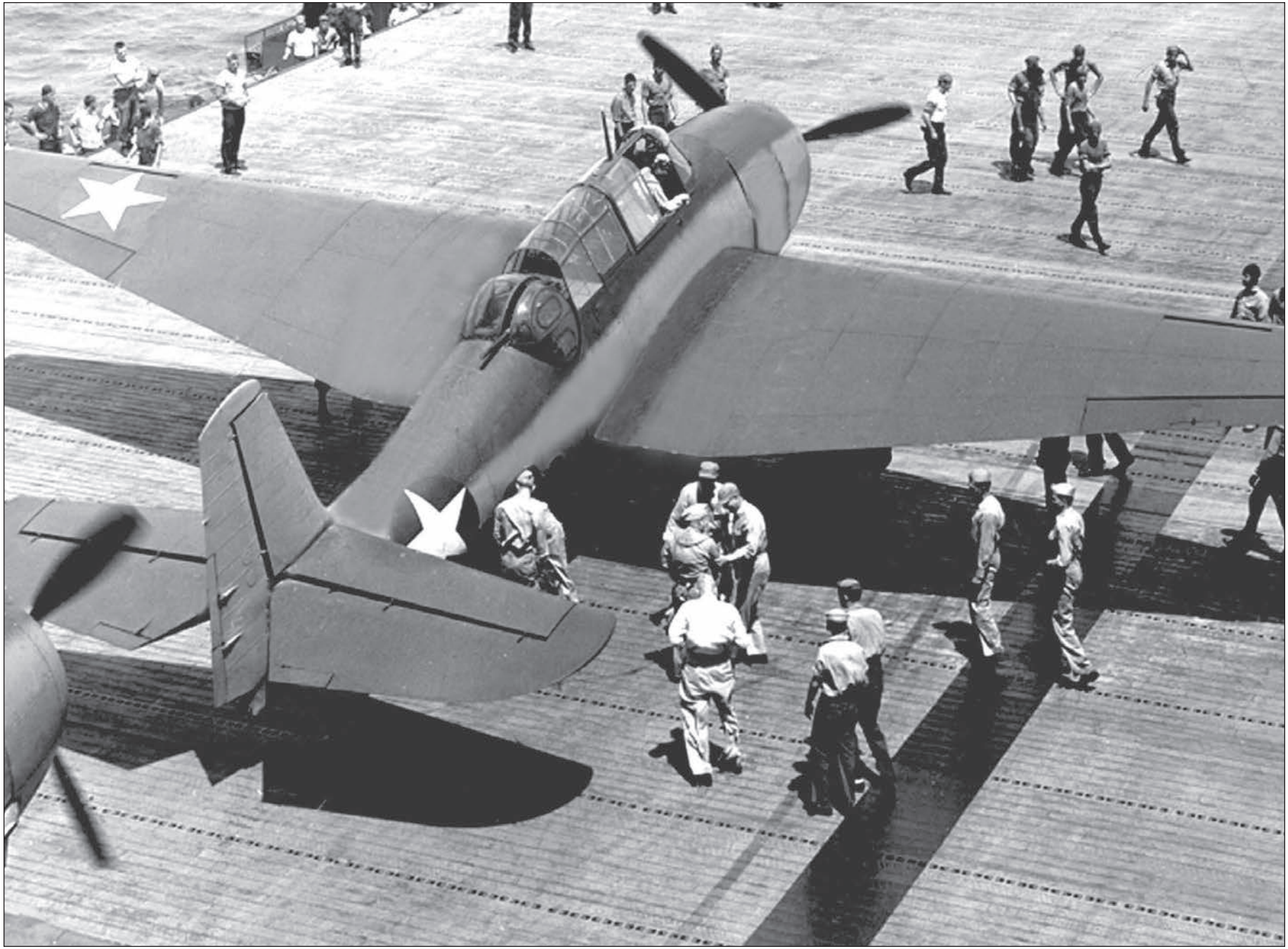
ONE BIG BIRD

This provides a good view of the TBM Avenger, the largest single-engined aircraft of WWII. With wings spread, it covers a substantial part of the flight deck width, and as it comes down to land, it sweeps a broad area. This aircraft was designed to carry a 2,000-lb torpedo, but it also carried a hefty load of vertical bombs. While the other aircraft (SB2C Helldiver, F4U Corsair, and F6F Hellcat) could and did make essentially vertical dives, this Avenger was designed and used to approach the target on a fairly horizontal plane. Notice the dual 50-cal machine-guns pointing back aft of the cockpit. This unit was able to rotate horizontally and vertically, and had a "cut-out" to prevent its inadvertently shooting the aircraft's tail-section. There was also a gunner beneath the Avenger's fuselage who could also swivel, providing protection from underneath. It appears that what is pictured here is a high-ranking officer being escorted to the TBM, which will soon be launched (notice the open hatch just in front of the officer who's just in front of the white star on the fuselage). This was how flag officers were transferred between carriers. Also notice the pilot of the TBM is looking backwards to see when his "fare" was on-board. All is very casual here because there are no airborne aircraft awaiting others, who are on deck, so as to form up into squads to proceed to their destination. Those are Airdales who are moseying about, probably going to do some aircraft-respotting (moving aircraft to other positions). I can remember, on rare occasions, seeing "the brass", get special treatment such as this. Actually, it wasn't special treatment, but rather it was necessary to move them from one ship to another as positions changed. Anyway, we (the Antietam) was not big where "brass" was concerned.

Can this big bird take off? It's that old story of positive vs. negative. First let's dispose of the litany of negative side of the coin with a list of the "downers" in no particular order: helplessness, hopelessness, anxiety, negativity, irrational ideas, faulty thinking, guilt, fear, despondency, impossible goals, no self-esteem, perfectionism ,regrets, shame, anger, aggression, inadequacy, frustration, depression, distrust, jealousy, greed, put downs, shunned, controlled, defeats, stress, tenseness, aloneness, failure and so it goes. On the plus side optimism, self-assurance, self-esteem, positiveness, reasonable goals and friends who will not desert you. Of the former I would say that the worst of them is lack of self-esteem and of the latter the most important one is self-esteem. As I listen to the tune "Piano By Candlelight" I say that religion can be on both sides of the ledger. Let's face it, one's religious views are personal and usually private. They refer to matters of faith that can only be decided by each and everyone of us. The other aspect of organized religion deals with morality and standards of conduct. These are and should be open to public discourse by one and all.



FULL-DRESS INSPECTION

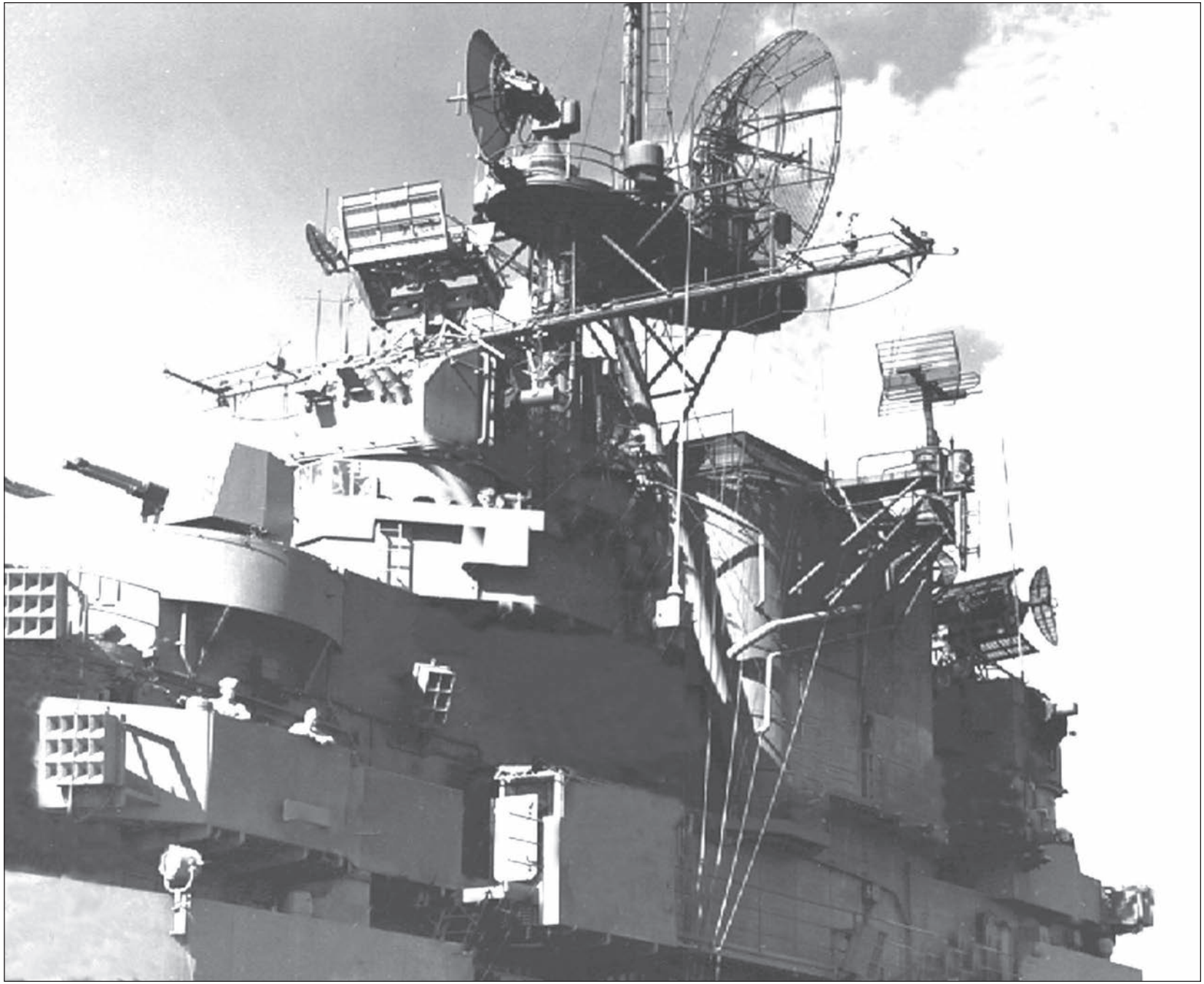
Once in a while we'd have full-dress inspection, as seen here. This one appears to be for some visiting "brass" (admirals). Notice that "all hands" have regulation haircuts, with the back and sides trimmed (how else could we wear our hats?) Everyone on the (big) ships were fairly neat, wearing clean dungarees (not "blue jeans") and blue denim shirts. However, we on the flight deck, and others on board who "got their hands dirty", were somewhat more scruffy. We were the "blue-collar" workers of this small floating city/airport. But when we were given "liberty" (a half-day leave off the ship), we were strictly regulation. Our liberties were few, but interesting: Norfolk, VA (1), Colon, Panama (1), San Diego, CA (2), Pearl, Harbor, HI (several), Guam (1), Tokyo, Japan (1), Yokoauka, Japan (1), Tsingtao, China (1), Manila, Philippines (1), and Hong Kong (2). Of my eighteen months on the Antietam, I spent every night on board except for two weekend passes I had when we were still in the Philadelphia Naval Shipyard (January-February 1945). The Antietam was my home, and so, in my small locker were all my worldly goods: my "whites", my "blues", my "dress blues", my dress shoes, an extra shirt and dungarees, flight deck shoes, blue shirt/clothe-helmet, goggles, and various "skivvies", and a life-belt. Foul-weather jackets were elsewhere. What else could a "swabbie" want? TO GO HOME, that's what. The war had been long over in April and May of 1946, and my enlistment was for the duration and six months. But why quibble about a couple of months? Why? Because each and every extra day seemed depressingly endless what with another wheelchock to pull (launch operations) and another wheelchock to put (parking operations). But the main reason, the MAIN reason, was because "my girl" was regularly seeing that (nearly) naval officer back home all the while I was in constant, ABJECT fear of losing someone I wasn't smart enough or old enough to realize had never been "mine" to lose. Never mind that, because to me, a teenager, this was definitely and absolutely a matter of "life and death". No "crush" this. It was the real thing. But that's why it was much more than "quibble", plain and simple. I can remember an occasional full-dress, full-complement inspection as shown here, but we never had any brass doing the inspecting. We also had some "blues" inspections.

There we are, all spic and span in our dress whites and ready to take the Liberty Call. Some, many(?), will carouse about and do things that besmirch the good name of good women's character: They can't comprehend the concept of physical LOVE. However it's "liberty" that attracts our attention here. Traditionally liberty means the freedom to do what we want to do, staying within the constraints and purview of the law. Freedom is a right, an inalienable one (it does not need to be constantly reconstituted). However, it's more than that. Liberty implies, no, demands that we comport ourselves with good judgment and a full serving of responsibility. As with rights, liberty demands a well developed sense of responsibility. This in turn requires a developed sense of what is "right". We could write a book(s) about what is and what is not right (correct) in given situations while common sense will go a long way here (it helps to be rational, not emotional). The word "proper" comes to mind. This word implies propriety under given conditions. What is proper here is not proper there. Given that we should not eschew the fact that there are situations in which strict, immutable standards apply with only very little "wiggle room". Often it is common consent which determines what is right or wrong as tested over time.

THE ISLAND SUPERSTRUCTURE

This is merely a view of the island superstructure and I won't rehash it, except to say that when I was on the Antietam, I was always impressed with all the "things" up there in the superstructure: the antennae, the gun directors, the cabling going here and there, and it all was vitally necessary, or it wouldn't have been there. This was the REAL Navy, and I was actually a part of it, I thought. (Working for the Navy Department as an electrical engineer in the missile systems area some years later made all of this "old hat." But back then, just out of school, it was quite different. It was impressive stuff.) (I can remember when I first saw the superstructure of the ship. It was definitely imposing, at least at first. I was in the Navigation Department then, and I remember how pleased I was that I was to have my duty-station "up there".

Much of the ship's integrity depends on the plethora of all kinds of communication antennas, search radar screens and dishes and the fire control radar screens festooning the superstructure. Integrity is that trait without which there would be no such thing as honor. "Honor, integrity, honesty, sincerity refer to the highest moral principles and the absence of deceit or fraud". Honor refers to that which is morally right. Honesty denotes that one's word is one's bond. Integrity implies dependability with adherence to sound principles which can not be impaired. All three stand for righteousness, rectitude (adherence to established moral principles and virtues). Sincerity is the outward manifestation of honesty and integrity. I also respond well to those who show a sincere and modulated earnestness. Not many can do so and lie at the same time. It is this lack of trustworthiness that renders relationships moot. Can you imagine true love devoid of trust? As a matter of fact, trust breeds trust which breeds trust. While it's sincerity that's the vehicle on which this trust is carried. To change the pace, without honesty and all of the above there can be little valid democracy. Truth also is a prerequisite for a properly functioning democracy (where "truth" comprises correct facts). One can present the "facts" in all honesty and yet be wrong. Thus a democracy will be an empty shell if the populace is not intelligent enough to demand and then recognize truthful facts honestly enumerated. Taking a different tack, one will be well served if he (she) is absolutely honest with himself (herself). It does not bode well if one plays tricks on oneself. Without this honesty with oneself one will never know oneself properly and so will be groping as if in the dark, never sure of oneself. One will have a marginal self-esteem, a miserable burden to be carrying around one's neck. Yes, the ancient sages were correct: "Know thyself" and live free.



THE FIRE CONTROL AND SEARCH RADARS

The same can be said about this: it's a nice picture, and it shows the radars and communications antennae very clearly. But mainly, I included this because it clearly shows where I did my "flaking out," time permitting. Notice the ladder (stairs) at the bottom middle of the picture. There was a ladder on the main vertical mast, right next to the stairs. At the first level there's a triangular platform, about ten feet up. It was here that I'd stretch out and take a snooze. It was a great place because it was so private. Sometimes I'd doze so soundly that I'd have trouble getting myself up when Flight Quarters sounded over the PA system. This is pretty well discussed on a previous page. There would be times when I wasn't sure I could make my way down the ladder without falling those ten feet. It turned out that to get up, and then get down that ladder was a supreme "tour de force," so weak was I. But I never missed a Flight Quarters call. I would never allow that to happen. Never. I can remember looking up at all that "hardware" trying to figure out what it all was, and what it was for. Needless to say, I didn't figure it out, at least not at first.

Wow! Just look at that technology bristling overhead! Just consider all the technology being displayed here: There are radio antennas of high frequencies for ship-to-ship talk. There are low frequencies for over-the-horizon talk. There are radars for horizontal search. There are radars for air search. There are fire control radars for gun fire control against enemy aircraft. There is a panoply of technology overhead that is our shield and our sense of well-being. At least that was how I felt whenever I would occasionally look upward at the island superstructure. It was what contributed mightily to the magnificence of the Essex-class aircraft carrier (I might add parenthetically that in my view the present-day carrier museum ships with their truncated superstructures (Intrepid, Yorktown, Lexington and Hornet) are but a shadow of those gallant ships of yore that plied the seas in support of our efforts to subdue the enemy; however, they are to be revered nonetheless). It is this exemplary example of our high technology that "set the juices running". [I don't mean to be presumptuous in seeming to imply that we are the progenitors of all that is good in technology for it must be said that it was the British who invented the radar (but we in effect took it from there)]. Why do we in this nation seem to turn a deaf ear to all the benefits we derive from technology and engineering? Why do we not recognize and appreciate scientists, engineers, technicians and the like? This nation can be considered great in large measure due to its technological prowess (plus having an abundance of natural resources). For a nation to be strong and prosperous it needs, it requires, the often derided "technocrats". Of all the "crats", these, these technocrats, need all the support possible from us. Again, they are the "goose that provides the golden egg". In fact it is we who should pay homage to them, the technocrats. (continued next page).

"OLD GLORY"

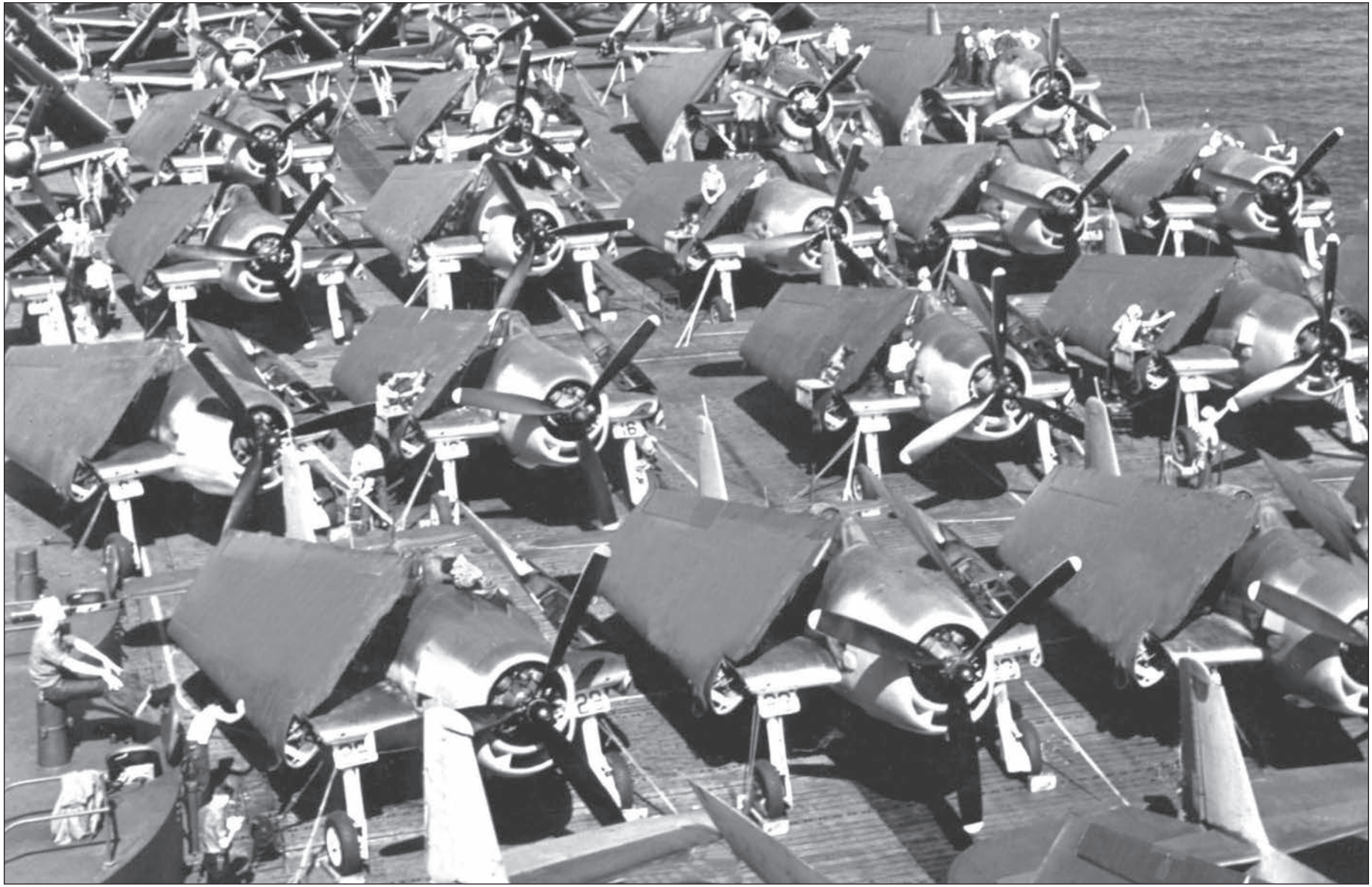
The flag flew at all times, and since there was usually always a wind blowing, it was usually always standing out for all those who cared to look. These aircraft are being brought aft from the elevators, probably. The near aircraft is a SB2C Helldiver, and the others are F4U Corsairs. By looking at its wake, the ship is either turning into the wind, or turning back to its prescribed course, neither of which makes any sense. If the former, the aircraft would be brought up amidships to be launched, and if the latter, the aircraft would be brought up forward to clear the deck back aft so as to land aircraft. I say this because, again, on the Antietam we would launch aircraft and then land them and then repeat the process in the afternoon. The same thing would happen the next day, and the next day, and so on and on. Other ships had their routines, procedures and "marching orders." So I can't speak for them. But for us, it was about ninety aircraft in the morning, and ninety aircraft in the afternoon. That ads up. I can vouch for that. As for that flag waving in the wind, it would be nice if there were more respect for it by more people. Everyone needs something noble to look up to, and this should be that in which people take pride, and do it honor. I can remember that this was precisely the view I had when I was sitting in the lookout's chair at the bridge back aft. When I was an Airdale, it was always in the quiet of the evening. My Vespers, if you will.

(continued from previous page) *There she flies, our nation's standard. Long may she wave in glorious pride! As in this picture we should forever look up to her and remember all the good things in the past that has sustained her such as her Constitution that has made this country great. Yet again I say of the previous page, "Just look at all the intelligence as represented in this picture. We the people made this happen". Yet where are those people coming up to replace those that have gone before? I look at myself and I cringe at how little I have done. Part of this feeling is due to the fact that I have a heritage that prescribes more than I have put forth. I have been told that Paul Moody (1779-1831) is my great, great, great grandfather. It was Paul Moody who has been said to have been the man who initiated the industrial revolution in the United States (with the financial backing of Francis Cabot Lowell. Paul Moody was a mechanic of Newburyport, Massachusetts. The mill that he designed and built in Waltham, Massachusetts (with financial support) is believed to have been the first in the United States to combine in one establishment the several operations necessary to manufacture finished cloth from raw cotton. He continued the design and improvement of the machinery in this first factory of a complete manufacturing process. "Moody's contributions did much to bring to its highest efficiency the Waltham system of cotton manufacturing" (these mills still exist as well maintained museums).* *(continued next page)*

INTERIM TIME

The first thing that's evident from this picture is that this ship is in between assignments, perhaps on its way back to Pearl Harbor. This is apparent from the fact that all the aircraft are tied down. Notice the ropes from the aircraft struts to the cleats in the flight deck. These ropes provide additional security to the aircraft should the weather become "heavy." Another thing that stands out is the size of the F6F's propeller. It, as well as the F4U, have propellers that are 13 feet in diameter. It's fairly clear that the tips of the propeller reach out as far as the wheel of the aircraft. When they're spinning, and not particularly visible, you gauge the danger-zone by the location of the wheel. Inside the wheel is "red" while outside the wheel is "green." Then prudence calls for a little margin of error. Notice the distance between the wheels (of two adjacent wheels) of two adjacent aircraft. The two F6Fs at the front middle of the picture show about six feet between adjacent wheels. Figure that you're two feet, shoulder to shoulder. You thus have two feet between your shoulder and the largely invisible propeller as you proceed between the two aircraft on your way to a wheelchock. Actually, this is the topic of the next chapter. In this picture, back aft; are the SB2C Helldivers, the aircraft that replaced the Dauntless dive bombers of the Battle of Midway fame: four Japanese carriers sunk. I can remember, as a Quartermaster Striker looking down on that mass of "hardware", which was soon to come to life. It was then like a blanket of thunderous energy, straining to be unleashed.

(continued from previous page) It so happened that "Moody's outside interests consisted of community welfare and education. He was also a staunch supporter of temperance". Moody started his work when he was twenty after which time he accumulated many patents. Moving on to my grandfather, he was a business man who developed an electric car. Batteries at that time were primitive and so this enterprise did not last long. (Yet, it would appear to me that eventually electric cars will be the mode of the future once a really efficient battery is developed. If only we could store energy efficiently in something called a battery we would never run out of energy (until the sun gave out) and pollution, be gone.) Continuing with this very brief piece of history, my father (Paul Moody Atkins) graduated summa cum laude from Yale University after which he earned a doctorate degree from the Sorbonne in Paris after the 1st World War where he met and married my mother who, having a bachelor's degree, earned a master's degree at the University of Syracuse. My two older brothers both graduated from Yale University with the older one earning a degree in chemical engineering. For myself, Edward Moody Atkins, after having spent five years at a very good prep school and two years in the navy as an enlisted man (1945-1946) I too graduated from Yale University. After seven years of working at NYC banks and electronic companies t returned to college for two full years to earn an electrical engineering degree in 1959. (continued on next page)



HELLCATS AT THE READY

These F6F Hellcats are spotted far forward ready to be launched. Most of them seem to have a covering over the cockpit, which is something I never saw on the Antietam. The F6F at the front is being pushed forward, perhaps to the catapult area. This activity is discussed in the first part of the next chapter. When an Airdale pushes an aircraft, he must not push on any movable surface, such as a wing aileron or any other moveable surface. To do so could damage that part of the aircraft. Notice the Airdale beside the right wheel of the Hellcat. He's holding a wheelchock, ready to chock the wheel when it's braked to a stop. An aircraft is never left standing except that it's chocked. Wind and ship's motion require this should the brakes not be effective for some reason. (Notice the auxiliary fuel tank under each F6F Hellcat.) How can you look at this and the proceeding picture and not think "congested floating airfield"? Having lived every day, for over a year, on this floating airport makes it an integral part of my memory-bank. I can remember, as a Quartermaster Striker, looking down on that "mass of hardware" and wondering what it would be like to be working down there, especially when all the engines were "fired up". It was a different world down there, for sure.

(continued from previous page) I then soon went to work for the Navy Department as a management engineer to the end of my career. When I was about 12 years my father and I were walking home from Sunday school/church. He said to me, and I remember the exact spot where we were when he said it, "You should do twice as much as anyone else". (This was before I earned an Eagle Scout Badge with Bronze Palm (both my brothers had earned Eagle Scout, one with Silver Palm and the other with Gold Palm.)) My father did not say anything else on the subject and for some reason I did not press him about this although I thought to myself that this was strange because I was no different than anybody else. What with all the above I feel obliged to admit to having had a very pedestrian life vis-à-vis what I have accomplished. This leaves me very discontented. I know that I have worked hard and have not wasted my efforts on trivial things. I wish I could explain what went wrong all along the way. I wish I could spell out the best road to useful accomplishments. I will say again that much of the satisfaction comes from the trip and not necessarily from the destination. My admonition to the reader would be to develop more than a dollop of EARNED self-esteem (not its antithesis, conceit). My other comment would be to banish that mindset of school as only something to be "gotten through". Also, I would never lower my sights or my ambitions. I could have made excuses by saying I set my sights too high. Rubbish. It's much the better to have set your sights high and lose rather than gain a mere pittance . Remember, "tis better to have loved and lost than not to have loved at all". I know, I have loved and lost but I still hold my head high.


34

AFTERTHOUGHTS: This topic will be devoted to the subject of RESPECT. It is of course respect for and by people. Actually, it concerns not only respect for others but also respect for oneself. At the outset it is strongly stated that this discussion in no way refers to homage to the "high and mighty" but rather it refers to people of all stripes (excluding felons). This respect derives from honoring the HUMANITY of all peoples, no matter their station in life. They can, and will, be different from you. No matter. They will dress differently from you. They will look even strange to you. No matter. They will speak differently than you. No matter.

Now this isn't to say that you will be expected to act as if they are going to be "your best buddy." Certainly not. But they will be treated with deference if not with overriding comradery. Most people prefer to get to know someone before unwinding toward others. (I suppose I'm merely revealing myself here where others would take up an ebullient relationship right at the outset; that's fine because there are all kinds of different personalities).

Rudyard Kipling has stated it quite well with his poem titled "If":

> "If you can walk with crowds and keep your virtue,
> Or walk with kings—nor lose the common touch"

This is the essence of the "common person" doing the best in a world populated with all kinds of people from the low to the high. It represents someone who is in harmony with whatever life "throws at him/her." This is not to say that one should act the same with everyone he/she meets along the "paths of life." There is nothing that says you can't be yourself to the situation at hand, whether it be ebullient or whether it be subdued. Yes, you no doubt have your own "speed" at which to proceed but for a short while why not accommodate yourself to the conditions that be. Personally, I favor the subdued condition (I'm probably reflecting my age). But for short periods of time why not let the others determine the mode? It may not be your mode but its their mode and you conform to the mood extant.

The above narration is merely a way of being accommodating for the sake of congeniality. Congeniality is an integral part of the thing we call "Respect." Who does not like (appreciate?) those who are naturally friendly (without being overwrought)? Most people. And why not? It can be considered a gift in a world which wallows in one disaster after another, on and on.

We're going astray here from the basic subject of "Respect." As has been said previously, respect should have no bounds. Also, respect does not in any way imply the need to be buddy-buddy with everyone. To the contrary, I believe one should be allowed to choose those with whom he/she keeps company. This is a matter of unfettered choice, a precious value. But even with this one above, in a casual relationship one is not at liberty to "brush off" someone whom they consider beneath their station. A superiority complex is an obnoxious characteristic, whatever shade it may be. Yes, you happen to be superior to someone vis-a-vis intellect or accomplishment or the like but you are NOT that in terms of humanity. Each and every one is, if I may use the phrase, "one of God's children." This is NOT an euphemism (simply stated, an exaggeration). You may not believe in God but that's no reason to discount the concept that every life has equal value in the eyes of a power much greater than you or I or anyone else on this green earth. It's all a question of what you consider of value. In any event it's not a matter of value in prosaic terms but in terms of HUMANITY. We ARE, all of us, "God's Children."

LAUNCHING ACTIVITIES

The aircraft have all been "spotted" (placed in their take-off position by blue-shirted Airdales, i.e., plane pushers). When Flight Quarters sounds (the bugles sounds, then the Boatswain's pipe sounds, and then he intones, "Now all hands, man your flight quarter stations"), the pilots jog out to their aircraft. The brown-shirted plane captains strap them in the cockpit and the loud-speaker again intones, "Now all hands, stand clear of propellers, prepare to start engines, start engines." If not already there, the Airdales go to an unoccupied wheelchock. After a period of time of warming up the engines, the yellow-shirted aircraft director indicates to the Airdale to pull the wheelchock of the first aircraft to launch. The yellow-shirt passes this aircraft along to the next yellow-shirt farther up the flight deck, to the point where the plane will be launched. All this is done by hand-signals, and all the while the Airdale proceeds along side the aircraft with wheelchock in hand (in case, for any reason, he's told by hand signals to place the wheelchock back around the wheel). Once in this position, a yellow-shirted air officer takes control of the aircraft: by hand signals, he tells the pilot to rev up the engine. When it sounds right, and when the pilot gives a thumbs-up, the air officer strides forward while thrusting his arm forward to tell the pilot to release his brakes and proceed with the takeoff. The aircraft roared down the 420 feet of flight deck to gradually lift off. The ship's speed, plus the existing wind velocity combined to give the pilot 35 mph air velocity in addition to his own speed. This process would be repeated every 20-30 seconds until all ninety or so aircraft were launched.

Part of this process requires the use of the deckedge elevator, as well as to some extent both the forward and aft elevators. These elevators take aircraft from the hangar deck to the flight deck. One elevator is close to and aft of the island, one is opposite the island, on the port side edge of the flight deck, and one is up forward in the middle of the flight deck. Each elevator is operated by a green-shirt. The turn-around-time for an elevator is 45 seconds: 12.5 seconds to descend to the hangar deck, 10 seconds for the aircraft to taxi onto the elevator, 12.5 seconds to ascend to the flight deck and 10 seconds to taxi off the elevator. These elevators were operated by hydraulic pistons and by hydraulic cables and pulleys on the deckedge elevator.

Previous to the above process, when the flight deck is packed cheek-to-jowl with aircraft, the deckedge and the forward elevators were used to bring aircraft from the hangar deck to the flight deck, up forward. (The engines would already be revving up on the hangar deck so as not to waste any time. The hangar deck had large metal "curtains" that could be rolled up overhead so that running engines wouldn't asphyxiate those on the hangar deck. The aircraft brought up on the forward elevator would be launched by catapults, two of which were situated in a 90-foot slot within the forward part of the flight deck. These too were operated by the green-shirts, but it was the blue-shirted Airdales that muscled the aircraft into precisely the correct position. Within the slot would run an hydraulically powered shuttle. A sturdy cable would loop around the shuttle and around two cleats on the aircraft. There was a bar, connected to another cleat attached to the flight deck and also to the tail-section of the aircraft, to restrain the aircraft while it was giving full power to its engine. The yellow-shirt air officer would go through the same pre-launch hand signals, and when the engine "sounded" right and the pilot gave thumbs up indicating all was ready in the cockpit, it was "Go!" The green-shirt would push the release button so that the hydraulic piston and shuttle were forcefully sent down the slot, the aircraft with it. About 10-20 aircraft were thus launched. The catapult process was used because of the crowded deck, but the other method was faster.

After an Airdale pulled a wheelchock, he had to go back among the packed aircraft so as to repeat the process. He had to do this about four

to five times per flight operation. This was a dirty business. As Andrew Faltun said in his book, "The flight deck was a dangerous place, strong winds and blasts of propwash could knock a man into the path of whirling propeller blades and crewmen had to perform flawlessly ... "

A typical launch-process will be described from an Airdale's point of view, with the reader along side. There will be those who say that pulling a wheelchock is trivial, a mere bagatelle. Perhaps they can be disabused of this idea as they're taken through the process of pulling a wheelchock. And I'll take every precaution not to get "carried away" with my use of adjectives. To put it directly, this description will be to the blunt, understated side. Just keep in mind that a great deal of what's said involves one's state of mind as much as what's happening to him physically. Finally, pulling a wheelchock is not about "pulling a wheelchock"; rather, it's about GETTING TO a wheelchock. There's the rub. One could say that pulling a wheelchock is simplistic, but it's NOT SIMPLE.

Flight Quarters has been sounded over the PA system by bugle, then by boatswain's pipe, and next by boatswain's vocal order. You subconsciously have a sinking feeling, subconsciously wondering whether this will be the time that something untoward happens, when something will go wrong. In short order the pilots appear, climb into their aircraft, and then fire off the cartridges that in turn cause the aircraft engines to cough into life. Those engines range from the 1800-hp SB2C Helldivers to the 2500-hp/2800-hp F4U Corsair fighters. The aircraft are ranked in orderly rows, row on row. Exhaust smoke fills the air as the engines are revved up, producing a mean, roaring growl of a sound from unmuffled engines. The volume of the sound dominates the mind. The sound is palpable in that the vibrations that cause the sounds are the vibrations that thoroughly rattle your brain. To say that it's disconcerting is wildly understated. Face it, the unrelenting engine noise is a punishment. (To this day, I still hear ringing in my ears.) For those of us who don't like noise this is quite literally an unmitigated torment.

So this then is how we start the wheelchock-pulling process. Now keep in mind that these aircraft are large. As they tower over you they diminish you. Along with their dominating size are their huge propellers. The diameters of the F4U and F6F propellers are 13 feet. At rest, these propellers are huge, while when they're in motion, they seem still bigger, even if they're only a blur. But you're definitely aware of what makes that blur. It so happens that the distance between the wheels of the aircraft (F4U and F6F) are also just about 13 feet. This is important because you now know that the tip of the propeller extends no further than the aircraft's wheels. And after all, it's the tips of those propellers that are the "bottom line".

Now it's time to pick out which wheelchock we're going to go to. Noticing that the adjacent aircraft's wheels are about 10 feet apart, we know that if we walk the imaginary line equidistant from those two adjacent wheels, we'll have a sufficient distance of 4 feet between each shoulder and the tip of the propeller to either side of us. Sometimes, though, that distance is reduced to 3 feet from shoulder-to-proptip. (And at times, the wheels of adjacent aircraft were only 5-6 feet apart, because space on a training ship was at a premium.) Keep in mind that we have a 35-mph ambient wind at our back at all times (because of the existing wind and ship's speed). Also be aware that the deck is unstable, especially so in heavy seas. So let's line up between two aircraft on that imaginary line and move forward. Always look straight ahead: if we look to the right, we're apt to drift to the left (to avoid what's on the right). Naturally, this could be catastrophic. This passage between the two aircraft is dicey, but certainly manageable. To my knowledge, no one ever walked into a propeller. But never do this in a nonchalant way. The 35-mph wind and the unstable flight deck and the 4-foot leeway should be reason enough. Again, there are no second chances here, even though after a thousand times I thought I had it all figured out. Be diligent, each and every time. But regardless, fear has a way of concentrating one's mind.

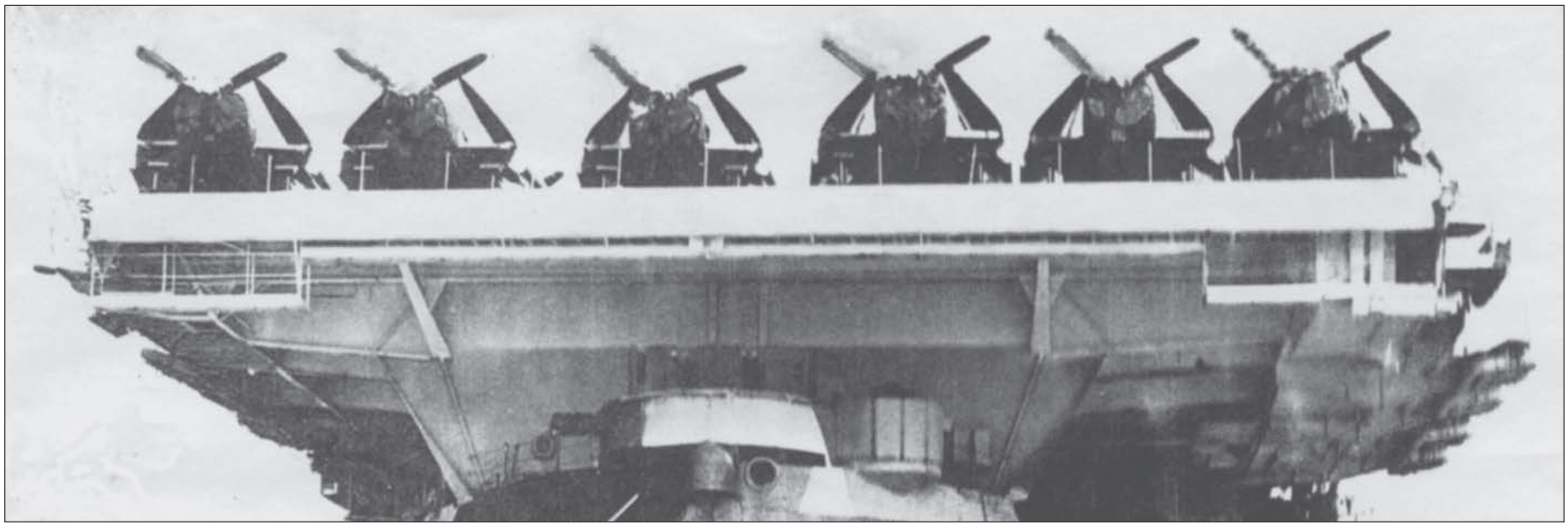
Once past the blurs on the right and the left, a semi-panic will no doubt set in. The enormous windblast from the propwash of the two aircraft you just passed will cause you to "freeze", I guarantee it. (Here, "freeze" is not to be confused with the wind-chill factor when we operated in the

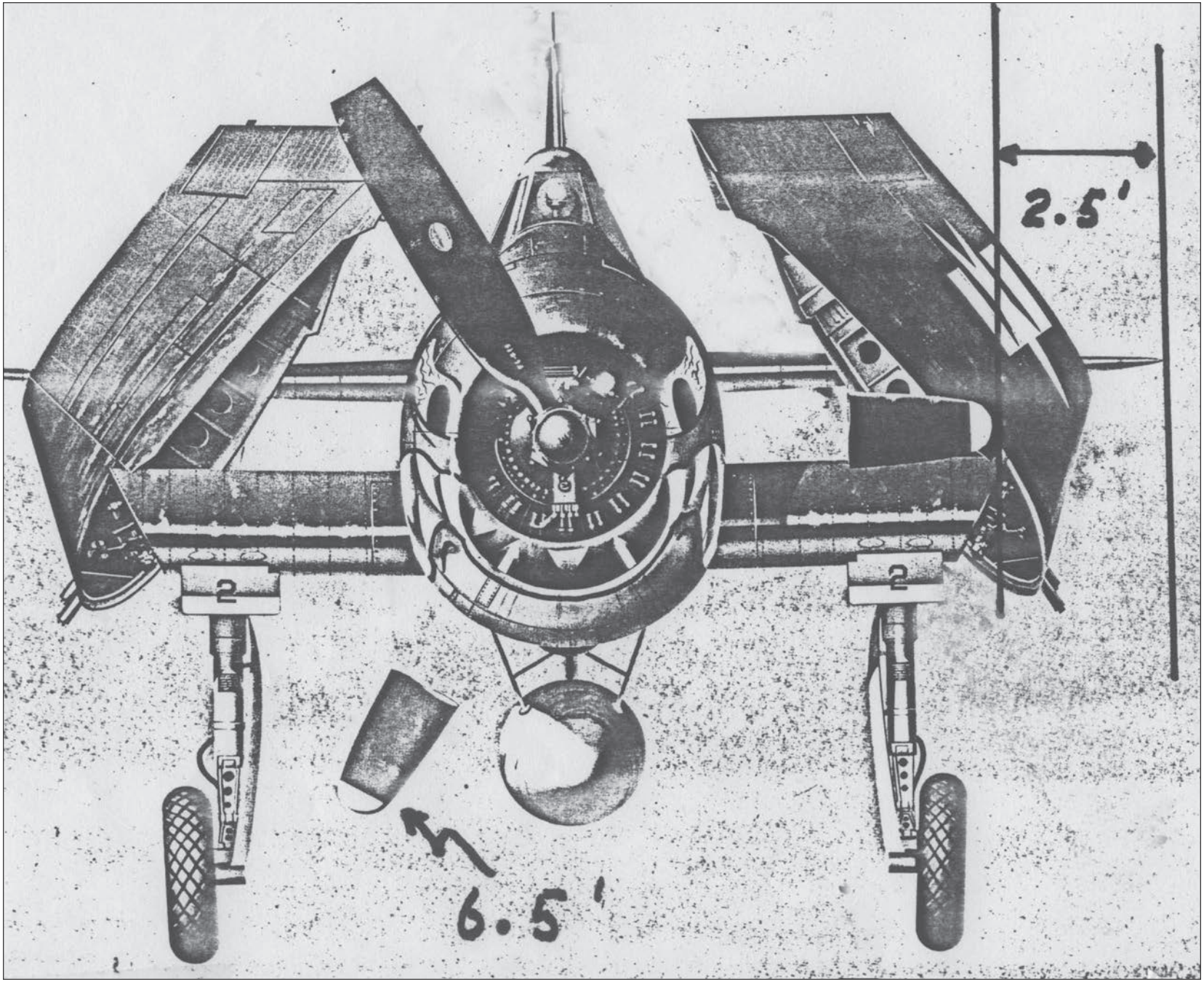
North China Sea.) You won't want to do anything except, figuratively, catch your breath. You're now in a bona fide treacherous situation, one you never really get used to. I didn't. With the tremendous hurricane-force winds at your back and two furious 13-foot diameter buzz saws only a few yards in front of you, you're only thinking of how to save yourself. (True, there is a tail-section between you and those buzz saws, but being swept under that tail-section is not only very possible, but also very unnerving. At times, it was almost as if there were a giant hand trying very hard to force you into those lethal, ferocious blurs. You're now literally fighting for your life, and this irresistible force thundering at you "I want you dead!" This is SERIOUS, and we can't try it over again if we make a mistake. (Is the above fanciful? "NO").

So what to do. Hit the deck, that's what. Make yourself as small as possible and push back against the wind, with a vengeance. At the same time, grab the nearest cleat (in the flight deck) that you can. Hold on to it as if your life depends on it, because it does. Even though the thrashing doesn't stop, you can crawl on your hands and knees to where you have to go: an unoccupied wheelchock. Above all, keep your wits about you. Sounds dumb, but, for sure, its not always an easy thing to do. Panic has a way of doing things that a clear mind wouldn't. (Perhaps I should have said earlier that no one, on my ship, was ever lost getting to a wheelchock. Who knows, maybe all the Airdales on my ship were all "experts" at this sort of thing.) But again, don't ever let anything distract you, not the horrendous noise, not the irrepressible wind, nothing. One stratagem that is sometimes useful is to get MAD, at the noise, at the wind, at whatever will bolster you at this legitimate time of need. After all, isn't the wind your mortal enemy? Yes, it is, and the noise is no friend of yours either. In addition, as often as not, the wheels of adjacent aircraft were only 6 feet apart, because space on the Antietam, a training ship, was at a premium. Try to arrange it so that you're moving down columns, not along rows. In the former case you'll be moving between blurs, which is better than moving in front of blurs, as you would if you did the latter. The former case is manageable, the latter case is VERY dicey, and it puts you closer to eternity. This is no place for daredevils and their ilk. We didn't have any. What's to be gained by unnecessarily putting yourself in harm's way? So crouch down, grab cleats, crawl on your hands and knees, avoid frontal confrontations with the aircraft if possible, and finally so arrive at a "safe haven" that is an unoccupied wheelchock. When your aircraft is in position to queue up to go to the launch point, you walk along side it, wheelchock in hand, to that point. After your aircraft is launched, go back to the waiting aircraft and repeat the process. And then go back and do it again, and again, and... (Recall this: 90 aircraft/flight operation x 2 flights/day x 2 wheels per 45 Airdales = 8 times a day. Now 8 times per day x 7 days x 4 weeks x 12 months = 2688 of these significant events a year. Actually, it was 365 x 8 = 2920 a year. But then again, we were operational only 12 of the 13 months that I was an Airdale.) It can now be said that you have taken a big step toward becoming an Airdale, where the launch-process was dominated by that ever-present triumvirate consisting of the violence of the propellers, the deafening noise of the engines, and the overpowering force of the prop-wash. So then, at the command "Start Engines", let's take another look at this launch-process as we approach, down the flight deck, that phalanx of aircraft, row on row, column on column, as fancifully described: The inert aircraft, those sleeping giants, start to come alive, first whining, then sputtering, now coughing, then taking hold and roaring into their full-throated anger and defiance, DARING you to approach. And approach you do, most usually with inward trepidation, to this dreadful confrontation, always alone, to enter that world of man against giants.

XEROX OF A PAINTING FROM "HELLCAT" OF CROWN BOOKS (1891)

Restating the most important dimensions in an Airdale's life, refer to the following two pictures. Here are a set of six F6F Hellcats in a row across the flight deck plus a close up of a Hellcat. The second picture spells out the dimensions with which an Airdale must contend when he makes his way through and among a deck full of aircraft (this is most pronounced among the Hellcats and equally among the F4U Corsairs). Most of the fleet carriers carried a complement of 100 aircraft (only about 70 could be topside at the start of a launch, the rest being brought up topside from the hanger deck as the launch progressed; the catapults were used until there was sufficient room to have a rolling launch from about 400 feet from the front of the flight deck). Now, note that the distance from the propeller-tip to the tip of the tail section is 2.5 feet. Next envision the tail-tip of an adjacent Hellcat almost touching that of the Hellcat next to it. This configuration establishes a distance of 5 feet between the two adjacent propeller-tips of the two adjacent Hellcats (the same dimensions apply to two adjacent Corsairs). Thus an Airdale, two feet wide, would have a propeller-tip but 1.5 feet from each of his shoulders as he negotiated his way between the two Hellcats (or Corsairs). Five feet can be considered sufficient but not insignificant for such a traverse. However, when the aircraft are revving up in preparation for the launch the propellers become barely recognizable blurs, definitely making for a fearsome apparition when transiting between the two adjacent Hellcats (or Corsairs). Now comes a middling stream of consciousness to close out this presentation: an Airdale daily and frequently goes in harm's way what with the constantly recurring and deepening anxieties that soon turn to moments of sheer fright when "taken hold" by hurricane-force winds propelling him in unwanted directions amid the sound and fury of that imposing phalanx of cheek-by-jowl 2,000-hp unruffled aircraft engines.




2.5'
6.5'

FLIGHT DECK ABOVE, HANGER DECK BELOW

Here's an interesting view of the ship showing both the flight deck and the hanger deck at the same time. The F6F Hellcat is sitting on the catapult ready to be launched. However, this isn't a normal launch procedure because there are no (green-shirted) catapult men near the Hellcat, there's no catapult officer there, and that tractor at the left wouldn't be just sitting there. But there certainly is someone in the cockpit of the Hellcat. It's probably the brown-shirted plane-captain. Each aircraft has a brown-shirted plane-captain. His one job is to be responsible for that aircraft. He's somewhat similar to the squire that each knight had back in the days of the "knights-in-shining-armor" (although he wasn't a mechanic). At launch-time he'd climb onto the aircraft to help the pilot strap himself into the cockpit, and do whatever else the pilot required in preparation for the forthcoming launch. He'd also keep himself apprised of the condition of the aircraft and make sure that the pilot was satisfied with that condition. This view also shows that there's space under the flight deck for the so-called gallery deck, a deck that provided for various offices. However, at this particular location, that space was taken up by the catapult machinery. Most of those seen on the hanger deck were no doubt hanger deck Airdales. Their domain was the hanger deck and the aircraft on the hanger deck, while we were in the V-1-F Division ("V" was the Air Department, "l" was the first section, and "F" was the flight deck) .

(cont. from p. 174) *required), and Vx is the complementary error (due to the target's linear motion while the gun-trunnion trains in an angular mode). Also, Ds =Dt+Dw+Dj-Dfswhere Dt is the deflection prediction, Dw is the wind deflection correction, Dj is the visual deflection spot of the projectile explosion and Dfs is the drift deflection. Finally, the Rs, which enters into the determination of the above enumerated ballistics factors is Rs= cR+Rt+Rw+Rj+Rm+Rx+Re where cR is the generated present range , Rt is the change in advance range due to the deflection (train) motion, and Re is the change in advance range due to elevation Vs. Unlike the last figure (spherical rendition, right figure) the deck is "never" horizontal. In addition, the gun orders are based on the director's LOS, and the lead angles* *(cont. on p. 250)*

The Carrier War in the Pacific, continued from page 174.

Since the Battle of Leyte Gulf covered such a large area it would be instructive to describe in general terms the geography of the battle first. We'll form a mental map of the area to facilitate following the action. The Philippines lie just above Borneo to the west and New Guinea to the east. The first island of the Philippines chain north is the large island of Mindanao followed by smaller Leyte and Samar.

A large Panay and other islands are to the wear while the large island of Luzon is the northern most of all the islands It is here that one will find Manila, Corregidor and the infamous Bataan. So it's a long Luzon, next a small Samar followed by a small Leyte and finally southern most is large Mindanao. The commanders on both sides initially did not know the size or disposition of the enemy. This was most critical when such a large area was the "battlefield". With many, many ships and a large area the situation was very volatile. As it was, the Japanese had three main forces: one from the north consisting of four carriers (but only about 100 aircraft), 2 battleships 3 heavy cruisers and 4 light cruisers. Next was a Central Force from the west consisting of 5 battleships, 10 heavy

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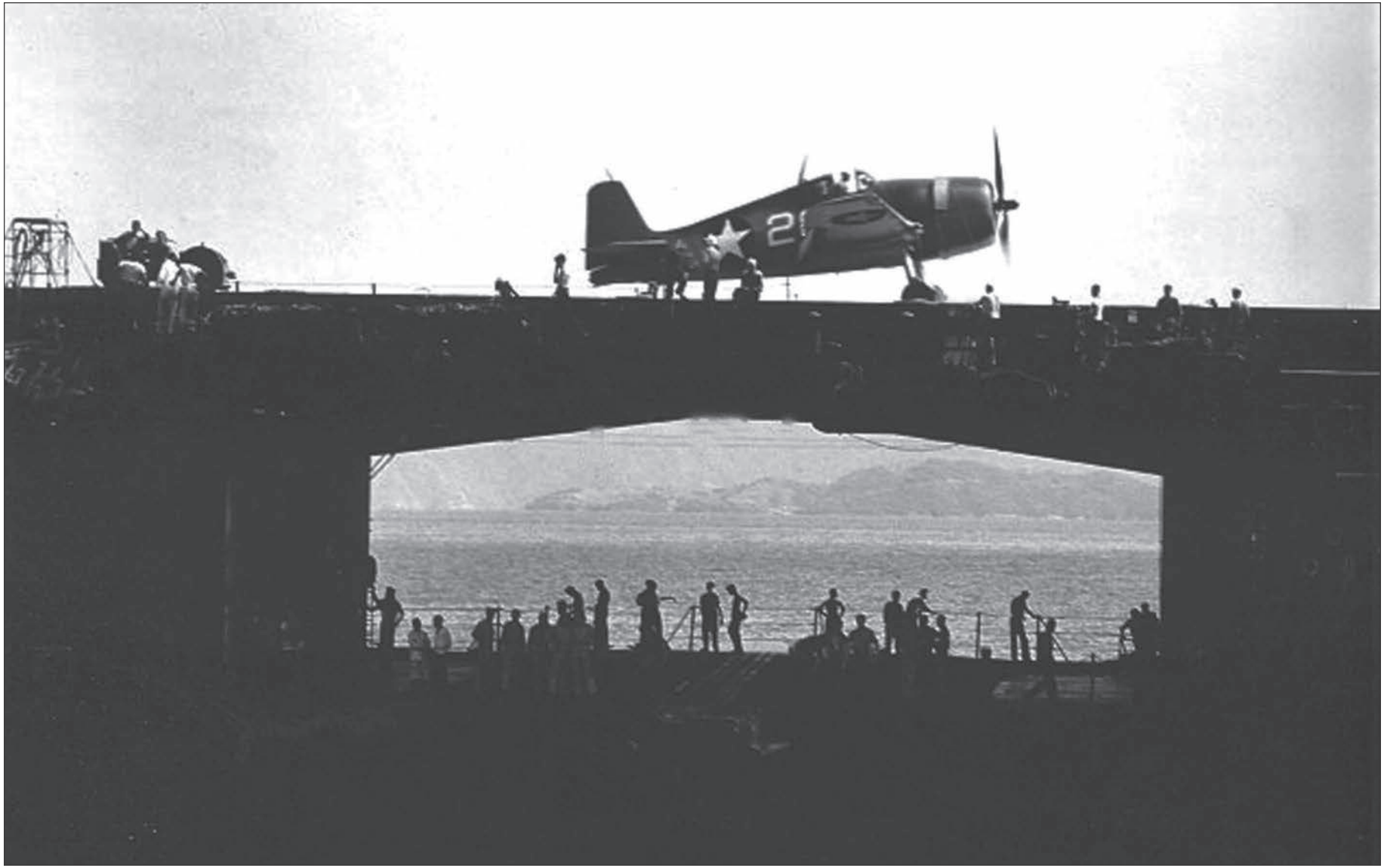

CATAPULT TIME

A TBM Avenger torpedo aircraft approaches the catapult position. (As previously mentioned, the Avenger was the biggest single-engine aircraft of WWII. The fact that we had twenty of them on board was a tribute to the capability of an Essex-class carrier.) The central point of this picture is, of course, that Airdale clutching the wheel-strut of the TBM as he strains to walk along side it with the very powerful propwash directly in his face. One could say that this picture epitomizes the Airdale's function, namely, to accompany an aircraft, at launch-time or parking-time, to its destination. He's there beside the wheel to pull the wheelchock. He's there, walking, no, struggling, beside the aircraft as it proceeds to its launch or parking spot. And he's "tied" there next to the aircraft until it's either launched or parked. In a way, one could say that this is a picture of an Airdale "at his office". Meanwhile, the yellow-shirt can be seen at the right, directing the pilot's actions: apply the right brake, apply the left brake, apply both brakes, rev up the engine, and never take his eyes off the yellow-shirt. It's not clear what the Airdale to the left is doing. Maybe he's a red-shirt (armaments) doing his thing. Note the engine-exhaust pipe, right above the Airdales head. This is not only an egress for spent combustion products, but it's also a conduit for the mind-boggling and disabling racket that only a 1,600-hp internal combustion engine can make when it's unmuffled and revved up. The ringing in my ears has yet to diminish since that time fifty-five years ago. But then, one has only to consider the Purple Heart recipients to realize that what I have is not much more than a mere bagatelle. I can remember, full well, what's happening in this picture. This Airdale's facing an immense, invisible force that's blasting him head-on. As the engine revs up to move the aircraft forward, he strains to hold onto the wheelstrut. All the while, he's being "consumed" by the roar of the engine. One could say, tongue-in-cheek, that he's being physically abused by the monstrous propwash, while at the same time he's being emotionally abused by the monstrous noise of the engine.

The Carrier War in the Pacific, continued from previous page.

cruisers, 2 light cruisers and 15 destroyers. The Southern Force contained 2 battleships, 1 carrier and 4 light cruisers. Add to these forces a large number of Japanese land-based aircraft. The American forces consisted of Task Groups as part of Task Force 38 under the command of Admiral Halsey. In Group1 were 3 large carriers, 2 small carriers, 6 battleships, 14 destroyers; Group 2 contained 3 large carriers, 1 small carrier, 2 battleships, 2 cruisers and 16 destroyers; Group 4 had 2 large cruisers, 2 battleships, 2 heavy and 2 light cruisers and15 destroyers. Unit 2 had 6 small carriers and Unit 3 had 5 small carriers. Admiral Kinkaid was invested with 12 battleships and 8 light cruisers. All the groups were commanded by admirals under the overall command of Admiral Halsey. Many other ships were involved such as troop ships, oilers, supply ships and others It was a vast array of naval might. This sets up the coming battle, the largest of all time and complicated enough that I'll probably be unable to recount it satisfactorily. However, one will get the "flavor" of this battle over several days that continued the march to the Japanese mainland and the supposition of a very bloody assault thereon.

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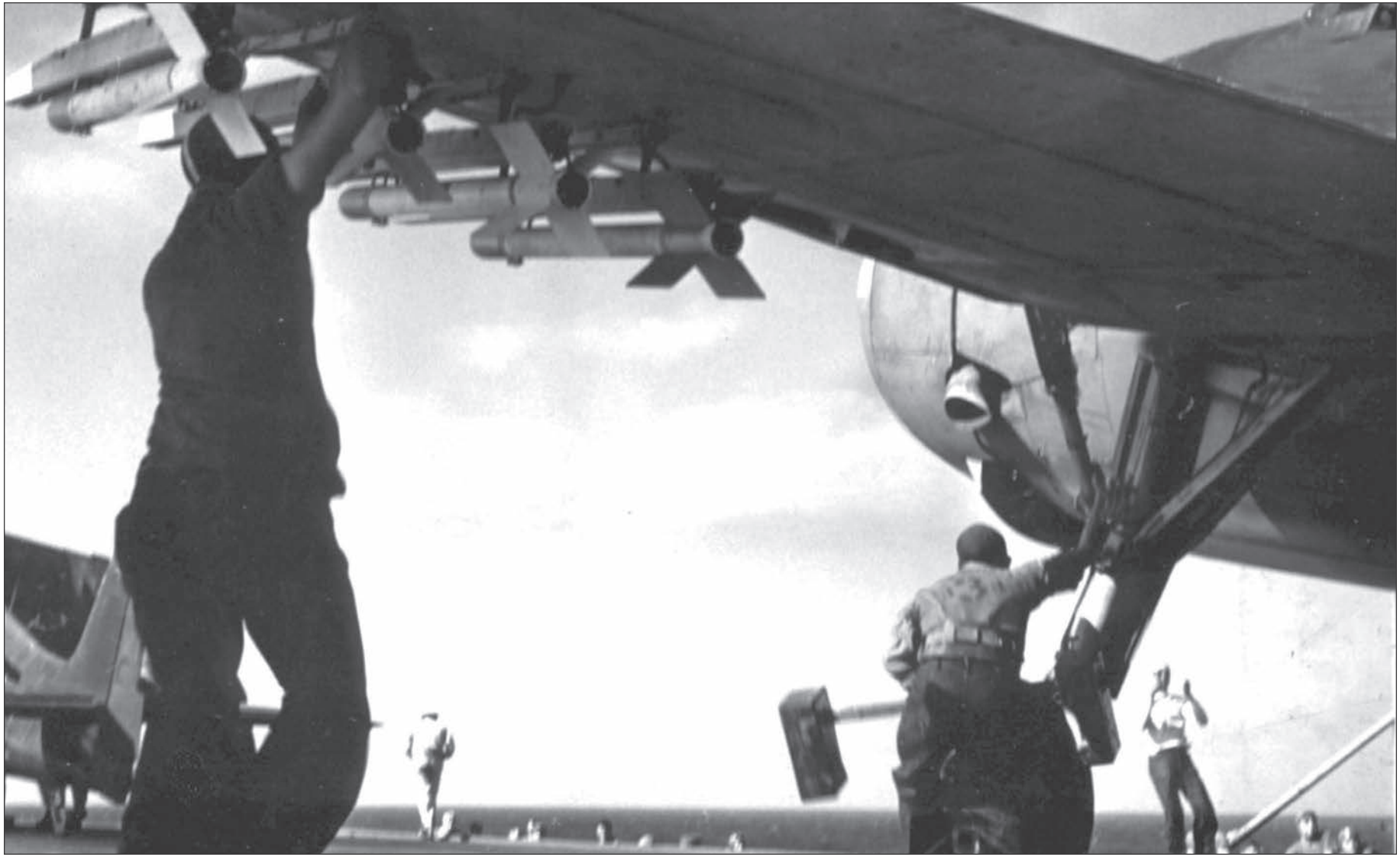

CATAPULT TIME II

As a follow on to the previous picture, here an F6F Hellcat is being escorted to the catapult position. A Hellcat, to the left, is just about to be launched. The phone-talker to the right holds a board that contains last-minute info that's passed on to the pilot. The Airdales have left the area after they pushed and pulled the aircraft into the launch position. (That they disappeared from view is puzzling.) The Airdale here, holding the wheelchock, is in the standby mode until that Hellcat (#16) is launched. Thus, the engine of the Hellcat is essentially at idle at this time. When #16 leaves, this pilot will give full-throttle to the engine to advance this aircraft to the catapult position. Consider the fact that if this Airdale extended his left arm straight forward, he would almost have his fingernails "neatly trimmed!" (Don't let that slender arm fool you; it's sinewy, not skinny.) The propwash winds, as here, could be, and were, very violent, depending on their direction and the engine's rpm. As an aircraft wheeled first to the right, and then to the left, and as the engine revved up to move the aircraft forward (producing winds up to 100-mph), the winds became not only violent, but also treacherous. If an Airdale was not alert to what was happening around him, he would be hit, and hit hard, by this wind. That part was relatively benign. The treacherous part was the traffic in the area. If one were slammed hard, and unsuspectingly, into the path of an oncoming aircraft, the result would be SERIOUS. This treachery was an ever present presence on the flight deck during flight operations, and it was always "caveat emptor", where "safety" was that which was being bought. (Looking at this picture, I can "feel" the terrific vibrations generated by that propeller as it relentlessly and continually "punished" the air around it. It was, well, awesome.) I can remember, again, this scenario as if it happened yesterday: it was very disconcerting when the aircraft revved up and moved forward while you were being forcibly moved backward. And it was just as disconcerting to be battered and physically handled by something that you couldn't see.

The Carrier War in the Pacific, continued from previous page.

The month of September 1944 was spent in large measure in raiding Formosa (Taiwan), Okinawa, and Kyusku (the southern most island of Japan proper). Many aircraft were shot down as well as 67 ships of various sizes sunk. Casualties were limited. During the beginning of October the raids concentrated on Luzon, the northern most island of the Philippines where enemy aircraft felt the wrath of the Fleet's pilots. Again enemy aircraft were destroyed with little serious affect on U.S. aircraft. The Japanese forces were on the defense in all areas when, on October 20th the U.S. 7th Fleet led 160,000 of MacArthur's troops to the bottom of Leyte Island for an uncontested landing. (It was said that the Japanese let the Americans land their troops uncontested at these various beaches to avoid the shelling of the beach by the naval guns in support of the landings: they laid back in fortified defenses to take on the Americans inland from their protected bunkers. This is a theory that seems to be verified by the facts of the landings throughout the Pacific (?)

The Japanese plan was to play on Admiral Halsey's propensity for audacity. That is, they presumed that Halsey would want

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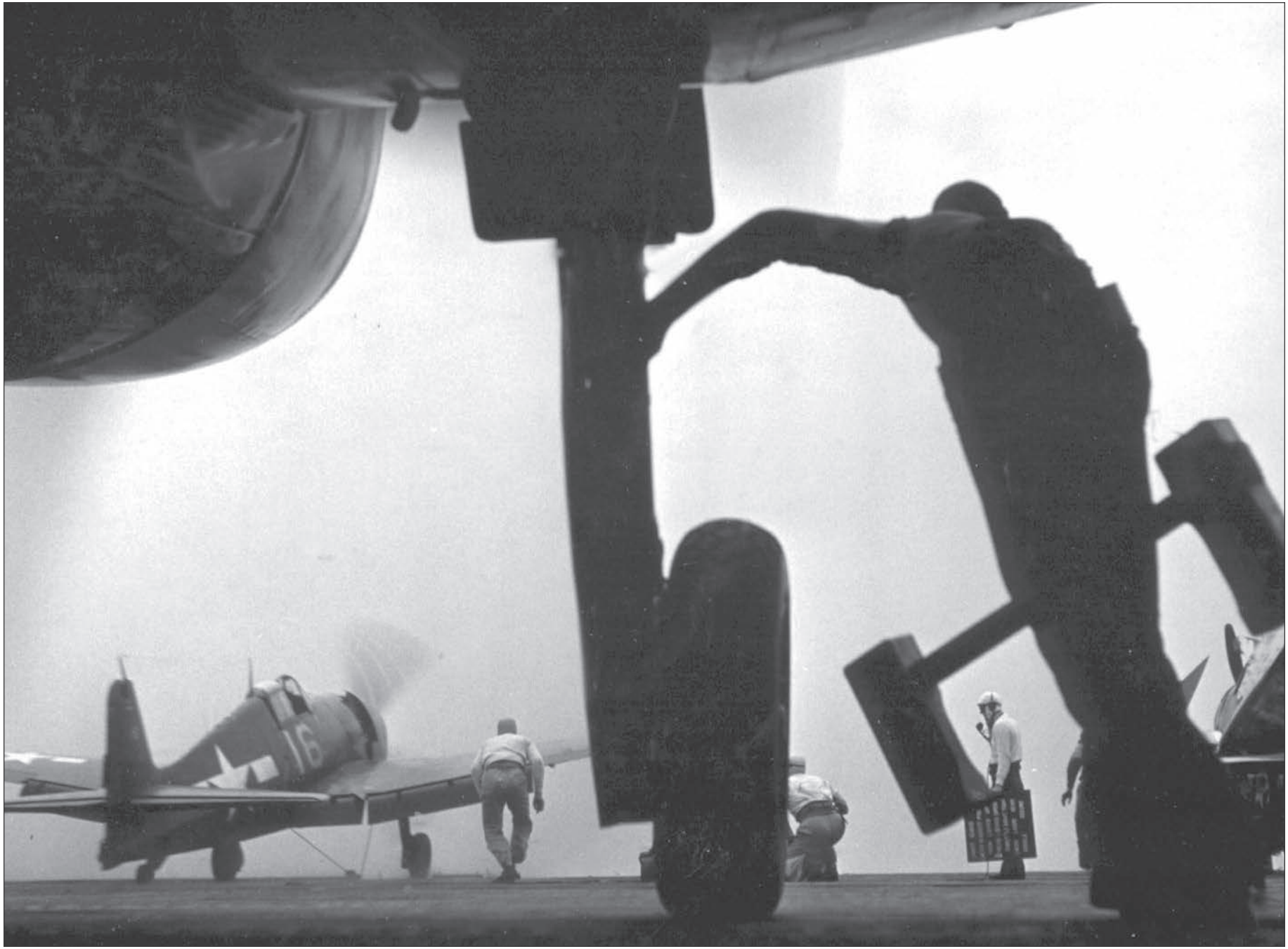

PREPARE TO CATAPULT

We'll now get down to the purpose of an aircraft carrier: launch and land aircraft. This is an F4U Corsair being prepared for a catapult launch. The green-shirted catapult personnel are attaching the launch-cable to cleats on the aircraft so that it can be "sling-shotted" off the deck. Notice the shuttle in the groove in the deck. That pipe next to its left wheel is to assure that it's lined up properly. The machine guns are covered over with masking tape to protect the gun barrels from the salt air. The Antietam had the later versions of the Corsairs which had 2800-hp engines. The noise was shattering when you stood next to a revved up engine, especially since they weren't going to reduce the engine's power by using mufflers. Here the pilots are revving up the engines in preparation for the launch (take-off). A clearer view of the catapult operation will be shown in some following pictures, but it'll be said now that the blue-shirted Airdales positioned the aircraft on the catapult, while the green-shirted catapult men did what is shown in this picture. (The tip of the propeller, though not seen, extends out to each wheel. The Corsair (here) and the Hellcat both had 13-foot diameter propellers. Now that's imposing. Standing next to one made you feel diminished.) I can remember well the sense of foreboding that I felt as I stood in front of the "business end" of an aircraft as it was revving up its engine, especially when your options were few or none.

(cont. from p. 244) *Vs and Ds must be continuously corrected for the ship's pitch and roll motions. Since the gun's motion is limited to train in the deck plane and to elevation in the plane perpendicular to the deck, gun orders must be computed in those planes. These corrections are not included in Vs and Ds due to how fast they change, but are included in the gun orders. Accordingly, gun elevation order E'g contains (1) the elevation of the director LOS above the deck plane Eb=E+L, (2) the vertical offset Vs to account for prediction and ballistics, and (3) the trunnion-tilt correction in elevation Vz, or E'g=Eb+Vs-Vz. The gun train order is made up (cont.)*

The Carrier War in the Pacific, continued from previous page.

most of all to have an all-out carrier battle as in the Battle of the Philippine Sea. He was a "sea-dog" not partial to supporting landings as he laid off shore. Thus on October 20th the Japanese sent their Northern Force of 4 carriers, 2 battleships, 3 cruisers and 5 destroyers to a point off northern Luzon, the large northern most island of the Philippines. The Japanese commander sent long, messages in the clear that were to be intercepted to lure Halsey up north away from the landing zone on southern Leyte,, one of the muddle islands of the Philippines and the location of the landed U.S. troops. The Central Japanese Force would then arrive from the west to bombard the landing beaches with the heavy guns of their 5 battleships,10 heavy cruisers, 2 light cruisers and 15 destroyers including the 70,000-ton Yamoto with its 18-inch guns. In addition, the Japanese had multiple airfields throughout the Philippines with land-based aircraft. As anticipated by the Japanese, Halsey jumped at the chance to square off with the Japanese carriers from the north. He steamed north for this confrontation, thinking that the landing operation was being well covered and that the Japanese Central Force had been turned

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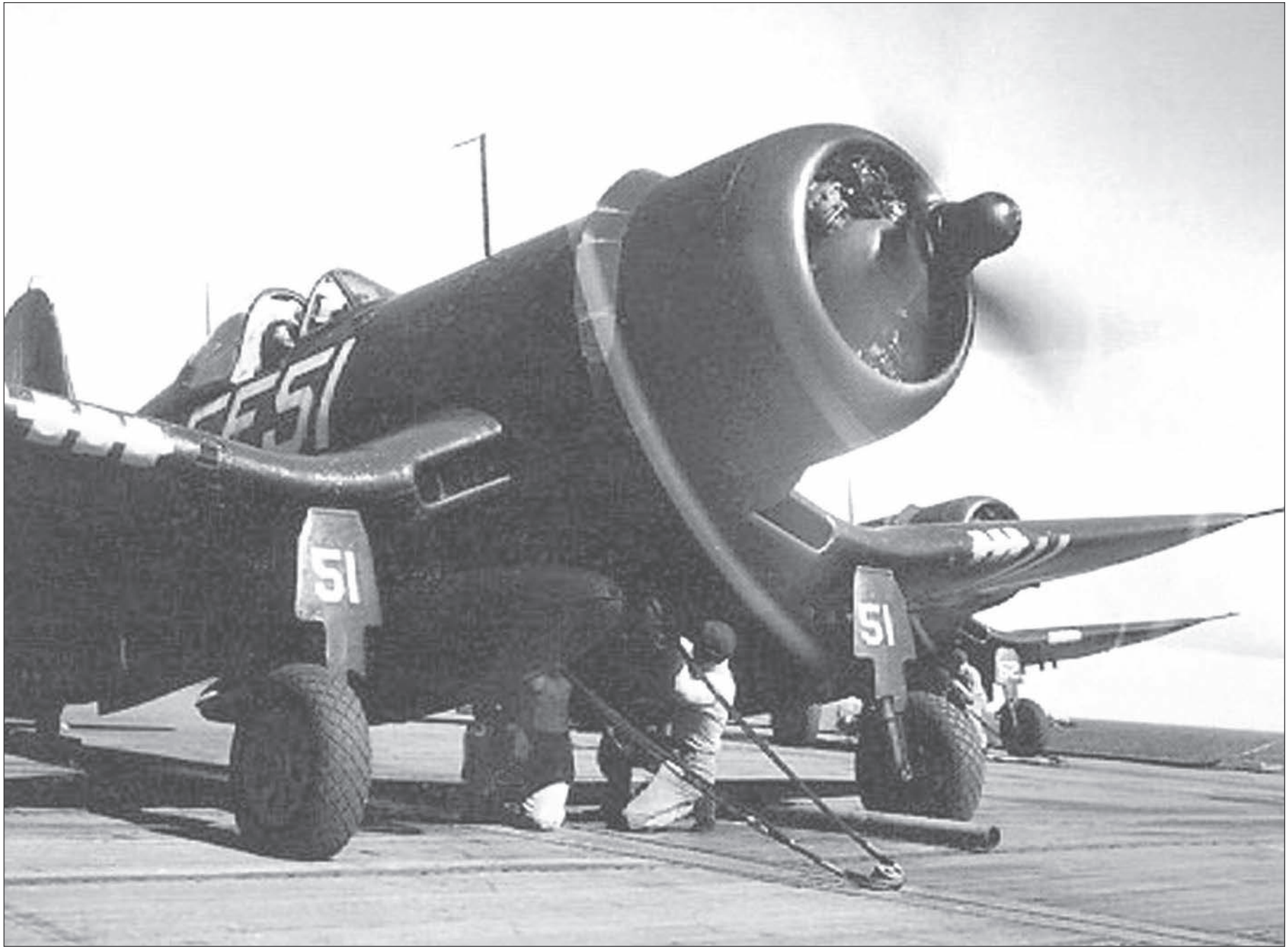
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PREPARE TO CATAPULT II

Same situation, different aircraft. Although this aircraft is bigger, the engine horsepower is less, for some reason. In fact, this Avenger was the biggest single-engine plane of the war. At this point in the picture, the pilot will cut the engine power, release the brakes, and then the Airdales will push the aircraft backwards to take up the cable's slack. Once the cable is taut a green-shirt will connect a releasing-bar to the tail of the aircraft. This bar is securely affixed to the flight deck. When the launch-signal is given, the bar is disengaged from the tail of the aircraft (which is being given full engine-power), the pilot releases the brakes, and the shuttle is hydraulically forced forward, taking the aircraft with it. In this way the aircraft is "flung" down the flight deck and lifts off under the control of the pilot. Since the aircraft needs up to 70-mph to become airborne, and since the ship-speed plus the ambient wind over the front of the flight deck is 35-mph, the speed of the aircraft down the deck is about 35-mph. This is of course done from a standstill situation, and is accomplished in about two seconds. (The steam-powered catapults of present day carriers are more powerful.) I can remember the heightened anxiety that grew as I approached, closer and closer, to a menace that wasn't all that visible: to be fanciful, did that "windmill of death" reach out to here, or here? This was literally a matter of feet and inches.) (Actually, this didn't apply here at the catapult; it applied back aft in that phalanx of aircraft, row on row, column on column, that awaited launch-time.)

of (1) director train B'r , (2) the lateral offset Ds to account for the prediction and ballistics, and (3) trunnion-tilt correction Dz. Actually, Ds is in the slant plane and must be projected onto the deck plane as jDd ("s" is slant, "d" is deck, and "j" is correction. Remember, the spherical figure, back page, is in the horizontal plane). Thus, the gun order for train is B'gr=B'r+jDd+Dz. The above description of the solution of the fire control problem, as has been said, makes use of the proximity fuse which accounts for those bomb-bursts as seen in the final chapter of this book. So there it is, that veritable marvel of engineering prowess, the 5-inch gun system (cont.)

The Carrier War in the Pacific, continued from previous page.

back. It was, temporarily, by submarine attacks. However, the Central Force turned again to head back towards the landing area at Letye Gulf. The Central Force steamed south to the west of Luzon into the Sibuyan Sea through the San Benarddino Straits to the east of Samar and then directly to the Leyte Gulf. This Force arrived at the Gulf unopposed this second time. While this was going on Halsey pressed his attack on the Japanese Northern Force of carriers, sinking several. At this time also the American force of small escort carriers, left to protect the troops at the landing site at Leyte Gulf, were confronted with this powerful Central Force. Only heroics saved the day and for some unknown reason the Japanese broke off the action. Halsey had acted to help by detaching some of his units to help the escort carriers but the Japanese had already vacated the area. Meanwhile the Japanese Southern Force entered the Surigao Straits between Leyte and Mindinao but were repulsed by superior U.S. surface forces. The Battle of Leyte Gulf lasted until October 26th and was a very complicated battle both strategically and tactically. What has been presented here is the barest of an outline but it can be said that the

(Continued on next page)


58

GREEN-SHIRTED CATAPULT MEN AT WORK

Here one F4U Corsair is just lifting off, one is being directed to the left catapult and one is heading for the right catapult. The aircraft, as is seen, move about under their own power. It isn't until they are fairly well-positioned over the catapult that the Airdales (that bunch in the right middle of the picture) start pushing the aircraft into the precise position. The aircraft moves into position by the pilot using his throttle and his brakes. Full throttle and right brake will wheel the aircraft to the right with the right wheel being the pivot point. All of the pilot's actions are controlled by the aircraft director's (yellow-shirt) hand signals. Precise positioning is aided by that (removable) pipe shown in the previous picture (by the aircraft's left wheel). You'll notice it in this picture just above the right wing of the middle aircraft. Those people on the deck are yellow-shirted plane directors, green-shirted catapult men, and mostly blue-shirted Airdales. When things go right, an aircraft is catapulted every 30 to 60 seconds. Notice that there's a Corsair on the right-hand side catapult (the white star on the left wing tip). I can remember mentally counting these "brutes" as they taxied forward toward the catapult, one by one, to take their place in line for the launch.

whose sole purpose was to protect the ship. Preceding pages did not even scratch the surface of describing the intricacies or the technical wonders of this system. The above description only provided the "flavor" of what was involved in designing a system to shoot down a high speed, close in aircraft maneuvering target from a ship that had many simultaneous motions (pitch, roll, heave, sway, turn, under conditions such as wind, ballistics, director parallax plus the tiny radar projectile fusing). The engineering acumen reflected by this system was the progenitor of the sterling capabilities of our present day productive capacities, and to which we are all in debt. It's a shame that so many take so much for granted: Our wealth does not (cont.)

The Carrier War in the Pacific, continued from previous page.

results massively favored the U.S. forces (among other things the Japanese were being systematically purged of their best pilots without trained ones to replace them).They did have the advantage that they were encamped on the islands and that they had many land airfields. However, again, experience pays. The final tally was lopsided as presented: against American losses of one light carrier, two escort carriers, two destroyers and one destroyer escort, the Japanese lost 45 percent of all ships engaged: a total of three battleships (including the Yamoto, the 70,000-ton battleship with 18-inch guns), one large carrier, three light carriers, six heavy cruisers, four light cruisers, and nine destroyers. One further comment must be made about this Battle of Leyte Gulf (besides its having been the largest naval battle in history): it provided a portent of things to come. That is, the first Kamikaze attack occurred during this battle. It will be dealt with anon, for unbeknownst to anyone was how much longer this battle of wills could go on. The Japanese were feeling backed into the corner, requiring drastic measures. As understood, all of these flyers were volunteers willing to die for their country (and Emperor). At that

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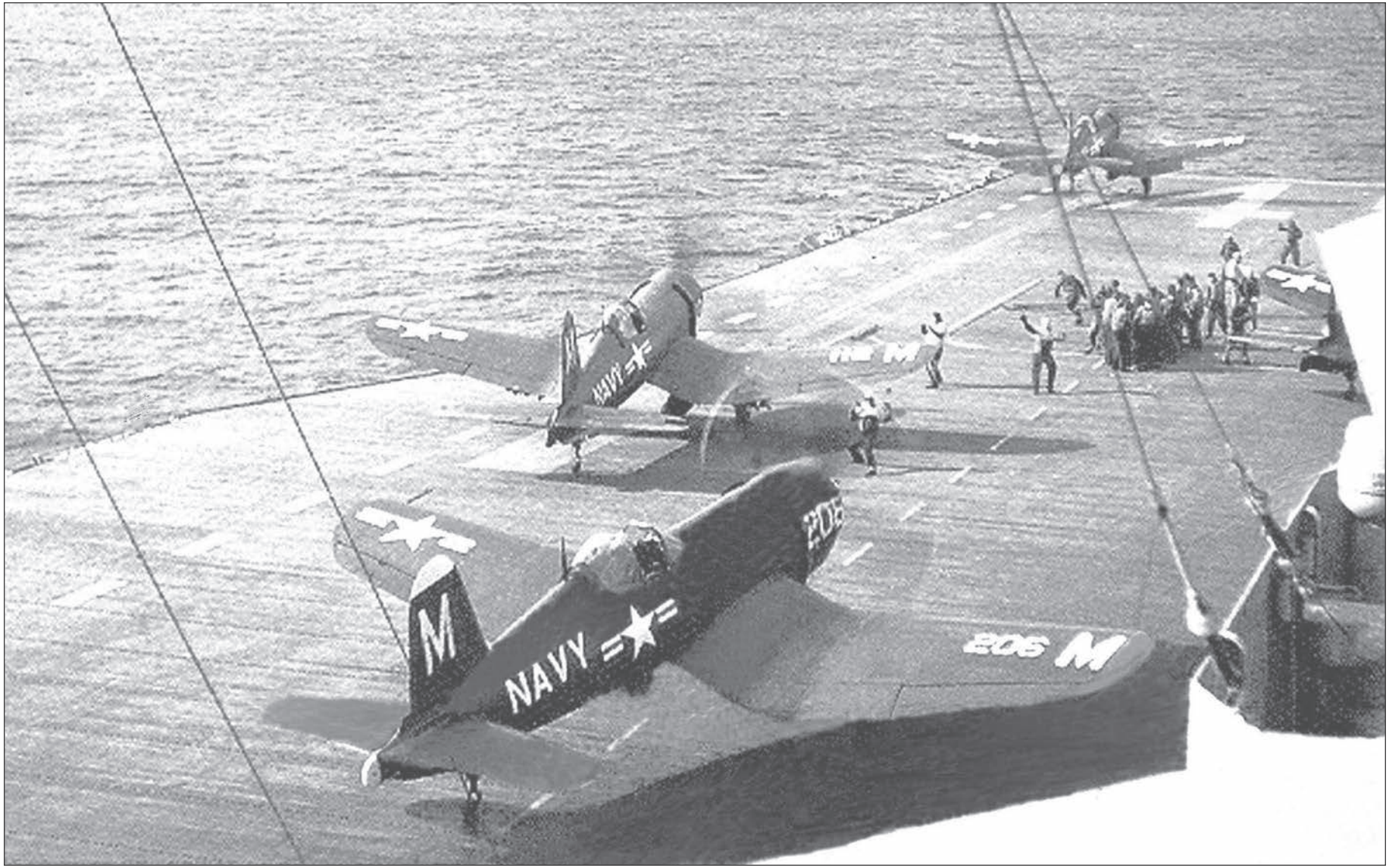
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NAVY
206 M

ONE GONE, TWO TO GO

This is the same drill as in the previous picture except that these are F6F Hellcats. The three people on the right at the far forward flight deck are green-shirted catapult men who are retrieving the cable that pulled the F6F down the flight deck The catapult is clearly seen here as the slot running forward and aft, and parallel to (and next to the dashed line). The left F6F is poised to get the "Go!" signal. This drill is necessary practice for the pilots, but it's also necessary practice for the Airdales and the catapult men. The wind-stock, lower left, is not something I remember having seen on the Antietam, at least not at that location. But it does indicate that the wind's direction is directly down the flight deck. I can remember thinking about that little wooden glider I had, many years previous, as I sling-shot it upward with that elastic band. Here was the same thing, only bigger.

does not grow on trees. To quote Winston Churchill, "Never has so much been owed to so few by so many". Our society depends in large measure on these intelligent engineers who create so much for our well-being. We are all in their debt. We, society, seemly acknowledge most every other type of occupation except that of engineering, those benefactors without whom we would all revert back to semi-subsistence. While they are not "shining knights in white armor" they are but one step removed. What I admonish is that we, society, should be appreciative. That's all, but that's plenty, if it's done with genuineness. To show appreciation, to show gratefulness is not to belittle ourselves; it is rather to show intelligence. Enough hectoring. (cont.)

The Carrier War in the Pacific, continued from previous page.

time, such conduct as exhibited by the kamikazes was incomprehensible to what most of us considered to be rational conduct but to them, a pilot and an aircraft for a ship was rational.

Let's step back for a short look at the "Big Picture". MacArthur and his troops secured the Philippines by the Spring of 1945 after much hard combat by the army troops. Formosa was neutralized by the fast carrier fleet aircraft. Yet there was much fighting to go. Starting at the end of 1944 the Army Air Force's B-29 strategic Superfortress long-range bombers began bombing Japan's home islands from the newly captured Guam and Saipan. There were yet the islands of Okinawa and Iwo Jima in the path to Japan. But first, consider the plight of the Japanese Empire. The Japanese Islands were very mountainous with few natural resources. The arable land was not extensive enough to feed the large populations in their densely populated cities. They were every much an island empire as is the British Empire. Their food and natural resources had to come from South East Asia among others. Seaborne trade was their life-blood. Without trade they would "perish" (strange how a century before they vehemently

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32

TEAMWORK IS THE NAME OF THE GAME

Even the large SB2C Helldivers could be catapulted. You get a good view here of the Airdales pushing the SB2C backwards to make the launching-cable taut. The crew on the left has just finished with their SB2C, while notice the yellow-shirt directing the middle SB2C to the right, and in the very lower left corner is another yellow-shirt stopping an SB2C (out of sight) with raised arms and fists. These catapult launches should take about 30-60 seconds per launch, maximum. It must be remembered that those aircraft already launched have to circle the carrier until all the aircraft are airborne. So obviously, wasted time translates into wasted gasoline. Notice the radio masts, on the right, are lowered so as not to impede the aircraft. That SB2C just airborne looks like it will dip a little lower before it starts to gain altitude. This would not be unusual, although at times the aircraft would go into the water. I can remember the (unexpressed) satisfaction I felt by being a part of the team that was making this whole operation successful. A very small cog in a very large enterprise.

What follows will be a summary of the actual Computer Mk1 that was included in the fire control discussion just presented starting on page 89. This mechanical analog computer was designed and built by the Ford Instrument Co. on Long Island, Ny during the 1940 time period. This computer was placed on many navy ships including carriers (Essex-class0, battleships, cruisers, and destroyers. This fire control system was designated the Gun Director Mk37. It's function was to provide antiaircraft defense. It cost $75,000.00 at that time. Two photographs of this computer can be seen on pages 754 and 755. The computer elements Mk1) are as follows: 9 component solvers, 1 vector solver, 6 disk integrators, (cont.)

The Carrier War in the Pacific, continued from previous page.

resisted contact with the outside world. Perhaps they did not want their unique culture "contaminated.) War did not come directly to Japan until June 15, 1944 when B-29's bombed Japan from China. The distances made these raids somewhat ineffectual though. The high-level bomb-runs through March 10, 1945 were also ineffective so that the new approach of lower level bombing was adopted. The first great raid on March 10, 1945 on Tokyo destroyed about 40% of the city and killed more people than by the atomic bombs. The horror that was administered to Germany was now being dealt to Japan. With similar treatment to 50 other cities, over 30% of all building in Japan were destroyed, 13 million people made homeless and an additional 8 million evacuated. The economy, too, heavily dependent on small-scale enterprises and imported raw materials, was in ruin (build small machines that build large machines that build products). To take advantage of this dependence on trade, the Americans put an enormous number of mines at the approaches to the Japanese ports. Add to this the exhaustive efforts by the U.S. submarines to sink the ships that fed the nation's populace and production facilities. Over

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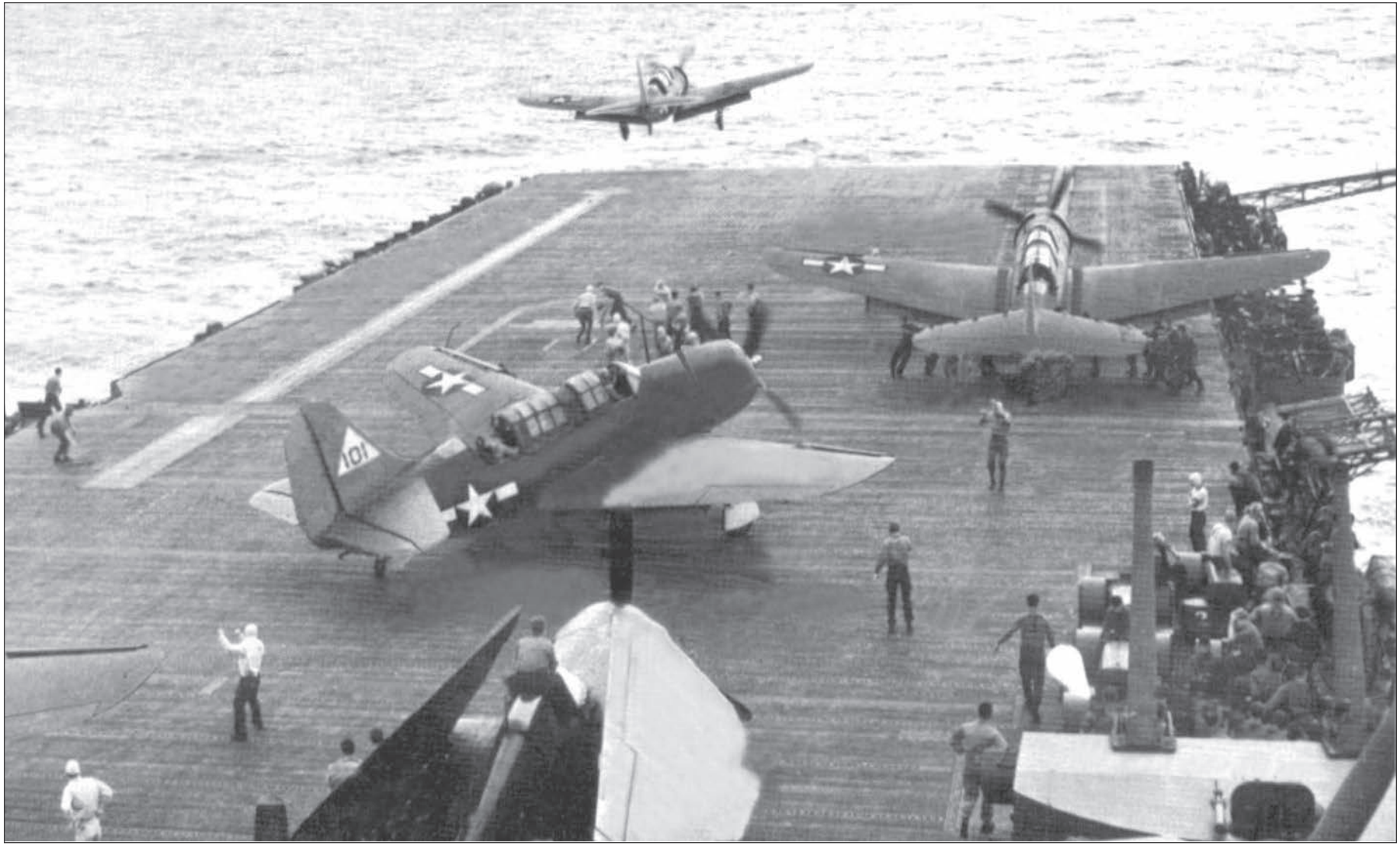
101

THE ANTIETAM (CV-36) LAUNCHES ANOTHER ONE

I had to include this picture because it was taken on board the U.S.S. Antietam (CV-36). This picture shows well the yellow-shirts (bottom middle) directing the F4U Corsairs. All those people crouching are green-shirts, while that bunch in the center are Airdales. They're bunched together because they (the yellow-shirts) don't want people wandering around. They want to know where everyone is as they direct the aircraft, with their backs to where the catapults are. (For all I know, I'm in that bunch of Airdales.) The Corsair at the bottom left will be directed to the right-hand side catapult. So, as they proceed up the flight deck, the aircraft alternately go right and left, unless there's a problem at the catapult (lining up the aircraft, mainly). I can remember being pleased that this ship, this "Number 36", was "my team". I don't know when this picture was taken, but if it was between April 1945 and May 1946, then I was "I was there", probably freezing on that raw day, considering he wind-chill factor.

4 component integrators (summing rates of change), 9 multipliers, 6 computing multipliers, 8 cams, 5 single-speed recorders, 4 double-speed recorders, 10 single-speed transmitters, 1 double-speed transmitters, 22 follow-up cams, 3 solenoid clutches, 2 solenoid locks, 24 handcranks (manned by three operators), and 150 differentials (increments of values over time). There are four sections to the Computer Mk1. (1) Tracking Section, Relative Motion Group. This group combines the motions of OwnShip and Target into rates of Relative Motion in relation to the Line-of-Sight (LOS), Elevation Rate, Deflection Rate and Range Rate. Tracking Section, Integration Group. These rates are to integrate changes of Target Position in Range, Elevation and Bearing. These changes are continuously transmitted to the Director to position telescopes and Range Finder. If the generated values of Target Position do not keep the sights on the Target the operators in the Director press the Rate Control keys and turn the handcranks to keep the sights on the Target. The handwheels with the Rate Control *(cont. p. 264)*

The Carrier War in the Pacific, continued from previous page.

12,000 mines were laid. A total of 126 merchant ships were sunk from March to June in the Inland Sea. From April to August mines. destroyed 223 ships, 512,656 tons while aircraft and submarines sank 155 ships of 518,263 tons. Most all Japanese ports were closed at some time during the Spring and Summer of 1945. Japan was on the verge of being completely isolated from external food and resources (such as coal, rubber, aluminum, etc.) during the summer of 1945. To think about it, and how could one not think about it, a small cabal of militarists were responsible for the infliction of terrible pain and death and suffering on the Japanese people. It's almost incomprehensible (and might I add, despicable). The Americans, worn by the fanatical resistance of the Japanese airmen and soldiers, could only press on to end the war as soon as possible (but at what cost on both sides!!). To their credit, the peacemakers, after the war, made a modicum of amends in their treatment of the defeated Japanese by enacting a form of Marshall Plan for Japan (similar to that for Germany after the war. Also, MacArthur, as temporary leader of Japan after the war, did preside in the very best manner in the interests of Japan and the

(Continued on next page)


120 H
222H

LEANING INTO THE PROPWASH

Even the large TBF/M Avenger can be catapulted, as shown here. Actually, the big TBF/M and SB2C became airborne sooner than the smaller F6F and F4U fighters. This was a function of their larger wing-area. Notice the personnel leaning into the wind-blast of the Avenger as it applies full power to its engine. If you're not ready for it, it can move you from where you want to be. The TBF/M will retract its landing gear about "now." The windchill on the flight deck of an aircraft carrier was of course a factor to be reckoned with, and endured. It's to be noted that during flight operations there was always an ambient wind of 35-mph across the front of the flight deck due to the ship's speed plus the existing sea-wind into which the ship would be heading. This windchill, away from the aircraft, was manageable, and the Airdale could cope with it satisfactorily, even in the colder China Sea area. However, when the Airdale was in among the aircraft during flight operations, the propwash would "freeze" him: he was made physically immobile just when it was most important to be agile. These icy windblasts would also cause him to be mentally distracted by the distress engendered by the frigidity of those windblasts. With those infernally spinning propellers only a few yards, or feet, away from him, the situation was potentially VERY serious. It was then, to be sure, that an Airdale was literally fighting for his very life. He was fighting while in the thrall of those lashing, frigid winds, winds that not only tried to force him toward the oblivion of those propellers, but also winds so cold that they denied him the ability (agility) to resist that force. This is when he (I) felt the most vulnerable: when his faculties were grossly diminished (by immobility, both physical and mental). But to quote, "All's well that ends well". (Yes, easy to say now, but how about then?) I can remember the steady, slow pitch and roll of the ship as on a calm day such as this one. There was always the constant din as the aircraft maneuvered to get into position for launch, and then there was a crescendo of noise as an aircraft was sling-shot off the deck.

The Carrier War in the Pacific, continued from previous page.

Japanese peoples. This was the minimum, in a civilized world. When I say , "the civilized world", I can't help but think of, just recently, watching two Japanese women compete in the 2006 Winter Olympics as they skated over the ice in enthralling performances on ice. Enchantment. Unmitigated joy. Thrilling. Sheer delight. These are some of the words that come to mind when thinking of them. This is the Japan that I will take with me. This is with whom I'll walk "hand-in-hand", feeling all is right with the world.. (Apologies to the reader, apologies to the two women, including this in a book about an exercise in arms, but I could not let the portrayal of the animosities of war go unchecked. In any event, God bless two of the daughters of Japan. They revive the concept of the goodness of those we know not.) ----------And now we must return to the baseness of war, regardless of how necessary it might be. The carrier air war will continue with the end of the Battle of Letye Gulf. There is yet more to be accomplished.

Returning to the campaign in the Philippines, General MacArthur and his army were having a hard time of it in the month of November 1944. Admiral Halsey and his carrier fleet

(Continued on next page)

SILHOUETTE I

I'm partial to black-and-white silhouettes because they give the very essence of the scene. The stark silhouette of the aircraft-director (yellow-shirt) in the foreground, his arms upraised, along with the equally stark silhouette of the aircraft right in front of him, both tell the complete story, less the "frills" of the details: The yellow-shirt is waving the F6F Hellcat forward to take his place in line preparatory to launching off the deck of the carrier. To the left are two Airdales running toward the F6F for some reason which is not clear. Another thing that's not clear is why the accompanying carrier is not also heading in the same direction as this carrier is, and why it isn't up to speed (notice its lack of a wake). It's the wake of the carrier that we're on that's of significance also. That wake indicates high speed, but more importantly, it evokes a sense of having traveled a great distance: There are many far-away places to leave from, and to go to. The song "Beyond The Blue Horizon" comes to mind, and that horizon reaches in all directions. What's out there? What's to come? Are you sad, or glad, to leave what's back in your wake? Many and sundry thoughts are evoked by just gazing at that wake as it's being churned up. And besides, the ocean, with its blues and its greens and its whites and its many shapes and forms can be endlessly fascinating. Combine that with the ever-changing sky and one has a feast for the soul, if he's so inclined. I can remember, as a Quartermaster Striker, sitting at the after-bridge, looking down at this precise view. I found the goings-on to be engrossing, and it was somewhat as if I were sitting "in the best seat in the house".

(cont. from p. 260) keys closed sends Rate Control corrections to the Rate Control Group in the Computer. The Tracking Section, Rate Control Group. This group applies these corrections to the values of Target Motion and sends the converted values back to the Relative Motion Group. (cont.)

The Carrier War in the Pacific, continued from previous page.

provided bomber and fighter support to the troops on the ground. Halsey too had a hard time of it because the first of the kamikazes struck. It was a rude awakening to the fleet that such tactics would be used. This was fanaticism on display, a dedication to one's cause seldom seen (at least in the air war). This initial Kamikaze attack awakened a renewed hope on the part of the Japanese admirals: since but 18 kamikazes had been flown on October 25 sinking an escort cattier and damaging three others, it was concluded that at that rate every American ship in the Pacific could be sunk with aircraft to spare. The admirals decided that the 500 navy aircraft located at Manila would be used for this purpose. The U.S. ships, being confined to stay close to the landing area, were in definite jeopardy. On November 25 two bomb-laden Zeros singled out the U.S.S. Intrepid (CV-11) (which was hit only a month earlier by a kamikaze). Anti-aircraft fire was limited in that friendly aircraft were in the area ready to land on the Intrepid. Positive identification was crucial which meant that the gunners were not able to fire as soon as would have been prudent. At 12:53 the guns commenced firing. One aircraft was "splashed"

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SILHOUETTE II

The F6F Hellcat at the right is taxiing to its take-off spot. This picture, as was the previous one, was taken in the bright sunshine. The Navy photographer, being what has to be an "artist," pointed his camera toward the sun to catch this dramatic vision. The essential features of this scene are captured, devoid of all extraneous details. To me, this picture is like a magnet, riveting my attention to the aircraft, the Airdales, the broad expanse of the flight deck, the even broader expanse of the ocean, and that majestic Essex-class carrier framing it all. A blue-ribbon goes to the photographer's mate who let us remember things of history, things of enduring significance. Bravo! I can remember when, between flight operations, I would go up topside to the superstructure for an unimpeded view of the grand panorama of the (clear) azure (blue) sky punctuated here and there with magnificent voluminous cumulus clouds far in the distance supported by a trackless ocean giving off delightfully scented salt air being wafted to the nostrils by a gentle sea breeze. (perhaps too lyrical but "right on the money", especially after a bout with a hundred "angry" aircraft)

Tracking Section, Deck Tilt Group. This group computes the corrections necessary to convert Director Train in the deck plane to Relative Target bearing in the horizontal plane. The Tracking Section, Synchronizer Elevation Group. This group converts Director Elevation above the deck to Target Elevation above the horizontal. The next section is the Prediction Section. This section uses the three Relative Motion Rates to compute the amount the guns must lead the target. It computes two level angles and a fuse-setting order. The Lead Angles include computation for change in Target Position while the projectile is in the air and for the projected curved path. The Prediction Section computes the Target Position at the end of Time-of-Flight and corrections for the effects of gravity, drift, wind and changes in initial velocity on the projectile's path. The Fuse Setting *(cont. p. 272).*

The Carrier War in the Pacific, continued from previous page.

but the other kept approaching low at the stern which allowed only the stern 40-mm pair of quads and the after pair of 5-inch dual gun-mounts to come to bear on the Zero. It would not fall; it bore on. At 500 yards astern it did a wing-over and smashed onto the Intrepid's flight deck at 12:55 (this meant, for those inclined toward the dramatic, that the gunners and flight deck personnel had two minutes to contemplate their fate; the gunners at least had the satisfaction of doing something about it while the others could only stand and watch (perhaps their fascination overcame their dread)). Many were killed and yet it was not over: at 1257 two more kamikazes were "zeroing in" from the port side. Here there was a more potent fusillade to oppose these two intruders. One was deftly splashed but the other drove through the barrage and crashed onto the flight deck at 12:59. There would be many more to receive the sound of "Taps" later on when the Intrepid could stand down to lick its wounds. The fight against the raging infernos effectively took the Intrepid out of action for the rest of the day. (The Intrepid now is berthed at a pier in New York City. It "stands" as a tribute to those brave per-

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PACKED DECK

(What follows probably will sound, and seem, somewhat excessive, a neophyte's hyperbole, but be assured that it's the "real deal", to use the vernacular.) About one-half the ninety aircraft have been launched, and at 20 to 30 seconds per launch, there's about another quarter hour of flight operations. Because there were 45 Airdales on the flight deck, each Airdale pulled four wheelchocks (90 aircraft times 2 wheels equals 180, divided by 45.) The Antietam, being a training ship, had another ninety aircraft launch in the afternoon. Notice that the aircraft are closely packed. Now consider that the 13-foot diameter propellers of the F6Fs and the F4Us reach out as far as their wheels. Thus (and this was common), if the aircraft were spotted (placed) so that the adjacent wheels of adjacent aircraft were ten feet apart, this then would leave only four feet between your shoulder and the tip of the propeller as you walked between the two adjacent aircraft. If the two adjacent wheels were only six feet apart, your shoulder would be only two feet from the propeller tip. Since the propellers were merely a blur, you couldn't help wondering if that lethal tip wasn't even closer than two feet. No matter, yours was but to go to a wheelchock and be ready to pull it. It was this unknown quantity that made the situation so treacherous. Then throw into the mix the fact that the flight deck was not a stable platform due to the ship's pitching and rolling and heaving motions. If you were beyond the first row of aircraft, there were of course the extreme hurricane-force winds from the propeller-washes of the aircraft all "gunning" their engines at FULL RPM. When in among that mass of aircraft, you quickly hunker down (crouch down) so as to better resist the tremendous wind-blasts that are literally compelling you, forcing you, toward those "tempestuously" whirling propellers in the next row down. That ferocious blur of propellers looked for all the world like some huge, gaping maw looking to devour you. In that mass of aircraft, surrounded by all that sound and fury, you felt completely alone and isolated. You also felt overtaken (at least initially) by an unvarnished, pervasive FEAR that no picture in this book could convey. Not to be melodramatic, but it was at these times that you were literally, yes literally, fighting for your very life. Once I reached an unoccupied wheelchock, I grabbed hold of the wheel as if it were a life-line (which it was). The noise, that unmuffled, horrendous, mind-numbing engine noise, was like a throbbing, living physical force. It was your own personal enemy, almost as much so as that propwash-wind that WAS a physical force that was fiendishly intent on pushing you back, back toward those threatening propellers only yards away from you. This was a veritable assault on your person, your psyche, pure and simple. For those of us who don't tolerate noise well this was an acute punishment. It was agonizing. But it was, after all is said and done, a manageable stress, as long as one kept his wits about him, and learned how to be "accommodating".

The Carrier War in the Pacific, continued from previous page.

sonnel who manned her back in the dark days of 1944.) The days were dark because of this new menace that was sure to take a terrible toll on these who crewed the carriers (as well as those on the other ships; but it was the carriers that were to be the prize, it was always "Get the carriers!"). The same morning a kamikaze slammed into the U.S.S. Essex (CV-9) as well as the escort carrier Cabot. There were some 6,000 aircraft at enemy airfields able to reach the carrier task force off the Philippines. Soon the Army Air Force was built up sufficiently to allow the relief of the carri-

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ROW ON ROW, COLUMN ON COLUMN

This picture caught my attention because of how clearly it shows the ranks of aircraft, row on row, column on column. It's such a typical scene, even though it's only a partial deck-load. (We regularly had many more aircraft on the Antietam. Missing in this picture are the 30 F4U Corsairs and the 20 SB2C Helldivers, both of which folded their wings in teepee-tent fashion. There are about 45 aircraft showing in this picture, while the usual complement of aircraft on an Essex-class carrier was 100: 30 F6F Hellcats, 30 F4U Corsairs, 20 SB2C Helldivers, and 20 TBM Avenger Torpedo aircraft.) Where the photographer was in order to take this picture is a puzzle. The only "obvious" answer is that he climbed atop the mobile derrick to take this picture. Keep in mind that all the aircraft in this picture were previously up forward, having taxied there after having landed. So, after flight operations (landing operations), the Airdales had to move them all back aft as seen here. There were some small tractors that were used for this purpose, but much of it was done by simple manpower: we pushed the aircraft back aft. Usually there was an Airdale in the cockpit to apply one or the other brakes, allowing the aircraft to pivot about a wheel. Even though this was a simple-minded job, "somebody had to do it." And yes, it was also a tedious job. As is said, "there's no rest for the weary", especially when this job is done day after day, week after week, month after month. You don't see the propellers, but they're there, spinning furiously, while at the same time, notice that the wheels of adjacent aircraft are only about six feet from each other. Right now, the aircraft are warming up their engines. Soon the Airdales will make their way to a wheelchock. On the Antietam, we'd already be there. That's just the way it was: each ship had its own procedures. I can remember, when next to an aircraft that was warming up under full throttle, what a powerful force was being generated. It felt like the very deck itself was trembling underneath you. It was a "violent" experience. It was a "mini-tornado". It was "earth-shattering". It was 2,500-hp being unleashed, full blast, no holds barred.

The Carrier War in the Pacific, continued from previous page.

ers. Now the fleet could concentrate on their next objectives, Iwo Jima and Okinawa, two small islands closer to and south of the Japanese mainland. Seizing them would provide for an available stopover place for damaged B-29s (Iwo Jima 800 miles from Japan) and as a launching place for the anticipated invasion of Japan proper (Okinawa). On February 16, 1945, three days before the Iwo Jima landings,there were assembled 16 fast carriers (14 Essexes and Saratoga and Enterprise) off the coast of Japan for offensive action.

These ships had over 1,000 aircraft at the ready to bomb industries and airfields near Tokyo. These carriers then sailed to Iwo Jima to join with 11 CVE escort carriers to soften up the beaches for an invasion. By being confined to a relatively small area the enemy could easily find them and then pummel them (punish them). On February 21, two days after the landings on Iwo Jima, 18 conventional bombers and 32 kamikazes attacked the fleet off the coast. Two kamikazes smashed into an escort carrier which subsequently sank. Four other kamikazes and four bombs struck the Saratoga and for the third time in the war it had

(Continued on next page)


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GETTING INTO THE QUEUE

Airdales are about to help the F6F unfold its wings as it taxies out under the direction of the yellow-shirts. These aircraft aren't tightly packed and usually you don't see F6Fs so far back in the pack. Another thing I never saw were shirtless people on the 5-inch gun mounts (or anywhere else). This shirtlessness didn't make for a "tight" ship. You see the yellow-shirted aircraft directors, but you don't see the blue-shirted Airdales because they're back there among those aircraft. The F6F behind the tail of the outcoming F6F seems to be having trouble starting its engine and might have to be pushed to the aft elevator to go down to the hangar deck for repairs. Notice the 20-mm guns on the outside of the catwalk to the left in the picture. That's a TBF/M Avenger out of view to the right. Its wing is very "thin" while its wing-shadow is broad. I would say that because there are shirtless personnel lounging about, the ship is not in the was-zone. On the other hand, they could well be the gunners who operate that gun-mount, and because it's so hot in the gun-mount, that's their "uniform." Besides, I can't envision the gunners of that mount letting others lounge there. I can remember thinking, during launch-time, that here we are doing this again, just like we did yesterday, and just like we were going to be doing it tomorrow. "Will it ever end"?

(cont. from p. 266) *Order includes a correction for the change in Range during the time the projectile is being loaded (fuse-setting was discontinued when the proximity fuse made its appearance around 1943). (3.) The Trunnion Tilt Section. This computes corrections for the effects of pitch and roll on the gun trunnions (a "trunnion" is the platform on which rests the gun as it trains (while it tracks the target)). The Lead Angles and the Trunnion Tilt Correction are combined with Director Elevation. (4.) The Parallax Section. This section computes Train and Elevation for a horizontal distance of 100 yards along the fore and aft axis (parallax is the distance between the gun and the director; each has a different view of the target). Each gun Director may use a fraction of* *(cont.)*

The Carrier War in the Pacific, continued from previous page.

to be retired for extensive repairs. It took three weeks to secure Iwo Jima thus releasing the fleet for its next big endeavor: the capture of Okinawa. In preparation for this battle the fleet steamed toward Japan to bomb the airfields on Kyushu, the southern most island of the Japanese mainland. The closer the Americans approached Japan the more fanatical their response. This was to be the last step before the actual invasion of the islands of Japan. It was their last point of defense, their last chance to keep their Islands inviolate. The Americans also bombed the Japanese fleet in its home port of Kure. They still had the most powerful battleship in the world, the 70,000-ton Yamoto. By March 18 the fleet started its attacks. It was at this time that the fleet introduced the 11.75 rocket that could be carried under the wings of Avengers, Corsairs and Hellcats. The initial results were less than adequate. To make matters worse, the Japanese pilots over Kure were not the inexperienced ones that remained after the Battle Midway. They had a new aircraft superior to the excellent Zero. Times would be difficult against this newer adversary. The raids damaged 17 ships but with the loss of too many pilots. Early that morning a

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FLIGHT QUARTERS HAS SOUNDED

Flight Quarters must have just sounded because you'll notice several people have their hands up to their head: they're unbuckling the straps of their flight (cloth) helmets so that they can buckle the straps under their chin. There are some Airdales already by wheelchocks, there are pilots going to their plane, and there are plane-captains helping pilots get ready. Soon you'll hear over the loud-speakers "Stand clear of propellers, prepare to start engines, start engines." Then you hear, from all directions "whines," next broken "coughs," and then the guttural roar of the engines as they combine to drown out any other sound. One unmuffled engine is enough, but ninety of them, all at once, can be mind-numbing. It drives out all thought except that which is immediately in front of you, or next to you. Fortunately, this deck is not closely packed. Subjectively, I think noise volume increases exponentially with the number of aircraft on deck. As you approach it, one aircraft, looming large and revving up its engine, is formidable. A whole phalanx of aircraft, "shoulder to shoulder," revving up in front of you is truly a force to be reckoned with, and sometimes gives one the impression of its being a single, large entity permeated by malice. I can remember "Here we go again. 'Another day at the office'. And here come the pilots, being tested again. Will this be the day that will change someone's life forever? or perhaps, even end it?"

each correction according to its distance from the Reference Point. The specifications of the Computer Mk1 will now be enumerated: Without hand cranks the Computer Mk 1 measures 62 inches long, 38 inches wide and 45 inches high (see the photos on pages 755 and 756). With the Star Shell Computer Mk1 in place the overall height is 65 inches. The computer Mk1 weighs 3125 pounds. The Star Shell Computer weighs 215 pounds. There are three stations around the Computer Mk1. On the left side is the Elevation Station, on the right side is the Bearing Station and in front of the computer is the Range Station. Each Station may be manned by (cont.)

The Carrier War in the Pacific, continued from previous page.

Japanese aircraft slipped through the haze and dropped a bomb that struck the U.S.S. Wasp (CV-18), killing 102 crewmen and caused considerable damage. However, operations were resumed an hour later. The weeks that followed were busy ones for the Wasp. In seven days it destroyer 14 aircraft in the air and 6on the ground; scored two hits with 500-lb. bombs on 2 carriers,; dropped two 1,000-lb. bombs on a battleship while under constant enemy attack. In addition to the combat sorties, the Wasp sent out combat air patrols (CAP), antisubmarine patrols and reconnaissance patrols. In April it returned to the states for extensive repairs and returned to the Pacific with a new crew. AS has been said, the first three months of 1945 were devoted to preparing for the last step of the of the island-hopping campaign westward across the Central Pacific. Iwo Jima had been occupied in February-March and Formosa neutralized during the same time-period by fast carrier strikes. Japanese air opposition became fiercer as the Americans approached closer to the Japanese mainland. The kamikaze aircraft made its appearance during the Battle of Leyte Gulf in October of 1944. The stage was now set for the

(Continued on next page)


61
19
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FLIGHT OPERATIONS NEARING COMPLETION

The unusual thing here is that TBF/M between the F6Fs. Usually (always) all the F6Fs are together, all the F4Us are together, all the TBF/Ms are together, and all the SB2CS are together. At least they were on the Antietam. All the aircraft on that front row have an Airdale at each of its wheels, as well they should. I don't know what that bunch of Airdales are doing there at the bottom of the picture, unless it's that they just walked an aircraft up the deck, wheelchock in hand, until it was in its take-off position. (More on this later.) But in any event, they should be walking back to the aircraft to find another wheelchock to pull. Recall that there are 45 Airdales, 90 aircraft, and two wheels per aircraft. It's a sure thing that an aircraft isn't going to budge until both wheelchocks are pulled, and only the Airdales do that. (Again, that sunbather on the 5-inch gun-mount(?).) On the right, middle, is a yellow-shirt signaling the pilot to advance so as to position himself for take-off. That take-off position is about sixty yards further up the flight deck. The person at the bottom, right, is crouching down because of the propwash (windblast) of an aircraft that is in the process of running down the flight deck for take-off.

one or more operators according to the ship's doctrine. Before closing out this section about the Computer Mk1 there will be a short dissertation concerning the mechanical components of this computer. It will be somewhat esoteric because there wont be any helping diagrams. It will take a stout disposition to follow the descriptions but I know the reader of this book is strong and brave (otherwise this book would not be of interest to the reader). Let's show your mettle: There are several components in the Computer Mk1 required to solve the mathematical identities. They are the adder, the subtracted, the multiplier, the divider, the differentiator, the integrator, the function generator (trigonometry table) among other things and they are all interconnected (essentially by spur gears). Also included *(cont. p.282)*

The Carrier War in the Pacific, continued from previous page.

final island to be taken before the invasion of Japan could begin. AS the Americans drew closer to the opposition intensified. The U.S. was expecting fanatical resistance to the assault on Okinawa. They were right. The kamikazes were more dedicated, the regular pilots were more intense. (We on the Antietam had a daily newsletter that itemized the tally of the previous day's action: how many enemy aircraft downed , how many U.S. aircraft lost, how many U.S. ships hit, how much damaged they received, how many enemy ships sunk, how many U.S. ships sunk, how many casualties suffered by both sides, how many killed, and so it went, a day-to-day resume of the death and destruction meted out on both sides. Scuttlebutt notwithstanding, we had no inkling of whether we would become a part of this carnage. Perhaps that was just as well, and besides, what the good of worrying about it. To be direct, I don't remember any particular anxiety in this regard: my days were full enough of anxiety without that which might have derived from those daily newsletters. And yet, lurking somewhere recesses of my mind, not willing to expose itself, were thoughts of what might be. I would not have been a sentient

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OLD GLORY, LONG MAY SHE WAVE

This picture was actually taken some minutes before the previous picture. The action here is on the right-hand side, one aircraft at a time being "peeled off" and directed forward to its take-off spot amidship (opposite the island-structure). Most usually the Airdales crouch low to the deck when they're in among the aircraft, so as to present a lower profile to the propwash windblasts. There's always wind on the flight deck, but it was never a steady wind. Sometimes an aircraft would wheel about (pivot) and you'd get a strong windblast that would knock you down if you weren't prepared for it. And the direction you'd be pushed could well be that which place you in harm's way. So constant attention to the flow of activity during flight operations was a must. Always being in the "tension mode" made this quite straightforward. And I didn't wear holes in the knees of my dungarees for nothing. Although the total activity on the flight deck during flight operations was an exercise in teamwork, each individual Airdale was on a strictly solo enterprise, an enterprise that involved only him and those "infernal" machines, machines that didn't necessarily stay put. You didn't confer with a leader, you didn't coordinate with a buddy, you didn't depend on what someone else did, you just set your jaw and proceeded forth, dare I say it, into possible oblivion. A picture such as this one does look prosaic. But the sounds and the wind-forces add dimensions that can only be hinted at with mere words. One can brace oneself for an onerous task, and he can brace himself to do it again. He can even brace himself to do it throughout the day. But when he realizes he'll have to do it all over again the next day, doubt sets in. Is he good for another day? The answer is "yes," because that's his job and there wasn't an Airdale on the Antietam who didn't methodically do so, day after long day.

The Carrier War in the Pacific, continued from previous page.

being were this not so, that image "just beyond the horizon".) To clear Okinawa, the commanders thought they would have to defeat 65,000 troops, three times the number that inflicted such a difficult time for the American forces in their conquest of Iwo Jima in the previous February and March. The estimate was woefully wrong because the Japanese had 120,000 troops well encamped in strongholds a distance from the landing area. (which made for a relatively easy landing process of the U.S. Marines and Army.In addition the Japanese had 10,000 aircraft committed to the defense of this Japanese outpost. After a week of inactivity by the enemy air defenses the kamikazes attacked the fleet with a vengeance while the regular air forces attacked the beaches and land forces. ."By mid-June the Japanese air losses were 20% of the total combat strength in the Battle of Okinawa. Over 3,400 Japanese aircraft were destroyed in the air and 800 on the ground. The American losses totaled more than 1,000 aircraft". (No wonder the Antietam was so busy training new squadrons! These losses were over a two and a half month period but even the newsletters didn't have the same "ring" as an aggregate amount men-

(Continued on next page)

MOVING THEM OUT

The yellow-shirt, with his arms upraised and back aft of the aft elevator (outlined in the middle of the picture,) has control of the F6F that's facing at an angle. (The camera's shutter-speed is so fast that the propellers appear to be motionless.) In the front is an SB2C in front of a TBF/M, both of which are off to the side and not part of this flight operation. With the six F6F Hellcats lined up across the flight deck, you get a good idea of how close the aircraft, and thus the propeller-arcs, are. (This will be discussed several times throughout this book because it was such an integral part of an Airdales life.) The wheels of a Hellcat are 13 feet apart (and the tip of the propeller reaches out as far as the wheels). It's also clear that the wheels of two adjacent Hellcats (and Corsairs) are about 10 to 12 feet apart here in this picture. Then, for a 2-foot wide person to walk between these two Hellcats, his shoulders will be 4 to 5 feet from a propeller-tip. Now if the wings of two adjacent aircraft were touching (and this didn't happen infrequently), then there would be about 4 feet between adjacent wheels. An Airdales shoulders would then be only 1 foot from the tip of a propeller. Add to this the fact that a revved-up engine made the prop become a blur, and you have a situation where the squeamish-factor was multiplied. I guarantee it. But as they were wont to say, "Hey, it's just another day at the office". I can remember every picture in this book (except the crash/fire pictures of the last chapter) as if it were a "couple of days ago". And every picture in this book is an integral part of my memory-bank, for good or bad. I chose every picture with that being the overriding criterion: was I "a part of this picture"? If not, then it isn't in this book. After all, this book is a step away from being my diary from January 1945 to May 1946. That's why no one was allowed to have any input to this book.

The Carrier War in the Pacific, continued from previous page.

tioned above. Attrition has a way of overtaking your understanding.) The Allied Fleet off shore suffered considerable losses from air attacks as explained by Admiral King, Chief of Naval Operations (the highest naval officer) in the "Final Official Report" as follows: "By its very nature an amphibious invasion implies advancing a large number of vessels both combatant and noncombatant, from a zone dominated by one's own land-based air forces into one hitherto dominated by the enemy's. Our vessels are localized by the landings so that the enemy has not the problem of finding them, but only of hitting them. Thus exposed, their protection depends wholly on their own anti-aircraft fire, smoke, and on cover of our own carrier-based air forces, which are to that extent diverted from offensive missions./ The longer the navy must remain in support of assault troop operations the more vulnerable it is to attack, and the higher is the proportion of personnel and ship casualties. Slow progress on the ground is directly reflected, therefore, in naval losses. The first enemy air attack at Okinawa occurred on 24 March; the first damage was done 26 March; and by 21 June …. about 250 of all classes, from battle-

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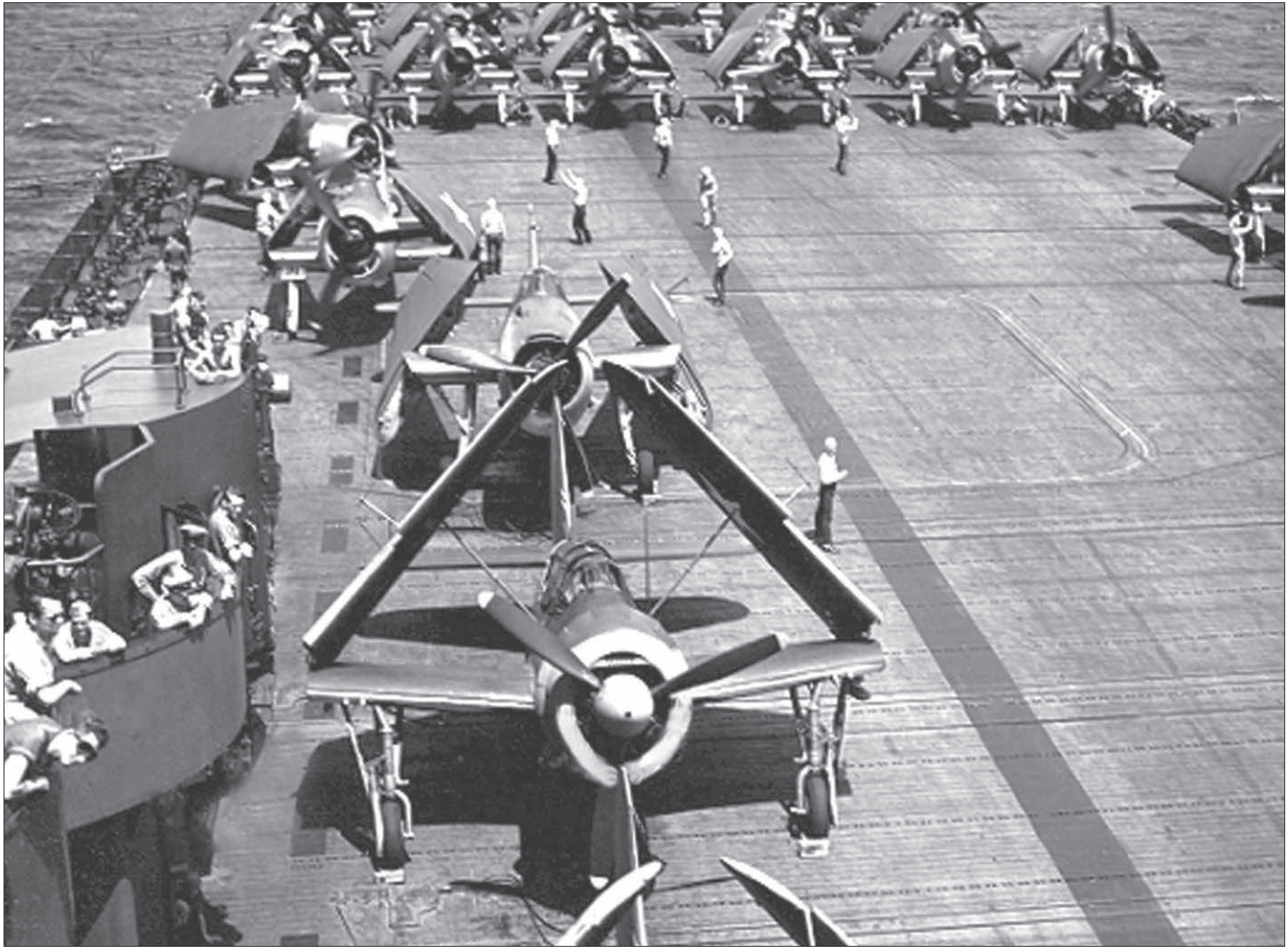

MAINTAIN YOUR INTERVALS

We're getting close to the end of flight operations (two each day). These TBF/Ms have essentially one yellow-shirt each as they proceed up to the launch-point. The TBF/M to the right has problems and is being towed to the deckedge elevator to go down to the hangar deck for repairs. Perhaps it has low oil pressure. At the upper right is the wake of a ship that's available should an aircraft not be able to gain altitude, but instead goes down into the water. Notice the barrier-wires across the deck. When aircraft land, these barriers are raised to an upright position to stop an aircraft whose tailhook hasn't caught an arresting-gear cable (wire). Notice all the way back there are only four bombers to a row. The fighters would be five to a row since they're smaller, and where the deck widens, there would be six to a row. Space is obviously at a premium, so none can be wasted.

(cont. from p. 276) *are servomechanisms to drive the mechanical components to their respective values. [The following explanations are not guaranteed to be accurate because the data that I found was sketchy, but I'll provide a good representation of the type of mechanisms that were used in the Computer Mark 1.] (1) ADDITION. Rack and pinion gears were used as input to this device (a pinion and rack gearing is simply a spur gear turning in another spur gear (rack) that has been converted from circular to linear).The rack X was able to move in a slot and was attached to a metal rod, the other end of which was set in a slot of a long bar. Rack Y was the same as rank X. The metal bar (with a slot in it) was in turn attached, at its midpoint, to a rod which was set in its slot. This was the output Z. Thus, as the pinion X moved to the right it incremented Z by an equal amount to X. If rack Y also moved to the right this distance was added to the value of Z. (cont.)*

The Carrier War in the Pacific, continued from previous page.

ships and carriers down to destroyers and landing ships, had been hit by air attacks, by far the greatest proportion of them in suicide crashes. Some 34 destroyers or smaller craft were sunk. Early warning of impending attacks proved to be the best countermeasure and for this purpose destroyers and other small vessels were stationed as pickets at appropriate distances from the concentration of heavier shipping. These pickets took the heaviest losses themselves but in so doing they undoubtedly saved many larger and more valuable vessels during a crucial three months". So wrote Admiral King.

To reiterate, Okinawa, a 60 by 18 mile island about 360 miles due south of Kyushu the southernmost island of the Japanese mainland, and Kyushu were bombed repeatedly from mid-March to the first of April in preparation for its invasion. For this operation a mighty U.S. force was assembled consisting of the biggest landing force of the Pacific war. It consisted of the Tenth Army composed of 3 marine divisions and 4 army divisions for a total of 155,000 men: By the time the battle ended two and a half months later the ground forces would total 300,000 men. The

(Continued on next page)

"SWIMMING UP STREAM" AGAINST THE PROP-WASHES

These yellow-shirts and blue-shirts are trying to advance against the propwash of an aircraft that was just given the "Go!" signal to take-off (launch). Further back, you'll notice some Airdales locking a wing into place. That wire that's making a 45-degree angle is an arresting-gear wire that has been pulled back out of the way of the elevator, so it can be used during flight operations if need be. It's possible that that Hellcat had just come up on the elevator. In that way, they can still launch all the aircraft even though all the aircraft can't be on the flight deck at the same time. It would have come up with the engine running because the aircraft need about five minutes of warm-up time. Anyone behind a warming-up aircraft has to absorb terrific windblasts. Because aircraft are taxiing this way and that, everyone must maintain a "heads-up" attitude.

To SUBTRACT, move one of the inputs (X or Y) to the left. There are other ways to add such as the number of rotations of a shaft or even making use of a differential gear: The differential gear consists of X spur bevel gear coming from the right, Y spur bevel gear coming from the left with both of them meshed with a third spur bevel gear G at right angles to X and Y (a bevel gear allows gears to be meshed at various angles, in this case at right angle). The G gear in turn is connected inside a spur ring gear, i,e., the G gear is attached to and turns along with the ring gear. The ring gear is also meshed with a fifth gear M. The shaft of this gear is the output, M=X+Y. Reverse the rotation of X or Y to obtain subtraction. There have been three ways of doing addition and subtraction. The above described gear is a simplified differential gear (for future reference). MULTIPLICATION. (cont.)

The Carrier War in the Pacific, continued from previous page.

U.S. naval operations for this campaign were comprised of Admiral Spruance's 5th Fleet (when Admiral Halsey commanded the fleet it was called the 3rd Fleet). This fleet was comprised of several Task Forces as follows: the largest was the main invasion fleet TF51 made up of 300 warships and more than 1,000 transports and landing craft. The TF 58 contained four fast carrier groups, and TF 57 consisted of 4 carriers. The TF 52 was to commence the initial bombardment of Okinawa and to clear the mines in the areas of the landings. Though the landings were not scheduled until April 1, 1945, the bombardments started by the middle of March. 1945. The bombings also struck hard at naval and air bases on the mainland. During this time the Japanese carried out many attacks on the American forces, especially the carrier groups (each group consisted essentially of two Essex-class carriers, smaller carriers, destroyers and various numbers of battleships and cruisers) These attacks were carried out by Japanese land-based aircraft and the infamous kamikazes. In this prelude to the landings the American ships took some serious punishment. The troops invaded Okinawa on April 1, 1945 under the umbrel-

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SPREAD YOUR WINGS AND FLY

Here, the SB2Cs are "peeling off" as they get into line for the launch-process. They're unfolding their wings as they go because they don't need the assistance to do so as do the F6Fs, whose wings are folded to the back. This procedure made possible launches every 20 seconds, and complete launch procedures in about 30 minutes. So the first aircraft off was in the air 30 minutes before it could go on its mission. The yellow-shirts with dark pants are rated enlisted men (usually chiefs), while the yellow-shirts with tan pants are commissioned officers. The yellow-shirts with their arms up in the air have control of an aircraft, and will "pass" that aircraft to the next yellow-shirt down the line. This happens for each and every aircraft, and the pilots have no options during these procedures. Notice the eight 20-mm guns to the starboard side of the flight deck.

To multiply by a constant is easy: Turn one spur gear Y by another X with output being Y=kX, k= ratio of the number of teeth of the two gears. To multiply two variables a more complicated method is used: Given two similar triangles abc and ABC we can form an identity: a/A=b/B=c/C. In this multiplier, the side opposite "C" of one triangle is one input variable and the side adjacent "a" of the other triangle is the other input variable The two triangles are figuratively placed end to end so that the hypotenuses are at right angles to each other and the sides opposite "C" and adjacent "a" are each horizontal. The hypotenuses form the letter "L" tilted to the right 45 degrees). This figure just described defines the structure of the mechanism that will generate the multiplication of two variables: Two bars with slots in them are joined to form a letter "L" tilted forward 45 degrees. (cont.)

The Carrier War in the Pacific, continued from previous page.

la of the ships' guns. On April 6 the Japanese sent from the mainland the largest battleship ever built, the 72,000-ton Yamoto along with a cruiser and eight destroyers (but with no air cover) Their purpose was to disrupt the landing areas, however they never reached the scene: carrier aircraft pounded the Yamoto unmercifully. With fuel enough only for a one-way trip it was a suicide mission that affected no useful results because it was sunk after a barrage of 7 bombs and 12 torpedo hits within 2 hours.. The cruiser and 4 of the destroyers were also sunk resulting in this being the last Japanese naval action of the war. [Incidentally, the top naval ace of the war was Donald McCampbell who shot down 34 aircraft and nine in one engagement. This is truly remarkable considering that the amount of ammunition is limited and even if the "kills" were bombers.] During the fight for Okinawa the Americans continued the actions close to and inside the Japanese home-waters. These were difficult times for the navy forces during which 4 large carriers suffered serious damage, including the Intrepid (CV-11) on 16 April, the Franklin (CV-13) on 19 March, the Bunker Hill (CV17) on 11 April, and the Hancock

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ROW ON ROW, COLUMN ON COLUMN

As part of the flight operation, the aircraft have to spend five minutes warming up their engines. It always seemed much longer, and maybe it was. Usually, we went to the aircraft before they started the engines, but here that doesn't seem to be so. Again, this seems to be a different flight deck configuration in that the F6Fs, to the left, are back aft with the SB2Cs. Whatever arrangement they're in, that bevy, that assemblage of aircraft was a sight to behold, especially when they were all "fired up" and generating a sound heard no where else. On the Antietam, those two columns of Hellcats on the starboard side would have been up front of the bombers (SB2Cs and TBF/Ms). This was SOP (Standard Operating Procedure). I never had a preference for one aircraft over another. It was just a matter of taking "the next one in line."

Variable X is a rack and pinion with the rack being attached the lower slot (base of) the letter "L". The variable Y is another rack and pinion connected to a bar-structure in the form of letter "T" with a slot in the top bar of the "T". which is set on its side. A third rack and pinion, also in the form of an inverted "T" is the output Z. Now the two "T's" and the vertical part of the "L" all three have their slots pinned together such that the two "T's" can move in a straight line along their slots. This is a complicated description and the motions involved are not easily visualized. However, the result of these motions is to impart a representation of the identity Z/C=a/c and Z/ Y=X/c. thus, Z=XY/c where "c" is a constant. Thus we have multiplied the two variables X times Y. This little exercise is not all that illuminating but it does indicate the use of mechanisms to compute mathematical values. *(cont. p.292)*

The Carrier War in the Pacific, continued from previous page.

(CV-19) on 7 April. To attest to the severity of the Japanese resistance, on April 16 there were 210 Japanese aircraft shot down. As if the enemy were not enough, on June 4 a typhoon damaged 2 carriers three cruisers, and one destroyer. [While destroyers take a good deal of punishment the large carriers are so long and high above the water they also do not suffer a typhoon lightly]. The Kamikaze Cadre were a response to the growing attrition of the Japanese fleet and its inability to replenish the ships lost.They were first employed at the Battle of Letye Gulf but took on a more intense and organized form at Iwo Jima, and especially during the Okinawa campaign. Kamikazes are irretrievably associated with the battle for Okinawa. It was there that was the site of "The Fleet That Came To Stay" where they of the fleet fought to live against those who fought to die. Consider if you will the sensation felt by a crewman, by an Airdale, as he could only stand and await his fate found in a hurtling missile in the form of a kamikaze aircraft as it droned on and interminably on, directly and inexorably at YOU. You could not run, you could not hide, you could not lash back in defiance against that device that was to be the means of

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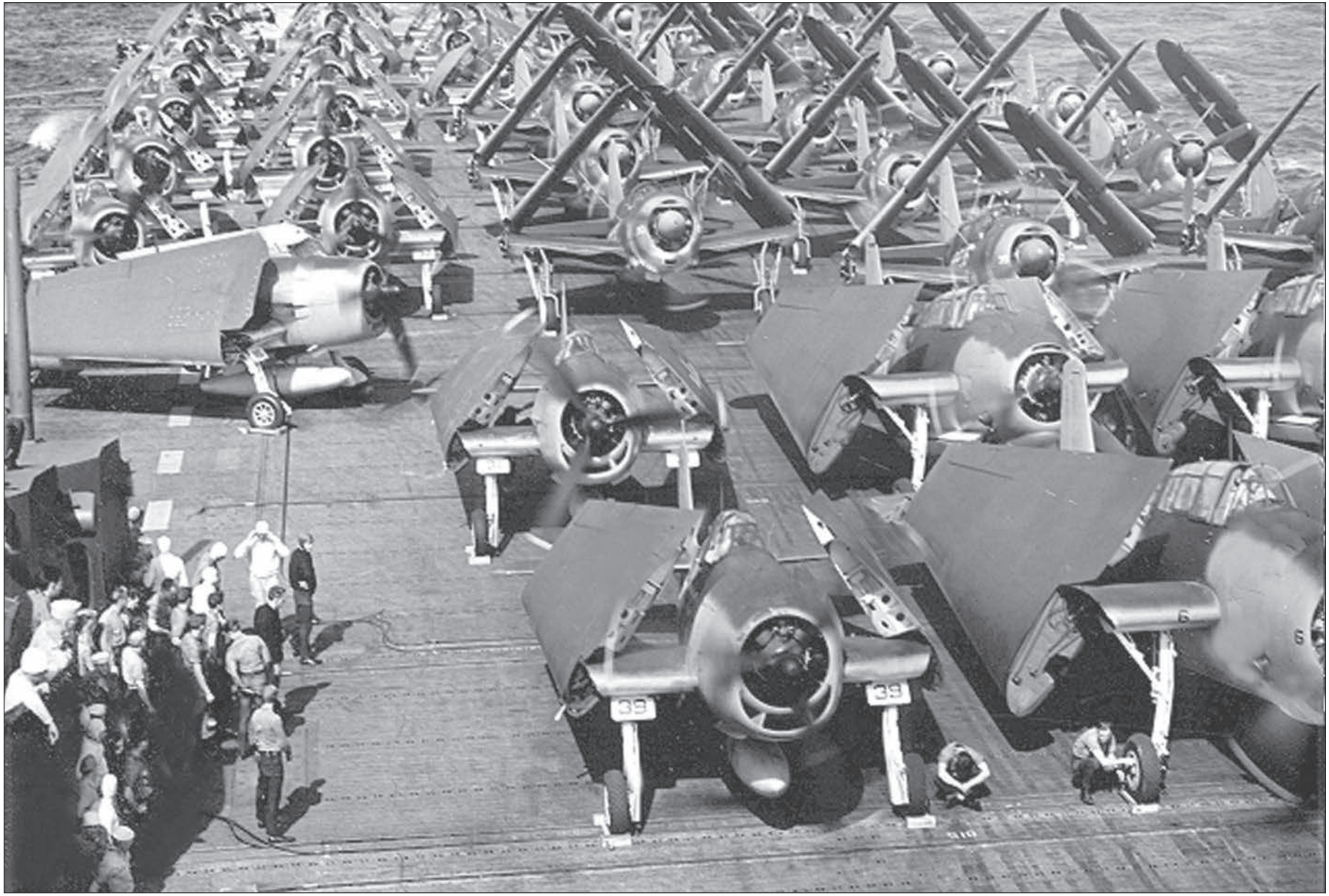
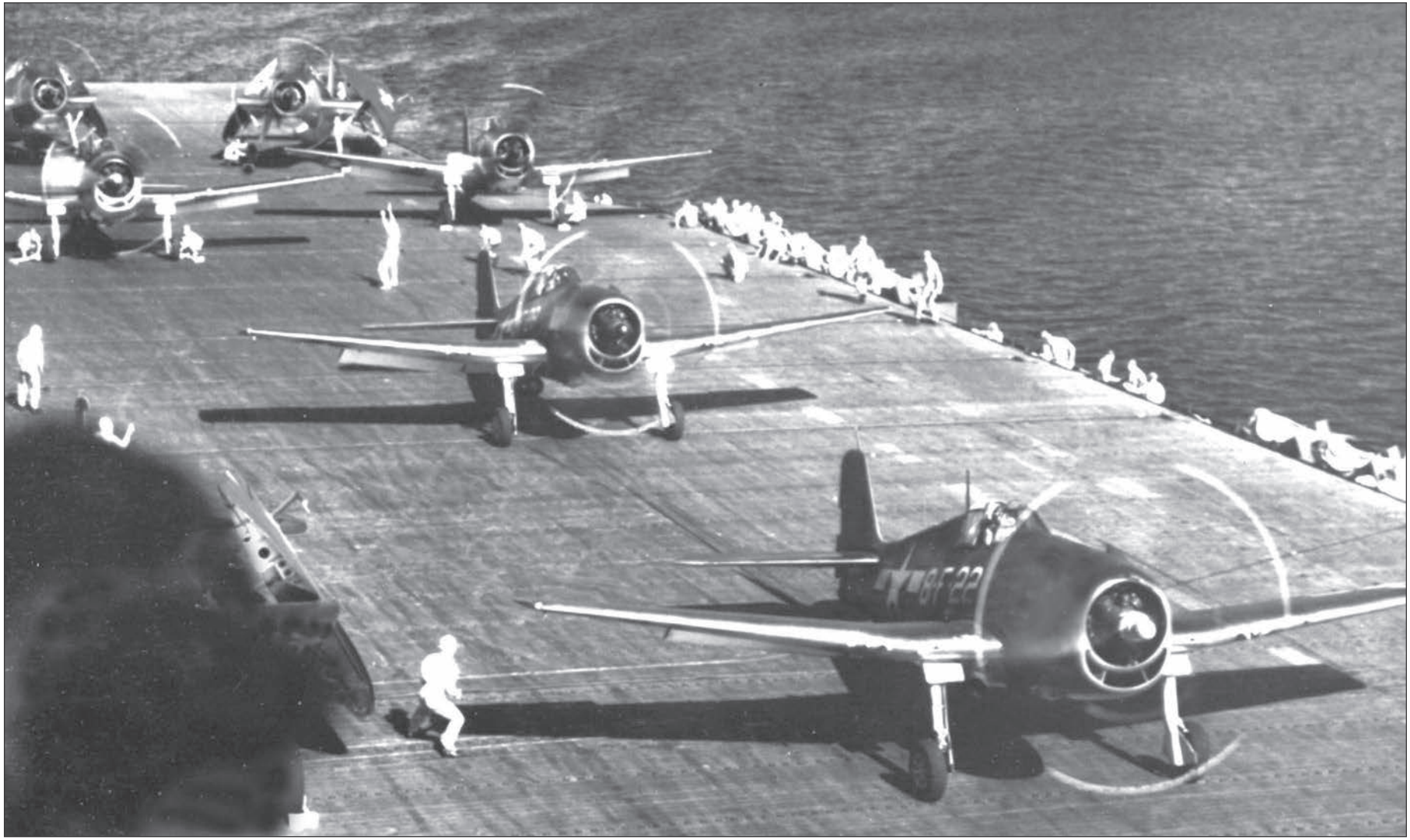


ALMOST FINISHED

Notice in the picture that each "unpacked" aircraft has an aircraft-director (yellow-shirt) in control. The pilot takes his directions from a director at all times. Thus the aircraft is passed along up to the take-off point. But before the aircraft can taxi forward, an Airdale has to pull the wheelchock. On the Antietam, since we were a training ship with a complement of 100 aircraft, the flight deck was packed full of aircraft at the start of flight operations. So most always, unlike the pictures in this book, the SB2C's and TBF/M's were parked with 10-12 feet between adjacent propeller tips, and the F6F's and the F4U's were parked with just 6-8 feet between their adjacent propeller-tips. Using the 6-foot number, there were only 2 feet from each shoulder and a propeller tip as an Airdale walked between two parked aircraft. The Airdale now had to make that "trip" between and among those parked aircraft to find an unmanned wheelchock. Once he did that, he stayed there until that aircraft was directed to taxi forward. The Airdale pulled the wheelchock and walked along side the aircraft all the way until the aircraft reached the take-off point on the flight deck. He then left the wheelchock at the side of the flight deck and returned to the still chocked aircraft to repeat the process. A simpleminded process, yes, but not a simple thing to do: this was not a placid, static, noiseless scene as portrayed in the picture. In reality, it was a "volcanic" environment. Pictures can only hint at the sound and the fury that is an integral part of these pictures. So let's start the process as the Airdale confronts the "roaring masses" of aircraft just awaiting his approach. For starters, there was a constant 35-mph wind over the front of the flight deck during flight operations, as well as the pitching, rolling, heaving deck under foot. Now there were three factors involved: there was the noise to tolerate, the wind to negotiate, and the propellers to avoid. The noise of a 2,000-hp to 2,800-hp unmuffled engine was a deep, guttural, shattering "physical" presence, and if you didn't like noise, it was fearful. The hurricane-force wind, among the aircraft, was like a giant hand moving you to where you didn't want to go. And the propellers, well, they seemed to be everywhere, and everywhere close. It was a formidable specter, those two huge 13-foot diameter propellers, perhaps only 6 feet apart, spinning furiously and menacingly right in front of you. They were even more so because they were merely a blur, and you couldn't know precisely how far they extended. You used as a key the position of the wheels to mark the extent of the propellers. But if you concentrated on just one wheel as you approached, you'd tend to drift toward the other adjacent wheel, toward eternity. SO, look straight ahead, brace yourself, stay loose but not too loose, don't give in to the noise, and proceed forward. Just remember (how could you forget?) that you have only one chance to do it right. ("But hey, it's just another day at the office".) Once past the propellers, you instinctively crouch down, staying close to the deck. If you have to crawl, you crawl, and KEEP YOUR WITS ABOUT YOU. You'll probably have to grab hold of the cleats in the deck so as not to let the propwash push you toward and into the ferociously spinning prop in front of you, not but a few feet away. Now you have to find an unoccupied wheelchock. If you're lucky, there's one right in front of you. If your unlucky, you'll have to negotiate your way under the aircraft to get to the next column of aircraft, and hope for an unmanned wheelchock. This maneuver was more difficult because you were now DIRECTLY in front of the propeller with only an aircraft's tail section between you and that propeller. (The propwash of the aircraft (A) that you were under was forcing you toward the prop of the aircraft directly behind that aircraft (A).) Now, those cleats in the deck were definitely your salvation from death and destruction. Fight the winds, fight your fears, fight to stay alive, and somehow "claw" your way to a wheelchock and "safety". I have no reservations in saying that, to put it mildly, I never did get over the trepidation that accompanied this process. Fortunately, this will never have to be done again.



REV 'EM UP AND MOVE 'EM OUT

Those lean, mean fighting machines that were the Corsairs are moving up to their launching position. The reason they were called lean and mean was because, in the latter stages of the war, and after, they could carry a 5,000-lb bomb load (not shown here). It was an impressive sight, and to be sure, their range was certainly curtailed. Speaking of "range", notice the "range" of those propellers. What can be easily seen in the picture was only a mere blur in the real world. This made things more problematic when they and you were moving about on the flight deck during flight operations (both launching and parking). Also, here again, that white object underneath the Corsair is an auxiliary gasoline tank. There are many that have said that the F4U Corsair was the best fighter aircraft of the war. I'll leave that argument to the experts. But it certainly looked like the best fighter. You can see multiple bombs and rockets under its wings. Here again, the Corsairs are placed to the rear of the flight, contrary to our practice of having them up front. But then, maybe this ship didn't carry SB2Cs and TBF/Ms. Actually this might be the Korean War. It looks like perhaps those are AD-Skyraiders back aft to the right. Again, I'll leave that to the experts. But the F4U Corsair was "all airplane," especially those, which we had on board later on, with 2,800hp engines. Note the elevator's outline on the flight deck.

(cont. from p. 288) DIVISION. The same mechanism is used to divide two variables if the inputs are assigned to X and Z with the output being Y, so (X/Z=Y). Moving on, we'll consider DIFFERENTIATION. There are several quantities in the fire control geometric problem that make use of rates of change (elevation, bearing, train, and the like). Differentiation is the process of finding rates of change of one variable (elevation, etc.) versus another variable. Here in the fire control problem one of those variables is almost exclusively the variable of "time", thus the rate of change of elevation is dE/dt where "d" represents a very small increment. One interpretation of the derivative: (cont.)

The Carrier War in the Pacific, continued from page 288.

your imminent demise accomplished in a swift, fiery explosion. "What is it to be? How is it to be?" Is one so fascinated, so mesmerized by this so slow performance that such thoughts are but afterthoughts about which to later regale? No, entranced or not, this is not the game that appeals. Try telling otherwise to the approximately 6,000 seamen killed or missing in the Battle of Okinawa when 36 ships were sunk and 368 were damaged, many seriously. One such was the U.S.S. Franklin (CV-13). A Japanese aircraft swooped in low over the bow of the Franklin and dropped two 500-pound bombs over the flight deck. It so happened that this was a worst case scenario: the after part of the flight deck was full of aircraft all fueled and armed with bombs. One Japanese bomb exploded on the hanger deck and the other on the massed aircraft on the flight deck. As they are wont to say, "Death and destruction followed!" The bombs in the aircraft exploded to toss men and machines skyward as the spilled high octane gasoline fed the fires to an inferno.

Those who survived the initial blasts tried valiantly to control the fires but continuous detonations served only to make the sit-

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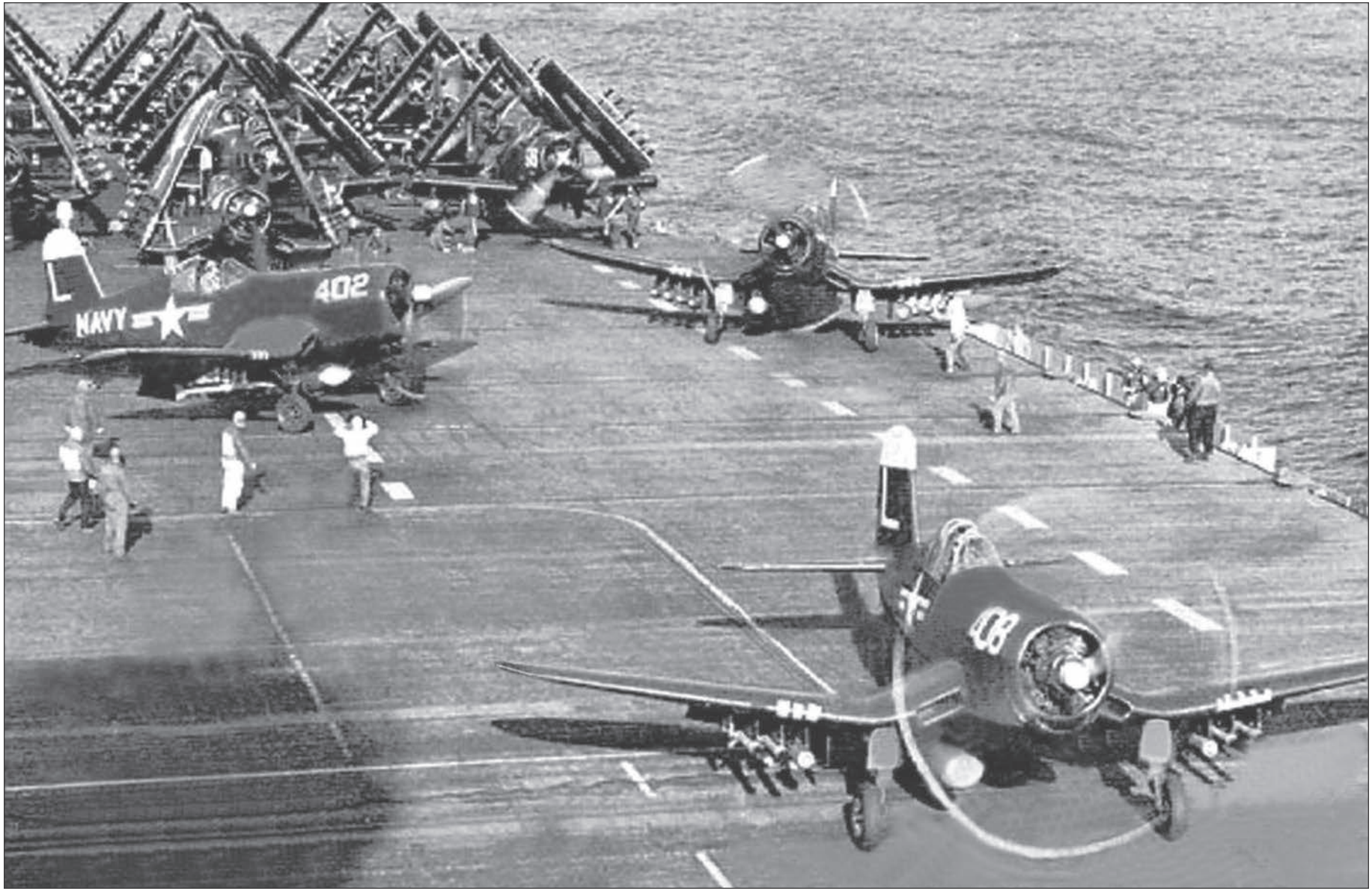
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HELLDIVERS BRING UP THE REAR

It's the SB2C's time now. The yellow-shirts have control of the front SB2C, the one in the first row, far right, and the front row, second from the left. When I say control, I mean that the pilot is watching that controller (yellow-shirt) and following his hand-signals. For the SB2C in front, the hand-signals will be "apply some break pressure to the right wheel and give it some throttle." This will wheel the SB2C to its right. When he gets to the centerline, he'll apply some left-brake which will place it on the centerline and facing straight ahead. A yellow-shirt, when he controls an aircraft, "always" has his arms in the air so the pilot has no questions. The yellow-shirt makes a fist if he wants the brakes applied, and pulls his open hand in consecutive motions toward himself to indicate "release that brake." Thus does the yellow-shirt control the aircraft.

Consider a graph of the motion of elevation using x-t cartesian coordinates. At any point on the graph place a tangent line. The slope of this line is the derivative: A small change of elevation "x" for a small change of time "t". To find the derivative use is made of a "differential", very similar to the differential in a car. (See page 284 for a partial description of a differential gear). The differentiator modifies that description on page 284 to include a 4-set of gears attached inside the ring gear. Think of a car differential with an input drive axle and two driven wheel axles: One input and two outputs. The FC differential rearranges the inputs and outputs to obtain the derivative Z=dE/dt. When you think of derivatives, think rate of change of one variable against another variable. The "reverse" of differentiation is INTEGRATION. Reconsider the graph of motion described above. The integral here is the area under the curve between two points t1 and t2. It in effect is the summation of all the many, many very, very small rectangles consisting (cont.)

The Carrier War in the Pacific, continued from previous page.

uation worse. It was touch and go but finally a modicum of order was restored. The result was 724 killed and missing and 260 wounded, some irreparably. .The ship survived but was out of the war permanently. No Essex-class carrier was ever sunk but some, such as the the Bunker Hill (CV-17), Hornet (CV-12) and Intrepid (CV-11) were sorely damaged. Yes, this was truly "The Fleet That Came To Stay" off the shores of Okinawa, the last futile stand of the infamous kamikazes. One form of kamikaze not mentioned because it was not all that effective, but still lethal, was the Oka,. This was essentially a large torpedo that was piloted by a pilot who took it all the way to its target. It consisted of 4,500 pounds of high explosives. It was taken to the area of the target by a bomber and then released, to be controlled in a dive of 600 mph. The numbers were limited but its result was monstrous. Books have been written about this unusual brand of warrior that defies the understanding of all rational people (but to them though it was perfectly rational). Thus we'll take leave of Okinawa to discuss briefly the final phase of the "Carrier War". During the last half of June 1945 and all of July the fast carrier fleet carried

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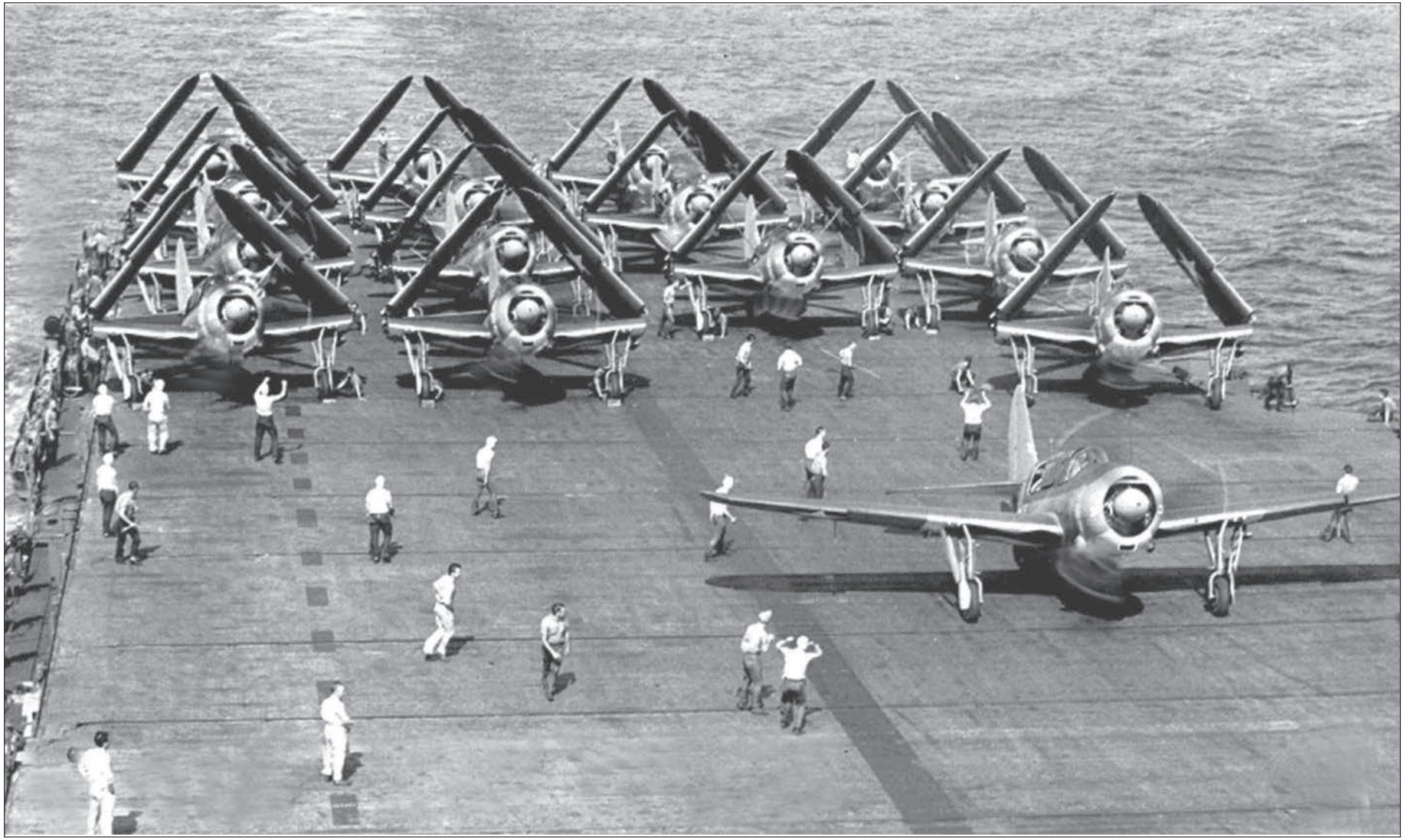

NOW THE HELLDIVERS

The last F6F Hellcat is on its way up forward, and now it's the Helldiver's turn (four of the Helldivers must be down on the hanger-deck). This ship seems to have a fair number of yellow-shirts, both commissioned and non-commissioned. It's my recollection that on the Antietam we had maybe as many as ten non-commissioned yellow-shirts, and five commissioned yellow-shirts. But I have to say that that's only an educated guess. I believe that we also had as many as 45 blue-shirted Airdales. In any event, there was always work to be done, and we "always" seemed to keep busy (if pushing an aircraft can be called "busy"). The Airdale, being at the bottom of the totem pole, never had to show much in the way of initiative, i.e., "command decisions." But he did know what had to be done, and when he saw these things that had to be done, he did them (as long as they didn't counter the "command decisions.") A prime example of this was going to a wheelchock during launch operations. No one ever said, "go pull a wheelchock." The Airdale just did it. The wheelchocks were there to be pulled, it was his job to pull them, and so he just did it. There was no discussion about who was going to do it, there was no discussion of when to do it, there was no discussion of how to do it, there was no discussion at all. The aircraft had to taxi forward, and there'd be no taxiing unless and until those wheelchocks were pulled. This was the Airdales' job, so he just did it. In a way it was like taking distasteful medicine: just do it and get it over with, without any kind of fuss. As a matter of fact, it soon became a mere routine, but a routine that always kept you on the edge, a razor-edge of anxiety that was internalized. I can absolutely guarantee to you that there was never even a hint of bravado on the flight deck. That was a constant, while the methods of getting to a wheelchock was the variable.

of x1 times t1, etc., etc. The FC computer generates the integral by means of a flat steel plate on which is placed two steel balls in contact with each other and held in a carriage. One ball is in contact with the steel plate and the other is in contact with a steel bar that is rolled by (cont.)

The Carrier War in the Pacific, continued from previous page.

out raids on the Japanese home-islands. The resistance was diminishing progressively, with a sudden strike by Japanese land aircraft. Even the surface fleet approached to deliver gun-fire on coastal targets but the opposition was brief for the most part. In early August two atomic bombs were dropped on two large Japanese cities with devastating effect. The war was essentially over. Its outcome was in reality ordained, given the fact that the U.S. forces were resolute in their efforts (and they were, thanks in large measure, to the resolve of the young sailors and soldiers and marines and airmen; there were many, many more of them than there were of the older officers in the "field". In a way, this was a young man's war (aren't they all?); I must say that all pilots, navy and army, those brave warriors, were officers in their mid-twenties; of course there were men in combatant roles in their twenties but almost every one who turned 18 was inducted into the service; I would be remiss if I omitted men of all ages who manned the ships that plied the Atlantic to deliver the war materiel to Europe: if a ship was sunk and one found himself in the water he would likely be dead in five minutes; I'll finish these parenthetical remarks by saying

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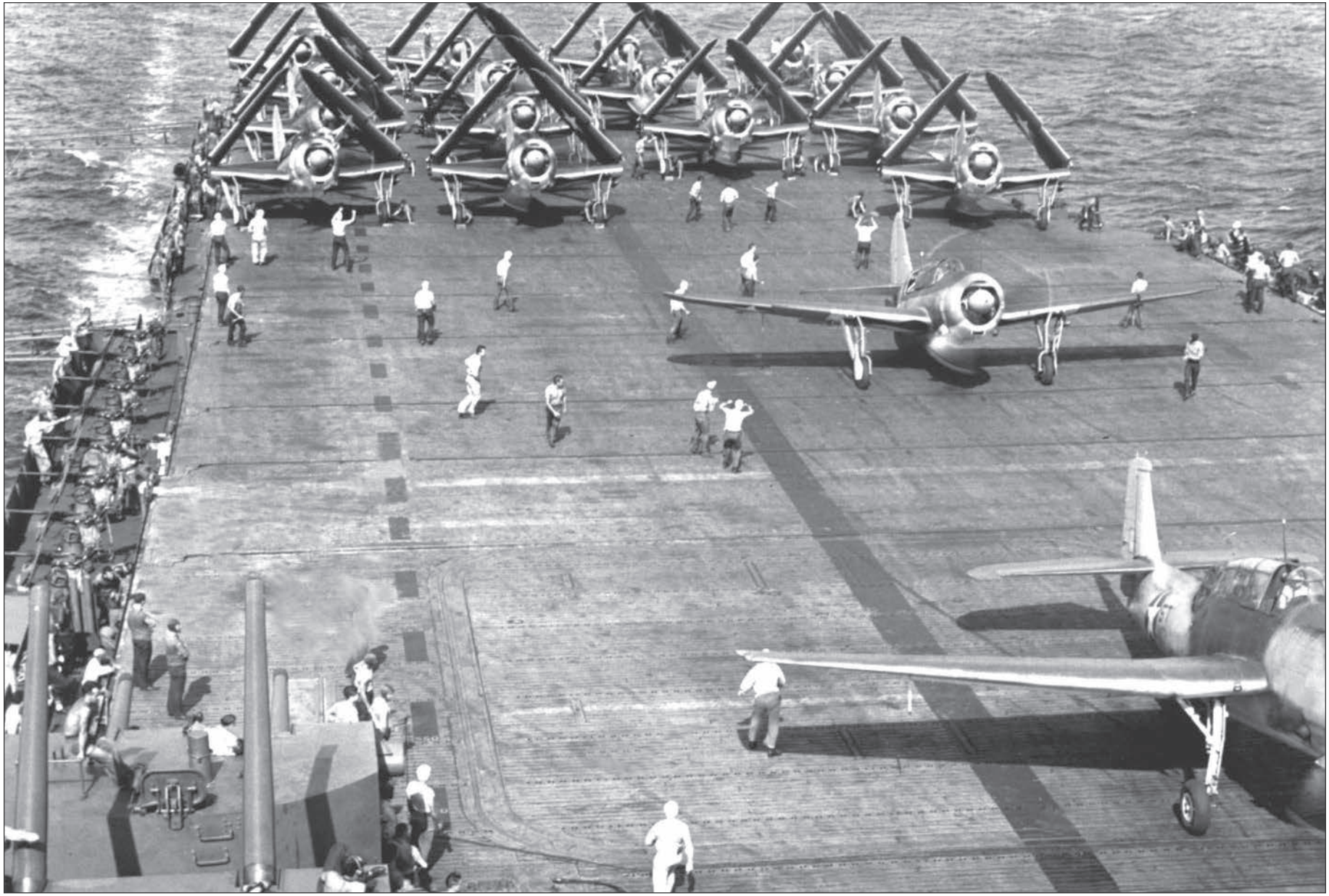

HELLCAT ON DECK

I like the view in this picture because it puts you down at flight deck level. It makes one feel more a participant than an observer. It also shows how the bridges (Admiral's, Captain's, Air Boss', and Signal) overhang the flight deck. The launch operations haven't started as yet, as witness the yellow shirt's hands in his back pockets, and the lack of commissioned officer yellow-shirts (they wear kaiki pants, not the blue dungarees). Perhaps the ship has not as yet turned with the wind, or perhaps the engines have not yet warmed up long enough. When the aircraft go to full throttle during this warm-up time, the noise is ear-shattering. The sound-waves generated by the engine, and the prop-wash generated by the propeller are, I must tell you, meting out a full measure of physical punishment to that Airdale next to the aircraft's left wheel. The Airdale on the right has backed off to preserve some semblance of composure.

the top ball. As the steel plate is rotated at a constant speed to represent "time" an input variable, say rate of change of elevation, moves the carriage holding the two balls. The bottom ball moves from the center of the plate to the circumference of the plate. As it does so the further from the center it is moved the faster it in turn rotates. This faster rotation is imparted to the top ball which in turn rotates a steel bar, which rotation represents the integral of the elevation rate times the time, i.e., the distance. [distance =integral of dE/dT]. In all of this, the generated values must be transmitted to various other parts of the FC system. These values are converted to mechanical rotations which in turn operate what is called a SYNCHROS (formerly, selsyns). In simple terms a synchro is merely an electrical transformer with a rotating primary coil of wire. The input physically turns the primary (cont.)

The Carrier War in the Pacific, continued from previous page.

that there were all kinds of dedicated people in the the military who performed difficult jobs well, but I can't help but say that the youngest of them all bore a large measure of the brunt of war). It was a long and arduous "slough", the carrier air war. As said, it was a forgone conclusion, this war with Japan, because as much as outcomes depend on the resolve of the combatants, the Japanese were much too vulnerable. They were an island nation woefully dependent on outside resources which were at the jeopardy of being cut off by naval actions. As is the wont of modern warfare it was also a war dependent on productive capacity and capability. Here the U.S. was predominate with most of its resources "home-grown". The battle of industry was heavily in the American's favor. We are a large country protected by two large oceans with a large and competent work-force. As Yamamoto said at the beginning of the war, we'll run rampart for the first six months but we will have awakened a sleeping giant. One must wonder at the audacity of the Japanese High Command in even contemplating their rash Pearl Harbor action. Many, many paid dearly for this war and to what avail? Those who participate in war

(Continued on next page)

MORE HELLDIVERS

The plane-captain on the wing of the plane at the left is about to remove the brace supporting the wing. There's someone on the other side ready to do the same thing. The other SB2Cs need the same attention. Various of the aircraft already have Airdales at their wheels. Apparently, only the front SB2Cs are going to be launched since they're the only ones under power. This is not a packed deck; there's a lot of space between the aircraft. Note the Airdale at the center bottom of the picture, with his shirt being blown upward. He no doubt is going back into that array of aircraft to get to a wheelchock. The SB2C, front right, apparently is having trouble starting its engine. If this persists, a group of Airdales will push it to the deckedge elevator, where it'll go to be repaired on the hanger deck. Looking further back, there are others also not "fired up." "What goes on here?" Maybe it's only going to be a small flight. All I know is that the Antietam never had small flights. You can't train very well if you do that.

the input physically turns the primary within the secondary thus generating an electrical signal in the secondary which in turn is transmitted to another location in the FC system (recall that all the aforementioned devices convert their outputs to a mechanical form; this is after all a mechanical computer). Tables of values, such as a trigonometric table, can be represented by a CAM. A cam is a metal plate shaped in a very specific form so that each part of its outside curve represents a specific value. A "pointer" rests against this outside curve. As the cam is physically turned the "pointer" moves in coincidence, thus generating an electrical signal that can be transmitted by a synchro to other units in the FC computer. [It has been shown that trigonometric functions are an integral part of resolving the geometric FC problem (a problem that involves life and death consequences). One final component of the FC Computer Mk 1 must be briefly considered. (cont.)

The Carrier War in the Pacific, continued from previous page.

know that yes, "War is death and destruction". Tread very, very carefully here. [War machines pump up employment and technology, but at what price? And yet, and yet, there are apparently always "the bad guys" out there. I said I wouldn't discuss politics in this book and I have regrettably gone back on my word. Please excuse this excursion even if this is also a book about war-making. I'll finish this by saying that of course war is a serious business but not enough people consider it as such.] As a brief retrospective started some pages back, the "Big Picture" is as follows: after the disaster of Pearl Harbor, the carriers mustered what they could offer at the Battle of Coral Sea during early May 1942.

Following closely after was the pivotal Battle of Midway in early June 1942. Then it was not until early June of 1944 that the Americans, with 15 large carriers and 1,000 aircraft, engaged in the biggest battle of all, the Battle of the Philippine Sea. Soon after during the following October of 1944 the fleet supported the landings in the Philippine Islands in the Battle of Letye Gulf. It wasn't until February of 1945 that the Americans assaulted the island of Iwo Jima and next, in April-June of 1945 the battle for

(Continued on next page)

HELLCATS IN FRONT OF AVENGERS

Some aircraft have fired up their engines, others are trying to. It isn't often that a plane can't get fired up, because when they land, they get repairs right away, if needed. If they can't be fixed on time, they're not put on the flight deck. The mechanics do much of their work at night so that the aircraft are ready to go the next day. The Airdale at the wheel of the F6F, front left, looks like this plane's a dud. He should be going to another one, if so. It's hard to tell if this is merely a truncated flight, or if aircraft have already been launched. I'd say the latter, but with so many non-fired-up aircraft, maybe it's the former case. That there could be so many dud-engines is hard to believe. "On the Antietam," we never had such a situation.

The FC system is made up basically of the Computer Mk1, the radar/director, the 5-inch gun, the stable element, the pitometer (ship speed) and other elements. The gun mount as well as the radar/director must be turns at the behest of generated signals from the Computer Mk1. This is done by a system called a "servomechanism". An outline of this system is shown on page 522. From this diagram one can note that the input is accomplished by a handcrank. In the FC System this signal is derived automatically from a synchro signal from the Computer Mk1. In the diagram the synchro differential accepts the desired input from the Computer Mk1 (handcrank) and the fed back signal from the output (the actual output). These two signals are resolved to obtain the error signal (the difference between the desired and actual signals). This error signal in turn is applied to an integrating electrical network to modify the error signal in such a way as to diminish the effects of overshoot (page 524). (cont.)

The Carrier War in the Pacific, continued from previous page.

Okinawa ensued. (it so happened that the Antietam (CV-36) made its appearance in the Pacific that month of April but not in the Okinawa area, to my knowledge; we believed that our initiation to battle would occur during the upcoming softening up and landings on the Japanese home-islands but that never came to pass as hostilities ended in August 1945 when WWII was finally over; even though the Antietam was named after the bloodiest day in American history we were spared a similar fate, to our relief). So it was that the fast carriers played an important part in a conflict that encompassed the world in a way that must never be repeated, at our everlasting peril. It has been said that that generation was "the greatest generation". This is hyperbole based on a set of circumstances that "found" that generation. Woe be us if succeeding generations would not do the same as that generation: our history assures us that they will indeed.

Strangely and unfortunately, there are those who feel "cheated" in that they were "denied their war". Thus they were not "allowed" to display their "manliness". How does one feel sorry for their "plight"? Obviously, one does not, even though their "toy"

(Continued on next page)

AVENGERS IN BACK OF HELLCATS

This side of the flight deck looks OK, although the aircraft in the front row, second from the right seems to be having trouble cranking it up. A yellow-shirt is about to take control of the plane at the far right, and the other two aircraft have yellow-shirts getting in position to take control. The yellow-shirts have decided ahead of time which plane is brought forward first, which second, etc. They (the yellow-shirts) have a display-board cutout of the flight deck, with scaled cutouts of each plane on board. This model of the flight deck is about six feet in length, and is in a compartment in the island structure, just off of the flight deck. As the aircraft on the flight deck are moved around, so too are the cutout aircraft placed on the flight deck cutout. Thus they know where each aircraft is, what its condition is, and what the Air Boss wants done. So before launch-time, the yellow-shirts have everything planned out so that things proceed smoothly.

[In later control systems the error signal is modified: Apply the error signal to a differentiator to decrease oscillation (overshoot) of the output, then apply the error signal to a proportional gain term to increase the speed of response of the output and finally apply the error to an integrator to increase the accuracy of the output. These are the Big Three of any servomechanism (control system): Stability, Speed of Response and Accuracy.] In the diagram there is an amplifier to boost the voltage of the error signal to have sufficient power to move the heavy gun mount and radar/director as fast as possible. Note also that the friction F and Inertia J that have to be overcome first. [Servos (now called control systems) are found throughout industry today. For smaller systems they can move a load in milliseconds to positions with micro accuracy and essentially no overshoot. Think of "populating" a circuit board with dozens of micro chips in fractions of a second. Modern production lines would be impossible without these control systems.] (cont.)

The Carrier War in the Pacific, continued from previous page.

was taken away from them. There are those others who mumble about the employment, strong economy, technological advances and so on, seemingly without a realistic concept of the monstrousness of war (death and destruction being only a part of it). [As an editorial aside, just what is this, this thing called "manliness"? Very briefly, wrap your thoughts around this: some serious insight would lead one to realize that true manliness can be found in the traits of a man who truly loves a woman. Furthermore, look to the exploits of those mythical warriors of old, the Knights of the Round Table, they who dedicated their lives to upholding the right and defending the weak as well as promoting chivalry. Less mythical and somewhat apropos, are the Samurai, those fearless Japanese warriors of old who devoted themselves and their lives to uphold among other things the defense of the defenseless, not unlike the Knights of the Round Table. Think on it: a man who acts as a shield for a woman fulfills his role as a man, and by inference, is manly (physical strength or no notwithstanding (with apologies to those women who feel capable of fending for themselves against despicable predators)].

(Continued on next page)

STAY IN LINE

This is a good example of each aircraft being under the control of a yellow-shirt. These yellow-shirts are enlisted personnel, about twenty-five years old, and all of them are "petty officers." This means that they are rated, such as Radioman First Class (if in the Communications Division). Most of them are Chief Petty Officers, the highest enlisted rating. There's then a divide, starting with various grades of Warrant Officer, who stands between the enlisted personnel and the commissioned officers, who in turn start with Ensign. This picture doesn't impart the dynamics of the action going on. These aircraft are not standing in place very long. Recall that what's required is a launch every 20 seconds. This in turn means that all the yellow-shirts are working as a team. No individualism here. If it were so, there'd be accidents. Accidents did occur, but not during the launch process, for the most part. As was mentioned in the previous page, the launch process was well mapped out ahead of time, and the yellow-shirts acted as a team. For the Airdales, it was pretty much each man to himself. There were things to do, and you did them. No one ever, ever said, "go pull that wheelchock." You knew what had to be done, and you did it.

The last section to be discussed is the RADAR/DIRECTOR. This unit tracks the target and simultaneously delivers the following data to the Computer Mk1: Target Range and Bearing, Estimated Target Course and Speed, Spots (visual shell bursts), Target Elevation, Estimated Target Rate of Climb, and receives from the Computer Mk1 the Predicted Changes in Target Bearing and Elevation as it also receives Cross-Level (ship's pitch) from the Stable Element. However, first things first: A search radar, which covers a rather large segment of air space, must find and detect aircraft. By means of IFF (Friend or Foe) it sorts friends from foes and "paints" this data on the CIC (Combat Information Center) search radar console (screen). *(cont. p.398)*

The Carrier War in the Pacific, continued from previous page.

So who am I, a noncombatant who never felt the wrath of war, to say that war is monstrous? Yes, pictures are woefully inadequate. Consider a violent blast that rends and burns sentient beings who, not yet dead, suffer the pain as death (slowly) overtakes them. Those who glorify war, and you know who you are, most probably never experienced the grotesque manifestations of war. Those who glorify the utterance, "We who are about to die salute you", are playing the fool's game (even while acknowledging that war has validity, but only "in extremis" where self-defense requires it). Unfortunately there are too many of those "arm-chair generals" in our midst to not be vigilant to their siren-call. There are those few who say that war brings out the best in human character and while there is truth to this assumption, it too is playing the fools' game. Courage, bravery, honor, commitment, valor, dedication, fortitude, selflessness are all part of war, but these attributes have no need of war to allow them to flourish. Gosh, you could find them on the football field. Yes.

QUIET BEFORE THE STORM

There's a gross world of difference between this benign picture and the real environ of up to 100 large military aircraft crammed onto a 2.2 acre narrow flight deck platform surrounded by the sea 50 feet down below. Instead, the rolling and pitching and heaving flight deck at launch-time is a fearsome place indeed: A threatening, moving "labyrinth" full of constant thunderous, abominable noise accompanied by thrashing winds from here and there all punctuated by those malevolent slashing 13 foot blades, sometimes seen, sometimes not. From all this apparent chaos comes order because intelligent minds made it so (while irrational minds perpetuate the misery of chaos: An irrational mind is one such that a mere dwarf would kick the shins of an irascible giant.) If (apparent) chaos seems to engulf you and the world appears as if it were crumbling around you, go to your inner strength, that bulwark we all should have: Genuine, earned self-esteem. This might be called "self-leadership". A true leader leads by example and its your charge, through time, to build up this self-esteem (which incidentally is your "firewall" against deleterious peer-pressure, including among other things prematurely "sharing yourself" physically). "If I were king" I would require everyone to accumulate a suitable level of self-esteem because then, I believe, there would be little or no antisocial behavior and people would relate to other people based on others' character traits and conduct (comportment). [Personality is "icing on the cake".] Race, ethnicity, groupings, etc., etc. would then be permanently moot. As to self-esteem, it's available to one and all: Develop and acquire a skill in something, anything. The more skills the better and the better the skill the better. [More difficult skills count higher.] Self-confidence is not the same as self-esteem: The former might become overbearing while the latter would never be so. The former might be uncaring while such would never be a part of the latter's psyche. Think on this.

An interesting situation, this: Only one aircraft is fired up. Why aren't the others? The capacity to be interested in ideas and events is at once both precious to oneself and the betterment of society. It's not without reason to understand that a genuine interest in subjects is the sine qua non, the very essence, of our learning. What can be more satisfying than learning and adding to one's understanding of the things of life. Of equal importance, students will not only learn were interest prevails but also I dare say the requirement for money in this enterprise of learning is of comparatively little significance in determining a students acquisition of knowledge. As is said, where there's a will there's a way. The combination of a students interest and a family's support is pure gold. (As an aside I find nothing so interesting and fascinating as watching a complicated conglomeration of machinery functioning untended while doing useful work. The ingenuity displayed is, yes, thrilling.) Too often it seems that "we" take too much for granted: all the generated bounty is "just there". The groceries, the tap water, the electric outlets, the panoply of things that make our lives fit for a king. We should cultivate an awe for these things we take for granted. (As a corollary, there can be no real democracy without an accurately informed populace.) Implied in all this is the requirement for periods of quiet reflection in which one comes to separate fact from fiction. Proper discernment can only be an acquired capability which does require diligent effort, an effort which is pleasing to those who relish knowledge in its best sense. It is the perceptive ones who learn by close listening. Be observant and alert to the world around you. You'll enjoy it. It requires effort but it is well worth the while. Learning is good for you. It will serve you well and genuine interest will make it so.

ONE CAUTIOUS, ONE CASUAL

This is the same picture as the preceding one, shifted to the right a little. The cautious one can be seen, in a semi-crouch, in front of the SB2C whose engine has not been fired up yet, while the SB2C to his left has just been powered up, and is generating a fair amount of propwash (his engine is not yet at full RPM). This Airdale has to be concerned about when the SB2C to his right is going to start its engine. It's poor "protocol" to move close in front of an aircraft during flight operations, unless YOU CAN'T HELP IT. Now the casual one, the one with his hand on his hip, is also in the propwash. Pretty soon that propwash is going to become serious, and his attitude, both mental and physical, is going to change. But maybe he was an "old hand" and he wanted to project that image. When that man-made hurricane shortly comes to full force, images count for little, I can vouch for that. I believe it was a matter of becoming mentally accommodating to the environment of the flight deck during launch time that was the key to survival. One had to somehow reach a level of confidence that made navigating that assemblage of aircraft an act with a certain modicum of assurance. In truth, though, that level of confidence could never be reached …..as well it should not have been. There was no such thing as acquiring a "comfort-level", and there could be no such thing as nonchalance on the flight deck during flight operations.

The Airdale always is responsible for doing his job without being told. We never had a time when we fell into ranks before a flight operation. We were responsible for our actions at all times (being there).Without responsibility I believe we would have no viable society. Responsibility ranges from doing your daily chores to those who build bridges that stand up to time. Thus there are varying degrees of responsibility with the heaviest burden being on those whose work bears on the life of others such as structural engineers and doctors and nurses. It is their knowledge and skill and dedication which makes them the zenith of responsibility. These are the critical responsibilities and yet all responsibilities bear on the social welfare. The highest responsibility lays with those who are involved with the life and limb of others while others, such as teachers, are little less morally obliged. Responsibility can be said to be the very fabric of a society that functions properly. We all have responsibilities to those both near and far: thus, we depend on others at all times. A case in point is something as mundane, but NOT simple, as the grocery store and everything that precedes it. We blithely shop for food with nary a thought to all the many things that must be accomplished before those groceries reach the shelves. Stop for a minute and consider ALL that must transpire before you place a can of food in the basket (this should be an instructive exercise). We ALL depend on one another in hundreds of ways. We wouldn't be able to survive without this interdependence (even while independence is a condition to be sorely desired).

"START ENGINES"

The U.S.S. Antietam (CV-36), being a training ship, always had a full complement of 100 aircraft on board. We had 30 F4Us and 30 F6Fs fighters, as well as 20 each of SB2C and TBM/F bombers. This meant that for launch operations the flight deck was tightly packed, with some of the aircraft ready to be lifted from the hanger deck (there being so many on the flight deck). They could be lifted from any of the three elevators. The forward elevator usually wasn't used for launch operations because it was too far forward of the catapults. The forward elevator was used to take aircraft down below after having landed aboard during landing operations. "Tightly packed" means that aircraft, with wings folded, were almost touching, wing to wing. Thus, the distance between the tips of the propellers of adjacent aircraft was very often only 10 feet, or less, allowing precious little room for transiting between and amongst the aircraft during flight operations. That 10-foot number was the most nettlesome one with which an Airdale had to contend. (That, and the 6 to 12 inches that pertained during the parking operation.) I can't remember that I ever got used to those numbers, even after a period of a year of being an Airdale. In truth though, I never had an ACTUAL close call. You get a knack for understanding the vagaries of wind velocities and the ship's motions. Also, you get a second sense about what aircraft are where, and which one is going to move next and in which direction. In short, you learn acute awareness without even realizing it. We never did have an accident due to the carelessness of an Airdale. So again, "All's well that ends well". Notice the Airdale, or rather probably the brown-shirted plane captain, at the middle right. He has his arm in the air to indicate to the pilot that the propeller-area is all clear and that he can safely start his engine. By the same token, he himself isn't that far away from the propeller of the TBF/M that's in back of him. This is no place to be careless. And again, the Antietam never mixed F6Fs and TBF/Ms together.

One must soon develop the confidence to go into that array of "angry" aircraft or else suffer the pangs of lowered self-esteem. Yes, we all know the troublesome aspects of a flagging self-confidence, whether it be not doing well in school or on the playing field or even on that "playing field" called a flight deck. Its deemed correct to say that those with EARNED self-esteem and self-respect can be called key to an effective and felicitous society for who has ever heard of such people knowingly doing harm to anyone? Those with true self-esteem are the glue that maintains a civil society. Also, calling someone a victim is a sure way of inhibiting his desire to better himself and gaining that golden state of self-confidence and self-assurance and self-reliance, the basis of self-esteem. If young people had more than a dollop of self-esteem they would be immune to the blandishments of those who do stupid and harmful things (to themselves and to others). In addition, one could define self-esteem by saying that it is the direct opposite of jealousy and even treachery, two of the ugliest and corrosive words in the English language. [Strangely, jealousy could be ameliorative, but only if that jealousy encourages one to improve oneself vis-à-vis the one "admired". Is it true that hate can be close to love?] I believe one must "grow up" to overcome the vileness of jealousy.


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15
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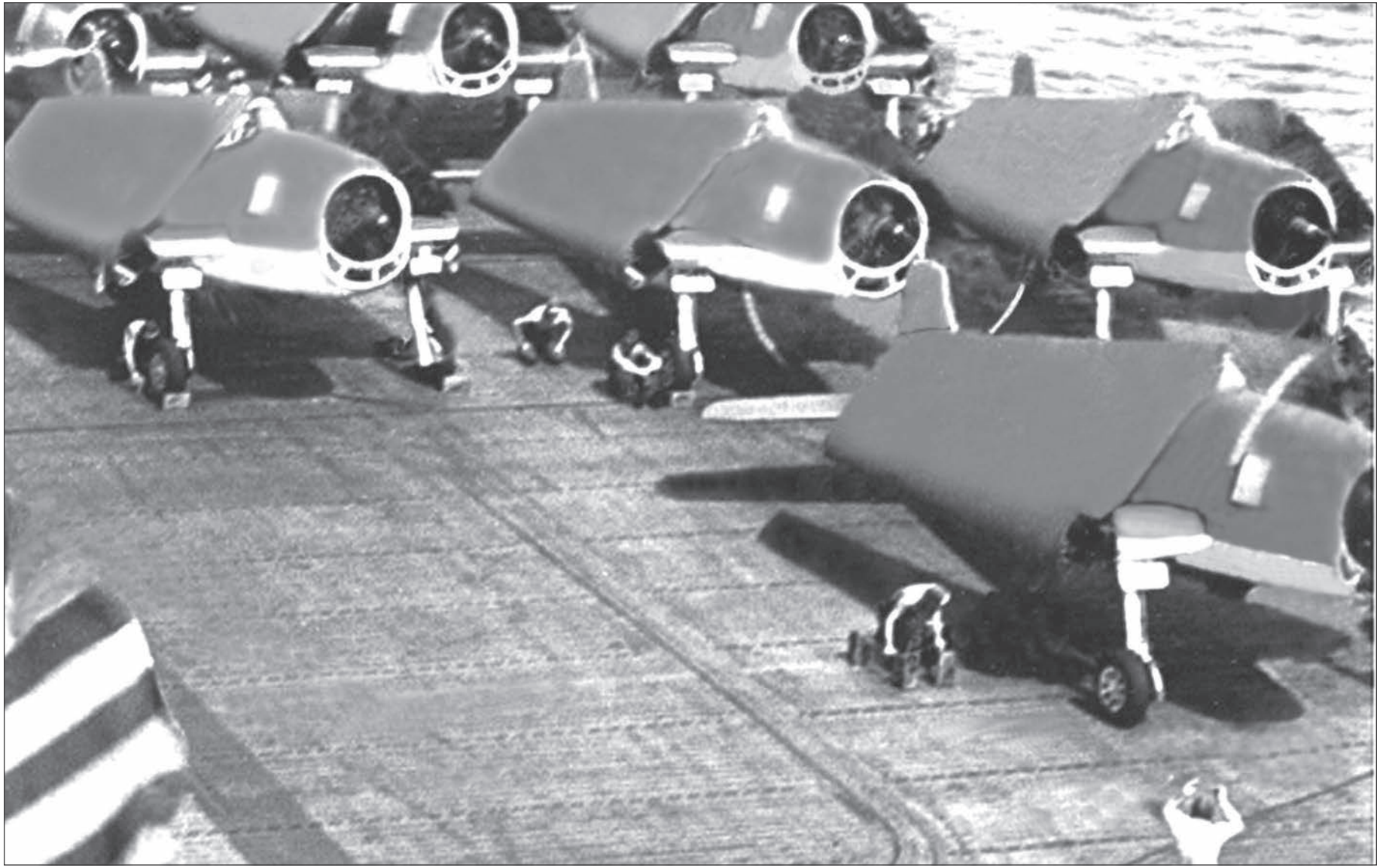
HEADS UP, YOU'RE NEXT

These F6Fs have obviously been warming up for some time, as witness the Airdale, in the center, sitting by a wheel. However, the F6F to the right is now being brought out, to go to the launch-point. The yellow-shirt is giving the pilot the "come forward" motion with his arms, and the Airdale has removed the wheelchock. Why he has two wheelchocks I don't know, unless he took it upon himself to get the one from the other wheel also. I wish I could impress on the reader the feelings of being in the grip of a huge hand as the propwash "grabs" you, along with the horrendous noise as the plane revs up so as to move forward. It isn't as if you put your foot on the car accelerator and you move. Instead, the propeller has to be given a few moments in order for it to "take hold" of the air so as to pull itself forward. This requires maximum rpm, i.e., maximum power, and so maximum power is required because an aircraft has to be launched every 20 seconds. Notice the arresting-wire pulled back from the elevator. This is done so that the elevator can be used to bring other aircraft, already warming up, to the flight deck. Getting back to Airdales, he would like to face toward the back so as to avoid the propwash in his face. If he did that he wouldn't be able to see when the yellow-shirt wanted to bring his aircraft out and into the column of those waiting to launch.

"Be honest, were you scared? At times, certainly yes."
Honesty need not be self-incriminating or to one's detriment.
Honestly taking the blame is ameliorative.
Absolutely honesty with oneself is restorative, and important!.
Honesty should seek to improve.
Honesty should never be used to diminish others (if possible).
Honesty honestly concerns the integrity of one's thoughts and feelings while
Truth represents verifiable facts.
Honesty should be comprehensive, not selective.
Honesty essentially should be concerned with substantive things.
Honesty is the bane of doubt.
Honesty is the badge of honor.
Honesty should be transparent.
Honesty promotes understanding.
Honesty breeds honesty.
Honesty moderates anxiety which is the antithesis of happiness.
Honesty is THE basis of friendship
Honesty represents a generous spirit.
Honesty breeds trust without which there can be no love.



SPREADING WINGS

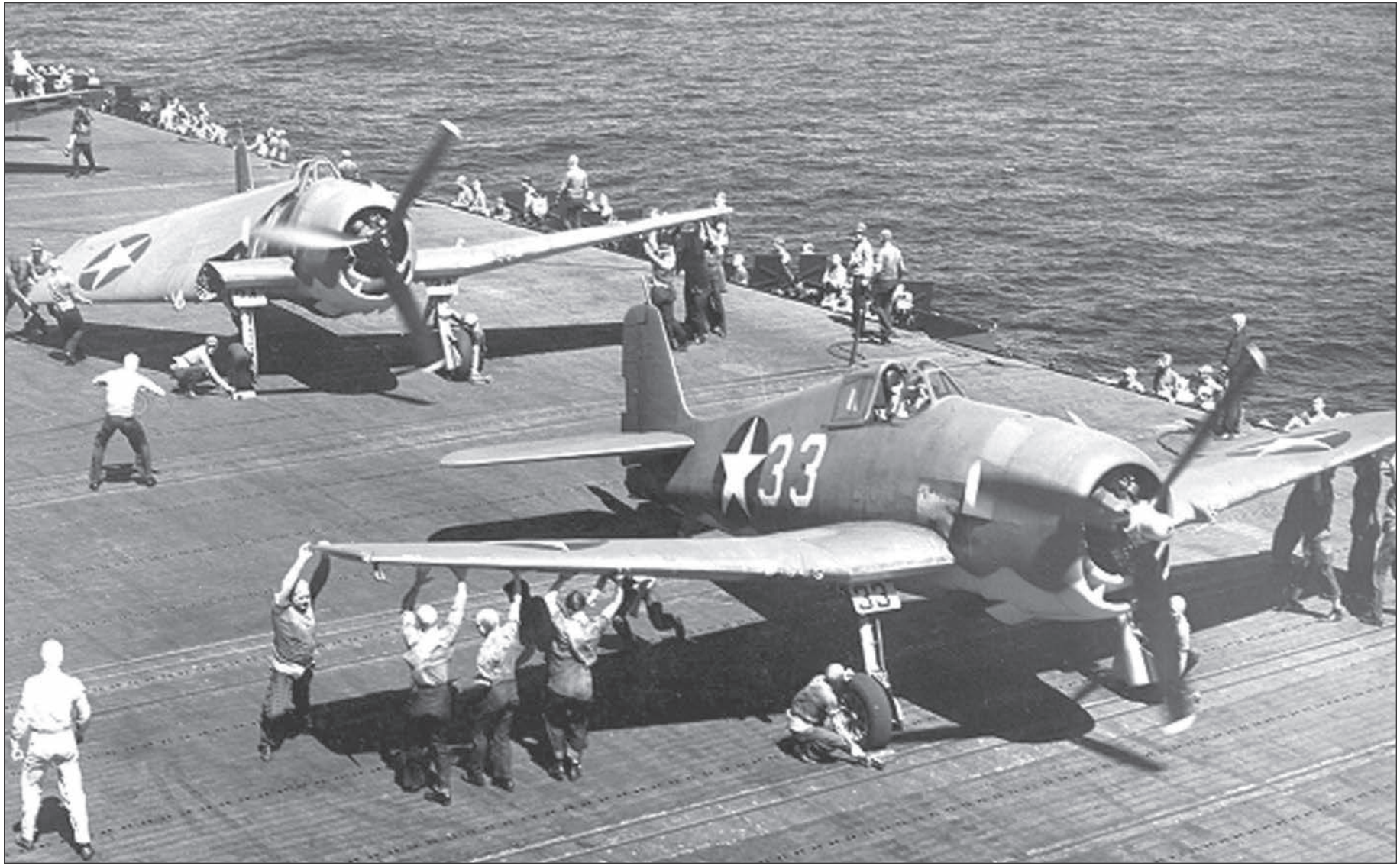
Here the Airdales are helping the F6F unfold its wings. Until this is accomplished, the Airdale keeps the wheelchocks in place. Notice that the propeller is turning slowly, so there's not that much power available to operate the hydraulics to unfold the wings. I don't know why, but it was only the F6F that required that we do this. The yellow-shirt, arms outstretched, is telling the Airdales to pull the wheelchocks from the wheels. In all my time on the flight deck, I never saw any vestiges of ego by anyone. Ego was never a factor, never a consideration. If there was something that had to be done, the closest person did it, right away. It was never "Well I did that the last time, now it's someone else's turn." In effect (and in practice), it was always your turn and you didn't give it a second thought. It wasn't so much a team doing teamwork, but rather individuals doing things that represented teamwork. If it was clear that something had to be done, it was done by the closest person, and no one had to say a word. To be candid, this unspoken "teamwork" was in fact an unspoken satisfaction.

"All together now, let's spread his wings else he won't go anywhere". The more the enthusiasm the better the result (which is obvious here). However, what if it's not obvious? Then one must rely on commitment to accomplish the job, particularly if the job is odious and/or onerous. (There were times when an Airdale's requirements were just that, odious and onerous. These are the times when commitment has to become a virtue, a virtual part of your very psyche. In a way this commitment was programmed into your very mindset in which the result obscured the means of accomplishing that which had to be done. I've said it before and I'll say it again: No aircraft would ever leave the flight deck unless and until an Airdale pulled that wheelchock.) Often times the process of getting a job done requires a level of determination not normally present in day-to-day activities. As compensation, though, one receives a boost of pride and its attendant feelings of satisfaction similar to the kudos, "Job well done". There seems to be a direct relationship between the difficulty of the job and the sense of satisfaction in doing that job well (this of course in no way implies that difficult jobs are the same as reckless activities; not at all). A character trait that is to be admired by all is that of fortitude, especially when it's against all odds (again, it's hoped that this fortitude is not applied to things which are foolish, I,e,. unnecessarily dangerous and without due diligence). Implied in all the above is a strong sense of discipline. We all can and should exhibit discipline in all our activities. There will be those who say that this will diminish the "free spirit". Wrong. To my way of thinking there is no conflict here and it is not an oxymoron to say a "disciplined free spirit". I rather like the phrase, and you?

READY TO MOVE FORWARD

Unfolding the wings is completed. An Airdale will now pull a latch under the wing to secure it in the locked position. This takes but a few seconds to do. At the signal from the yellow-shirt that the aircraft is to move forward, the Airdales will pull the wheelchocks and deposit them at the side of the flight deck. All these things are of course done wordlessly (as if a word could be heard). That is, no one has to tell anyone what to do. What has to be done is done. It's definitely not a case of, "Well, it's your turn now", or, "why don't you do it?". I never saw a case of anyone having to be told to pull a wheelchock, or having to be told to walk an aircraft to a parking spot, the two most dicey jobs to done. Also, Airdales quickly learn that it's always "heads up" time during launch operations and during parking operations. No one ever shouted "look out" because it would never be heard anyway. This was no place to be distracted by ulterior thoughts. Alertness was the word, unspoken teamwork was the way, and dependence on others was folly. It all worked very well, accidents or not.

The Hellcats required help in unfolding, and folding, its wings. It was "the nature of the beast". This act of providing help to those in need is ingrained in most of us (Bible-believing or not. Parenthetically, the Bible says to do unto others as you would have them do unto you. This is a perfectly fine sentiment but it does, I believe, have a caveat: What if what you want done unto you is not the same as what someone else would want done unto him? "Picky" maybe, yet not to be ignored for we must not forget the admonition that we should walk in another's moccasins a month before we judge). We are delving in the area of "rectitude" and "righteousness" now which has many pitfalls and interpretations. Just what's meant by those two words? Is my "righteousness" the same as your "righteousness"? (and visa versa). Are there such things as standards here? (I'm a strong advocate of standards, for what's an engineer sans standards? not to exclude social standards). These words imply goodness, fairness, honesty, morality and the like. Yet what can be said of those words? We all have a fairly accurate idea of those words and that's fine up until we come to interpret them. Righteous implies upright which implies straight up which implies honest It also implies good judgment and everyone understands that that is wide open to interpretation. It would seem that we should go back to the concept of establishing a basic set of standards which have passed the consensus-test (yes, in a society, consensus is a necessary if flawed necessity). So it is, be right but be careful, for you are not the only one in this world; you are but one of many "equal" others. Life can be complicated, yes, but it can also be simple if only we'd stop always thinking of ourselves. That's a drag on the rest of society (why do I always seem to return to the word "society"?)


33

WINGS SPREAD II

Again we see the F6F being "unfolded." Here, all engines are up and running, and you can be sure that the noise is deafening. Between the noise and the ferociously whirling propellers, those aircraft look very "angry." They're just straining against their "leashes" to go and do harm. Such is that thing called "war." This is a static picture, but be assured that significant things are happening here. Again, note the arresting-wine stretched around the elevator. In fact, maybe that Hellcat was just then brought up on the elevator. Even though the propellers aren't visible, one always is aware that its tip extends out to each wheel. This is a parameter that one never, ever forgets, at one's peril. That whole environment is one of slashing winds and everlasting uproar. Woe be unto you if you don't pay attention. But then, how could you NOT pay attention?!

These Airdales are helping out, as is their charge. It may be their charge but they are also helping out. We have a tradition of this in our country starting from the very origins of this nation. That is well, that is how it should be. Yet he too who is courteous can be said to do the same even if to a lesser degree. Courtesy is the lubricant that makes the world go round, and it costs absolutely nothing (unless you're such a dunderhead to think that such a thing as courtesy is beneath you and your "exalted" self; again we're confronted with self-centeredness). Courtesy is not measured in effusiveness, its measured in thoughtfulness and consideration of others. Probably excessive politeness is counterproductive (but then this is not about production unless it concerns a congenial atmosphere). Most courtesies are unpretentious and respectful of people of all stripes. A subset of courtesy is knowing the manner in which it's proffered. A "hail fellow well met" approach may well be very tasteless in another instance. If such nuances are found to be annoying and boring perhaps that's a reflection of those who are annoying and boring. We can not avoid that which is appropriate and meet if we are to call ourselves "civilized". There are those many to whom all of this is not trivial. It's no sin to be cultivated which might be news to those who are slovenly and boorish and uncouth. Again, this attention to manners does not cost anything but it is acknowledged that courtesy is a function of those who are interfacing each other. A pair of football players are not going be effete with each other (I hope). No, but "good old boys" need not be allergic to courtesy (only brutes are because they think "manliness" and courtesy are like oil and water. Hey, just use a little common sense; life has enough travails.

BUSY DECK ON THE U.S.S. ANTIETAM

This shows flight operations on the Antietam, as per the National Archives. It's a good indication of how the yellow-shirts "hand off an aircraft up the line" to the take-off point at about 400 feet from the front of the flight deck. This picture also shows how you reflexively crouch down when moving behind the propwash of an aircraft. It's an almost Pavlovian response. That there were other aircraft moving around made it even more so. So it's stay low, grab the cleats in the flight deck if necessary, stay alert and aware, and things will turn out alright. (And yet, I wonder, given my grossly unsettled state of mind, given my severely debilitated physical condition, and given the milieu in which I found myself (as in this picture), whether all these years since that time weren't meant to be, and that I've been living on borrowed time. This is just an off-the-wall, momentary, yet honest, editorial comment, of no particular import.)

This is my ship, this is the Antietam and there I am, a blue-shirt. I will now recite the Boy Scout Oath:

"On my honor (my honor, my willing commitment) I will do my best (not second best or almost my best) to do my duty (that which is expected of me) to God and country (to that to which I give my allegiance and troth (faithfulness, fidelity, loyalty)) and to obey (without editing) the Scout Law; to help (with diligence) other people at all times; to keep myself physically fit (by the sweat of my brow), mentally awake (alert and interested in the outside world) and morally straight (with no regrets for what might be)".

I have no brief for saying that my participation in the Boy Scouts was responsible for seeing me through difficult times on the Antietam but I will say that that participation did influence me over a life-time. There are those would scoff at the Scouts for being of no significance. Not so. For one thing, young people of that age can be somewhat unruly (some more than others) while the Scouts instilled at least a modicum of discipline and responsibility. This is good as most parents know. The process of earning, and I repeat, earning, merit badges is a valuable segment of the Scouts. He learns early on that earning accomplishments are salutary to one's self-esteem, if nothing else. However, to accumulate knowledge and capabilities is an added plus. I'll close by listing the Scout's Law: A scout is trustworthy, loyal, helpful, courteous, kind, obedient, cheerful, thrifty brave, clean and reverent. I have no idea as to how the order of these segments of the Law were derived, but does it matter?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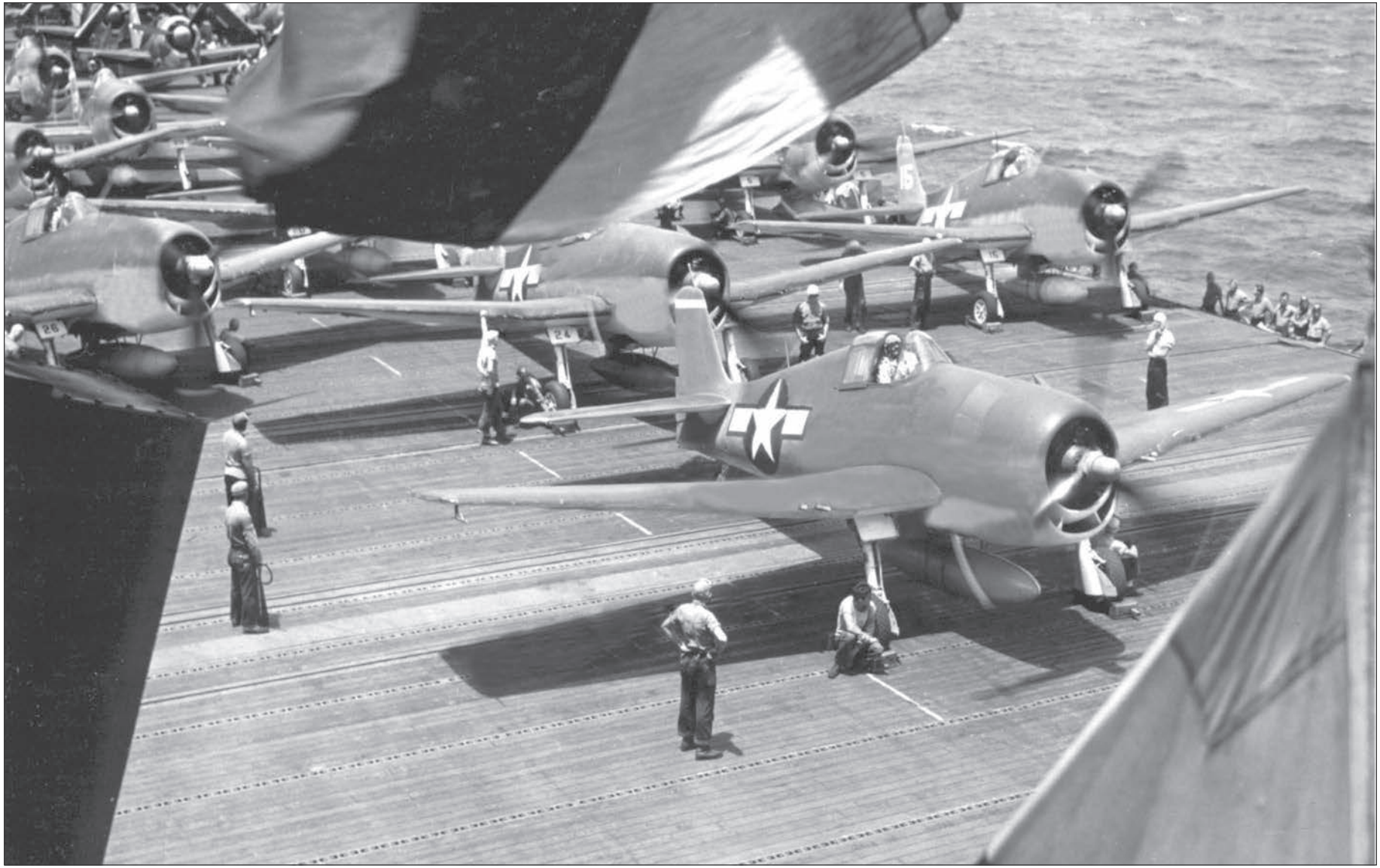
21

AWAITING LAUNCH COMMAND

The signal flags provide a partial frame for these flight operations. The two brown-shirt plane-captains on the left have fire extinguishers to put out a fire, should one occur, when an engine is started. Now that they're started, they aren't needed anymore. This is a static picture: the Air Boss isn't ready yet. Or the ship hasn't turned into the wind yet. Or, who knows? Notice the spectators on the catwalk. In a way, they were spectators at a drama that was unfolding right "in their lap." It was a daily drama: "any series of events having a vivid emotional, conflicting, or striking interest or results." Flight deck operations were certainly "a series of events," they were always "vivid" with an "emotional" content, having a "conflicting" scenario (will it go bloodless, this contest between man and machine?), and it was of "striking interest" to those involved, with the "results" hopefully benign. (That's the way it flowed out of my pen, and I think I'll leave it be as is. Free-association that flows unhindered sometimes has its place.)

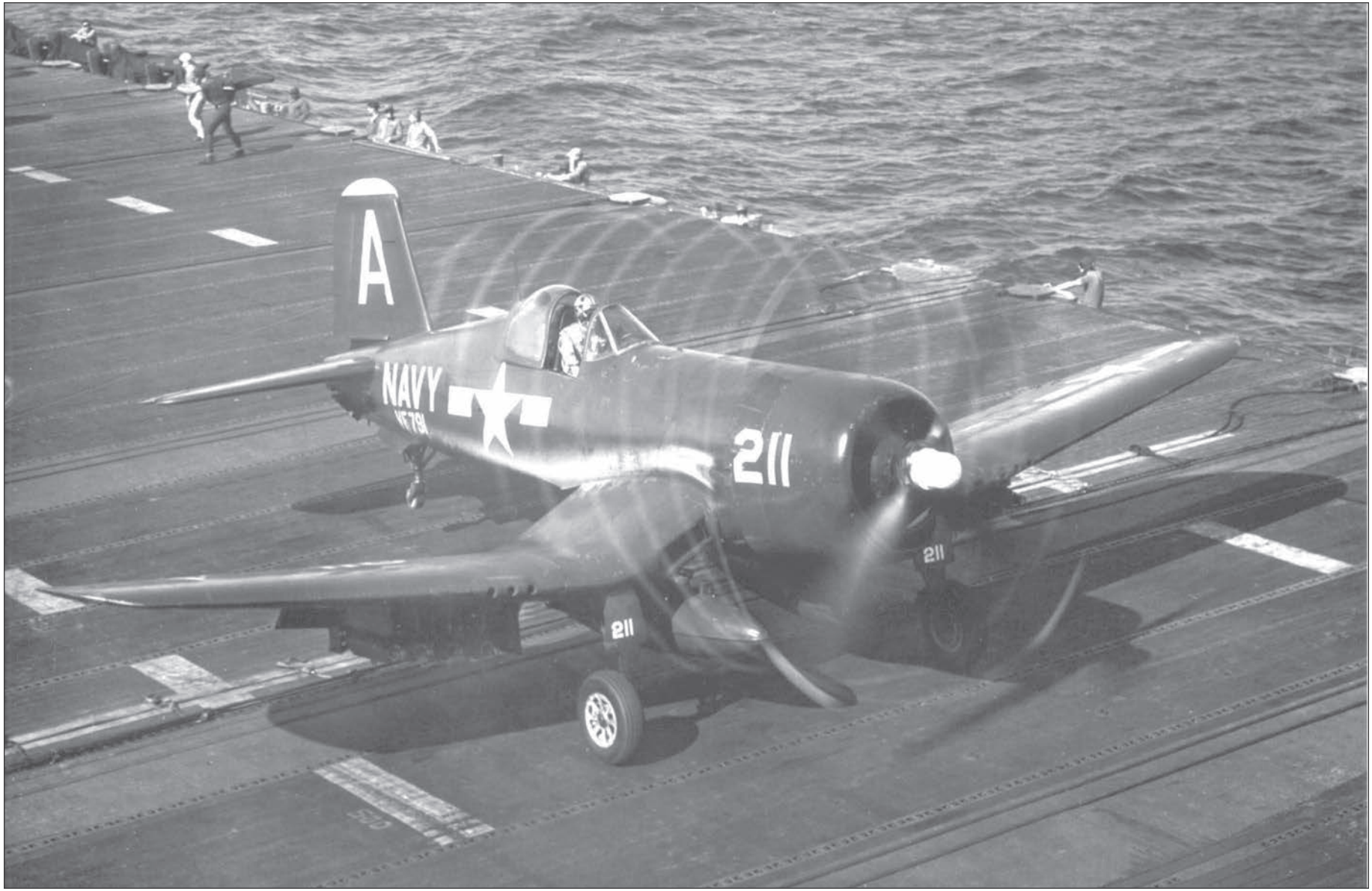
As the yellow-shirt (plane director) stands there in a waiting mode the song "Abide With Me" comes to mind. The song asks that you abide with, stay with, the one making the request. In a way it is a supplication to not be left alone, to flag a lowering morale. (This rings a bell in my mind in that I, on the other hand, had always wanted to be alone when I wasn't on deck doing Airdale things. I was a thorough loner, prompted by having had emotional problems elicited by what was happening back home. But I digress.) This picture epitomizes the feelings of "stand by me" and help me endure the tribulations of the day (and the next day and the next ……). One soon came to learn to tolerate the daily regimen simply by the sheer repetition of the task at hand. In a way it was this repetition that made day to day activities sustainable. Initially it required a hefty dose of fortitude which eventually gave way to the certitude of familiarity. I indicated above my proclivity for being alone. For one thing it was impossible to be alone on the flight deck. For another thing I was not a recluse; I would interface with the other Airdales in a matter-of-fact way even while never having become chummy with anyone. I suppose I was somewhat "foreign" but there was no problem in this: I got along fine with everyone even while there was a certain amount of camaraderie by virtue of our all doing the same thing; "we were in the same boat" both literally and figuratively. Before continuing I would like to say, and advise, that being stand-offish is not a useful thing to do. It does not make for the required cohesion that should be prevalent in enterprises such as tending to fired up aircraft. I do not recommend loner-behavior at all (being a loner). "We're all in it together" so act it together! (Grow up.)



A LEAN MEAN FIGHTING MACHINE

The Marines were the first to fly the F40 Corsair operationally (from land airfields), but in April 1944 the Corsair joined the fleet after having had the kinks worked out vis-a-vis carrier launches and especially landings. (The Corsair would be in special demand because it would be effective, with its high rate-of-climb, in combating the newly arrived Kamikazes.) The Corsair had, among other things, a defective stall-characteristic. At stall speeds the left wing would rapidly drop, causing a sudden rotation of the aircraft that was added to the ever-present torque induced by the powerful engine and large propeller-blades. Being so close to the deck, there was no recourse to the pilot, and a crash was sometimes the inevitable result. Another defect the Corsair had was a very elastic hydraulic system in the wheel-struts. This meant that if the pilot (and Corsair) were too high above the deck when he cut his engine to make a touchdown on the flight deck, the strut-mechanism would compress excessively, and then react excessively in the opposite (upward) direction. This in turn would mean that the Corsair would bounce upward too much, and sometimes so much so that it would skip over the arresting wires and into the barrier-wires, if not skip clear over the barrier. The personnel up forward would then be in jeopardy of being overrun. (See the "Landing" chapter.) As it turned out, the aforementioned kinks never were completely corrected, and so, accidents did happen. But if ever there was an aircraft that looked more like it meant business, I've yet to see it.

So here it is, that lean, mean fighting machine! One could say it's just the opposite of what is called benevolence, that condition without which society would suffer. It implies good-will, even kindliness and bonhomie and generosity. Who can argue with all that? No one, up to a point and that point is when a benefactor does so much that the one benefited becomes dependent, "hooked" if you will just as if he were on an addictive drug. Would you not say that this is a terrible thing to do to someone? There has to be a demarcation between a helping hand and an unremitting handout. It is not a kindness to generate dependency. Good heavens, was this country created by those who were unwilling to roll up their sleeves, make some sweat and do for themselves? Having said that, and it had to be said, the situation in a complex society such as ours does not always provide for opportunities to earn a decent wage even for the most enterprising of us. If jobs are not available what is a body to do? Thus I say again from previous segments the most crucial requirement of all is the creation of viable, decent jobs. This is much easier said than done. It would seem to be self-evident that conditions must be created to encourage and facilitate the entrepreneurs who generate the jobs which allow others to earn a decent living as well as spend their money so that others can also have a decent living. I've been very facile here, I know, and yet we cannot be complacent. Those who have good jobs tend to be complacent about such things. Now, after having said I' eschew the soap-box, I will silently steal away.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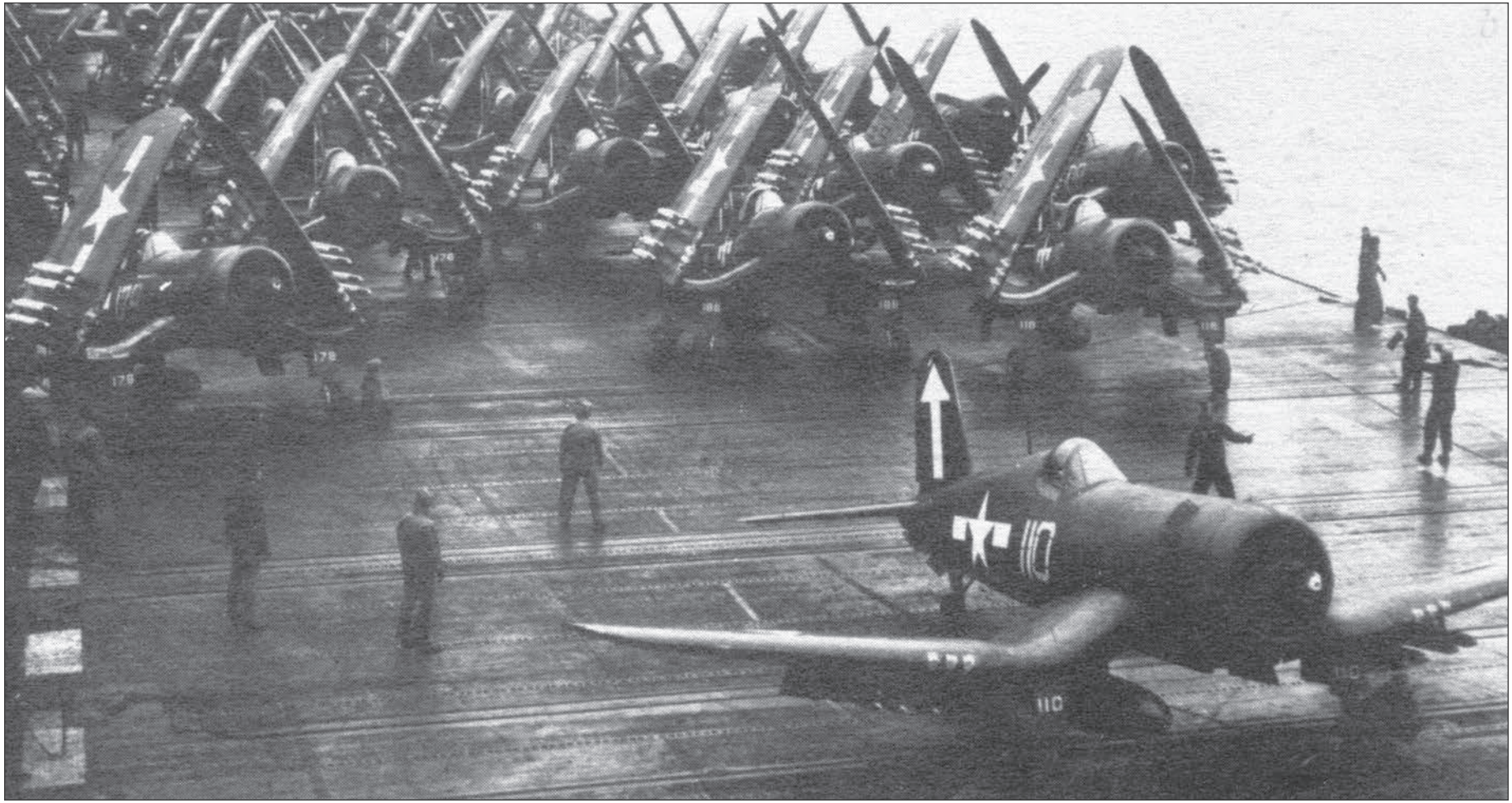
IN THE GLOOM OF DAY

This picture depicts well the epitome that best represents the fear and trepidation, and yes, at times, the sheer, unadulterated terror that directly imposed itself on and gnawed at one's very psyche, many times a day, day after day. Here, the deck is still slick from the rain, no friend of the Airdale. It was bad enough to have had to have withstood the literal brute-force winds of a deckload of aircraft revving up full blast without having had to contend with the unsure footing of a slippery deck. As you approached that phalanx of aircraft to get to a wheelchock, they took on the depressing look of huge malevolent creatures that seemed to take on a life of their own, ready, willing, and able to do you grievous harm. They looked mean, they sounded angry, and they were, well, overwhelming. Getting to a wheelchock in that horde of aircraft was the ultimate confrontation between dutiful volition and serious intimidation. Conjure, if you will, being in the middle of a violent hurricane, on an unstable platform, with the incessantly shattering engine noise that muddles your mind, all the while trying to avoid those furiously spinning, 13-foot propellers that are only yards away, then but feet away from you. You want to go this way while an invisible, "irresistible" force wants you to go that way, a way which often would lead to certain oblivion. Perhaps it was merely a veneer of fortitude covering a basic fear that was one's sustainer. However, as long as one was well aware of the fundamental parameters of getting to a wheelchock, it then became simply a matter of wrapping that fear in doing what was right, thereby becoming "confident" that all would be well. In any event, it was also a matter of "this is my job to do, so this is what I will do". And maybe, just maybe, it was simply a quiet expression of manifesting one's self-regard, one's self-respect, one's self-esteem. These are, after all, things of primary significance and importance to anyone wanting to be "one's own man". (Let it be said, here and now, that dare-deviltry was, and is now, absolute anathema to me, not to mention, just plain dumb and stupid.) Finally, let's be frank: an Airdale's mindset was certainly that of survival, wheelchock or no, and the very essence of an Airdale's nightmare can be encapsulated in this one picture. Maybe too much has been made of this so-called "sojourn unto death", but there it is, it's but "yours is but to do and …" Nothing more, nothing less."

Here this image reeks of dark gloom and attendant pessimism. Yet if one is to be of an optimistic nature, what is one to do here? Again, one cam be as optimistic (and happy) as one DECIDES to be. One could reason that there is always dark before the dawn. Even while being absolutely honest with yourself (a must) you can CHOOSE to ignore those things that you can't change while changing those things that you can change Here's where self honesty (wisdom) comes into play: What is changeable and what is not? As well, it's counterproductive to assign victim-hood to yourself, and those who promote the idea of victim-hood should be ashamed (do people feel ashamed nowadays? IF not, why not?). To tell someone that he's a victim is tantamount to putting him in a cell. In effect you wring out all his God-given sense of self and his ambition to improve himself. You aid and abet the sapping of his initiative. "I'm a victim and so I deserve to be taken care of". Thus society has another person who will not get out of the wagon to help push the wagon. I can assure the reader that there was never an instance when an Airdale looked at those aircraft and said, "Let someone else do it". If nothing else self-pride would not permit it.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READY TO LAUNCH

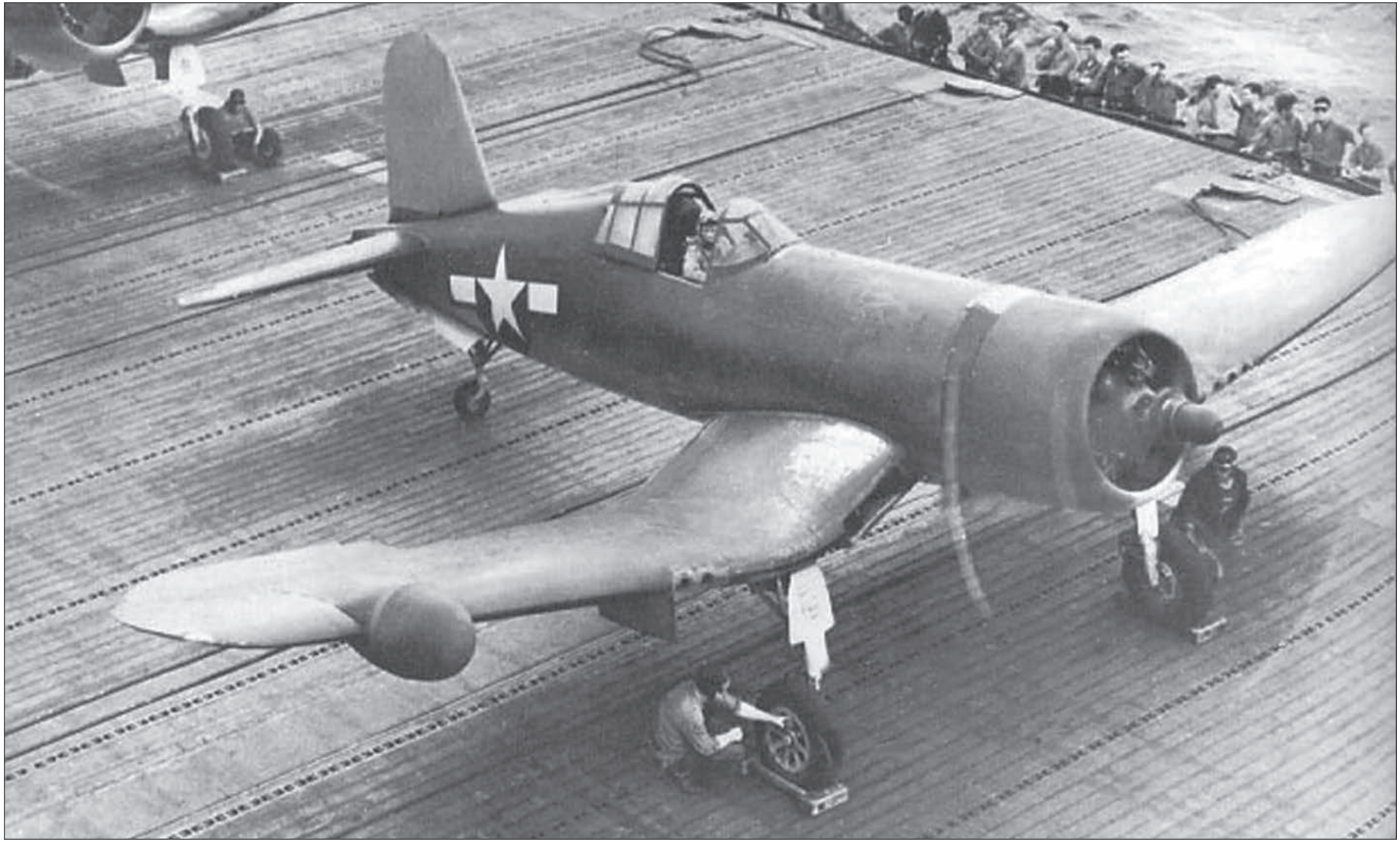
Another quiescent time. Why, I don't know. But it does provide a good view of the Corsairs, as attended by the Airdales, biding their time. The pods in the wings are some kind of radar, and it was used by the night-fighters. That's all I know about that. Those spectators in the catwalk weren't there during landing operations. Not allowed. Notice the tail-wheel swivel, making possible abrupt turns when wheeling about on the flight deck. The question has been posed: how many men were there in this "fraternity" of Airdales? The following discussion will account for the genre that served on ships that had propeller aircraft whose wings folded. This essentially covers the period from 1943 to 1948, only five years. There were 24 Essex-class carriers (CV), 8 Independence-class carriers (CVL), and 70 escort carriers (CVE). The CVs had about 45 Airdales, while the CVLs had about 30, and the CVEs about 20 Airdales. This gives rough figures of 1080 (CVs), 240 (CVLs), and about 1400 (CVEs), totaling 2720 Airdales. Now double this number to account for turnovers, etc. and the figure is about 5500 Airdales who served from 1943 to 1948. (Using the parameters as found in "A Heritage of Wings (1997)," pages 166-167: in 1945 there were 17 CVs, 8 CVLs, and 71 CVEs. In 1947 there were 3 CVBs, 8 CVs, 2 CVLs, and 7 CVEs.) There will never be such a genre again, EVER. (Keep in mind that this group, these Airdales, were "just the guy next door", and they were as unprepared for this job as anyone who had just walked in off the street. There was nothing special about him except the fact that he did his job, and he did it well.) Notice the Airdale at the second Corsair, its right side. He's sitting back, apparently relaxed. My own personal mode at a wheelchock was almost exactly like the Airdale at the first Corsair, holding onto the spokes of the wheel, and keeping a sharp lookout for the yellow-shirts. I was the "new boy on the block", while he was probably "an old salt". My approach developed holes in the knees of my dungarees (not blue jeans), because I used my knees for this purpose all the time.

The ship doesn't seem to be heading into the wind as yet: We need a 30-knot wind over the bow of the ship to provide enough wind-speed to give the aircraft sufficient lift. Shortly the Air Officer will give the white-flag Go" signal. A difference of even a few knots of wind-speed can be significant. This is also true in life: If we aren't able to differentiate between right and wrong, good and bad, smart and ignorant, refined and crude, kind and cruel, consideration and bullying, curiosity and dullness, open-mindedness and bias, honor and deceit, responsibility and egoism, humor and sarcasm, accountability and undependability, moderation and excess, obligation and self-centeredness, prudence and recklessness, restraint and hedonism, then we'll have difficulties. It's a skill to be able to differentiate between these polarities, to distinguish and discern the differences at all levels. Sometimes the choices are not so stark and it is here that we separate "the men from the boys". We could even go so far as to discuss what is often considered as being supercilious: What are the nuances involved in a situation? To be able to differentiate is also to be able to filter fact from fallacy. To discern these differences "in real time" provides one with an invaluable tool. With time, these capabilities thankfully become somewhat automatic. Time will tell.

HOLD ON

This Airdale, at the right wheel, is doing exactly what I did: holding onto the wheel as the pilot revs up the engine to full power in preparation for launch. This is a trivial undertaking certainly, this holding on, but when the noise that's generated by a 2,800-hp unmuffled engine is factored in, it becomes less trivial, by a large factor. The wind generated by the propeller is fierce, but this too is tolerable under these conditions: you're low, you're holding onto something substantial, and you know it won't last more than 5-10 minutes at the most (?). Some people tolerate windblast fairly well, while others (motorcyclists) relish it. Then there are those others of us who merely endure it. But in the situation pictured here, it's the noise that reaches such a crescendo that a certain disorientation occurs. "Only the noise exists", and everything else is blocked out. This can be dangerous, in the extreme. (But it's true, again, there are those who relish loudness, for some peculiar reason.) It's a depressing noise, it's a punishing noise, it's an ugly noise. It's a noise with no merit except to say " I have the power to soar skyward". This is good for the pilot, bad for the Airdale, especially when it gets to the point where one's thought-processes are actually and literally dominated by that all-encompassing, palpable noise. Even though that Airdale looks impassive and composed, chances are that he's agitated and under significant duress, mixed in with a certain amount of unknown expectations: after all, that's a big, powerful "live" machine he's next to.

That Airdale at the right wheel has exactly the same position that I took each and every time I manned a wheelchock. One becomes comfortable (or at least relatively comfortable) when doing what is familiar to you from repetition.. This speaks well of learning to such an extent that you can perform "on automatic pilot" thus leaving your mind free and unmolested to assimilate what is around you. How can I make clear how important it is to be observant? This is a prime way of learning, even if it is just "street smarts". Learning, thankfully, is a never ending process, be it book learning or "worldly" learning. Observe things, observe people, observe nature, observe your feelings and reactions (this is not egoism), observe other peoples' actions and responses. The world can be a smorgasbord of things that capture your fancy. Be interested in solid things, things of substance; be alive. Would that the students would have such an attitude. As they are wont to say, without a genuine interest in a particular subject that subject will languish on the vine of strangeness. I will almost guarantee that if one has a genuine interest in a given subject that subject will be learned and will remain learned. This is not surprising because with such an attitude the process of learning becomes an enjoyment. One of the great enjoyments of my life has been immersing myself in the study of electronics and electrical engineering. I didn't have any demonstrable accomplishments but I have the pure pleasure of devoting myself to that subject. Would that others would have similar experiences. It doesn't beat falling love, but it's close!



COORDINATION NEEDED HERE

The next two pictures are parts of a larger picture. These two pictures give a good rendition of flight deck activity during "Flight Quarters." The yellow-shirts controlling the aircraft, the Airdales hunkered down, the aircraft moving out and forward, wheeling about right or left, packed aircraft row on row, strong, buffeting wind, and that infernal noise that engines combine to make. One of the yellow-shirts, to the left, is going in front of that Hellcat that's warming up. He's probably protected somewhat from the wind on that side, but he better be careful because the wind on the flight deck has a way of being intermittent: from not much, to a strong blast. If the latter, while you're in front of such an aircraft (warming up), it could be a real problem. That's something the Airdale must learn: avoid problems.

To be sure an Airdale has ingrained in his basic instincts a fundamental respect for those flashing blades all about him. Respect should be ubiquitous. That is, everyone should respect everyone. This respect should transcend apparent stations of others in life, high or low. It should dismiss admiration or no, and overlook appeal or no. One step beyond this basic attribute of respect is that of consideration in which one has the quality of concern for others' condition, be it emotional or otherwise. Consideration is the application of empathy for the human condition, the concern for those in need . Consideration is found in the altruism that is outward looking. Kindness, understanding and intellectual sensitivity are the hallmark of the considerate person.. We could also delve deeply into the aspects of being considerate of others' feelings as a cornerstone of a well-regulated society but this seems too obvious for further pursue. Consideration is the meaning to be found in unselfishness and generosity. Those who are benevolent are the substance of the fabric of society. With the above, and not wanting to appear dogmatic, one should realize that to be overzealous in the application of consideration would be to be counterproductive (presuming that there be a "safety-net" in place for those infirm, etc.). A person in all cases is best served who serves himself. If one is considered "able-bodied", then to do for them is to do a disservice by moving that person toward a condition of dependence that is counter to the freedom of independence. To increase one's dependence on others is to do a terrible deed indeed. We are much too dependent on others already (necessarily so): our food, our water, our warmth, our garments, our very subsistence. Freedom has many names, one of which is "independence". Doing for others who can and should do for themselves is retrogression. *(continued next page)*

COORDINATION NEEDED HERE, II

The previous picture puts you in the picture, or at least, it should. And just because this happened twice a day, for seven days a week, and twelve of thirteen months, it doesn't mean it was "old hat." True, you got used to it, but you didn't "get used to it." There's a truism there someplace. The yellow-shirt to the right is giving the "come on" signal to the Hellcat at the right, and the pilot of that Hellcat has his eyes "glued" on that yellow-shirt. This is the one place where an enlisted man (the yellow-shirt, and a 1st or Chief Petty Officer) has COMPLETE control of a commissioned officer (the pilot). The one thing different here is that on the Antietam, we, the Airdales, jogged along side the wheel of the aircraft, wheelchock in hand, until the Hellcat reached the take-off point.

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Don't burden others by your generosity for that which is earned is the sweetest of all. On balance "meritocracy" is the most equitable and sensible route of all. Now tacking a little, most people either accept or reject someone based on character and conduct, for deportment most usually determines relationships (NOT race or ethnicity). It should be apparent that society is served best when the "pie" is made larger, not when a fixed "pie" is reapportioned. Thus it can be said that never have so many of us owe so much to so few, those few production engineers, those "knights in shining armor". It is they, those production engineers, who are the ones who lay the "golden egg". While it is true that as these engineers develop even more efficient production lines workers are displaced by the machines. Yet would we ever want to go back to making buggy-whips? Hardly. On the other hand how does society absorb these workers? The optimum condition for a satisfactory society is full employment with good paying jobs. Education is all well and good only if the business world can supply those jobs. Thus it would seem counterproductive to pillory businesses that produce the golden egg in BOTH jobs and products. Our standard of living didn't just fall out of the sky, it was created by smart people who at the same time wanted to make a good living. My brief here is to not badger business; we should rather generate conditions to nurture it and thereby benefit both employees as well as employers. This doesn't mean to treat them with kid gloves, It means to treat them as if they are part of the family, for as the family goes so go you and you and you and you. Think of it as if we were all on the same team with the same goals. The key, again, is make the pie bigger, not rearrange the pie. Then we'll all be winners.

"SPREAD WINGS"

The yellow-shirt, with arms outspread has indicated to the pilot of the Hellcat to unfold his wings. The Hellcat needs assistance doing this, thus the Airdales lifting up on the wings. Again the auxiliary fuel tank under the Hellcat is clearly seen. In this picture, the Hellcat in the rear appears to be approaching fairly close to the one in front of it. As a consequence, the yellow-shirts must not only be aware of the aircraft moving about, but also have a good understanding of what's being accomplished: moving each aircraft, in turn, to a line of aircraft that approach and reach the take-off point, one-third of the length of the flight deck from the front of the flight deck. This was most often done without a hitch, a hitch that would have one aircraft run into another aircraft. This would cause all kinds of havoc, most notably that of flying shrapnel from the aircraft that was being "chewed up." Being behind the aircraft that was doing the "chewing" was a hazardous place to be. If it happens, it happens so fast that there's no chance of avoiding the shrapnel (should you be behind the "chewing" aircraft). However being alert to evolving situations was always a good practice. Now one might ask if there was training for such eventualities and the like. To my knowledge, there was no such training, whatsoever. However, having joined the Airdales several months after the ship became operational, maybe there was such training and I missed out. At any rate, I received nary a single word about the "dos" and the "don'ts" of flight deck operation. The job was never explained. It was rather merely a matter of observing the other Airdales and then emulating them. But then, how hard is it to pull and put a wheelchock? In some respects it was very easy and simple-minded. In other respects it was very difficult and nerve wrecking. The bottom-line, though, was "sink or swim."

The following pages in gray will present in a declarative fashion, with no embellishments, a stark description of this magnificent ship, the Essex-class aircraft carrier With no further ado, there were twenty-four Essex-class aircraft carriers built between December 1942 and November 1946. Seventeen of these were built during WWII and fourteen of them saw enemy action (the U.S.S. Antietam (CV-36) was commissioned in January 1945 but saw no direct enemy action). These marvelous ships replaced the battleship as the "Queen of the Fleet" for it was their 100-aircraft complement that replaced the limited 16-inch guns of the battleships. The carrier battery replaced the battleship battery, in spades because the aircraft carried 2,000-lb. bombs and torpedoes to a 200-plus mile range as opposed to the battleships' 16-mile range of its 2,000-lbs. projectiles. One could say that the battleship's gun was more accurate but if it was sunk by aircraft before it could get into range, the argument becomes moot.

We must first define a few nautical ship terms to bring the reader into the proper jargon. A ship's steel plating that forms the hull is its outer walls; the decks are its floors; partitions and bulkheads are its interior walls; a passageway is a corridor; overheads are the ceilings; compartments form rooms; and ladders are stairs. More specifically, a ladder on a ship, besides being a ladder that rises vertically up a bulkhead, is more usually a set of steps at about a 60 degree angle and made of hardened aluminum. These ladders normally go from one deck to another deck through hatches which are rectangular openings in a deck allowing access to the ladder and also being capable of being closed sufficiently to prevent water from passing through ("batten down the hatches"). The forward part of the ship is the bow and the rear part is the stern. Facing forward, the right side is the starboard and the left side is the port. Amidships is of

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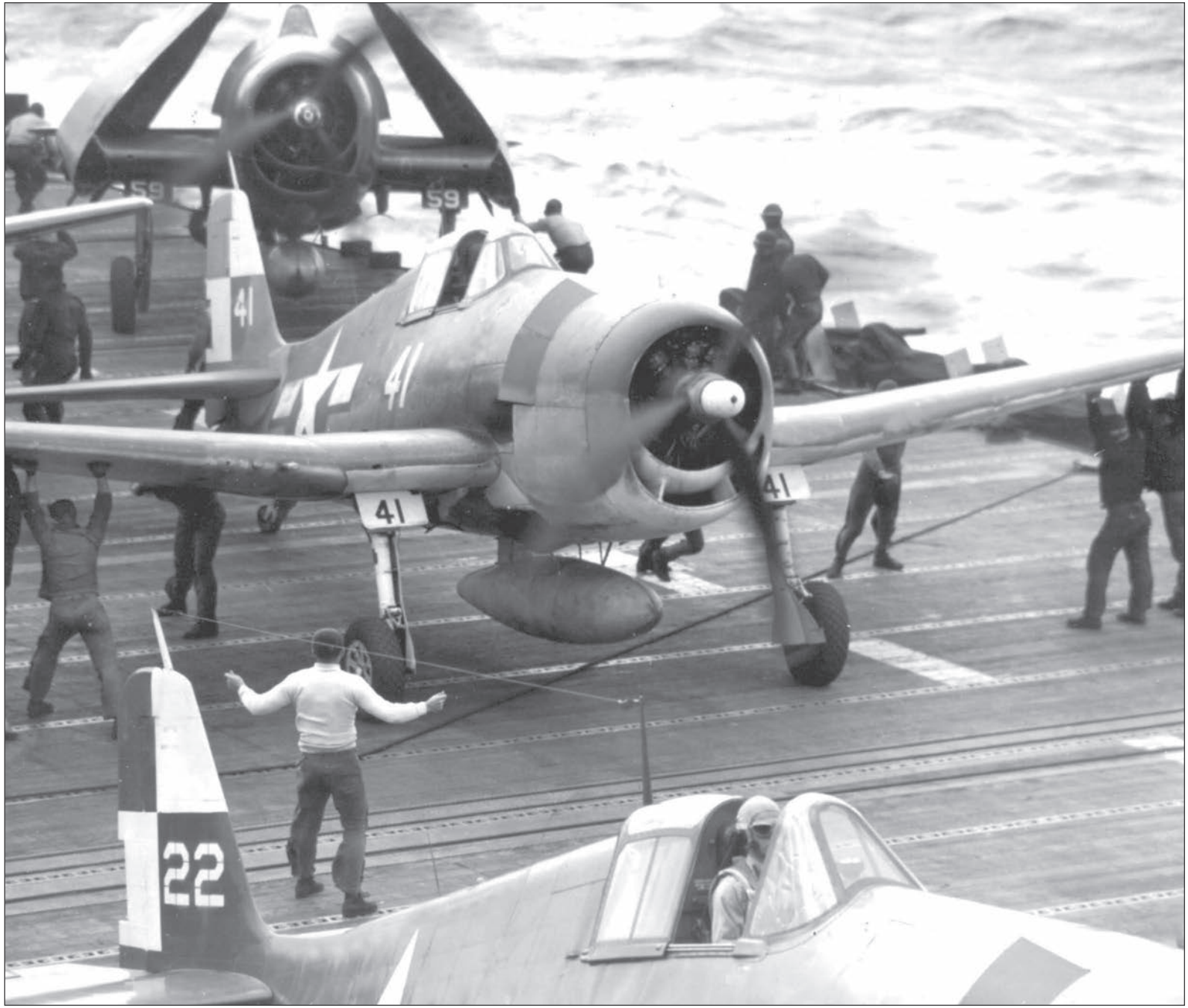
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22

WARM UP TIME

This a close-up of a previous picture. Notice the person standing on the wing at the left. He's probably the rear-seat gunner of that SB2C. They're rated enlisted men who are paired up with a specific pilot. They too are called Airdales, but obviously of a different type. This is a loosely packed deck, not at all like what we had on the Antietam with 100 aircraft. It looks like they just started engines because that SB2C at the upper left is not cranked up. Again, notice that Airdale who's running in front of the SB2C that also isn't cranked up. Since he's behind a plane that is cranked up, he has a potential problem when and if the aircraft to his right does crank up (the engine starts), right then. Things happen abruptly, and intermittently, and so things can't be assumed. That's why it's said that that Airdale (upper right) shouldn't presume that the aircraft to his right will remain dormant. Nothing, absolutely nothing, could be taken for granted during flight operations, except at one's peril. The conditions on the flight deck during flight ops were unforgiving, and the margins of error were all too often small.

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course the middle part of the ship while abeam of the ship means something away from the ship opposite either its port or starboard amidships. The centerline runs the length of the ship. Anything from the side of the ship toward this line is inboard and anything from the centerline outward is outboard. Athwart ship is anything running at right angles to the centerline. On U.S. Navy ships the main deck is the first deck. The deck immediately below the main deck is the second deck, then the third and fourth, etc. Anything above the main deck is called superstructure and these decks are called "levels". The first deck above the main deck is the "01" level and then the "02" level and so on. The main deck of an aircraft carrier is the hanger deck. The flight deck is at the "03" level on the Essex-class carriers. The forecastle (fo'c's'le0 deck on a carrier is at the 01 level and extends back from the bow about 100 feet. It contains the machinery for the anchor as well as forming a platform for the 40-mm quad guns on the bow of the ship. There are compartments at the 02 level that are called the gallery deck. These compartments fit under the flight deck under the deep beams which support the flight deck.

Starting at the top we will discuss the superstructure first. This was also called the "island". Here, up high, were all manner of communications antennas to pull in primarily the shorter wavelengths. (The long wavelength transmissions were received and sent from wires strung between towers on the starboard side up fore and aft at the flight deck level). Next there were a multitude of radar dishes, both for search and for gun fire control. Up above the stack were the large SK-2search radar, the SC radar, the SG radar, the YE homing beacon and the SM radar. Just below the level of the stack, both fore and aft, were MK 12 radar/MK37 director combination providing for the fire control of the 5-inch guns for and aft of the superstructure. Just below this radar/director, forward of the stack, was a 40-mm quad gun-tub (40-mm guns were in a 4-gun parallel configuration, training and elevating in unison). Just below this 40-mm quad and on top of the pilot house was a MK 49 director for this quad. Back aft of the stack and just below the 5-inch radar/director there was a MK 51 director for a 40-mm quad just underneath this director. This covers the essentials external to the superstructure. Since the guns have been mentioned, the ship's gun complement will be enumerated: There were the 5-in guns fore and aft of the superstruc-

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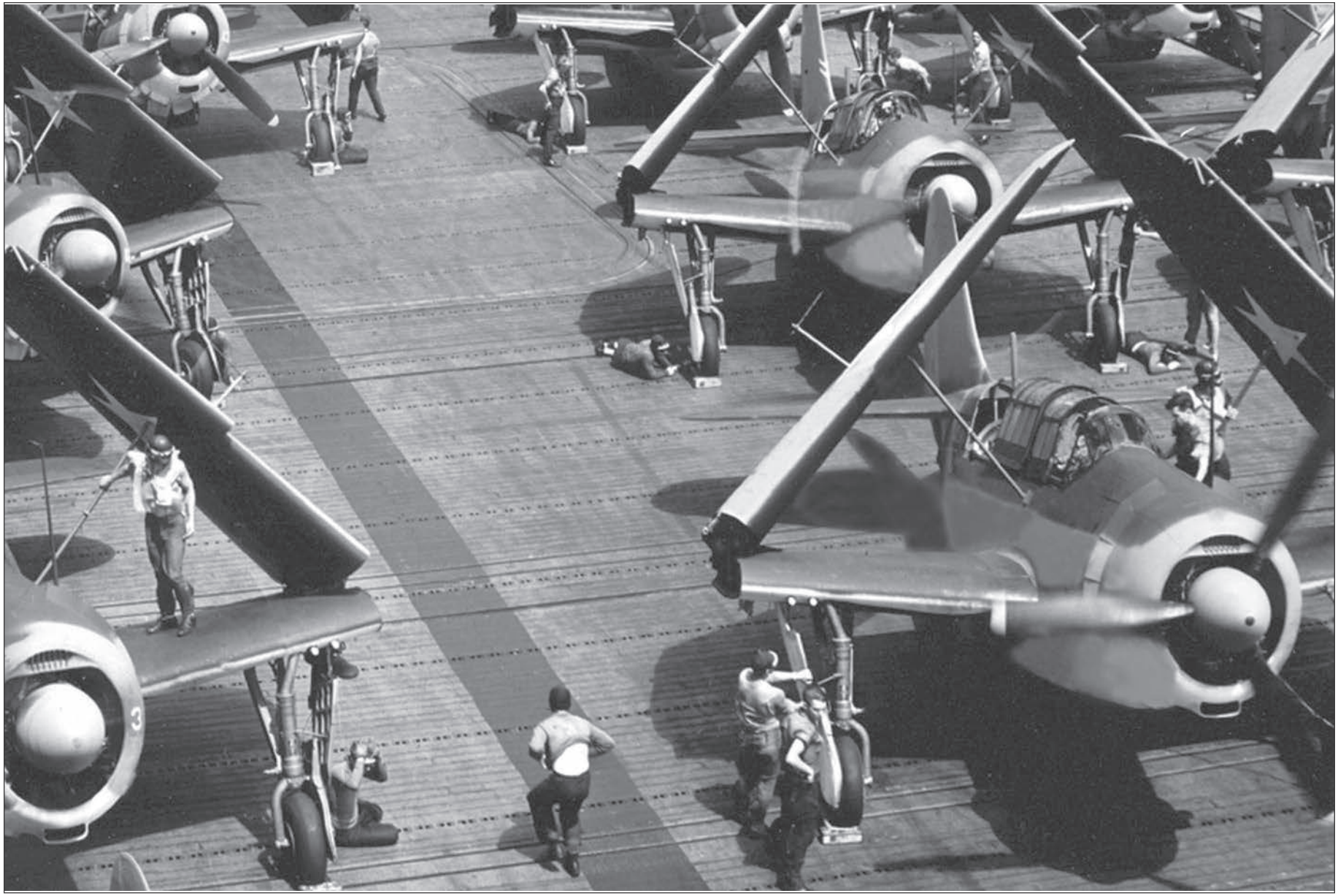

IT'S A HARSH NETHERWORLD IN THERE

To my way of thinking, getting to a wheelchock was, almost each and every time, an exercise in survival. That everyone survived made it no less so. That each exercise didn't last long didn't diminish its life-and-death significance where quite often the Airdale's life was very much on the razor's edge, and at the same time he wasn't allowed options. And no less imposing was the underlying pure dread of understanding what was involved in the daunting task that lay in front of him: negotiating a "forest" of aircraft while in the clutches of furious, overwhelming wind-blasts and engulfed in the horrendous, guttural noises of the unmuffled engines that served only to disorient the senses. The sight of 13-foot propellers spinning ferociously, unrelentingly, unforgivingly was the apex of the triumvirate of "wind, noise, and propellers", where the wind was his sworn enemy and the noise was both his taunter and his tormenter. That he had to do this, pull 8 wheelchocks a day, was a tribute to his perseverance, in my humble opinion. It was irrelevant that he HAD to do it. What was relevant was that he DID it, day after long day, all alone when back amongst the aircraft as they warm up. It's you against this towering, powerful machine. Sometimes, as the aircraft are warming up, and the ship heads into the wind, causing it to heel over a considerable amount, you think for sure that the aircraft is going to topple over on top of you (naturally it can't because there's an aircraft right next to you). The sensation derives from the fact that if the propeller is rotating in the same direction as the ship is keeling over, the aircraft starts to literally bounce up and down (The wheel doesn't leave the deck). The upward motion of the aircraft and the heeling motion of the ship continue to make you think it's going to topple over on top of you.

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ture, two twin mounts fore and two aft. There were also two 5-inch single mounts both fore and aft just below the flight deck. This totals twelve 5-inch guns. The 40-mm complement consisted, on the Antietam, of two 40-mm quads on the bow just below the flight deck and two quads back aft on the stern just below the flight deck level. Back aft on the stern at hanger deck level were two 40-mm quads. Two more have been mentioned on the superstructure and on the starboard side of the ship were five quads, three of them under the superstructure one level above the hanger deck and two quads back aft at the hanger deck level. Finally the 20-mm guns could be found on both starboard and port sides in multitudes. Some have "joked" that they were the revenge weapon because they would not be to hit their target except after the target had released its bombs Even still, if they brought down a target that was one less target with which to contend. Now we'll return to the island (superstructure to itemize the internal compartments. At the 04-level (the flight deck is the 03 level), of the superstructure is the Flag Bridge (Admiral's Bridge) and just above that is the pilot house (Navigation Bridge). Directly back aft of the pilot house (the after part of the superstructure) resides BAT 2 (after navigation bridge, after pilot house; there's a 40-mm quad just slightly below this bridge; also, understand that a ship's "bridge" is a location, not an overpass). It should be said here that just aft and at the same level of the navigation bridge was a small area devoted to the Air Officer during flight operations. This position was called PRI FLY. Somewhat further back and somewhat lower was a Signal Bridge that was "tacked onto the side ot the superstructure. Here was where the signalmen used multicolored flags and signal lights to communicate between

(Continued on next page)


B-17
17

GETTING READY TO LAUNCH

Another close-up of a previous picture. "Listen to", and feel, the bruising, pounding reverberations of the engines against the 5-inch gun-mounts. Whenever the aircraft cranked up, there was a sense of being engulfed in a confounded tumult: a violent commotion. That definition of "tumult" neatly describes one's sensations when in those surroundings. These sounds epitomized the violence that was always close at hand. The sound itself was a "violation", not to mention the obvious danger on all sides. Unfortunately, those sounds also created an enduring legacy of a condition called "tinnitus" that's as yet ringing in my ears. (But then, what do I expect for one who has a "sensitive nervous system", as my doctor told me before my enlistment. All I can say is that it wasn't so sensitive that it couldn't endure twelve months of continuous assault on the flight deck. The obvious rejoinder is: how about the pilots who "followed" that noise for hours on end? I don't know.)

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ships silently (The pilot house and the Flag Plot, the admiral's space below the pilot house, had electronic communications equipment aplenty; the radar consoles occupied spaces elsewhere in the ship even while the superstructure had the communications and radar equipment in its various compartments. The navigation room was directly behind the (pilot house). (Before my going into the Airdale Division I was in the Quartermaster (Navigation) Division and so spent time "pulling watches" on the bridge (pilot house) including some time spent at the helm ("steering wheel"). As an Airdale I had a strong interest in the superstructure, that imposing presence that bespoke of security. It was a strange feeling, this. Down on the flight deck it was essentially cleared for action. There were several small elevators near the island for providing torpedoes, bombs, rockets, 20-mm and .50-caliber ammunition. At the sides of the flight deck and just below it could be found seven aviation (high energy) gasoline outlets to replenish the aircraft. The flight deck itself consisted of 0.2-inch steel covered by 3-inch thick teak planking. Metal aircraft-securing rails were placed across the length of the flight deck at six foot intervals. These were used to tie down the aircraft during heavy weather. On both sides of the flight deck were catwalks (walkways). These were about two feet wide perforated by 11/2 inch holes that provided for as much empty space as there was metal (a weight-saving purpose). The flight deck was the raison d'etre of an aircraft carrier. It was also the "playing field" for the Airdale, that crewman whose job it was to push aircraft from here to there, pull wheel chocks, put wheel chocks, put out fires when an aircraft crashes and fight the fires created by enemy bombs Most of the aircraft were launched from a rolling take-off, starting at about 400 feet from the front of the flight deck (An air speed of about 70-mph was required to cause the aircraft to become airborne. Thus the combination of the ship's speed and the ambient wind over the bow must equal 30-mph since the aircraft is able to reach 40-mph over the deck with a rolling start from 400 feet.) However, since an Essex-class carrier carried up to 100 aircraft and regularly had 90-plane launches, there was not enough deck space to provide for rolling launches. Thus aircraft were launched from the catapult until enough space was available to allow for a rolling launch. A catapult was placed, one on the starboard side and one on the port side up forward. The catapult consisted of a slot in the deck about 190 feet long and starting from about 20 feet from the forward edge of the

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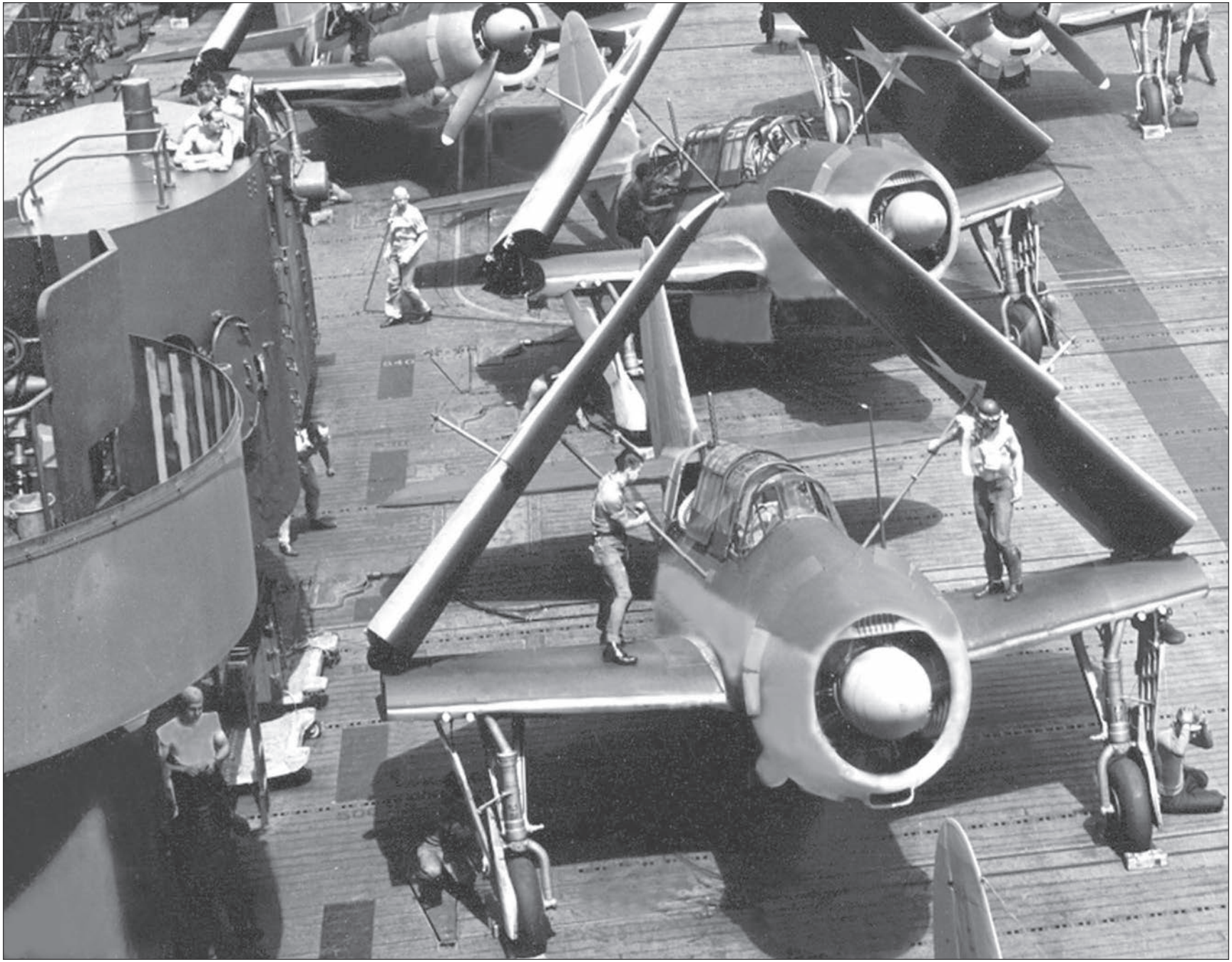

READY TO GO

Notice that the Airdale on the left side of the Helldiver to the right (his head and shoulders are right above the cowling of the Helldiver). He's in the process, I believe, of removing that rod that's supporting the wing. Another Airdale must do the same thing for the right wing. (The Helldivers were unique in requiring these supports for their wings. The Corsairs didn't need them.) Why the Airdales are only now removing the supports, I don't know. Since the Helldiver is already "fired up", that Airdale has his work cut out for him. Notice the Airdale at the Helldiver's left wheel. He's all hunkered down due to the windblast of the propwash, while the Airdale on the wing is fully exposed and is thus in a precarious situation (there was some friction-material on the wing next to the fuselage to provide traction). Anyway, poor planning, that. Apparently the same exercise is going on as shown by that Airdale on the right wing (at the upper left of the picture). However, there's no rod there. What goes on? Perhaps he's the plane-captain, and he's giving the pilot something at the last minute. That seems more plausible, but again it's poor planning because it's going to be difficult to get out of that treacherous situation: it's a "jungle" in there, and while he's facing a terrific windblast, he has a Hellcat right close behind him that's all "fired up". When he leaves that Helldiver, where does he go? to the left? Forward? Backward? Or just hold fast until the aircraft clear out? It's a jungle in there, and the worst thing to do is to become panicked. That's when one does foolish things, and there are not valid second chances. If it was just the wind, it wouldn't be bad. If it was just the noise, it wouldn't be bad. If it was just the propellers, it wouldn't be insurmountable. But when it's all three at the same time, there are moments when it SEEMS actually insurmountable. But it's all a perception, because no one was ever lost in that "jungle". (You'll notice that sometimes I use the present tense, and sometimes I use the past tense (syntax). When one writes about being "there", this happens and I plead guilty to not properly observing the correct syntax.) Finally, this picture shows the reverse protocol of the Hellcats being in font of the Helldivers. And in addition, the "packing factor" here is low. The Antietam "always" had a high packing-factor.

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flight deck. (Pardon my jumping from present to past tense and back again.) The catapult machinery is located under the deck so that the deck shows only the slot. Below deck there is an arrangement of pulleys and air and oil tanks. 1 ½ inch thick cables are wound around a set of pulleys and connected to a plunger. Pressurized air is released into an accumulation tank where it transmits its pressure to an hydraulic fluid. The fluid in turn is released into a main chamber. This hydraulic pressure then forces a ram, attached to the pulley system to force a shuttle in the slot in the flight deck down the deck at increasing velocity. This acceleration in turn is sufficient to drag the aircraft fast enough to cause it to become airborne. This process became so successful that by the end of WWII it often accounted for as much as forty per cent of the launches. At the other end of the flight deck were sixteen arresting cables. These too were about 1 ½ inches thick. They stretched across the flight deck, spaced about 20 feet apart and starting from about 60 feet from the back edge of the flight deck. These cables were also attached to a set of pulleys and tanks as was the catapult system above. Normally these arresting cables are flush with the deck. During a landing process brackets under the cables and set within the flight deck would be elevated about five inches above the deck thus raising the cables by about five inches. This height was sufficient to catch a hook extended from the

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NONCHALANCE AND RETICENCE

Another close-up, same picture. One Airdale's lying low, while the other one is "taking it on the chin." Two different approaches. At the upper right SB2C, a plane-captain appears to be checking out something in the cockpit. These last-minute glitches can be a nuisance to those who are trying to run a smooth launch operation. This casual-cautious duo have been mentioned before, and I believe I was right in the middle of that spectrum. After a period of time you do reach a certain "comfort level", but never beyond a certain point. There are too many sounds and forces out there to allow such a cavalier manner. Notice that the casual one is even without a cloth-helmet and goggles (as is the cautious one).

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tail of the aircraft when it touched down on the deck. Hopefully, and usually, this hook would catch one of the arresting cables and play out about 40 feet, bringing the aircraft to a somewhat abrupt halt. The flight deck crewmen would disengage the hook from the cable, the pilot would retract the hook and taxi up the deck. Just before this though the "green shirts" would mechanically retract all the brackets thus allowing the aircraft to proceed unimpeded. Once the aircraft had cleared the area the "green shirts" would reelevate the brackets for the next landing, every 20 seconds. The process of arresting the aircraft was very similar to the catapult process of pulleys and tanks of air and hydraulic fluid. Finally there are the barriers that extend across the deck preceding each landing. These barriers are raised before an aircraft lands and lowered as an aircraft is being unhooked, immediately raised again before the next following aircraft lands. There are five of these barriers starting adjacent to the back 5-inch gun mount of the gun mounts aft of the island superstructure. The fifth barrier is located about up to the middle of the island thus causing the five barriers to cover about 100 feet. The barriers themselves were composed of three 1½ inch cables stretched between two stanchions, one on each side of the deck. The stanchions usually were flat on the deck except when an aircraft was about to land. It was then that all five of them were raised in the upright position. Once the aircraft was hooked and thus stopped the barrier was returned to its flat position until the just landed aircraft had taxied up forward out of the way of the next landing aircraft. Thus there was a set of barriers for each aircraft that landed, every 20 seconds. The top cable of the three cables was about five feet high. If and when an aircraft hit a barrier the cables would play out just as the arresting cables did but not nearly as much. Also, an aircraft could hit one barrier, crash through it as it was flattened and engage other barriers beyond the original barrier. Sometimes the aircraft hit the deck so hard on touch down on the deck that they bounce over a barrier or two and are stopped only by number five barrier. Once I was standing in the middle of the deck (after having parked an aircraft with a wheel chock) about 40 feet from barrier number 5 when a Corsair hit the deck so hard that he bounced over barriers 1,2 and 3 crashed through barrier 4 and was stopped by barrier 5. It was not SOP (Standard Operating Procedure to do what I did but I was in a "what the heck" mood at the time. There were occasions (not on the Antietam) that a landing aircraft bounced of flew over all the barriers and caused much havoc among men and parked aircraft. In addition some barrier crashes would result in fire breaking out due to spilled high-octane aviation gasoline This required immediate remedy because there were aircraft circling the

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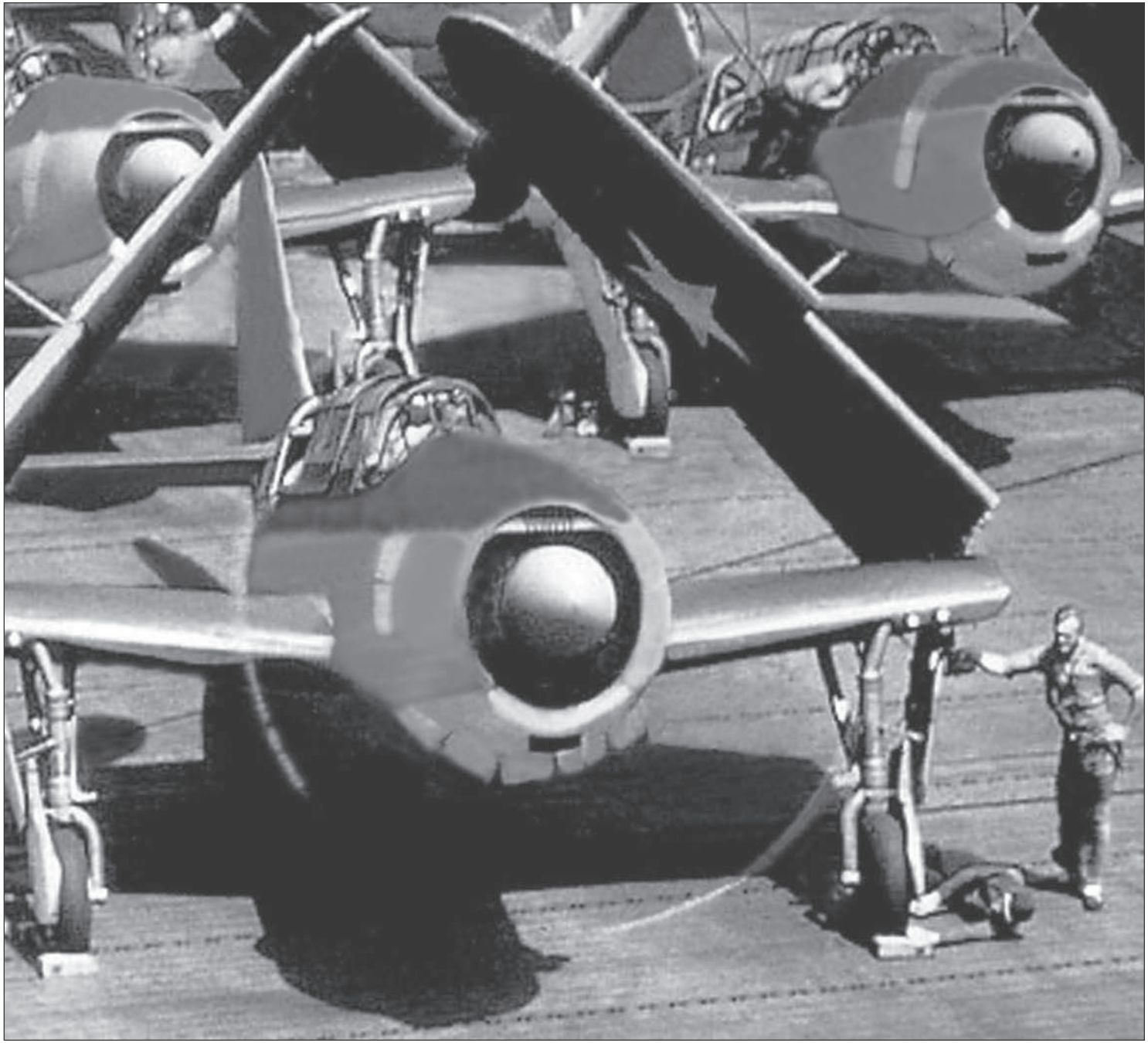

DON'T DO ANYTHING RASH!

I still can't figure out what that fellow is doing, unless maybe he's a plane-captain who's just now leaving the plane and is taking the route behind the propeller, instead of IN FRONT of it. Good thinking, because there are no doubt aircraft in front, out of the picture, which are sending blasts of air back to this SB2C. Notice the yellow-shirt looking to the right to see if he should send the SB2C forward. It was my observation that none of the pilots ever appeared to be casual about what they were doing, when in an aircraft, on the flight deck during flight operations. To the contrary, they all seemed to be fixated on a yellow-shirt, taking meticulous directions from the yellow-shirt. It was as if they were very well aware that they were "driving" a lethal machine, and there was never any relaxation on their part when taxiing about on the flight deck. At least, that was my perception. That Airdale, crouched down and running, actually looks like me, sans helmet, goggles, and flight deck shoes, when I first joined the Airdales. I don't remember such an occasion though. Maybe this not remembering is because to have run so close to the propeller, even behind it, was such a fool-hearty thing to do, even for a newcomer, that I "washed it off", while at the same time I hope having learned from the experience. What probably happened here was that "I" arrived at the left wheel, found it occupied, and then made my "escape" as best "I" could without giving the situation all that much thought, other than "LET'S GET OUT OF HERE!" Neophytes must learn, even if it's the hard way, as depicted here. (The more I think of it, the more I believe this is a picture of me. It conforms to my attitude of directness, i.e., find the shortest path to safety, even though the shortest path isn't necessarily the safest. At least I wasn't dumb enough to run in FRONT of the propeller where there were also strong winds coming in from the right side of the picture from aircraft up forward! Live and learn, or should it be, "Learn and live")).

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ship awaiting the touch down process and if the flight were long, fuel was short. These fires were under the purview of the Airdales; they put on their "fireman's hat" (figuratively because we Airdales had no such gear and time was of the essence). Finally there were the elevators. There were two centerline elevators, one forward between the after part of the catapult slots and one back aft near the aft 5-inch gun mount. On the port side opposite the island was a deck edge elevator. This one measured 60 feet fore and aft and 34 feet athwart. It could be folded at the deck edge to allow passage through the Panama Canal. The two inline elevators were 44 by 48 feet. The weight capacity for these elevators was 14,000 pounds with a round trip taking 45 seconds (10 seconds to load, 12.5 seconds moving, 10 seconds to unload and 12.5 seconds to return; this meant that the Airdales had to be "johnny-on-the spot"). As the elevator moved downward a safety railing rose and vis-a-versa as it descended. The aft centerline elevator was displaced to the starboard to allow for more space on the hanger deck when it was at the flight deck level. This required an auxiliary elevator in the hanger deck. That is, when the aft elevator was at the flight deck this auxiliary elevator filled half the area taken by the main elevator's pit. The centerline elevators were operated by hydraulic pistons while the deck edge elevator used cables and pulleys driven by a hydraulic cylinder. To close out the flight deck discussion, the radio masts on the starboard side of the ship (all the way forward and all the way back aft) could be folded into a horizontal position to allow for safe launch and landing operations. After flight operations they were

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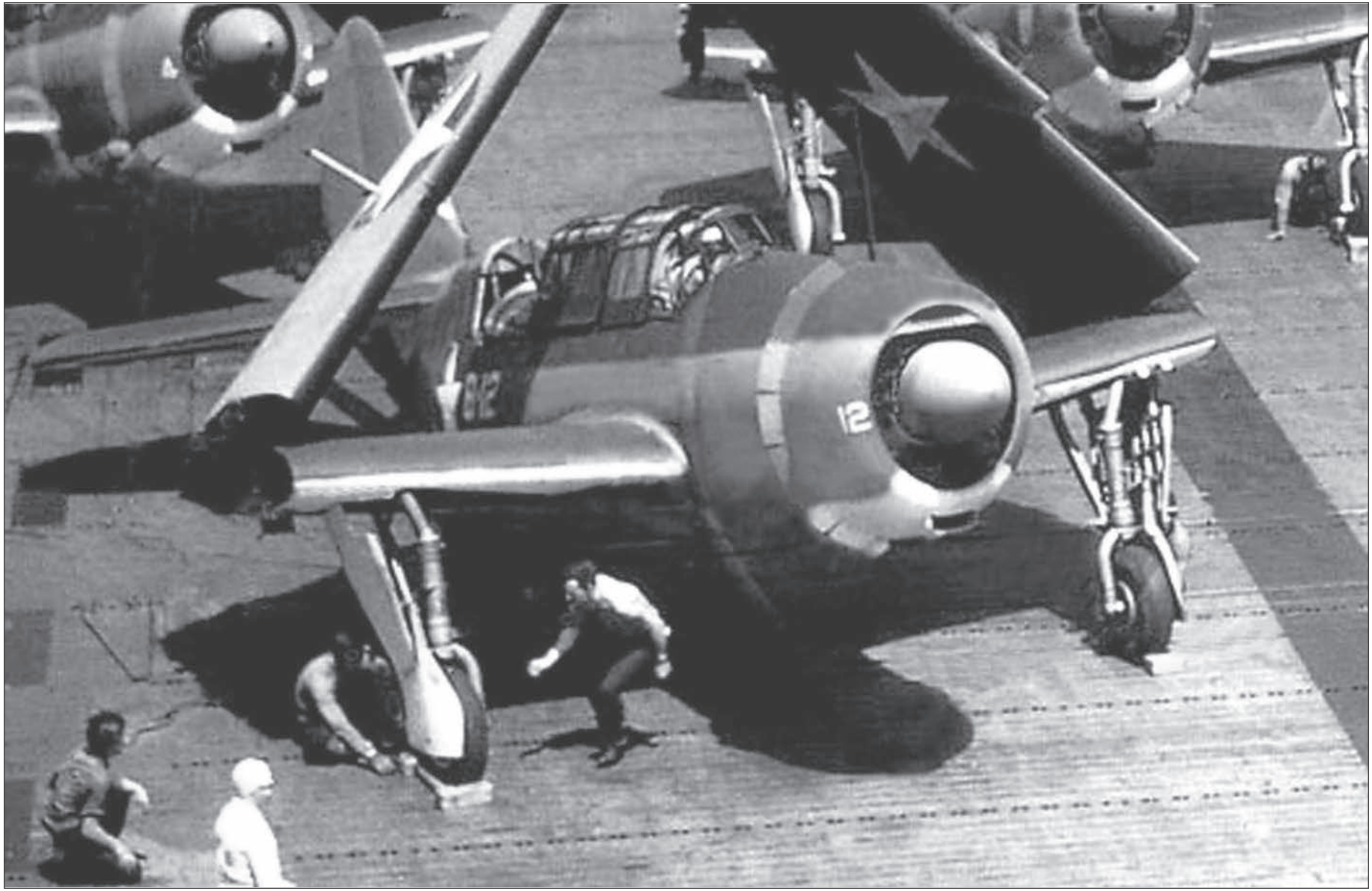
12

ALMOST FINISHED

A yellow-shirt on the left is giving the "hold" signal to the Avenger while an unseen yellow-shirt on the right is directing the Helldiver on the right. An Airdale is at the Helldiver's right wheel, chock in hand, as he walks along side it until it gets to the take-off point. There should also be an Airdale at the left wheel. Why a battleship is trailing the carrier, I don't know. We always had a destroyer trailing us, and leading us. The former to pick up pilots that crashed during flight operations, and the latter to ferret out submarines, so I was told. Battleships were used among other things as a floating platform for 5-inch anti-aircraft guns, and 40-mm anti-aircraft guns. I was impressed that an Essex-class carrier had about the same amount of anti-aircraft firepower as the battleship. The Japanese wanted the carriers first and foremost because of the damage that carrier aircraft could inflict on their navy and land fortifications. A carrier could hurt them more than any other ship could.

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raised to a vertical position to enable the long-wave radio transmissions and receptions. Before leaving the topside a further discussion must be made concerning the protective radar of the ship followed by the associated ship's armament. The later will be necessarily somewhat extended in scope and fairly difficult to follow (but be brave). First to the radar: Only radar could provide the necessary advanced warning of encroaching enemy aircraft which only recently was not available to naval ships. (Recall that in those days the electronics of radios and radar were based on the electron tubes, some being as big as present day light bulbs. This caused the equipments to be large and bulky, using a large amount of space. Parenthetically, the computers of old (WWII) were also very bulky in that they operated by gears and cams and mechanical linkages and used no electronics (electronic analog computers were not in existence yet) This meant that fire control solutions were much slower than present day but then the aircraft were also much slower.) The introduction of radar required some means of integrating all the data accumulated by the radars (as well as radio). This thus prompted the introduction of the Combat Information Center (CIC). To provide long range detection use was made of the SK-2 (1944) using a 17-foot diameter "dish" that could detect aircraft up to 100 miles away. Added to the suite of radars was a system that detect enemy from friendlies. It was called Indentification Friend or Foe (IFF). There were also a SC-2 and SG surface search radars to detect ships. Accurate height-finding was needed to control the protective fighters (Carrier Air Patrol or CAP). This was provided by the SM radar. Now to the ship's armament. The dual mount 5"/38 Mark 12 guns were located fore and aft of the island. The Mark 30 5-inch single mount guns were, as said previously, located on the port side of the ship. Although these guns had a maximum horizontal range of 18,000 yards and a maximum vertical range of 37,000feet, normal slant range for antiaircraft purposes was about 10,000 yards and 12,000 yards against low-flying torpedo aircraft. The gun mounts were power operated but still required crews to load the ammunition. The normal rate of loading a gun was 15 rounds per minute while a good crew could increase that for short periods during a raid. The ammunition consisted of the projectile and a separate propellant cartridge. The 55-pound projectile was had mechanical and timed fusing which had to be set before firing. Thus the height as well as the range data had to be supplied by the radar system to make a viable fire control solution. Unless the

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FROM HANGER DECK TO FLIGHT DECK

The SB2C has just reached the flight deck from the hangar deck below. The Airdale has removed the wheelchock so that the SB2C can pivot on the right wheel, under the direction of the yellow-shirt, and taxi to the launch-position. The Airdales nearby are there to lend assistance if needed. No doubt none will be needed. (The yellow-shirt is indicating to the pilot, "Brake your right wheel and apply some throttle.") This isn't as easy as it looks because if the SB2CC swivels too sharply, the tail will swing out over the edge of the elevator and onto the safety net. On the other hand, maybe the SB2C just came onto the elevator so as to go down to the hanger deck. This could be the more likely situation because the Airdale by the wheel looks as if he's going to chock (place the chock) the SB2C. The stance of the other Airdales reinforces this thought. What with the menial job of pushing aircraft I wondered about my contribution to the cause as against my background of having received a good education from a good school. Furthermore, why was I, having been accepted to Yale, doing this lowest of the lowly jobs? Wasn't this relationship between my job here on the flight deck and my past and future schooling a form of "disconnect"? Well yes, it certainly was, at least as far as I was concerned. And yet the military was rife with such disconnects. One of my semi-friends on the Antietam was a University of Chicago graduate and his job was merely publishing a two-page newsletter and that was his purpose in life (on board the Antietam). We all, at some time in life, feel we are being misapplied. However, the navy was not interested in your personal wishes. They were interested in winning a war and that meant that there would be misapplications where not everyone could be accommodated. The navy was not a social service: in effect it was the luck of the draw. This is not to say that the jobs were filled with inappropriate people. The johnies-come-lately usually felt these affects the most. The navy did not accommodate you, you accommodated the navy and the job it did to effect an end to hostilities.

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projectile actually hit the aircraft (low probability) the set-timing was also problematical. Thus in 1943 there was developed the proximity fuse: it consisted of a miniature radio transceiver with its own power supply. After firing, the fuse-transmitter emitted high frequency radio waves. When a target came within effective range, the transceiver picked up the reflected waves and activated an electronic switch that initiated the the detonation sequence. There were two MK 37 dual-purpose gun directors at each end of the superstructure (island). These consisted of a MK 4 radar parabolic trough antenna atop the director housing. These directors provided data to the fire control computer down below decks. A small MK 22 parabolic section antenna was mounted alongside the MK 4 antenna to provide height data. After discussing the 40 and 20-mm guns the 5-inch gun fire control problem will be enumerated (again, be brave). The 40-mm guns consisted of four barrels in tandem that all moved in unison. Thus they were called "quads" and they were located in "gun tubs" and sponsors. Their rate of fire was 160 rounds per minute per barrel. With an effective range of 2,500 yards. Each barrel was hand-fed with a clip of four rounds per clip. The MK 51 gun-sight director was used to control the quads. These directors were on a pedestal close to the quad. Later in the war some MK 51 were replaced with a similar MK 57 which was equipped with a MK 29 radar, or the MK 63 with a MK 28 radar dish on the quad mount itself. But enough of this arcane data except to say that the quads were a Swedish gun.

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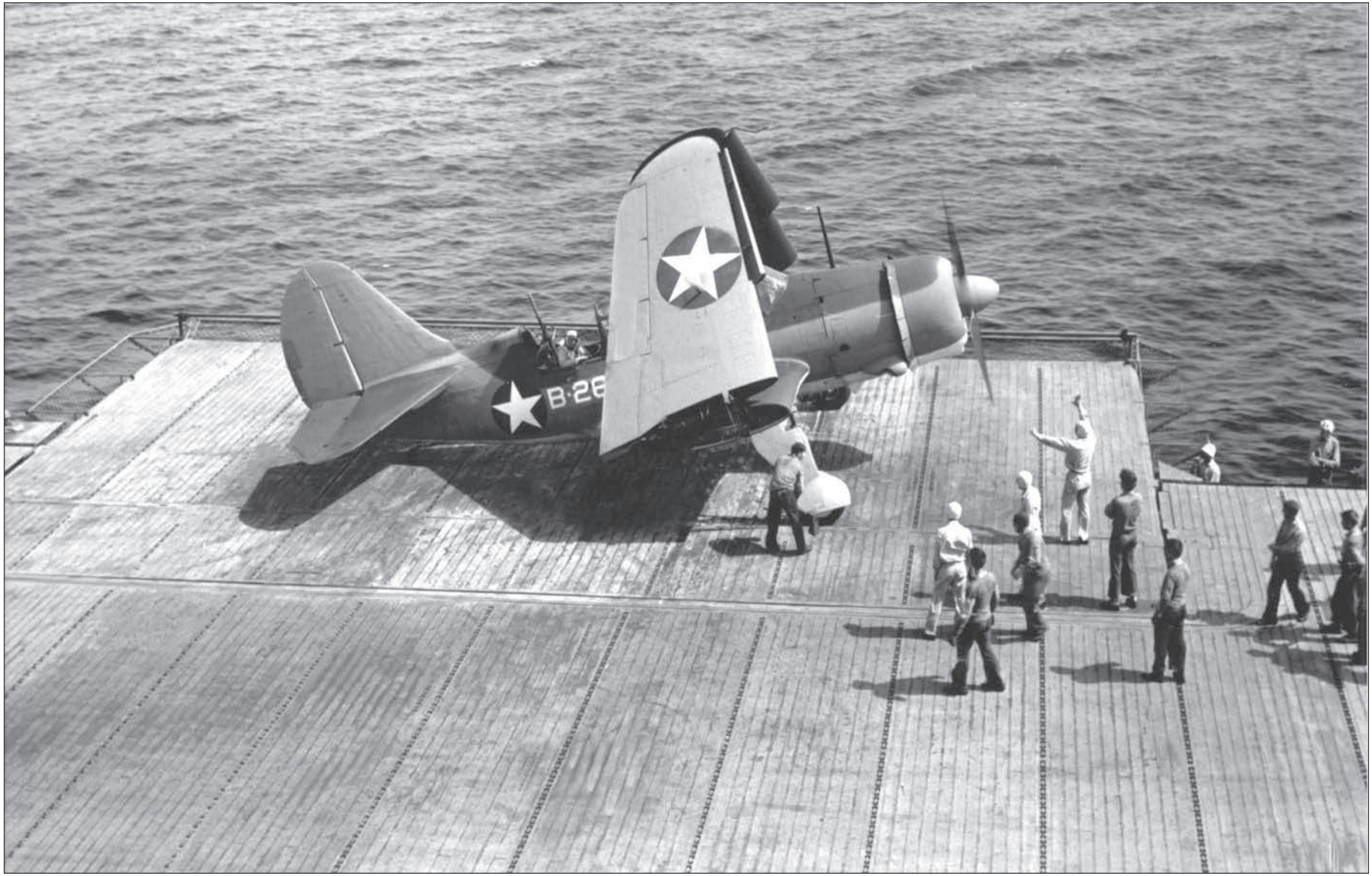
B-26

READY, SET, GO

Here this SB2C is in the launch-position, about as far as the middle of the island superstructure (420 feet from the bow of the ship). The launch-officer (usually a pilot) gives hand signals by twirling his left forefinger held above his head, indicating to the pilot to apply full power to the engine. After the sound of the engine sounds right, and he sees the wing-flaps are down, and the pilot gives a thumbs up (indicating proper rpm, oil pressure and whatever else), he lunges forward, bringing the flag down vigorously and pointing it forward. At this, the pilot releases the brakes, pushes the "stick" forward to raise the tail of the plane to a horizontal position, and off he goes. These big planes (bombers) usually become airborne sooner than the fighters because of having more wing-area. Most usually the wheels leave the deck before they reach the end of the flight deck.

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Finally there was the 20-mm single mount guns, the so-called "revenge weapons" (remember, they had a sufficient range only after the enemy torpedo was dropped). This gun was a Swiss design. It had a 60-round circular magazine. It was aimed manually and it had a range of 1,000 yards. The rate of fire was 450 rounds per minute. Later models of this gun had a MK 14 lead-computing gyroscopic gun-sight. This gun was mounted atop a pedestal and was not electrically or hydraulically operated. The fire control problem for the 5-inch guns will be considered in a Volume 2 to a fair amount of detail which will represent a fairly good description of how the solution was accomplished. What follows will be a portrayal of the below decks aspects of this fighting ship, ignoring those areas identified by the living conditions. Suffice it to say that these areas were very basic with zero frills attached. For instance, the berths were canvas stretched between an iron frame, stacked four levels on top of each other. One had room to roll over but that was it. We had a "locker" 2 ½ by 2 ½ by 3 to keep all our "duds". Meals were served at a steam table to be consumed in a closely packed mess hall. They said that they had a place that served ice cream at times during the day but I never saw one (the Airdales were on call all day on the flight deck). However, a navy ship was "home" with all the necessities of living at the minimum margin. One could say with confidence that there was nothing on a navy ship that was not basically essential to war-fighting; everything else was absolutely absent. Now we descend one level to the gallery deck, that warren of compartments that house those facilities most affiliated with what happens above on the flight deck. Prime examples were the ready-rooms for the pilots just before flight operations.Each squadron had its own ready-room; (two for the fighters and two for the bombers). Also found on the gallery deck was the CIC room. Here also were spaces devoted to the aviation and communications activities. I'll now merely list some fifty compartments to be found on the gallery deck, without comment and in no particular order: crew berthing, 5' handling room, radio transmission room, radio workshop, aircraft ammunition stowage, 20-mm ready room, Captain's cabin, Admiral's cabin, galley (Captains and Admiral's food),gas line gear locker, MK 29 radar room, stores (equipment), gun cleaning room, squadron armory, staff office, senior staff office, Captain's office, Captain's stateroom, CIC, air plot (radar consoles displaying aircraft activity overhead), squadron workshop, radar room, aviation radar room, tool-issue room, electric service station, squadron ready room, squadron office, squadron service room, air intelligence room, elevator stowing room,

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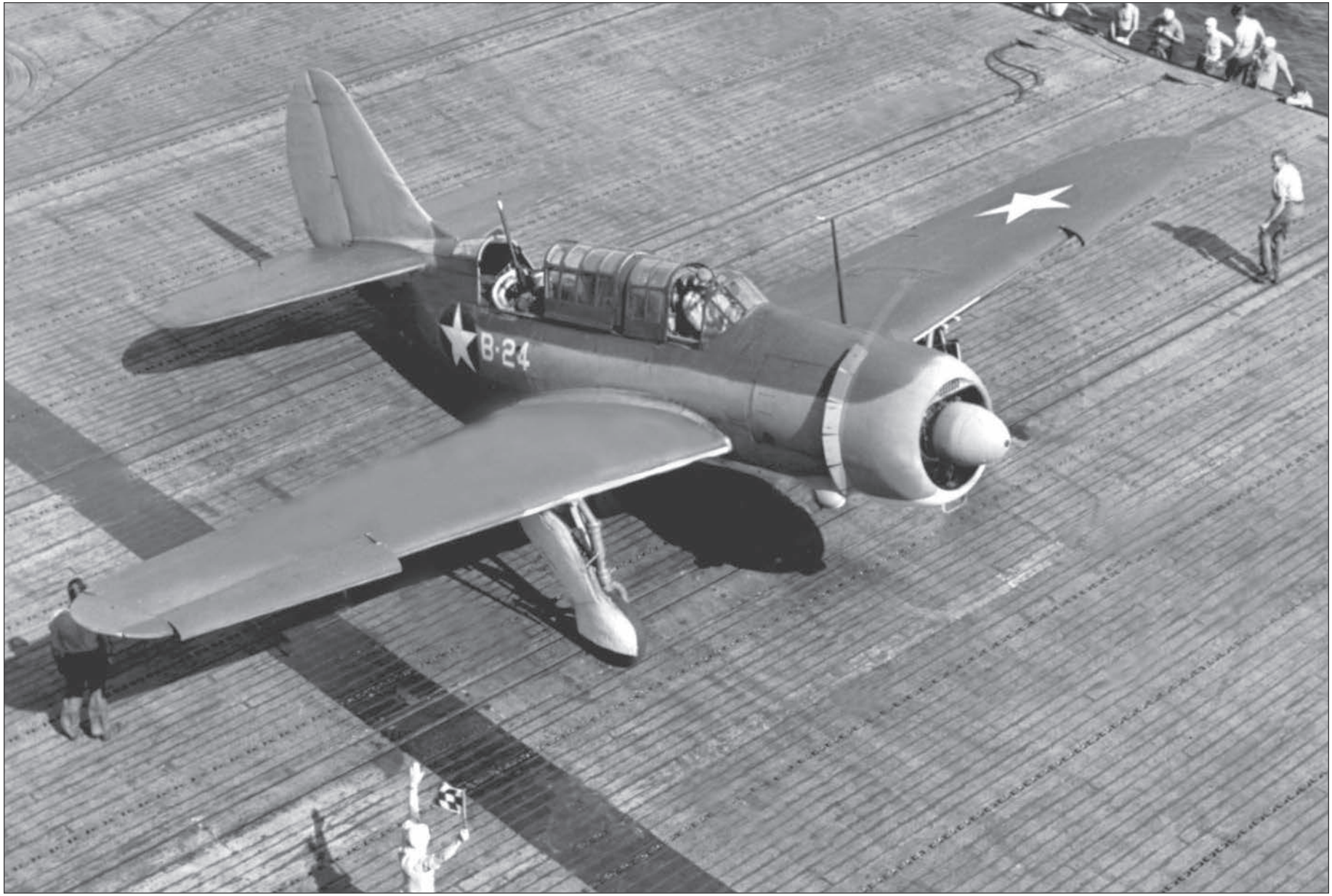
B-24

THE HELLDIVER'S TURN

This SB2C Helldiver is about to get the checkered-flag "go-signal" from the yellow-shirt aircraft-director. The larger aircraft (SB2C Helldivers and the TBM Avengers) start their take-off run from further back, near the aft 5-inch gun mounts. These SB2Cs also get additional lift from the extended flaps on the forward, outside edge of the wing. When these flaps are extended, the contour of the wing is altered such that the airflow over the top of the wing has further to go than that below the wing, thus adding lift to the wing at the slower launch speeds. When the SB2C Helldiver makes a diving-run on a target, at say 30 degrees from the vertical, it deflects the wings' trailing-edge, slotted, inboard flaps 30 degrees both upward and downward so as to limit its vertical dive-speed. I suppose this improves the accuracy of their bomb-release. Notice how closely the yellow-shirts bring out each aircraft in turn. As the SB2Cs taxi forward, they simultaneously spread their wings, so as to speed up the launch process. There seems to be a surfeit of yellow-shirts here, and it's probably because they're bringing the aircraft from only one side at a time, instead of from both sides simultaneously. That would tend to cause a "traffic-jam" in the center portion of the deck. But each ship has its own protocol in these matters. The Antietam did both sides at once This was probably because, since we came along latter, we had the benefit of others' prior experience. By just looking at these "behemoths", one would think they would lumber about on the flight deck. Not so. Although they weren't nimble, they were able move about quite "smartly" and quickly. They were deceiving in this respect, and as a consequence, one had to be alert at all times. And obviously, all had to be done visually. There was no shouted "look out!" done on a flight deck. Each man was responsible for himself, which was fair enough. After all, we were "professionals", weren't we? (tongue-in-cheek)

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radar room, air group commander ready room, 20-mm ready room, tool room, drop tank storage, bomb storage racks, air-conditioning equipment room, 40-mm ready room, 20-mm work shop, parachute packing shop, stowage, 40-mm workshop, 40-mm gun control and MK 29 radar room, aft radio station, aviation engine repair shop and arrester-gear spare parts and repair shop. It should be said that the large ticket repairs were done elsewhere, such as the hanger deck and even lower decks. There were at least three times as many "rooms" as enumerated above which says that all of them were relatively small. I said the gallery deck was a "warren" because there were many smallish "rooms" there (not compartments) that were painted all in black as one traversed the passageways on the gallery deck. One felt "closed in" going from one place to another on the gallery deck, quite the opposite when one emerged up onto the flight deck which was my "office". Below the gallery deck, led to by a long, steep ladder, was the hanger deck. This deck was made of 2.5 inch thick Special Treatment Steel. This deck provided protection against a 1,000-pound demolition bomb dropped from 10,000 feet. The hanger deck could contain up to 40 aircraft which meant that there was a hanger deck crew which moved these aircraft to the elevators and within the confines of the hanger deck. Repair shops occupied space around the periphery of the hanged deck for easy access to the damaged aircraft brought down below. The hanger deck had two sets of sliding fire-curtains which could close off the deck space into three parts. The sides of the hanger deck could be opened to the outside by iron curtains that rolled upward into the

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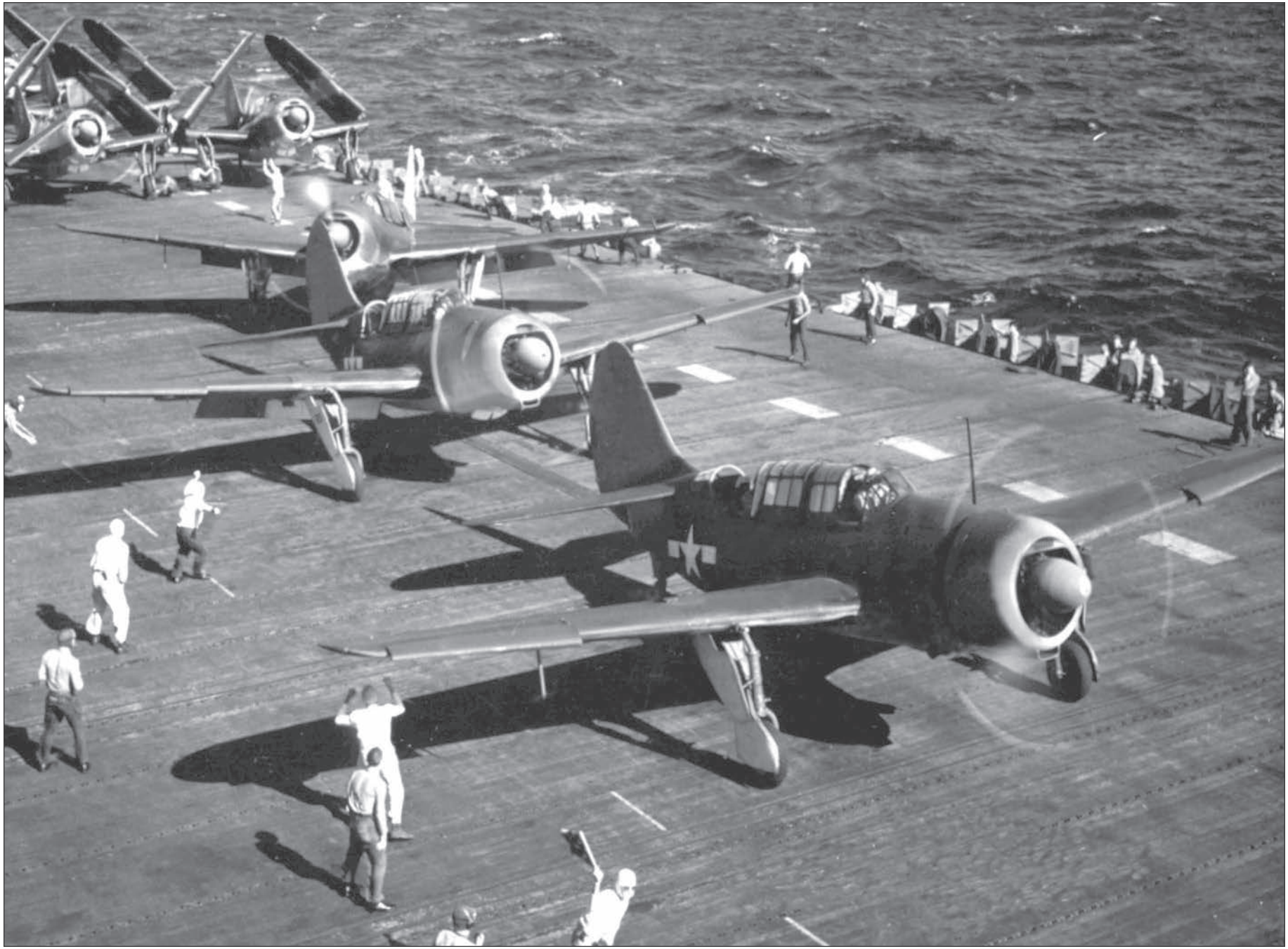

EASY DOES IT

This a good view of the yellow-shirt bringing an aircraft forward. The Airdale at the right wheel is still there, as he should be. This is in case there's a stoppage in the operations for any reason, he'll be there to chock the wheel as a safety precaution. There should also be an Airdale at the left wheel, chock in hand. This looks as much like a launch operation as anything else, but it's not clear. If it's not that, then it's respotting the flight deck. The only other possibility is that the SB2C is approaching the catapult. The Airdale here too has no cloth-helmet or goggles (?) But he's holding onto the wheel-strut because of the propwash. This is Standard Operation Procedure (SOP), besides being a necessity, because that propwash is STRONG. It's difficult to describe the affect of the force of a wind-blast generated by a powerful aircraft engine as it revs up to lurch forward when going to its parking location, especially when looking at a static, soundless picture. Strangely, the sound of the deafening roar seems to augment the force of the blast. It's as if the sound itself is battering you, if not physically then emotionally. It's as if the sound has become animated and wishes you ill effects. It's as if it wants you to experience evil results. One can almost become almost paranoid about this large, vibrating seemingly animate object that seeks to severely punish you in some way. This is not as fanciful as it sounds. I'll attest to that even as rationality none-the-less holds sway (till the next parking process). The closest analogy to the experience is a motorcycle speeding at 70 up to 100 mph (REMEMBER, speed kills). However, a cyclist is "firmly" ensconced and crouched down. However, when standing, this situation is quite different: more of you is exposed while in an upright stance. At 6' 2" and a mere 170 pounds I felt not more than a " wisp" in a violent wind fighting a very powerful force, yet unseen. This was not harsh duty. It was not dangerous duty IF one kept one's head about him (no distractions). If not, you would not do well on this deck chock full of large machines full of sound and fury. Not at all.

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overhead. They were normally opened during the day to vent engine exhaust generated by engines being repaired. To the side was a blacksmith, boiler, ship fitter, pipe, coppersmith, sheet metal, and plumber shop. Also to the side were aviation electrical and tool issue shops. Suffice it to say that facilities were available to not only repair aircraft engines but also the aircraft themselves including the radios, etc. The second and third decks were essentially the living spaces and their support. The fourth deck was in large part used for storage purposes. Below the armored fourth deck the first and second platform decks and the hold enclosed the ship's machinery, ammunition and fuel storage (aviation gasoline). Both the engine and boiler rooms were large spaces surrounded on the sides with storage for fuel oil (which helped provide protection along with the 4-inch armor plate and triple bottom). Finally we close out this very brief description with a description of the machinery that gave this ship "life". (This account of the machinery will be taken from that excellent book titled "The Essex-class Carriers" by Andrew Faltum, published by The Nautical and Aviation Publishing Company of America): The machinery was was split into two independent units; each unit had two boiler rooms containing two boilers each and an engine room with two sets of turbines. A pair of boilers provided steam for each set of turbines, but a cross-connection in the engine room allowed boilers to be switched in case of damage or for convenience. The turbines in the forward engine room drove the outboard propeller shafts and

(Continued on page 368)


16

SETTING UP THE CATAPULT

The yellow-shirt's directing the pilot as the SB2C is being positioned on the catapult. The Airdales are trying to jockey the tail right over the catapult-slot. The left wheel is against the positioning-bar, and the launch-officer is standing by to go through the launch-procedure of "wing-flaps down, rev up engine, check instruments, engine sounds good, and GO!" The yellow-shirt is an enlisted man (probably first class or Chief Petty Officer). This is so because he's wearing dungarees (not "blue-denims"). The other yellow-shirt is a commissioned officer (probably an ensign or second lieutenant). This is so because he's wearing tan trousers. Soon the green-shirted catapult men will appear to hook-up the catapult-cable. Be assured that the yellow-shirt director knows he's outside of that left wheel, and so is out of harm's way. It doesn't take much to deduce that one is out of harm's way in this situation (the propeller-tip does not reach as far as the wheel).

Deduction is a part of everyday life, to one extent or another, and is usually quite straightforward. However, there are times when one feels obtuse when trying to deduce a problem. Just what can be said about deduction? Deduction works best with an established theory that has been derived by induction. That is, deduction is the reverse side to the coin of induction (where induction is the formulation of a theory from the observation of a set of verifiable facts; that is, induction is the process of finding the correct set of premises to support a given conclusion/theory (when the premises are true and verifiable)). Deduction can also be considered a form of IF-THEN statements. I've presented some ideas here and it's up to you to expand/correct them. Now from my personal experience with this important subject early on: basically it uses a set of observable, and established, facts which can be verified (must be verified). Given these facts, one must arrange them in proper relationships to arrive at a conclusion. Further, the facts must be relevant to the situation at hand. There are times when the deduction must fit within a prescribed theory (which has been generated by induction). The accumulation of the "facts" can be hard to come by because they must be ascertained to be relevant (what makes them relevant?). This difficulty especially manifests itself because the "facts" must be committed to memory (lacking pencil and paper). As the facts are accumulated they must be "rung" against a form of template to determine if they are relevant. In the meantime new "facts" keep appearing which also have to be evaluated to determine their relevancy. This accumulation of "facts", determination of their relevancy, all in rapid occurrence, all to be committed to memory at the time of occurrence (with no "hardcopy" as an aid), makes for a maddening process (if the determination is important to you) Add to the above one must somehow be assured that the theory against which the deduction is "rung" must be ascertained to be true and valid, a large question in and of itself. Everything must be submitted to veracity and applicability. The process has taken on a level of criticality as to render everything else almost trivial. So a deduction consists of conforming a set of "verified facts" to, in my case, a preconceived theory (which in itself required a huge leap of "faith" to overcome the large question as to its veracity: all the effort of the deductions were to verify the veracity of the underlying theory as generated by the inductive method).So it was that I had to detect (all) the diverse "facts", "ring" them against a very problematical theory, do so without the aid of pencil and paper as a memory aid as the "facts" presented themselves in rapid order all the while trying to verify the legitimacy of fact and theory. It was a formidable task, sometimes even overwhelming. It was my personal problem susceptible to absolutely no help at all from anyone. With diligence it could be done, and it was done. It required fortitude that was rewarded by the sense that I accomplished something of importance to me. Though weary, I gave myself a "well done, the battle was won". The one important thing I learned from all of the travail was that to be observant is to be strong. Now let's take a more scholastic

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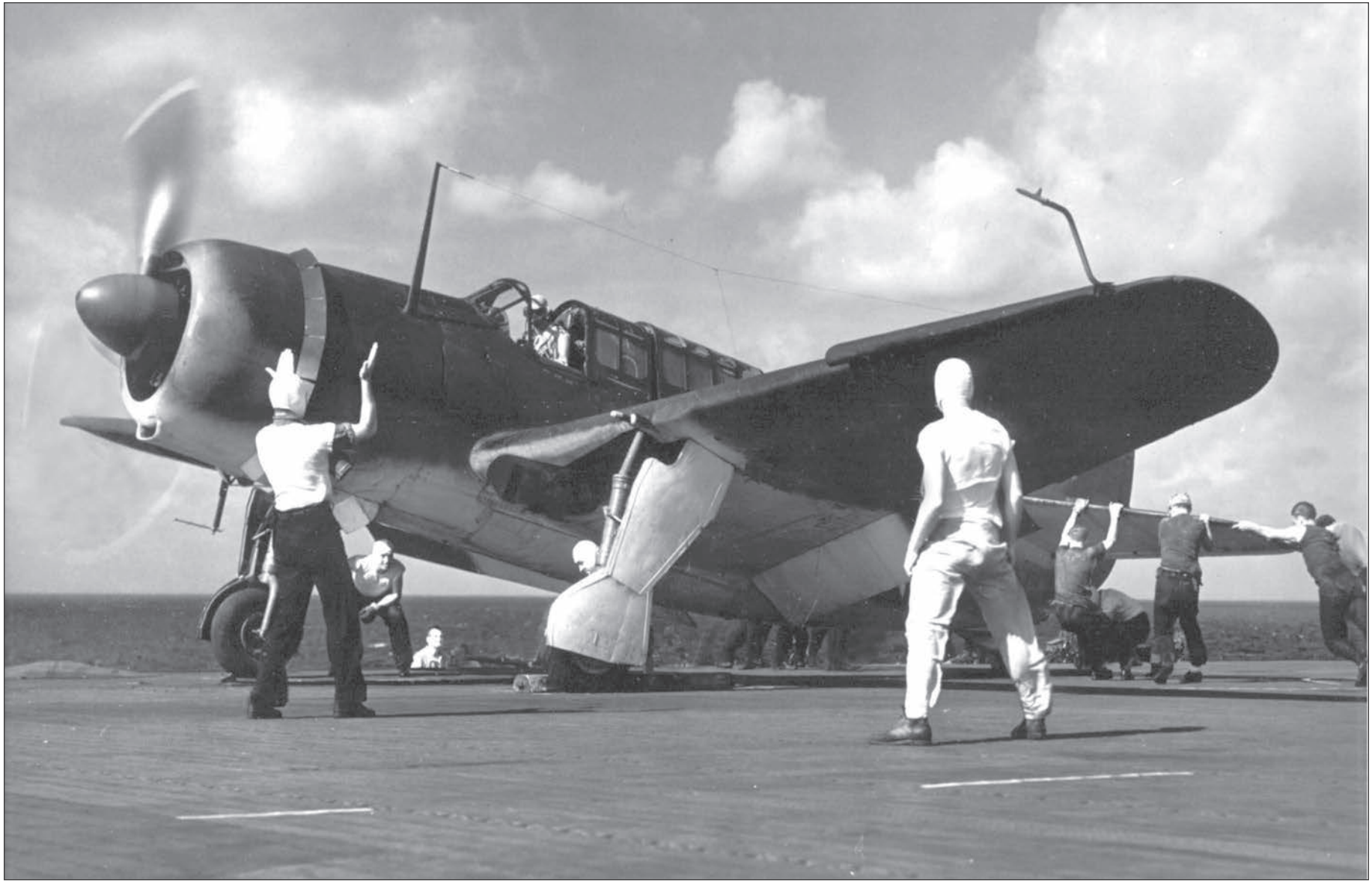

CHECK RPM BEFORE LAUNCHING

This picture shows the same plane being launched from about 520 feet from the front end the flight deck. And the launch operation is the same as it was for the catapult procedure (flaps down, rpm instrument satisfactory, oil pressure OK, the engine sounds right, now "Go!") Right about now, the sound is "ear-splitting." It just goes with the territory. And the louder it is, the better they like it (the more decibels, the more power).

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approach to the questions of "deduction" and "induction". "Induction" naturally precedes "deduction" because the law, theory, hypothesis is usually established before one deduces a conclusion based on the law, theory, hypothesis. Induction is the method of reasoning employed in establishing general laws as well as propositions about individual occurrences based on specific observational evidence. [Boyle's Law states that if the temperature of a given kind of a gas is held constant, its density is directly proportional to the absolute pressure (here is a basic IF-THEN statement that represents a law).] Here there's only one premise (IF-statement) but there can be many premises to be considered. An induction induces a theory that must be proved by repeated trials (and here probability rears its head). Thus the verification of the hypothesis must submit to continuing observational data. Propositions of already assumed, well-established evidence can be used in these tests. In this way the proposition (hypothesis) can be accepted, rejected or modified. Sometimes psychological or social factors must be included in the mix. One could allude to the IF-THEN statement as a cause and effect relationship, one that is familiar to all of us. The greater the number of instances that a hypothesis has been "verified" the more substantive it is. Sometimes the most difficult part of creating a hypothesis is substantiating the result (conclusion) which in turn is not always clear-cut. Induction is the more difficult of the two (induction or deduction) by far because trying to establish solid premises can be a will-o-the-wisp. Intuition can be a very useful ingredient here.

[As an aside concerning this subject of induction-deduction, do we really appreciate and enjoy our blessings? Do we even know what our blessings are? Unfortunately, the younger one is the less this is so. Isn't it time to "wake up and smell the roses" before it's too late"? Apparently there are those who don't think so, or more likely, they have a perverted sense of what a blessing really is. Try, critically, to use induction, not forgetting relevancy and appropriateness and validity. I'll warrant that you'll become "awakened", if you do it correctly.] In a way, induction and deduction are similar in that both seek to arrive at a conclusion: induction does so by using evidentiary, relevant, validated premises to arrive at a proposed hypothesis, conclusion, law while deduction uses essentially similar premises to arrive at a more definitive conclusion. Induction induces, derives while deduction deduces, decides. Induction tends to use a given set of premises while deduction can use any set of premises that are valid and expository. This process can become complex and obtuse and is found in the study of

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HELLDIVER LAUNCH TIME

There she flies, that banner to which the patriot salutes. Yet how many of us can rightly define what it is to be a "patriot"? Perhaps the first prerequisite to defining what it is to be a patriot is to eschew, to banish, the mindset of egocentrism. True patriotism borders on self-effacement, or at least the concept thereof. This does not imply self-denigration (there's a plethora of that forthcoming from outside of us). For sure, the true path of patriotism will not necessarily allow you to tread the easy path. Sometimes the more difficult that path the more patriotic the doer. This raises the difference between the "doer" and the "sayer". I'm reminded of the poor, frigid, bedraggled troops under General George Washington in the dead of winter huddled on the Delaware shore of New Jersey. In the darkness of night they crossed the river to assault the Hessian mercenaries at Valley Forge to win a critical battle to prevent the demise of the fragile colonies. They could have run in the dead of night but no, they mustered their sinews to declare to one and all that this was worth fighting for, that this was what patriotism meant. In the annals of patriotism they showed the way. No arm-chair patriots they. In this I do not want to imply that one must be heroic to be patriotic. Rather, I'm presenting the "gold standard of patriotism". Patriotism, it can be said, is devotion to and pride in the character of one's country (or should I say, "nation"). A true patriot does not mindlessly say, "My country, right or wrong". Rather, a true patriot says I will do my level best to better my country, be it right or wrong. A true patriot will hold his country to the highest standards nor let it sink below them. A true patriot will not shirk from upholding those noble standards wrought through generations of high-minded predecessors. A true patriot will be proud to salute and defend that banner that he firmly believes represents a good and honorable land.

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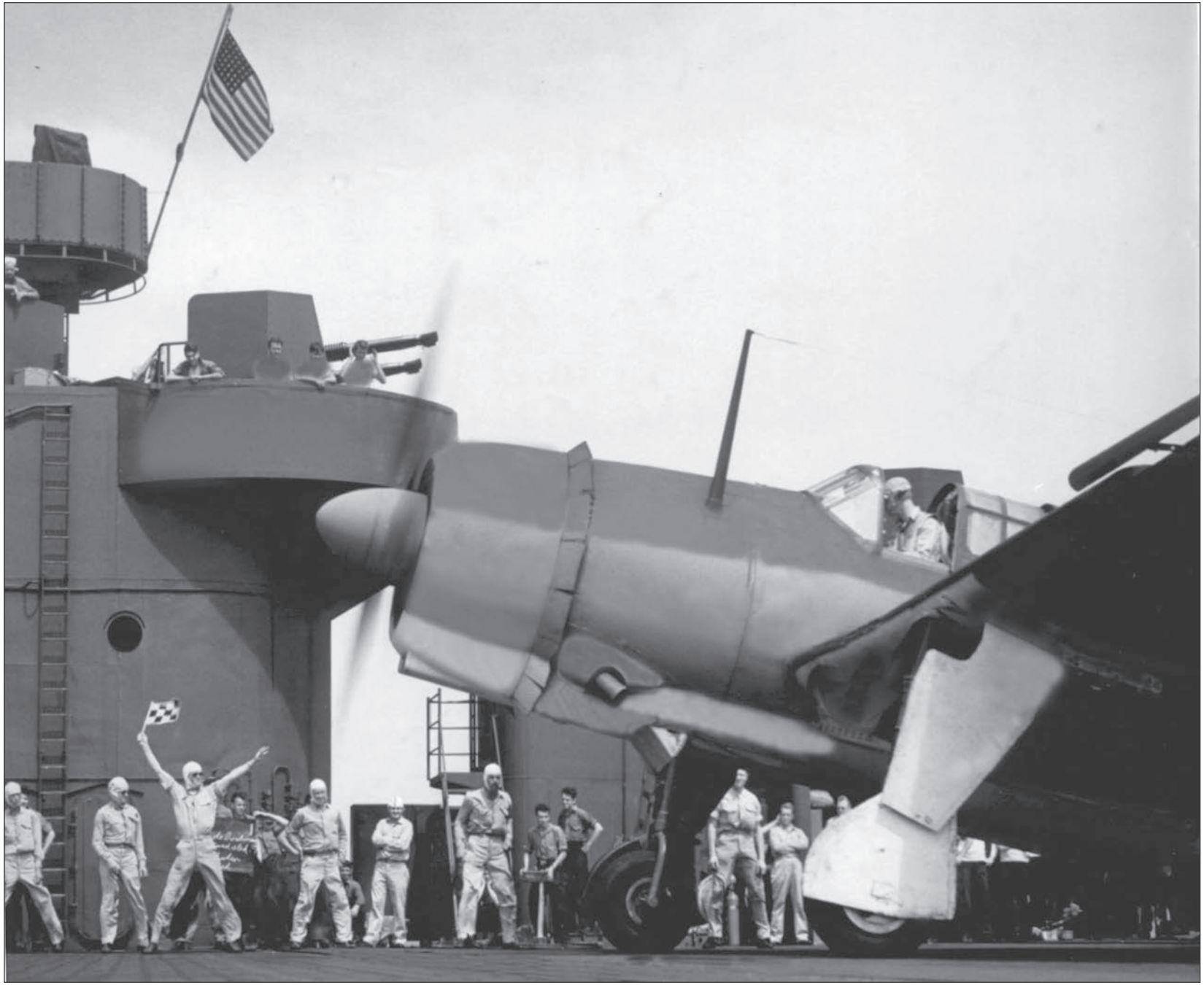
logic, philosophy and even mathematics. My background here is limited but there's no reason why yours should be. [To pass a test on one's ability to induce a law (a RULE), determine the law of "sexiness" that arrives at the conclusion that it is enhanced by more clothes than by fewer clothes (imagination is the strongest aphrodisiac unless one is merely a lecherous "bag of hormones". Yes, the mind is actually the driving force). Now to deduction, that derivative of induction. Deduction is not so constrained as is induction. It has a "universe" of available premises, though one needs to be mindful of appropriateness and validity. Deduction can be considered the weighting of evidence to arrive at a conclusion as ordained by the corresponding rule derived by induction. Deduction evaluates evidence to determine a proper conclusion. (Remember, validate the premises.) One can refer to the IF-THEN statements. This capability should not be considered merely an academic exercise. It is of vital importance to the proper working of a democracy, for in addition to being well and correctly informed, one should use the tools of deduction to determine, to the best of their ability, the veracity of the news which assaults us every day. What profit can there be when one who is deficient in the basic reasoning powers merely rides along with the misinformation that does not stand to reason or consistency?



"GO!!"

Here we see the "GO!" portion of the launch-process. Also, the tie-down cleats are clearly seen. (These are used in heavy weather to secure the aircraft by tying them down to the deck.) The pilot has just released his brakes to start his trip down the flight deck. But for some reason the Hellcat is not heading straight. Unless he applies a little breaking to his right wheel, he'll head toward the catwalk to the left. So he must quickly straighten himself down the center of the flight deck, or else he won't have enough speed to lift off the deck by the time he reaches the end of the flight deck. Small details, but big consequences.

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those in the aft engine room drove the inboard shafts. Forward and aft of the boiler and engine rooms were large auxiliary machinery rooms which contained nearly all of the auxiliary equipment except for the large equipment needed for the aircraft elevators and catapults. The boilers supplied steam at a pressure of 565 p.s.i and a temperature of 850 degrees F. Because the pressure and temperature were substantially higher than in earlier designs the machinery operated at a higher power-to-weight ratio, resulting in weight savings and lower fuel consumption. The increased efficiency also allowed the boiler uptakes to be smaller. The turbines consisted of a low pressure and a high pressure turbine driving the propeller shafts via a double reduction gearbox. Astern turbines were fitted at the ends of the low pressure turbines and there was a cruising turbine for economy at low power. It was geared to the forward end of the high pressure turbine. Four 1,250 KW turbo-generators were located in the forward machinery room, engine room one and boiler rooms three and four provided the main electrical power. Two 259 KW diesel generators, one in each auxiliary machinery room, were available in case steam pressure was lost. Ship's service generators, one in the forward auxiliary machinery room, and the other in the number four boiler room, supplied most of the ship's low power requirements. Three emergency 60 KW generators were located on the main deck. Four generators, two in the number three boiler room and two in the forward machinery room, supplied electrical power to an internal degaussing coil to defend against magnetic mines. Fresh water for both the boilers and the crew came from three distillation plants which boiled sea water and condensed the vapor as fresh water. Two large triple-stage evaporators were fitted in the forward auxiliary machinery room and a smaller two-stage evaporator was fitted in the number three boiler room. Higher pressure and medium air compressors were in the two auxiliary machinery rooms and high pressure and low pressure air compressors were fitted in the boiler room number three to supply air for armament, aircraft and sundry other uses. For fire fighting, washing the decks and pumping out flooded compartments, nine fire pumps were fitted, one in each main machinery room, and two in the pump rooks forward. One bilge pump was fitted in each main machinery room for clearing the bilges and for pumping out the machinery compartments in case of flooding. Before moving forward a few interesting statistics: the flight deck was 870 feet long and 108 feet wide; the hanger deck was 655 feet long and 70 feet wide; the displacement was 27,000 tons unloaded and 36,000 tons loaded. The shaft horsepower was

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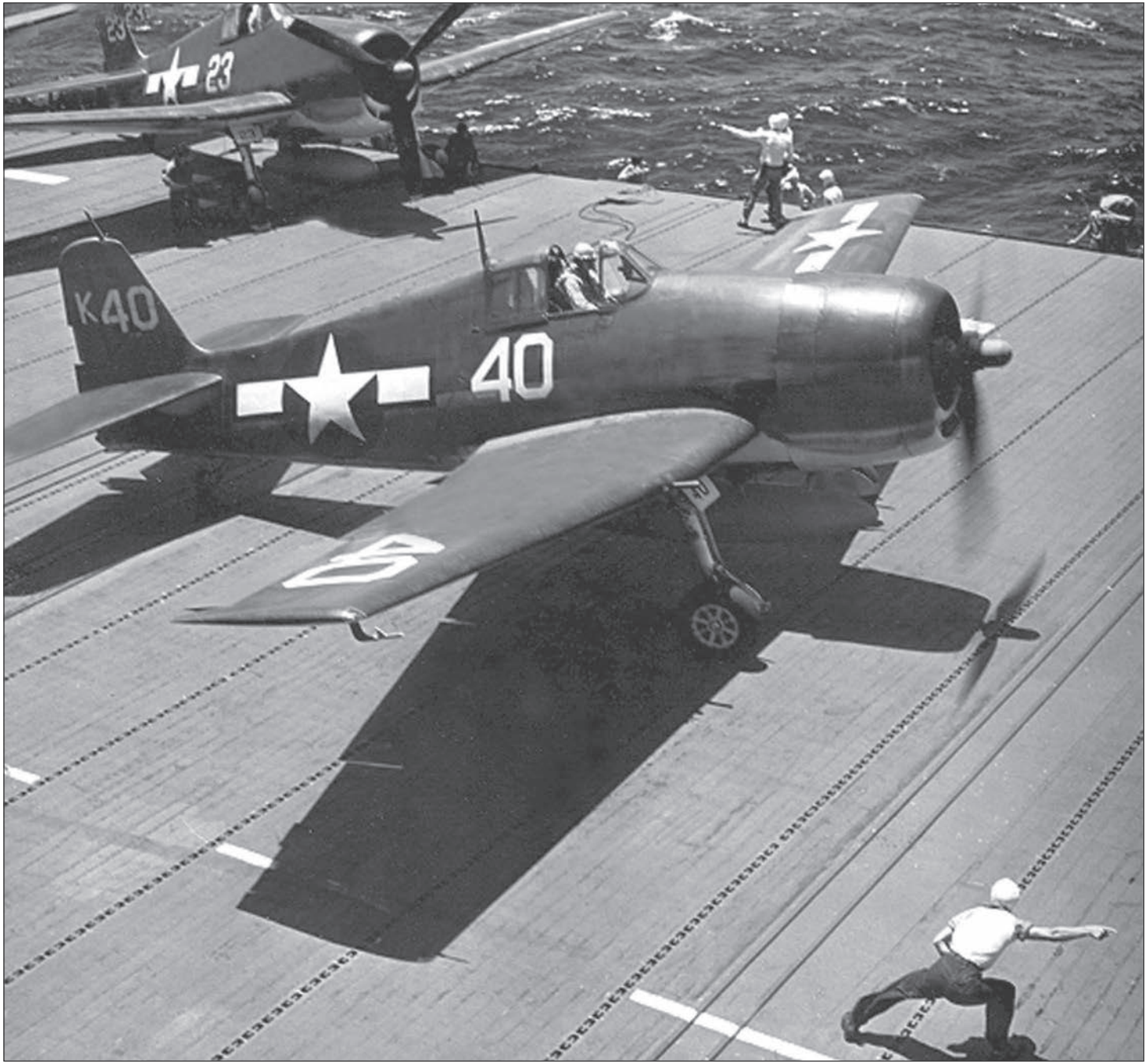
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K40
40

"IT DOESN'T SOUND RIGHT YET"

The yellow-shirt, to the left, has brought this F6F to the launch- position, and now the launch-officer (a pilot) is calling for "apply power to the engine." Another yellow-shirt is controlling the other F6F. Here the launch-officer is listening for the right sound from the engine, indicating that the engine is operating properly. If it isn't, and at this stage that isn't very often, he'll have to taxi to the forward elevator to be taken down to the hanger deck. But most usually, he's only listening for the "right sound," the sound that indicated all conditions are "Go."

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155,000 and the fuel capacity was 6,300 tons. The speed was 32 knots (about 35 mph and the range was 15,500 nautical miles at 15 knots. The aircraft ordnance was 625 tons while the aviation gasoline was 231,000 gallons. This provides the very basic construct of an Essex-class carrier.

The following section will address the "main battery" of an aircraft carrier, the aircraft. This will be essentially a recitation of their attributes and not a colloquy on their merits (which are covered in many other books very well). Even though I did not fly these aircraft the fact that I did spend over a year up close and personal with them as an Airdale. Thus I feel a peculiarly close affinity with them. They were both a friend and a foe, if you will, a hate-love relationship from many years gone by but enough sentiments, on to a recitation of the basic facts. The Essexes for the most part all had the same complement of aircraft on board. They were the F4U Corsair fighter, the F6F Hellcat fighter, the SB2C Helldiver bomber and the TBM Avenger torpedo aircraft. Starting with the Hellcat by the end of the war it was powered by a 2,200-hp engine that gave it a maximum speed of 376 mph propelled by a 13 foot 1 inch propeller. (One of the aces who flew the Hellcat said that "if it knew how to cook I'd marry it". Now that's high praise indeed!) Its wing span was 43 feet, its length 33 feet and its height 12 feet. Of course it fit in a smaller space because of its folding wings (smaller "foot-print" ; this was true of all the aircraft). Unloaded it weighed over 9,000 pounds. To that would be added the weight of the gasoline and ammunition and bombs. By 1945 it carried three 20-mm cannon in each wing as well as three rockets under each wing. To round out its armament it could carry up to 2,000 pounds of bombs under its fuselage. During the war over 12,000 of these fighters were built not only for the U.S. Navy but also for foreign governments. The wheels retracted under the wing as was the case for all of the aircraft. The Hellcat had armor protection for the pilot and self-sealing gas tanks for durability. Also as the other aircraft the Hellcat was all metal skin with flush rivets (to decrease wind friction). Similar to the other aircraft the Hellcat had wing flaps to decrease landing speed and thus simplify the touch down process. All Navy aircraft had retractable arresting hooks for carrier landings. The Corsair followed the Hellcat in the carrier war by about a year. It too had a Pratt and Whitney R-2800 Double Wasp 18-cylinder two row radial engine of 2,000-hp (and later up to 2,850-hp at the end of the war). It was needed to turn its 13 foot 6 inch propeller giving it a speed of 462 mph (at the end of the war). It should be said now that all carrier-based aircraft were of the radial engine design for reasons of weight (air cooled) and relative simplicity of maintenance. The wing span of the Corsair was 40 feet 11 inches, the

(Continued on next page)


9
35

"HOLD IT!"

Same launch-procedure, different view. The person to the right of the launch-officer provides him with any info that he should know about, for each particular plane. But I was never privy to what this might be, unless it was some maintenance info. A good guess is that the person on the right is that aircraft's "plane-captain," the one responsible for seeing to it that that aircraft is in good operating condition. Although he's probably a mechanic, he's not the one who does the big-ticket repairs. There are specialists for that purpose. (But if he's a brown-shirt, where's his brown-shirt? This was probably during an earlier time before they started wearing colored shirts.)

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length 35 feet 8 inches and the height 14 feet 9 inches. Empty it weighed 8,870 to 9,900 pounds. When loaded it weighed 15,000 pounds and it could carry 2,000 pounds of bombs in addition to four 6.5-inch rockets under each wing. Its armament was three 20-mm cannon in each wing. The stats being provided here are not written in concrete because there were many combinations of armaments for many variations of aircraft models. The above figures are to provide a general picture of the aircraft capabilities. Without external fuel tanks the Corsair could have a range of 1,000 miles. Of course the Corsair, as all carrier aircraft, had flaps and a tail-hook. This was indeed a lean, mean fighting machine. Moving on to the Helldiver this aircraft provided the dive-bombing capability. It did so with a 1,900-hp radial engine with a maximum speed of 295 mph and a cruising speed of 158 mph with a range of 1,165 miles. Its wing span is 49 feet 9 inches, its length 35 feet8 inches and its height 13 feet 2 inches. Empty it weighs 10, 550 pounds and a maximum of 18,600 pounds. It can carry up to 2,000 pounds of bombs and mounts two 20-mm cannons in each wing. It is also able to carry bombs under its wings. The Helldiver had a radioman/gunner occupying the rear part of the aircraft who operated a twin 0.30-inch machine gun. Finally there was the Avenger, so named after the attack on Pearl Harbor. Its engine produced 1,780 hp giving it a maximum speed of 267 mph and a cruising speed of 167 mph. This was the largest single-engine aircraft of WWII with a wing span of 54 feet, a length of 40 feet and a height of 16 feet 5 inches. Empty it weighed 10,700 pounds and its maximum take-off weight was 18,260 pounds. It had two forward firing machine guns of 0.50-inch, one -.50-inch machine gun in the upper rear cockpit and one 0.30-inch machine gun in the belly, rear. It was designed to carry a 2,000 pound torpedo but could also load up demolition bombs and carry rockets under its wings. Thus is the Essex's armament. The complement of most Essex-class carriers, including the Antietam (which was a training ship in the far reaches of the Pacific) was 30 Corsairs, 30 Hellcats, 20 Helldivers and 20 Avengers, totaling 100 aircraft on board. Keep in mind that as many as 50 aircraft could reside on the hanger deck at one time, making reshuffling on the flight deck an easier task. One of the things that I like very much about navy ships is that there is nothing whatsoever about them that is superfluous. If an item is not necessary it is not there. This is a beauty in itself, an attribute that is very satisfying. Frills be gone.

THIS ROW NEXT

I included this picture because I liked the angle of the camera. Maybe that's because I had this angle so often. While the F4U Corsair is "rakish," these F6F Hellcats are "solid" and attractive in their own way. The Corsair had its "gull" wings, while the Hellcat had its distinctive cowling. Both these aircraft helped you in that you knew you had precisely the distance between two planes' adjacent wheels to be "propeller-free." This also appears to be time spent to warm up the engines. The Airdale standing to the right seems to be preparing to go to one of those wheelchocks. He's apparently biding his time until the flight (launch) operation starts moving the aircraft out. Why sit by a wheelchock and be buffeted by the propwash? Well, the answer is that you'll be there "Johnny-on-the-spot" when the yellow-shirt wants to bring the Hellcats out, without any delays. Remember, a launch every 20-30 seconds. During flight deck operations discipline, that conduct which is correct and proper, is paramount. Certain tasks must be done in certain ways at certain times, such as pulling wheelchocks during launch operations as here (no aircraft will move unless and until the chocks are pulled from the wheels). Similarly, our personal lives require that we do certain things for our best interests (such as completing our homework diligently and to the best of our abilities). Self-discipline is not only beneficial for ourselves but it's also one sine qua non of a civilized society. It also helps to define who we really are. The concept of strength of character would be a mockery without a solid self-discipline. There is not a fine athlete extant who does not have an abundance of the quality of self-discipline. The hallmark of those who succeed is a firm foundation of self-discipline that takes them through the difficult times. However, to succeed is not the rational for self-discipline: it nourishes the capability to better enjoy life and to accomplish more than you could ever hope to do without it. Have you ever met a self-confident person who did not also exhibit a strong sense of self-disciple? I think not.

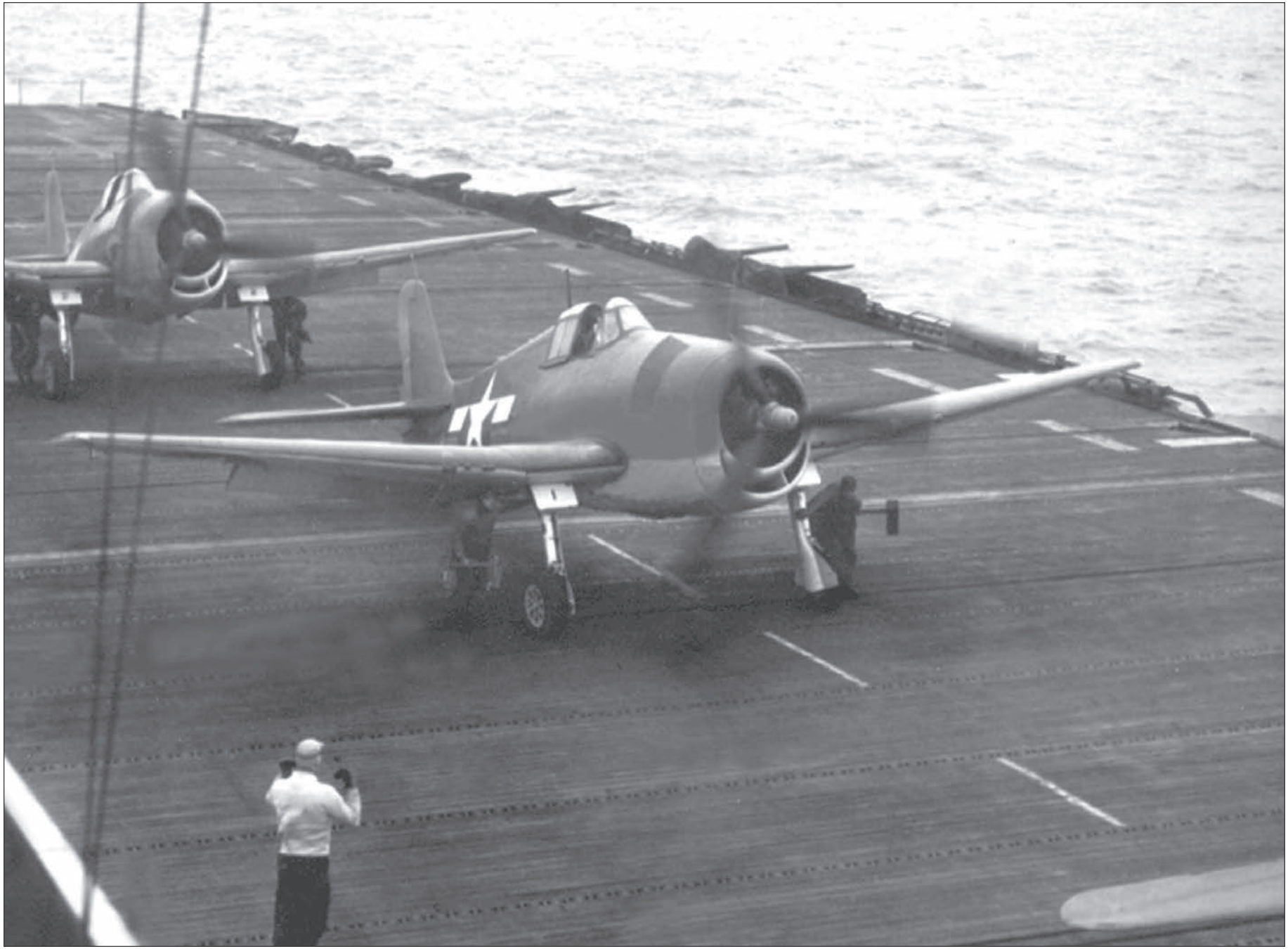
Some aircraft remain while others are obliged to go, as are those three Hellcats to the right (I say obliged because there is no choice here; that's what they do: Fly off this ship to do as much damage to people and things as possible). We're all obliged to do things, some willingly and some under duress. An example of the former, for example, is an act of kindness So why do we give kindnesses? One good reason is that kindness makes for good cheer, a "commodity" well worth the giving. While a fool can be kind, kindness usually comes from the basic quality of understanding, sometimes understanding that there but for the Grace of God go I. However, most kindnesses are not so dramatic. Most kindnesses are essentially a simple gesture of consideration. Kindness is not "unmanly' for it basically flows from strength (to weakness), not usually the reverse. Kindness seeks no rewards. Kindness is best when it is instinctive, not planned or contrived. Kindness need not be egalitarian. Kindness seeks no advantages, kindness looks to no rewards Kindness is not showy, kindness is not forced. Kindness used to reflect well self is kindness turned upside down. Kindness eschews all that is circumspect. Above all, don't be up tight about doing a good turn. Relax and say it with a smile. You'll certainly feel better and so will those around you. Keep it light, keep it simple. Be of good cheer, naturally.


33

"KEEP IT MOVING"

I don't know where all the aircraft are, but this view shows well how we would walk along with the plane, wheelchock in hand, as the aircraft was directed forward. As the aircraft approached and reached the launch-position, we'd "peel off" to the side and deposit the wheelchock. Actually, the lack of other aircraft and people on the deck and catwalk is puzzling. However, I included this picture because it's so typical of how aircraft are brought up the deck. (In point of fact, this is very probably an escort carrier (CVE) as witness the narrow flight deck.) This picture shows well the standard operational procedure: all moving aircraft are always accompanied by two Airdales, wheelchocks in hand, and most always holding onto the wheel-struts as the aircraft proceeds up forward to the take-off point (or, the parking place). Out of sight, to the left, is another yellow-shirt aircraft-director, in "control" of that second Hellcat. The process certainly is fairly simple, but the actual implementation can present difficulties (such as one aircraft overrunning another one. Standard Operating Procedure (SOP) requires that the Airdales remain at the wheel, wheelchock in hand, until the aircraft is brought to the take-off point. All the while there are spectators up in the superstructure watching "the show". To the uninitiated, one might wonder why there are those being buffeted and those watching up on high: "it's not fair". To most of us it is not a question of fairness because fairness can be described as equal treatment under equal conditions (the Airdales and the spectators are under very different conditions/requirements and so "fairness" is not a consideration). This concept of fairness is at the core of Justice: equal treatment when under equal conditions. This can be called the benchmark of justice, whether before law or in the marketplace or on the playing field or whatever. When rules apply, fairness and justice pertain. The application of justice can arouse emotional involvements but it's crucial that calm hears prevail. This is especially true when the two "parties" are NOT equal. Then how does the above concept apply?

Serious business being conducted here. This is no time or place to be show-boating. Never in all my time spent on the flight deck did I EVER observe an Airdale do such a (stupid) thing. It was ALWAYS strictly business (of moving aircraft, launching and landing, putting out fires and generally preparing for the next event which hopefully would not bring catastrophe). Show-boating is the opposite of modesty where here modesty does not connote constraint or shyness. Instead, modesty tends to assuage others' feelings of inadequacy (should they so feel). Modesty is the opposite of conceit (egocentrism), that trait that tends to belittle others. As per the previous page, conceit is not kind for it seems to engender an unnamed, unstated sense of threat to one's stature. It can be said that conceit belittles while modesty reassures. Truth be told, it would seem that conceit signals one's lack of self-assurance (that is, those who are self-assured do not feel the need to strut). It's refreshing in this day and age to see someone win something and then not go into demonstrations. I remember "back in the good old days" when a tennis player won a big match he merely gave a big smile of relief and then quickly shook hands with his opponent. End of story.



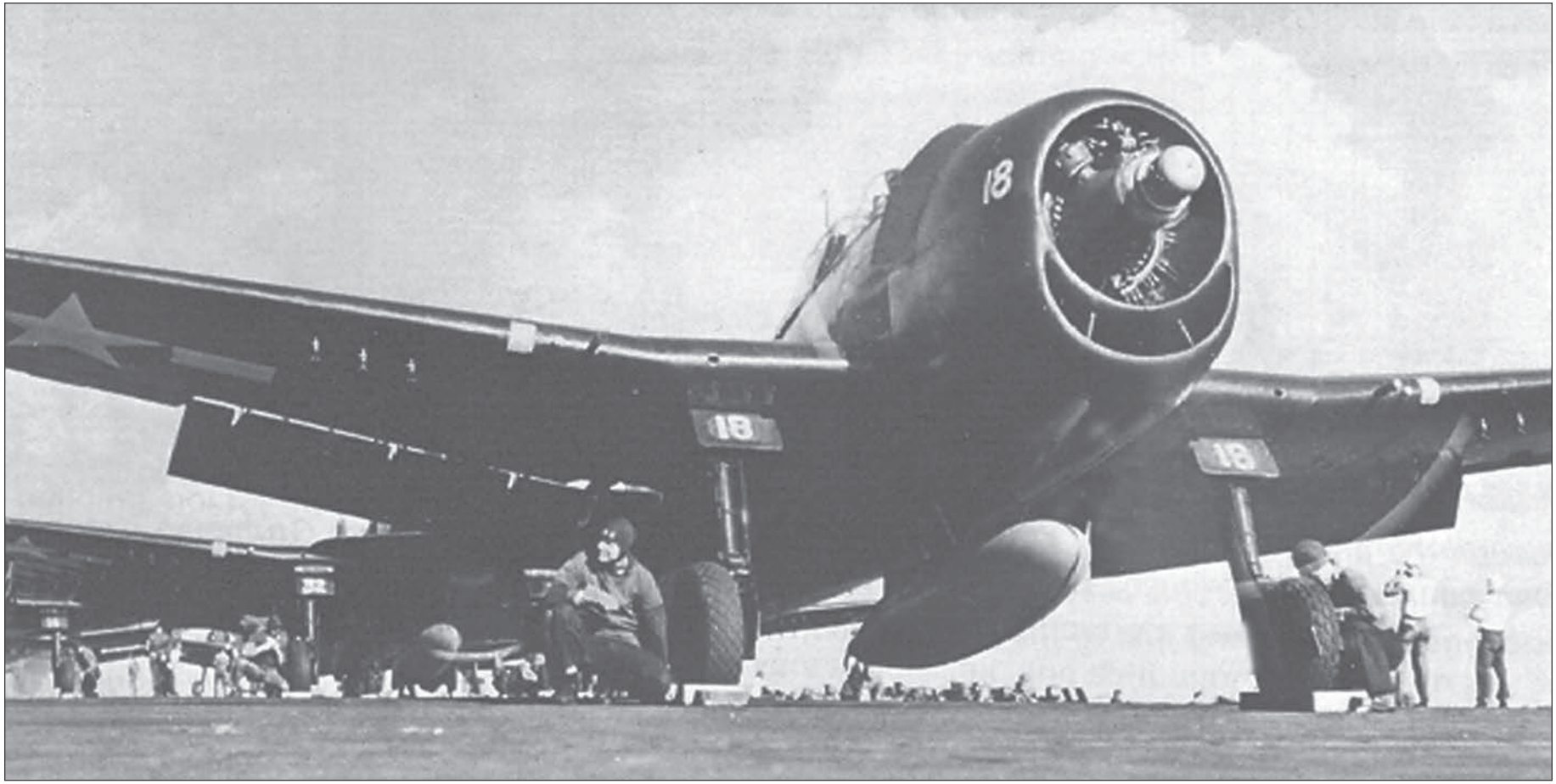
"WHAT'S THE HOLD UP?"

This, down here, is the world of the Airdale. I guess I've been here 2,920 times. This part's easy; the hard part's getting to the wheelchock. Actually, this aircraft's not part of a pack, it just came from a pack, and it's only temporarily at rest. Note the Airdale looking at the yellow-shirt, waiting to get the signal to pull the chock. You're always looking for, or at, a yellow-shirt because the sooner he moves your aircraft out, the sooner you can "get out from under" (get away from the aircraft). I say "I've been here 2,920 times" because that's what it worked out to when you go by the numbers (as explained elsewhere). I can't honestly say it got that much easier after 2,920 times, but then, it was manageable. That's not bad.

This Airdale looks focused, concerned, earnest, and why not? I find earnestness to be a very reassuring trait. I prefer a modulated earnestness when one is discussing a serious topic. Over the top earnestness seems to me to be contrived and not sincere (but that's just my opinion). Earnestness seems to imply honesty, a veracity of what's being said. When I was young and later of college age I went to a church (Union Congregational) that had what I still think was the quintessential minister: He was about sixty years old, still had some hair which was all white and he had a very deferential but strong personality. When he spoke in the pulpit he was for the most part all seriousness. He spoke with a quiet conviction that bespoke of a modulated earnestness. He was far from bombastic but at the same time you felt that he believed in what he was saying with all his might even without being dogmatic. To me, this is the quintessential minister, that man with the "subdued" earnestness, white hair and all. I shall never forget him.

One is strong, one is weak. One is rich, one is poor. Now the law must step in and provide equal protection under law to one and all.

The conditions are no longer equal and it is the function of the law to compensate for this disparity. The rights of the small property owner must be comparable to those of the large conglomerate in a court of law where justice is to have meaning. Justice will apply equally to both big and small but fairness is no so clear-cut. Justice demands a technical aspect while fairness tends to take on an emotional component: the "little guy" attracts the sympathies of most of us when pitted against the "big guy". The underdog garners the interest of the bulk of the uncommitted versus the adherents of the strongest. This makes for a more even confrontation. (Speaking of confrontations, it appears that there are those who seek and even relish confrontation as a means of accomplishing their purposes, useful or not. To say the least, this is burdensome, sometimes grossly so, to those of us who look for satisfactory solutions by means of "friendly" arbitrations. As a subset of this, it can be said categorically that justice deferred is justice denied. Justice is not served.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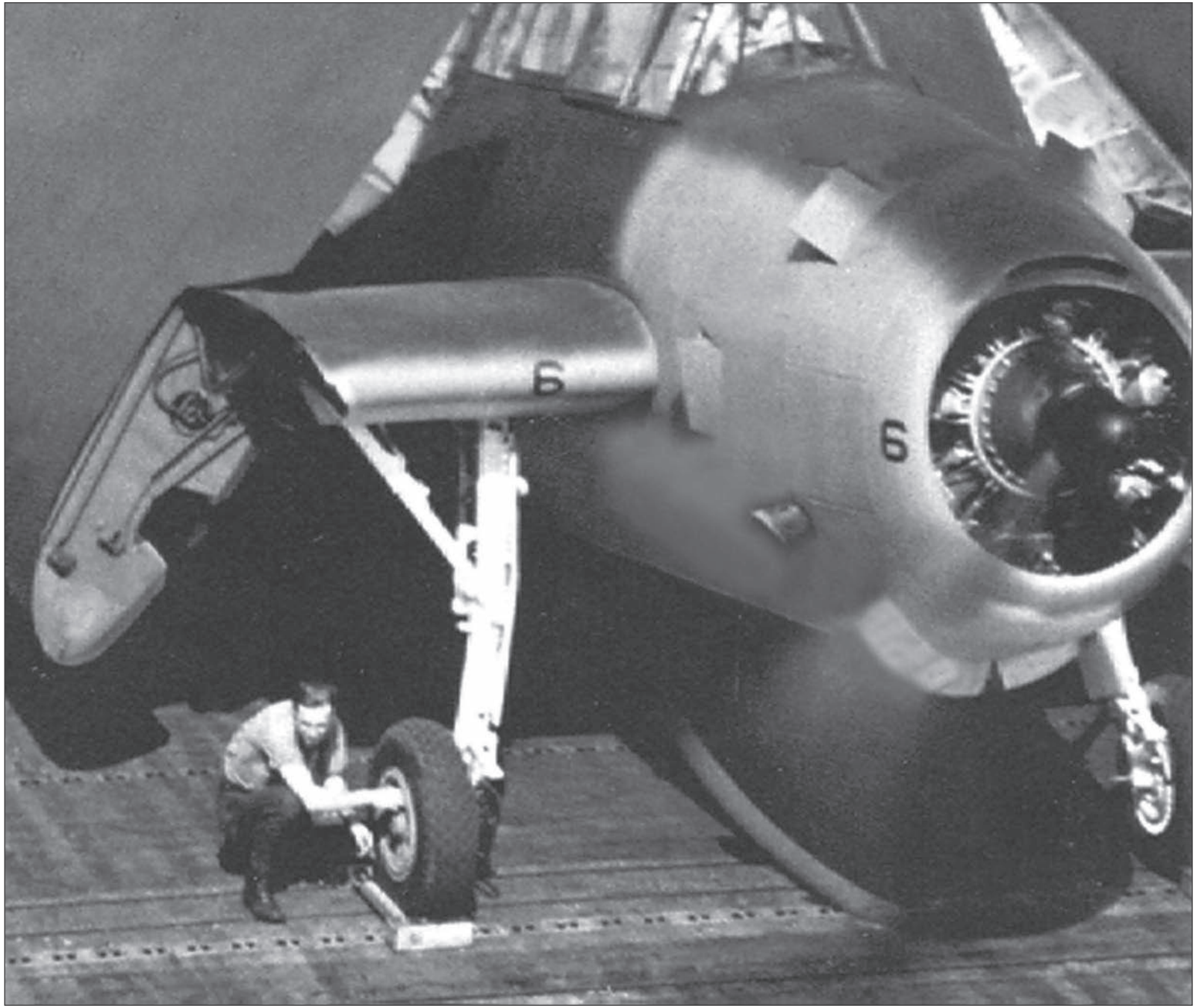
18

BIG AIRCRAFT, SMALL AIRDALE

First of all, since this Airdale has no cloth-helmet, no goggles, no blue shirt, and no flight deck shoes, I thought this could be a picture of me during my first week on the job. Lacking goggles was a definite "drag", but even more so was the lack of traction that leather-soled shoes provided. The hurricane-force winds of the propwash made life difficult without this traction. I thought I was merely being inept, until I realized that the other Airdales all had flight deck shoes. Being "the new boy on the block", they hadn't seen to it that I was properly equipped. Not too long after this I had my gear, including the goggles and shoes. So, here you were, hunkered down next to the wheel, awaiting the aircraft's move out to the take-off line-up. Then the yellow-shirt (aircraft-director), using hand signals, motions to the Airdale to pull the wheelchock. He then uses hand signals to tell the pilot to release the brakes and move forward. The din that this TBM made was "out of this world". To relieve this "punishment of noise", you could (silently) shout at the top of your lungs a full range of expletives (*!#%!*) against this machine that was "taunting your temerity of even being there". But you soon learned that shouting at a machine was futile. It was of course impervious to your rantings, and that incessant, infernal racket only continued undiminished. However, doing it once in a while made you feel better. In a way it redressed the unequal confrontation between you and this machine (that somehow seemed animated). And in a way it also released the tensions generated by that ubiquitous noise. (The ringing in my ears hasn't stopped yet. Is this a disability? I don't think so, but it is, at times, a reminder of things past. And who knows, maybe that has made for an equanimity that has allowed the future to be doable.) Noise is not a necessary part of my life as it is for many while a decent amount of quietude is. I've always been of this nature even as a boy so it's not a matter of becoming old. The beauty of quiet is the reflections it allows you to sort out the comings and goings of one's mind that is "active".

Woe is me! What am I doing here underneath the biggest single-engine aircraft of WWII? Pulling a wheelchock, of course. This TBM won't go anywhere until I do pull it. Then I'll have to accompany this TBM until it rumbles in place ready to take off. In these circumstances the prudent thing to do is to stay close to the wheelchock thus making the wheel-strut available as a security hold-on member. The air blast now won't be able to dislodge me. It hardly seems necessary to say that prudence on the flight deck is the highest priority. Unfortunately, when we are young we scoff at the notion of prudence. "That's an old man's mode". Wrong. The Airdales were young, 18-19 years old young and I can guarantee that there were no imprudent Airdales. They would not have seen their 20th birthday without judicious decisions made when going from here to there. Believe me, caution is no sin. Chose well because those bereft of discernment live on borrowed time. If you're not capable of understanding whether a risk is worth taking you need to "go back to school". If I've come across as being a "wimp", too bad. Personally I don't think I'm that. I would call it intelligence (besides, I played two years, first team offense and defense, on a very good football team). Too often an oversized ego clouds a prudent view. Use your God-given common sense: Evaluate ALL facets of a given situation with your overblown ego tamped down).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HELLCAT BEING UNCHOCKED

This is an interesting view because it puts one "up close and personal". Though not visible, the tip of the propeller reaches out as far as the wheel of the aircraft. So it's about four feet from the Airdale. But that's no problem because the propwash is forcing him away from the propeller. The difficult part is in the approach and the "getting to" the wheelchock. This is a trip with many ramifications, some of which could be a one-time event. But as has been mentioned before, our ship never lost an Airdale in this situation (other ways, yes). Let's face it, these situations grab your undivided attention, and so everyone was naturally exceedingly careful. There were no second chances. Imagine, if you will, the unspeakable noise that accompanies this picture as the pilot revs up the engine (they always did that). Why the Airdale at the left doesn't wear his goggles, I don't know. And the one on the right looks like me before I received my goggles and cloth cap. I can't help saying that this picture resonates with me, on several levels. I wish I kept track of how many times I did this, but at the time, I only thought of the next time, and not the times that preceded it. An Airdale has no choice but to pull wheelchocks. You and I, by comparison, do have a choice:: to show good taste or no. Good taste involves more than tamping down gaudiness and garishness and showiness and bad manners. It means not imposing on others by doing or saying things that will knowingly offend others. It means to underplay, not overplay, your behavior. It means to "underdo", not overdo, your conduct.. It means to low-key, not high-key, your appearance. It means to overdress, not underdress, your natural assets. Grossness is crudeness. Boisterousness is gauche, and yet, and yet, a free-spirit can and should reside in all this tastefulness. It need not be quenched by good taste. In fact, the best kept secret is that the satisfaction of good taste is augmented and enhanced by just such a relaxed free-spirit. The object is to do as you will but all in good taste. Good taste is NOT unmanly: one need not be mousy or timid to be in good taste.

The plane-director (yellow-shirt) has just given the signal to the Airdale to pull the wheelchock. This is one area where the Airdale is under direct directions (as opposed to his going to a wheelchock in the first place, for instance). There is no question that he will take this direction, no questions asked. Often in life we must take directions and almost as often we will question them. This is good in a free society (if this liberty is not abused). That said, it would also be a good idea if we learned early on to take lawful directions. If a policeman says to stop, then stop. He most always has a good reason for saying so and it is not for you to question his authority (if he oversteps that authority he will hopefully be brought to account; it would be well if we would appreciate the law officers doing their duty, for never forget that they are that thin blue line between us and all those bad guys out there eager to take away our security; be respectful of them; the few bad ones will be weeded out). So learn early on to take legitimate directions. Well-founded obedience is a must in any well regulated society (there must be good and judicious regulation for a properly running society; a mechanical control system is regulated at our peril). Thus it is to be firmly desired to learn and maintain a self-discipline The military requires it; it could not function properly otherwise. Are you so weak that you can't do the same?


32

ANOTHER HELLCAT ON ITS WAY

The checkered flag is down and the Hellcat has started rolling down the flight deck. It'll have to generate enough speed so as to raise its tail so as to get more lift from its wings so as to be able to lift off the deck before it runs out of deck about 360 feet up ahead. To add to the lift, the Hellcat's wing flaps are down (notice one of them to the right of the flight deck officer). These flaps are inbound to the ailerons, which ailerons enable the aircraft to bank to the right or left. Notice the distinctive air-scoop just below the engine. This is to provide air-cooling to the engine. Almost all Navy aircraft are air-cooled and radial-engine powered. Apparently these engines are easier to maintain, an important factor when they are out to sea for protracted periods of time. (The Army Air Force had both kinds: the radial-engine Thunderbolt, and the water-cooled, in-line engine powered Mustang). Not being that knowledgeable about aircraft, it will only be said that the Navy aircraft, on a carrier, were very competitive with other air craft, in spite of the fact that they had to take the stress of carrier landings and be required to fold their wings. There are those who have said that the F4U Corsair was the best fighter of the war. I'll leave that to the experts, but the Corsair, with its 2,800-hp engine (at war's end) and 470-mph speed wasn't called "Whistling Death" by the Japanese pilots for nothing. If nothing else, it "looks mean". A deck-load of fired-up aircraft such as this one is directly opposite to the flight deck minutes hence when the flight operation is finally finished. // They say that "opposites attract". Electricity, yes, people to some extent only (maybe). If so, it's their personality which might take on the function of "electricity". The dour and the sprightly, the quiet and the loquacious. All kinds of (unusual) combinations that make people-watching interesting. However, character traits and values should best go hand-in-hand. If not so, they might repel seismically. [Adding to the previous page, my mother was very spirited as some French people are, but she also had very good taste as many French people have.]

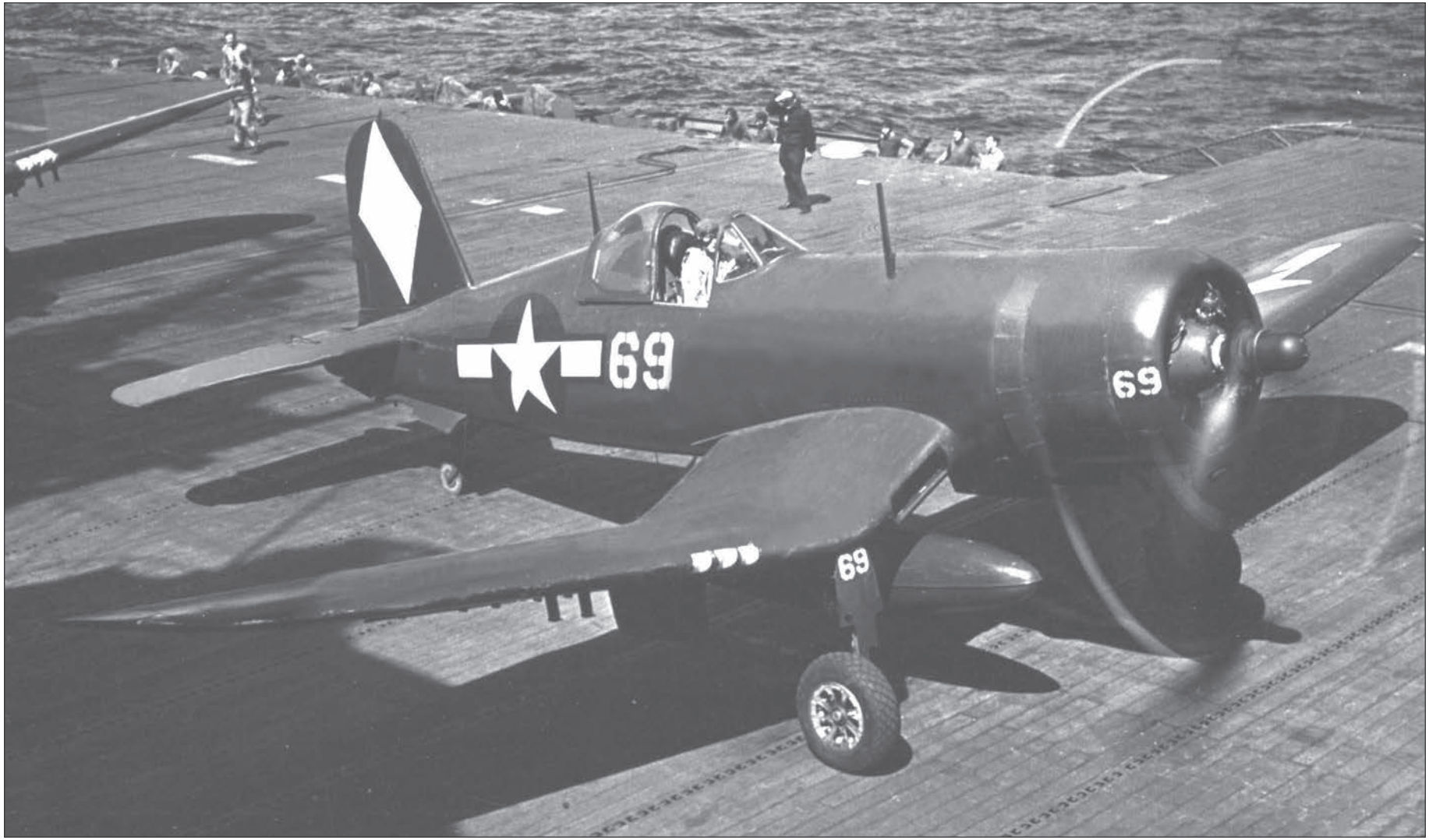
This officer seems to slouch over as if he were discouraged and "beaten down". Not so, he's merely crouching against the wind but be assured he will persevere. How many of us persevere against our obstacles? How many of us stand up to the "slings and arrows" of ill winds? I must admit that my perseverance flagged when in 1990 I gave up on a project that I took upon myself. It consisted of a neural network computer program that I applied to a medical diagnostic system: Each disorder (disease) was presumed to be represented by a unique set of numerical values as applied to about 70 constituent parts of a sample of blood of a sick person. These values could be looked upon as a pattern: X amount of albumen, Y amount of potassium, Z amount of hemoglobin, etc., etc. for someone with a diagnosed disorder. This was to be done for thousands of people for that given disorder. The process would be repeated for those with another disorder. The set of data for a given disorder was averaged so that there was one pattern for each disorder. Now these hundreds of disorders with their unique patterns were applied to the neural network to be learned. Once learned, an actual patient's pattern (profile) was loaded into the computer to be compared with all the patterns as learned by the computer. The closest match identified the disorder. A strong point of this system is that almost anyone could run a diagnosis. I failed to persevere and who knows, it might have worked.


33

A LEAN, MEAN FIGHTING MACHINE

Speaking of the F4U Corsair, here's a good look at one. (What follows may sound self-serving, but so be it.) That Corsair, now there's a presence! To stand, or crouch, next to the wheel of a Corsair as it warmed up its 2800-hp un muffled engine at full power was to experience obscene noise. The noise of and by itself literally shattered the surrounding air so completely that you didn't so much hear the noise as you did feel the noise. In a way, the noise was so intense that it literally shut down your thought-process such that the only thought that seemed to exist was the noise. Such a happening could lead to dire consequences because one was, effectively, immobilized by the sound of the noise. What "snaps you out of it" was that ferociously spinning propeller only feet in front of you, along with the accompanying propwash that assaulted you with a fierce, steady windblast of hurricane-like proportions. You were literally absorbing a physical pounding from an unseen physical forces in that zone of the aircraft's wheel. Yes, there were (are) worse things to endure, but it my humble opinion, not all that many (that are repetitious). One reason that that was so is that, lightweight as this may sound, the Airdale went to, and attended to, that wheelchock, alone. There was no buddy with you with whom you could share reassurances. There was no group consensus about what to do, there was no collected plan of action or reaction. Simple-minded though the task was, getting to a wheelchock was not simple. Doing it once or twice was not significant achievement; doing it over and over again, however, was an exercise in constant fortitude. Trivial in concept, complex in the domain of the senses and sensibilities, it was an onerous job that had to be done. And the Airdale did it, completely without fuss or fanfare. Never did I hear a word of complaint from an Airdale. They just DID what they had to do, and that was that, a routine that was always left unspoken.

We had two kinds of aircraft on board: A hot fighter like this Corsair and a Hellcat, and two rather lumbering bombers such as the Helldiver and Avenger. Both were necessary and both did their jobs well. People tend to be the same (only with a large spectrum). An obvious difference (now to a lesser degree as time goes by) is a man and a woman (vive la difference!). Less obvious are the dog-people and the cat-people who do seem to have, generally speaking, different personalities (going out on a limb, the former tend to be more subdued and intellectual while the latter seem to be more gregarious and emotional; I've had two dogs and two cats and they've been my best friends. What else can I say?) The point to be made is that it takes all kinds of people to make up a society and we should not "take sides". [As an aside, "diversity has received strong play in recent times. This is fine but it is NOT fine when this diversity is force-fed on us. In fact, it's definitely counterproductive. Where once we were receptive to another group we are now resistive to that same group. I'll say it once again: People accept other people based on their character and conduct, NOT their ethnicity or race. Please let the assimilation happen naturally-----and it will if only we're not force-fed what should be natural. A person is a person is a person, not a "commodity" to be "sold". The more they're pushed the more they'll push back.]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69

"LET'S GET GOING"

For the last time, I'll say "this actually does look like me: the kneeling position, the white hat in the back pocket, the readiness to pull the wheelchock, the choosing the first aircraft in line, all characteristic of my first week on the job". Since this book is a personal account and since this picture is so evocative, I'll try combining free-association with deep recall (to use the technical terms) to give a personal accounting of my feelings. The milieu will be the usual full deck of aircraft, "packed like sardines", just as Flight Quarters has sounded. As you prepare to go to a wheelchock (putting on your cloth-hat and goggles), you feel anxious. As you approach the rows of aircraft, you feel nervous. As you crawl to a wheelchock, you feel scared. As you kneel next to a wheelchock, you feel small, you feel diminished, you feel pithy, you feel alone, you feel isolated, you feel trapped. As you are being dragged along as the aircraft taxies out of the group of aircraft, you feel bullied. And after you deposit the wheelchock to the side, you feel relieved and validated. And then you turn to face the assemblage of aircraft, figuratively take a deep breath, and repeat the cycle another three times over a period of thirty minutes (90 aircraft are launched in 30 minutes). This then is the sequence of your gut-feelings during a launch operation. Overall, tense, but manageable. Is this a reasonable way t react? Here I'm dealing essentially with emotions but intellectual reasoning should not be ruled out. If you don't reason, and reason correctly, you'll arrive at a wrong conclusion which will take you to a place at which you should not be,both physically as here or intellectually as in the unfolding of a democracy. The realm of reasoning takes us into the labyrinth of logic. Logic can be consider in two parts, the art and the science. The art of logic requires skill in appraising the correctness of reasoning, the incorrectness of reasoning and in reasoning correctly. Society depends on the capability and capacity of reasoning by its citizens. If we do not recognize that some things presented to us in the media do not "compute" then we are in jeopardy of losing our independence, the justification of our Constitution. The science of logic seeks to develop methods and principles for detecting correct from incorrect reasoning. Reasoning is a process in which a conclusion is reached and affirmed on the basis of one or more propositions accepted as the beginning of the reasoning. Is the conclusion reached supported by the premises used? The premises must be solidly grounded to validate the conclusion. The logic approach requires that the proposition be either true or false, not partially so. Propositions can be posed in many different ways but all these ways must be unambiguously the same. This puts a burden on the one formulating the propositions because language has a way of sounding the same but in fact carrying different meaning upon close examination. This is why it's vital that people learn to speak and write with PRECISION. It is not easy because words have specific meanings, especially when used in different combinations. Be concise, be precise when composing propositions.

Reasoning capabilities strongly impact decision-making abilities. They determine how one arrives at given conclusions, a crucial part of a proper functioning society. In large part it determines whether we as a democratic society steer a course toward stability and rationality or not. (A satisfactory society demands a well-educated populace!). Many people have preconceived and/or faulty, aberrant notions about even the most fundamental of things (where are the schools?). These in turn lead to all kinds of deleterious results. [I'm showing yeoman restraint by not delving into things political or religious.(a politician often is "between a rock and a hard place" when mediating between his/her convictions and the desires of his/her constituents: we are after all a representative government).] The essence of competent reasoning is the verification of the facts of the situation, often not reasonably within our purview. That can't be helped but what can be done is to adequately realize that the fact(s) are not known accurately. Then, if one is interested enough, one can "dig the facts out into the light of day". Without premises that are true the path to a useful solution/conclusion will be less than moot (of no practical value); in fact it might well be counter-instructive to a satisfactory resolution of a situation (to say nothing of the injustices that may derive. While it's correct that there can be multivariable paths to

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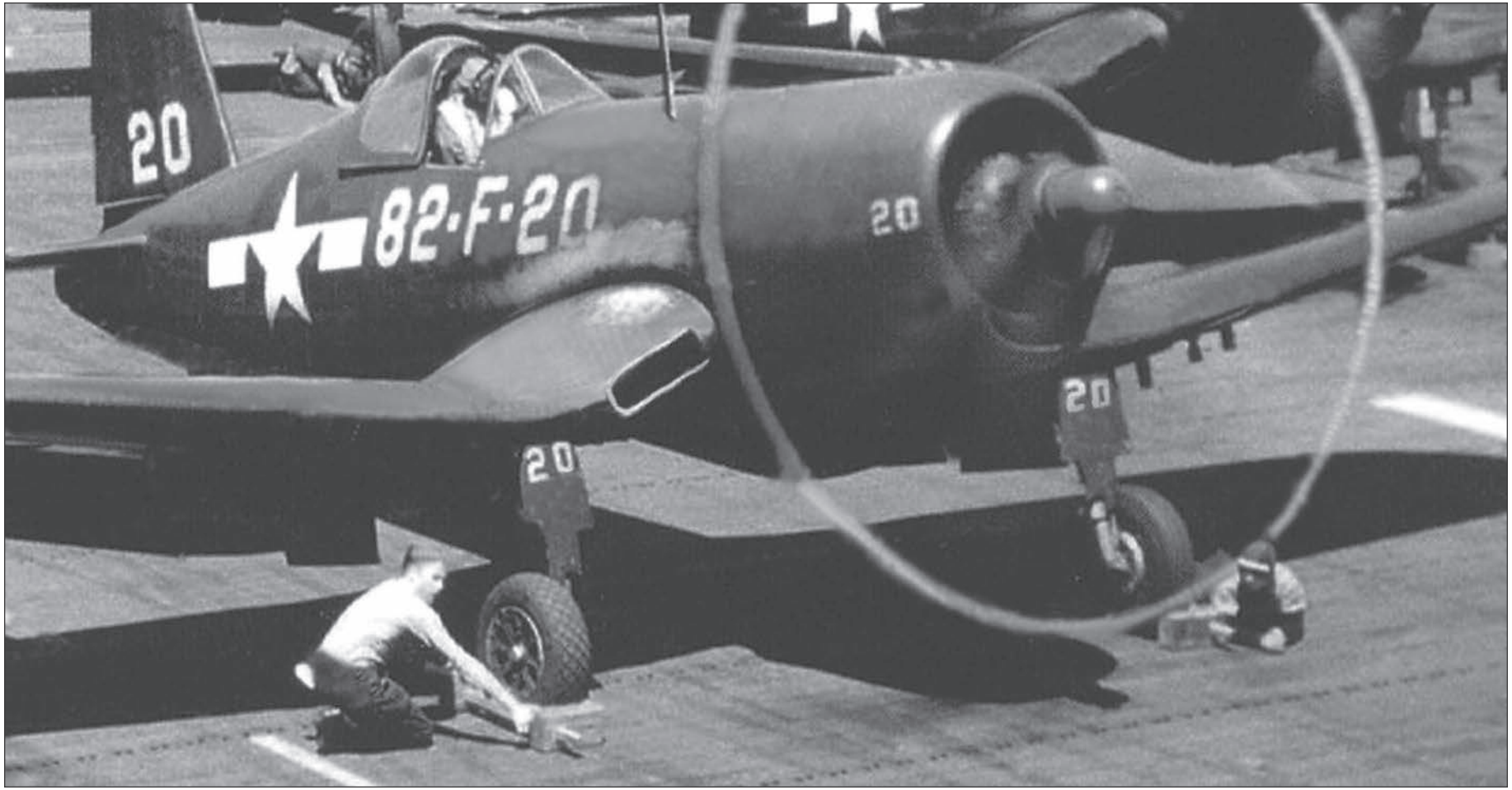

As I kneel next to the right wheel of the Corsair less than a week after having been transferred to the Airdales from the Navigation Division I watch intently the yellow-shirt for his motion to remove the wheelchock (How do I know that it's I at the right wheel? I know by virtue of the fact that I am not wearing a blue shirt, a blue cloth helmet, goggles and brown non-skid flight deck shoes.) It would be a few days before I received them. Not too much later I'll be more casual at the wheelchock, I'll have faded and worn dungarees and I'll have become a "veteran" Airdale. It's appropriate to say this now because today, as I write this, it is November 11th. It would be another solid year before this duty would expire and I'd be sent home, physically diminished but mentally the wiser for a mere teenager.

THE CORSAIR LOADED FOR ACTION

Why those Airdales seem to be holding up the wings is a puzzle. The other two Airdales are walking the aircraft forward, chocks in hand, as they should. But I can tell you that it's not as easy as it appears because they're walking into a "hurricane.' That's why they're holding onto the wheel-struts. Notice the yellow-shirt looking over to see if there is a clear deck up ahead. That's minimal armament for a Corsair. As has been previously mentioned, I've seen pictures of them carrying 5,000-lbs of bombs. Again, with that, the range and speed is reduced. This looks like a new ship, or else the flight deck is newly painted. When we painted the flight deck, we used buckets of paint and mops for "paint brushes." It took the full crew of Airdales one day to do the job. Since the Airdale has no cloth-helmet, it must be an "old" ship with a new paint job.

Continued from page 388.

the truth one need be careful about this (deriving the truth is not a sometime thing where lives and reputations are at stake ("Steal my money, you steel nothing. Steal my good name and you steal all"). Be aware that there are those who try to manipulate the "facts" to fit their desired outcome. The best that can be said of them is that they're selfish. They lie their way to their own ends. Another ruse that these people inflict on others is the omission of pertinent facts, just one of which could completely reverse the results of the reasoning. One must be sure to deal in solid facts, not fanciful notions, lest one be led down the primrose path (led astray). Problems are usually divided into two categories, deduction and induction. Every argument presumes that its premises are evidence for the truth of its conclusions but only the deductive method presumes its premises provide conclusive evidence for the truth of its conclusion (the presumption may be true or not). The technical term "valid" refers only to deductive arguments: a deductive argument is valid when its premises do provide conclusive evidence for the truth of its conclusion. That is, it is absolutely impossible for its conclusions not to be true when its premises are true. Otherwise the deductive argument is invalid. By comparison, the inductive argument only claims that its premises provide some evidence for the truth of its conclusions (the claim is not hard-bound). Inductive arguments are said to be more or less probable (not conclusive). Both types of arguments will be found throughout life, including the sciences. Linguistics is critical to the logistician. Language can and does obscure the precise meaning of a given premise and can lead one in the wrong direction. Inappropriate premises are called "fallacies". The world unfortunately is full of fallacies some inadvertent while others are deliberate. One must constantly be on guard for such things where the outcome is crucial. Words, sometimes simple words, may have a multiplicity of meaning when used in different contexts. This is common knowledge but is it common to be alert to their usage? Unfortunately, there are those who care not for subtleties ("manliness" scoffs at such nuances and so he barges through the brush instead of circumnavigating it or at least wending his way through it with intelligence; smartness trumps bull-headedness). One caution

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FLAPS DOWN, RPM UP

Another rainy day that often spells trouble due to slips on a wet deck. (But not nearly as bad as trying to negotiate your way around the flight deck when wearing leather-soled shoes. When the wind takes hold of you, you feel somewhat helpless) I think this is a good view of the Corsair and its unique gull wings. Notice the wing-flaps are down to provide added lift at take-off. This is one of the things the launch-officer checks. Aircraft go into the water without the flaps down. We had such occurrences. Since, when that happens, the aircraft is not that far in front of the ship, the OOD (Officer of the Deck) and helmsman have to be alert so as not to run down the aircraft. The aircraft floats for a sufficient enough time that the pilot can get out of the cockpit and onto the wing. The following plane-guard destroyer then quickly picks up the pilot. Later on he'll be transferred to the carrier Foul weather operations had a special urgency for all concerned.

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should be stated here and now: "ad hominem" argumentation (attacks against a person, not an idea) are the techniques of a man cornered and are not to be tolerated. It implies a person bereft of solid ideas or confidence in his ideas. It is a show of weakness, it is a display of extreme incivility, an admission of abject hollowness. Don't submit to this artifice of defeat. Besides, it's grossly bad mannered (and we've all done at one time or another). Another item against which one must be on guard is the circular argument in which the proof desired is used in the proof. An example could be, "Ti allow everyone an unbounded freedom of speech must be advantageous to the state because it is highly conducive to the interests of the community that each individual should enjoy complete liberty in expressing their sentiments". Also be aware of those who try to persuade you by using phrases that elicit strong feelings such as, "It's the American way". Any time others use personal vindictiveness be extremely wary of the content of their argument. Often others will willfully use irrelevant premses abject hollowness. Don't submit to this artifice of defeat. Besides, it's grossly bad mannered (and we've all done at one time or another). Another item against which one must be on guard is the circular argument in which the proof desired is used in the proof. An example could be, "Ti allow everyone an unbounded freedom of speech must be advantageous to the state because it is highly conducive to the interests of the community that each individual should enjoy complete liberty in expressing their sentiments". Also be aware of those who try to persuade you by using phrases that elicit strong feelings such as, "It's the American way". Any time others use personal vindictiveness be extremely wary of the content of their argument. Often others will willfully use irrelevant premses to persuade you toward specious claims. Finally, always consider very carefully the premises being used: again, words have specific meanings as used in specific contexts. If the two parties are not "on the same page" in this respect, they will only be talking past each other, becoming more and more exasperated with each other. Personally, I believe no useful

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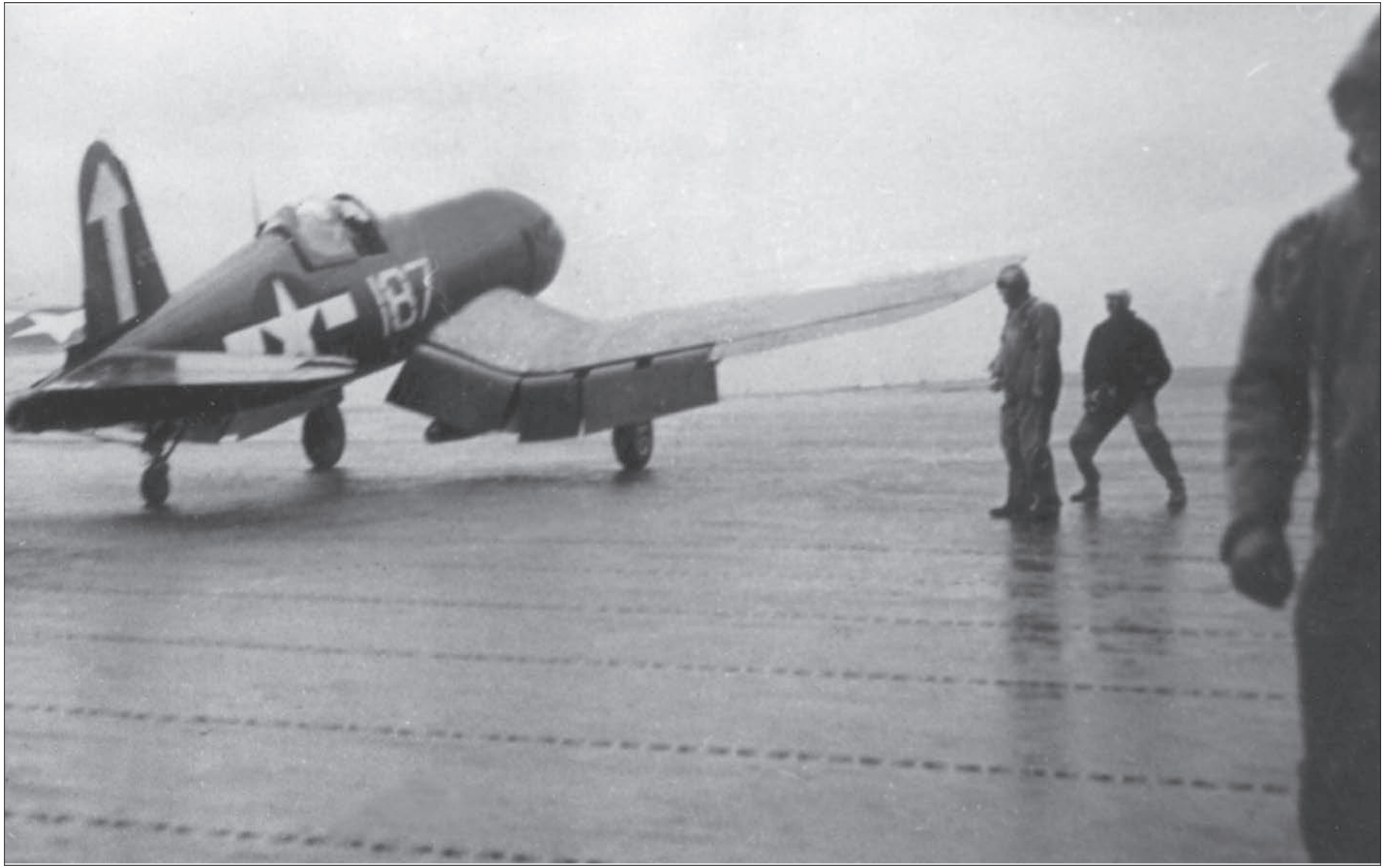

READY TO LAUNCH

Now that's all airplane. What more need be said, except that, as previously mentioned, there are many who credit the Corsair with being the best fighter in WWII. No other had such a large propeller (except the Hellcat), and no other had such a powerful engine (up to 2,800-hp). As previously mentioned, it could carry 5,000-lbs of bombs (a torpedo weighed 2,000-lbs). It was a very fast, capable fighter as well as being able to carry that sizeable bomb-load, as a bomber. The primary objection to the Corsair was its instability, and it did have a good share of shipboard crashes. Much has been written about the Corsair, and there was a "Hollywood-type" TV series called "Black Sheep" that has some good photography of Corsairs "in action". (The storyline of the show is inaccurate, but the aerial shots are excellent, and in color.) [The power being generated here is quite literally, awesome; you'll know this when you stand next to it. I can feel it now, sending shivers throughout my entire being,, both physical and emotional. I never really became used to it.]

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results can occur unless the discussion (argument) is conducted in, for want of a better word, in a civil fashion: the more heat, the less light (Yale's motto is "Lux et Veritas".

For an argument to be conclusive, ALL relevant premises must be present. There can be that one unstated premise that countermands the proposition as presented. It's a n example of "yes, but ". Reasoning properly should not be a "sometime" thing. We are constantly making personal decisions, big an small, and the results of careless thinking affects not only our school grades but also our very well-being (a comprehensible bout of reasoning about speed-driving could well be the key to your, and others', health). I've said it before and I'll probably say it again, a democracy will not thrive, or even be healthy, without a modestly knowledgeable populace that is able to reason with a certain adequate level of competence. To reason well does require a certain amount of practice. It's WORTH it.

It's true that some premises are more important than others and premises can be similar to colors in that there are all shadings of colors. Serious reasoning can be serious business as in trying to derive a new drug that will cure the world's ills. The sciences are replete with such reasoning (thinking) that it behooves all of us to at the very least become aware of what it is that our scientists are doing. Again, we take so much for granted, and this is WRONG; just as wrong are those who even partially argue on the basis, of prejudice. The prejudice need not be concerned necessarily about people but also about inanimate things that have an emotional content (a house can have an emotional content). Premises precede propositions and those propositions are defective if the one who proposes deliberately misrepresents the premises. Sometimes the misrepresentation takes the form of an outright lie. What to do about that? The best thing, I believe, is to examine these premises in terms of rationality: is the premise rational? More fundamentally, does the premise "make sense"? Here we must have a

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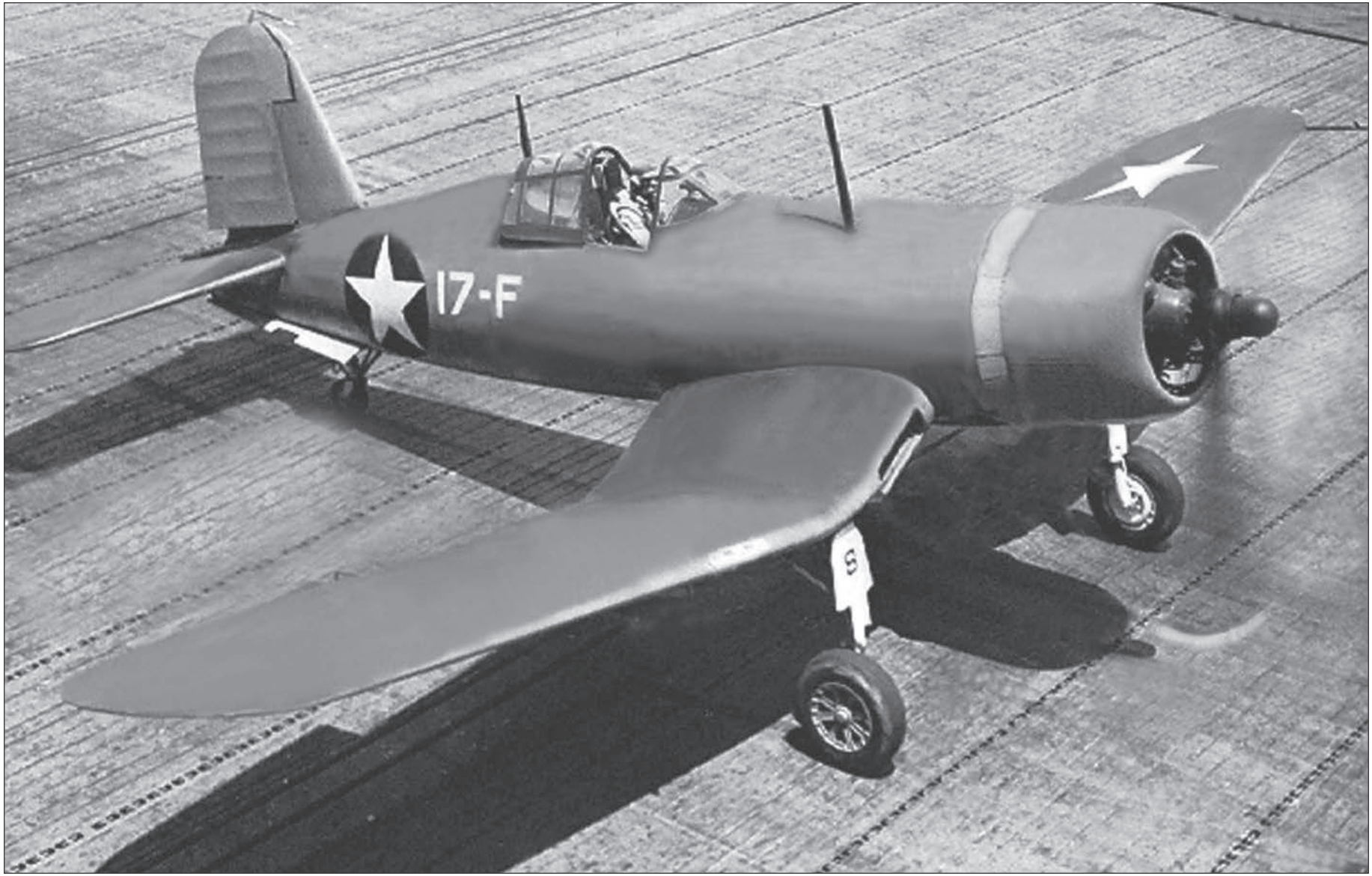
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TAIL UP, NOSE TO THE WIND

Same plane, different view. The stick is moved forward soon after the brakes are released at the launch-signal so as to raise the tail to the horizontal position. Note the wing-flaps are down. Those panels pointing downward just back of the wheels are the covers for those wheels when the wheels are retracted. He'll reach a speed of about forty miles-an-hour as he leaves the end of the flight deck. That, plus the 35-mph wind speed over the front of the flight will be enough to get him airborne, using those wing-flaps. And then, if there's a problem with gaining altitude, there's that fifty feet that the flight deck is above the water. Of concern, in rough weather, is whether the ship is pitching up, or down. It's very difficult to account for this, and actually, I don't think they did.

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reservoir of knowledge to be at our beck and call.(did I hear someone say "school"?)

As an example of a situation that doesn't make sense, that is irrational, consider for instance a dwarf who continuously kicks the shins of a group of giants (there are those, big and small, who consider the concept of confrontation to be a beneficial mode of conduct as a matter of policy; even if their motives are well-meaning it would seem to be grossly misguided). Rationalization can be considered the basis of the "scientific method" which has served mankind so well. (It served me well when I was young and confused and I inadvertently used some aspects of it to right myself during a spell of rough weather). The "scientific method" starts by observing a "problem" and then trying to explain it. Before attempting to resolve it one of the requirements of this method is the requirement of dealing only with those things that are relevant. To describe a situation, one must ask, "What are the particulars (relevant) and observable facts?" An explanation attempts to account for the facts observed, to show why they are what they are. (the observed rotation of the planets around the sun are explained by the fact that the gravitational forces are balanced by the centrifugal forces). These principles of explanation are eventually called "laws". The formulation of these laws are accomplished by the scientific method (to follow). First must come observation and measurement. This involves the collection and description of facts. The more precise this aspect is the better will be the results. To wit, the observing instruments must be precise and accurate. Also the observer must not be swayed by preconceived notions (he/she must not be emotionally involved: the readings must be objective, not subjective). Further, the observations must be as comprehensive as possible without favoring some data over other data. Some observers are more experienced than others and so observe things not observed by the less experienced person. Previous hypotheses known only to experienced researchers also plays a significant part in the process of gathering data. Further, it requires the ability to interpret the data as to whether it's appropriate or not. The principle of causality of data must be a tool of the experienced researcher. A previous theory is often helpful in

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"GO" SIGNAL GIVEN

This Hellcat has been given the "GO!" signal and is starting to go down the flight deck. Notice the white flag next to the Air Boss. "White" means conduct operations while "Red" means the opposite. Just below the flag is the signal-bridge and the signal-light for communication between ships. Back to the right of the flag is one of the loudspeakers. Should problems arise on the flight deck during flight operations, the white flag would be replaced by a red flag. This is primarily done during landing operations (next chapter). Again, notice the wing-flaps are down to provide greater lift capability to the wings. It's unusual that there are no personnel out there. Maybe this aircraft is the only one being launched. That "stick" pointing upward behind the pilot is the mast for the radio aerial that goes to the top of the aircraft's tail.

(cont. from p. 306) As I kneel next to the right wheel of the Corsair less than a week after having been transferred to the Airdales from the Navigation Division I watch intently the yellow-shirt for his motion to remove the wheelchock (How do I know that it's I at the right wheel? I know by virtue of the fact that I am not wearing a blue shirt, a blue cloth helmet, goggles and brown non-skid flight deck shoes.) It would be a few days before I received them. Not too much later I'll be more casual at the wheelchock, I'll have faded and worn dungarees and I'll have become a "veteran" Airdale. It's appropriate to say this now because today, as I write this, it is November 11th. It would be another solid year before this duty would expire and I'd be sent home, physically diminished but mentally the wiser for a mere teenager. (cont.)

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validating the applicability of observed data. Observation usually goes from the qualitative to the quantitative. That is, verify the usefulness of a quality and then quantify it in the realm of preciseness. Sometimes detecting and measuring devices must be designed and fabricated to enable the scientist to accomplish progress in the collection of data. Often these devices are more complicated than the object being observed. Very often statistical analysis must be done to provide observational data from which scientific interpretation may proceed. Measurements of all kinds are necessary to support quantitative analyses. Care must be taken because physical conditions can affect the physical measurements. Care in this area can be critical to the outcome of scientific inquiry especially in the microscopic dimensions of physics and biology. [It is here that one stands in awe of the composition of the world in which we live. We are truly "Fearfully and Wonderfully Made".] To be sure, the understanding and ability to handle mathematical concepts are a must for any scientist. The calculus is just one (important) aspect of mathematics in the scientists' "bag of tools".

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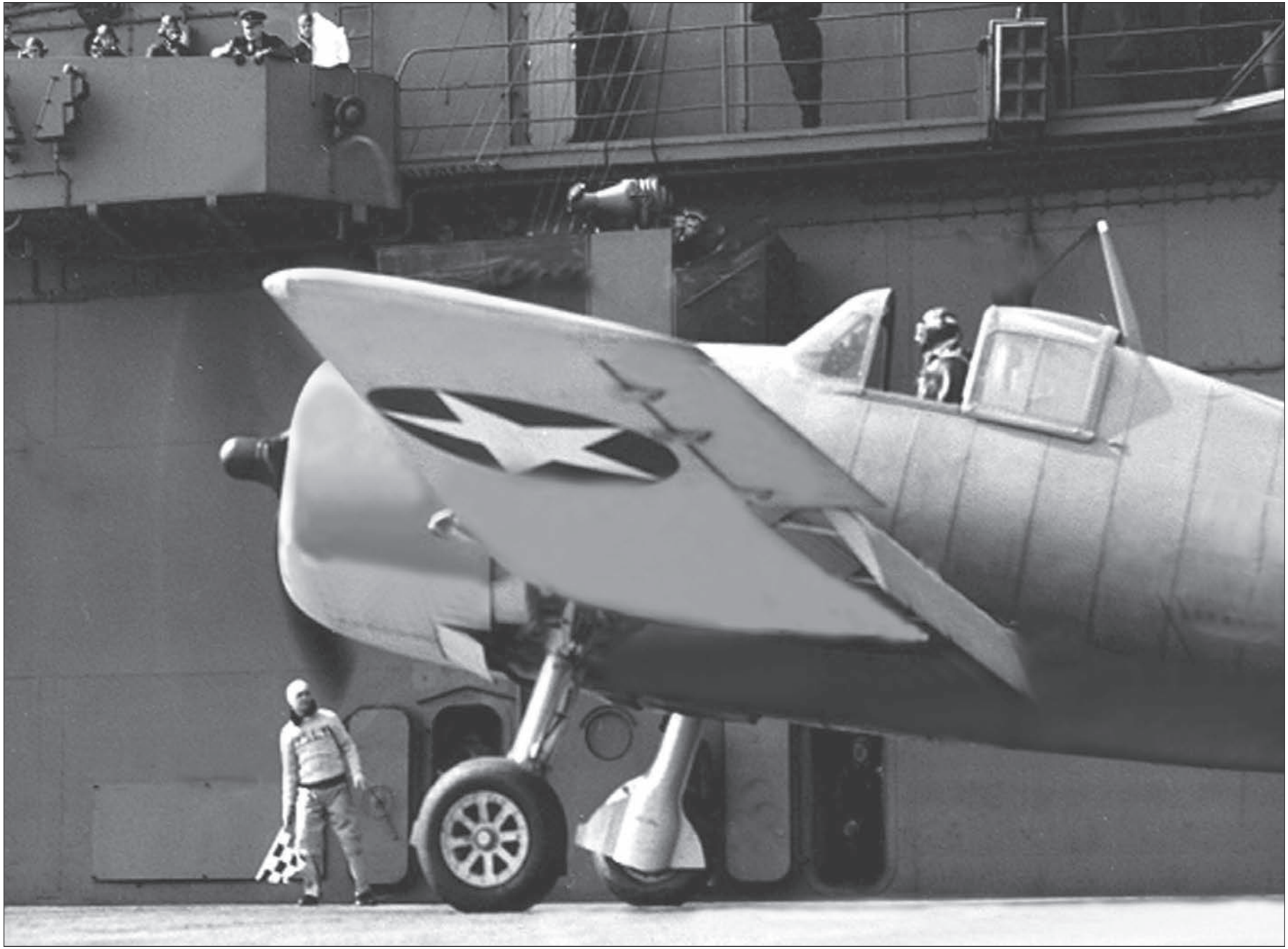

NOT YET

This hellcat provides a good view of the auxiliary fuel tank. Sometimes they rupture upon landing, causing a fuel leak and fire hazard. (See the "Mishaps" chapter.) Also, the wing-flaps are down. Final instructions are made known by the tote-board and the launch-officer is about to give the "Go!" flag. This is a nice "Airdale's view" of the world of the flight deck. Those others, those spectators up above on the island catwalk, have a different view. Looking at this picture you can feel the ferocious power of the furiously spinning propeller, you can hear the deafening roar of the unmuffled 2200-hp engine, and you can lean into the irresistible propwash pushing you backwards. It's an extremely dynamic world. In another second, the Hellcat #5 will be rolling down the flight deck, leaving you somewhat stunned by the noise and the "wind-lash". But it's only one of ninety such occurrences. And then the process is repeated again that afternoon. Although it's never just the same each time, there is a certain rhythm that permeates all flight operations.

it takes for the radar's transmitted energy to go out and back from the target. The target bearing and elevation are functions of the physical LOS which is the bearing and elevation of the director-antenna after the target has been designated and acquired by using signals sent from the CIC. (The radar's transmitted energy is formed into a narrow beam by the shape of the radar antenna-dish; conical dishes are apt for this purpose.) Along with the above values of range, bearing and elevation sent from the director (radar) are values of estimated target course, speed and rate of climb. All these signals required a great deal of cabling between the Computer Mk1 and the radar/director (the ship is replete with, all over, cabling, especially radar and communications cables). Now the various radar components (cont.)

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Besides observation, scientists make use of experimentation. Experimentation differs from observation in that it involves the deliberate disturbance of the situation from its normal condition or process. This procedure assumes that every event in nature is completely determined by the certitude of the conditions of the physical environment and that changes in these conditions are followed by corresponding changes in the event itself. When the original conditions are reestablished the original event is restored. Exploratory research is done to "see what happens", thus gaining insight as to how further to proceed. Some experiments are conducted to refute existing theories: Galileo performed experiments to die prove the Aristotelian Law that all material bodies will fall at a with velocities proportional to their weights. Sometimes experiments are performed to verify an hypothesis (an idea that appears to be valid) or approved one hypothesis over another one. To repeat, every event in nature is determined by ascertainable conditions of its physical environment and that changes in conditions produce corresponding changes in the event. This is the justification for experimental processes. This means that negative

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SPECTATORS WATCHING THE SHOW

Here's a good view of the island, all of which has been described elsewhere: Flag Bridge in front of Signal Bridge, Navigation Bridge in front of Air Boss Bridge, and After-Navigation Bridge back of Air Boss. This F6F Hellcat will be on its way down the flight deck and soon will be airborne. This is a typical looking picture. This is the way I remember it. Actually, when I was still in the Navigation Division, this is what I did (watch) when not on duty. The people seen in the superstructure were on duty there (Navigation, Signalmen, Radar men, Gun Fire Control men, and various officers of those divisions). The spectators seen elsewhere on the flight deck were for the most part brown-shirt plane-captains and also working yellow-shirts. When I mentioned that I had no training when I was transferred to the Airdales, I should have said I had this observation-training beforehand, and it was useful to have had this "experience." Notice the two Airdales at each wheel (SOP). Also, the Air Boss (under the loudspeaker in the middle of the picture) has the red flag out, putting everything on hold: the launch-process has yet to start, and those two Airdales might be there for the next ten minutes. Who knows? The multitude of ships in the task force operate in unison, and perhaps others are tardy, so "we" here on this ship wait.

will be considered. First though, it should be said that as the radar tracks the target there may be an error (voltage) generated. This voltage is the input to a servomechanism that brings the antenna into conformance with the LOS (reducing the error voltage generated by the radar system). Thus the servo is used to physically provide tracking of the target by decreasing the tracking error voltage (there always has to be at least a slight error voltage input to the servo to provide a signal to the amplifier which feeds the motor that turns the antenna). The radar set includes a synchronizer (timing) electronic circuit. These trigger pulses control and coordinate the electronic circuits of the radar system. It governs the pulse repetition frequency generated (cont.)

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results are almost as useful as positive results. Various factors of a problem must be varied one at a time as the others are held constant to determine what effect that factor has on the system. Concise definition of the problem at hand must is a must in order to verify the results. Complex problems must be analyzed in parts while their interrelationships are duly noted. The biological and social sciences usually require "control groups" to monitor the progress of the problem being studied. Observation, collection of facts, measurements of data and exploratory experimentation are just the first steps in a scientific investigation. The facts thus obtained must be interpreted, coordinated and made a part of a coherent system of knowledge.

First, one needs to classify the accumulated, relevant facts. This is especially true in the descriptive sciences such as biology and zoology. When assembling these facts into groups, they must not overlap. That is, a fact can be placed into only one group, no others. Each group should have a unique, specific characterization. The more fundamental the nature of the group the more significant a group becomes. The essential, not superficial, factors

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RELEASE BRAKES, FULL THROTTLE

Same as preceding page, different view. We Airdales weren't in this area of the flight deck during launch operations. After we "deposited" our aircraft at this location, we returned back aft where all the other aircraft were, to make our way to another wheelchock at another aircraft that was revving up in preparation to move forward to this take-off spot. It's back aft where all the "wheeling and dealing" was going on. This was "our turf". It was where we "earned our keep". Never a word was said, but everyone knew what to do: somehow, by some stratagem or other, get to a wheelchock and wait. Wait as you pondered whether an aircraft would overrun another one as it proceeded forward to its take-off spot, spraying you with shrapnel (the sharp debris of an aircraft's shattered tail-section). Since it was prescribed to launch an aircraft every 20 seconds, mistakes were made, miscalculations were committed. It was best to stay alert to such happenings, and this was the case for not being casual (or CARELESS). (In truth, to be careless on the flight deck would seem to be an oxymoron.)

generated by the transmitter. It coordinates the sweep voltages that allow the radar console to stay in step with the antenna rotation. The transmitter generates the pulses or continuous radio frequency energy that is used by the antenna system to radiate beamed energy toward the target. A modulator in the transmitter imposes intelligence on the transmitter's carrier wave. This intelligence usually consists of turning the transmitted energy on and off to form pulses. The energy returned by the target is directed to a receiver in the radar set. The synchronizer turns the transmitter off during this short period of time. These high frequency signals are sent to a mixer (cont.)

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make for a better grouping. This usually involves the elements of induction., the very essence of the scientific method even if it is only a phase in the process. Of the various forms of induction, all forms have one thing in common: the enumeration of facts to arrive at a consensus. However, care must be taken because one can never know if all cases have been considered: the x+1 polar bear might in fact be black. The point is, have we seen ALL the polar bears? The more instances we have of a given group, the better we are able to ascertain what is essential to that group. Here statistical analysis will help. Without a sufficiently large sample we could be deluding ourselves about the data we derived. The distribution of the source of data may also be insufficient to represent a satisfactory sample (statistics may be obtuse but it's necessary and important tool for the scientist). They say that anything can be proved by statistics but this is an unnecessarily jaundiced view. Looking for regularities is a one of the ways of increasing our knowledge of the world of nature and its derivatives. Recently (relatively speaking) the use of computing power and computer software has opened up a large new universe for the scientist.

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THE BOMBERS NOW LAUNCH

This is an Avenger, the biggest single-engine aircraft of WWII. It's already started its run down the deck but isn't going fast enough, yet, to get its tail-section off the deck. The more horizontal the wing (as when the tail-section is off the deck), the more lift provided by the wing. Those wings are so large that the Avengers don't have to be going as fast as, say, the Hellcat or the Corsair, whose wings are smaller. It also seems strange that, being a bigger aircraft, the Avenger's engine is less powerful than the smaller Hellcat's engine. Grumman Aircraft designed both aircraft, so their savvy is implicit in both aircraft. For some reason, there's a crowd of people behind the 5-inch gun mount. I'm quite sure they're not flight deck personnel. They're just there to watch the proceedings.

where they are combined with the output of a mid-frequency local oscillator to bring the received energy frequency to more manageable value. These intermediate frequencies are then amplified multiple times to increase the returned signal to manageable values. An electronic video detector then converts this voltage into video pulses to operate a radar video console which displays the received target data. These signals are also applied to the range and bearing track circuits. Thus the system consists of synchronizer (timer) feeding electrical signals to the modulator and the console indicators The modulator output is fed to the transmitter which feeds its output to a duplexer. This acts as a "traffic cop": He first allows a signal to go from the transmitter to the antenna, then closes that circuit to allow a received signal from the target to go to the receiver. Next the receiver is shut off and the transmitter is given access to the antenna, and so on. There are several (cont.)

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Proper interpretation will always be a key ingredient in any scientific endeavor, and this comes with experience in the scientific method. The laws of nature are often tightly locked in the esoteric world of nature and are revealed only by diligent attention to not just the details but also the "Big Picture" Keep a sharp eye out for significant interrelationships. These are often hidden but when found the complexities unravel themselves. The answer could urn out to be elegant in its simplicity. What could be more "simple" and elegant than E=mc^2? Data that has been omitted or overlooked can be the cause of unsatisfactory results. Observation, measurement, inductive generalization and statistical analysis are the precursors to interpretation and explanation of previously unknown phenomenon. The preceding account or description brings us to the final desired conclusion: what does it all mean? Now we formulate hypotheses that will be tested to generate laws of nature. Knowledge has now become systematized and amenable to replication under diverse situations: Bernoulli's Law applies in all cases. Emotions have no meaning in these laws and nature, if accurately applied, will repeat itself. What could be

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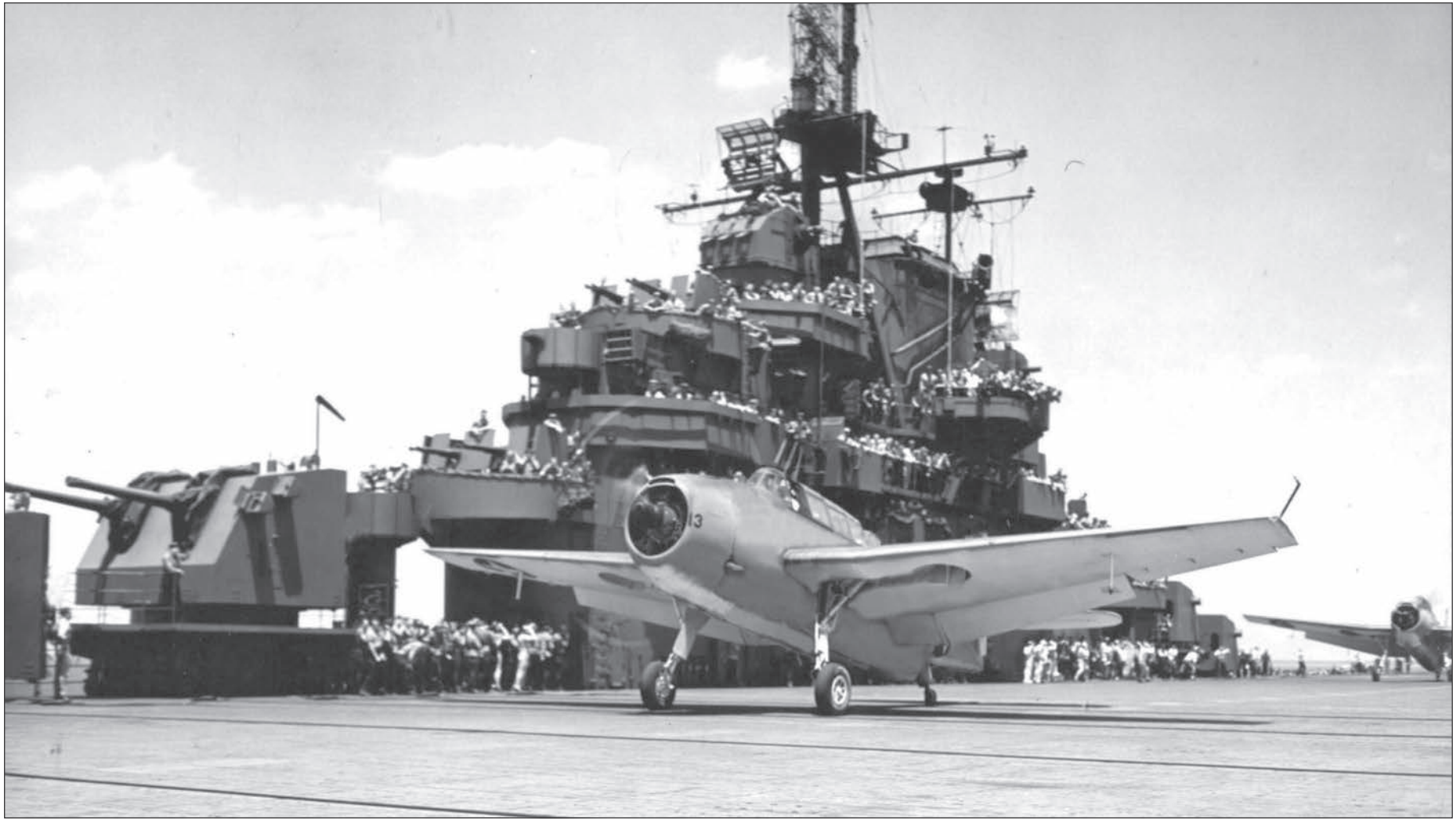

READY, SET…

The rings seen in this picture are the condensation of moisture. (This is not the time or place to go into a physics explanation.) The checkered flag is about to go down, signaling the pilot to release the brakes and maintain the full throttle. Those people next to the island must be plane-captains and mechanics. They are not Airdales. All the Airdales are back aft pulling wheelchocks among the rows and columns of the aircraft on the flight deck. They're crouching and crawling and clawing at the deck-cleats. They're leaning on the wind and grabbing and grasping anything that doesn't move. And sometimes they're sweating and quietly panicking if things suddenly become uncertain and unsure. Not to put too fine a point to it, sometimes they quite literally are fighting for their very life, against forces seeming to conspire to make it so. There are no second chances on this constricted "field of play", where hurricane winds, shattering noise, and furious propellers all hold sway. "But WHEN will it end? After another 1,000 times? Melodramatic? Yes. Accurate? Yes. Necessary? Yes."

different radar systems on board a large ship such as a carrier. We have very briefly discussed the FC radar set. The ship also has a long range search (three dimensions) radar, mid range radars (two dimensions) and a couple more general search radars. They all are composed of the same type units: synchronizer, modulator (pulse generation), transmitter, receiver, amplifiers duplexers, antenna, antenna motor drive and servo system, display consoles and their drivers, power supplies and various other equipments. All the antennas have to rotate and elevate and all have various beam widths (FC radars having the narrowest beam). Next to be considered is the all-important COMMUNICATION suite. Here again there are many varieties of communication systems, from low frequency, long range radio to short range, very high frequency radio. The former is used for communicating globally and the latter for talk-between-ships. On a carrier the former makes use of a two pair of towers (about twenty feet high) that can be (cont.)

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more satisfying than that? Now the empirical sciences (those sciences in which facts are derived from experience) must translate the perceived facts into concepts (hypotheses). When a physicist deals with observed data he/she must then commit them into a new form of comprehension (hypothesis, theory).

This requires, among other things, the replacement of qualitative data into quantitative representation. The quantitative data deals in such things as atomic weights, specific temperatures, electric conductivity, index of refraction, tensile strength, thermal conductivity, magnetic force and the like. It is the interrelationships of such properties that are now "placed" into a hypothesis. Physics in the macro dimensions is one of our most exact sciences because the quantities can be measured accurately. The methods of physics have been used by the other sciences as a model for this reason and also because it was essentially the first of the sciences. To better understand how quantitative terms are interrelated consider the area of physical bodies in motion (such as a car----where speed kills): it is in motion when it changes position in a given time-interval; the time-rate of motion in a specified direction is

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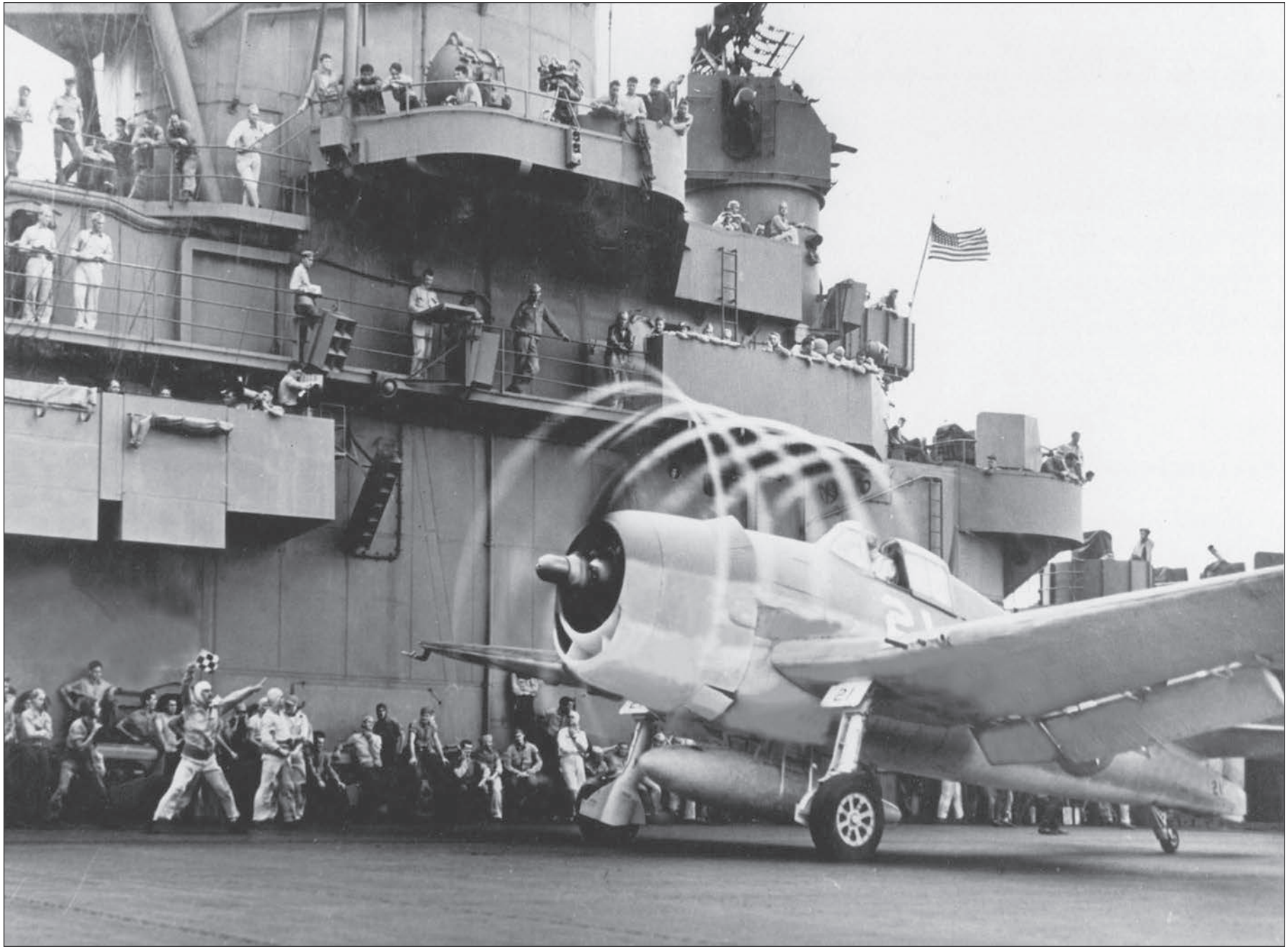

THE MAJESTIC ESSEX

So this then is the magnificent Essex. Everything seen here is contrived for one purpose: to launch aircraft, to keep track of those aircraft, and to land them. Also thrown into the mix are the armaments to protect the home of these aircraft. I remember well the towering presence of this island superstructure. At each level of the superstructure are complex equipment doing complex things, as determined by the people who are operating that equipment. Although I was most usually preoccupied with Airdale activities, I'd always be aware of all the "things" that were up there, high above me. I don't know for a fact, but I do strongly suspect that that island superstructure was eventually responsible for my pursuing and acquiring a degree in electrical engineering. I then used that degree to help support the Navy's program of gun and missile defenses, among other things. I doff my hat to you, you magnificent Essex!

raised vertically to transmit/receive or lowered horizontally during flight operations. They are placed at the fore and aft locations, starboard side, on the outside edge of the flight deck. Transmitting/receiving wires are strung between the towers. Other radio antennas festoon the superstructure. Their shape, position and attitude all determine their operation. There are eight frequency bands used by the radio suite: very low (below 30 kHz) to extremely high (30-300 GHz). A radio transmitter consists of an electronic oscillator, a frequency multiplier and a power amplifier. This carrier wave must be voice modulated (the intelligence must be imposed onto the carrier wave): The voice amplifier feeds a a driver which drives the modulator whose output is "imposed" onto the transmitter wave. The modulation can be either amplitude or frequency modulation (the former uses the (cont.)

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called velocity; velocities change in either speed or direction; time-rate of changes are called acceleration; if the body's acceleration is reduced to zero, it is either at rest or in rectilinear uniform motion; a body resists changes to its state of rest or motion; the power of this resistance is called inertia; all material bodies have inertia; the measure of inertia is "mass"; all changes in the state of the body's rest or motion must be produced by conditions not inherent in that body; these changes are produced by outside forces; the measure of such forces is defined by F=kma (where k-a constant, m=mass and a=acceleration). We now derive other terms such as momentum which equals mass times velocity (mv); work equals force times the distance the body is moved (W=Fs); kinetic energy, the energy of motion, is derived to be 1/2(mv^2). These are equations of classical physics that concisely define phenomenon based on precise measurements. These are called "closed systems" implying no other forces are involved. These methods of formulating laws are used by most other sciences. To be sure, a good many of the pictures in this book are definitive manifestations of the laws above recited. These aircraft are large moveable

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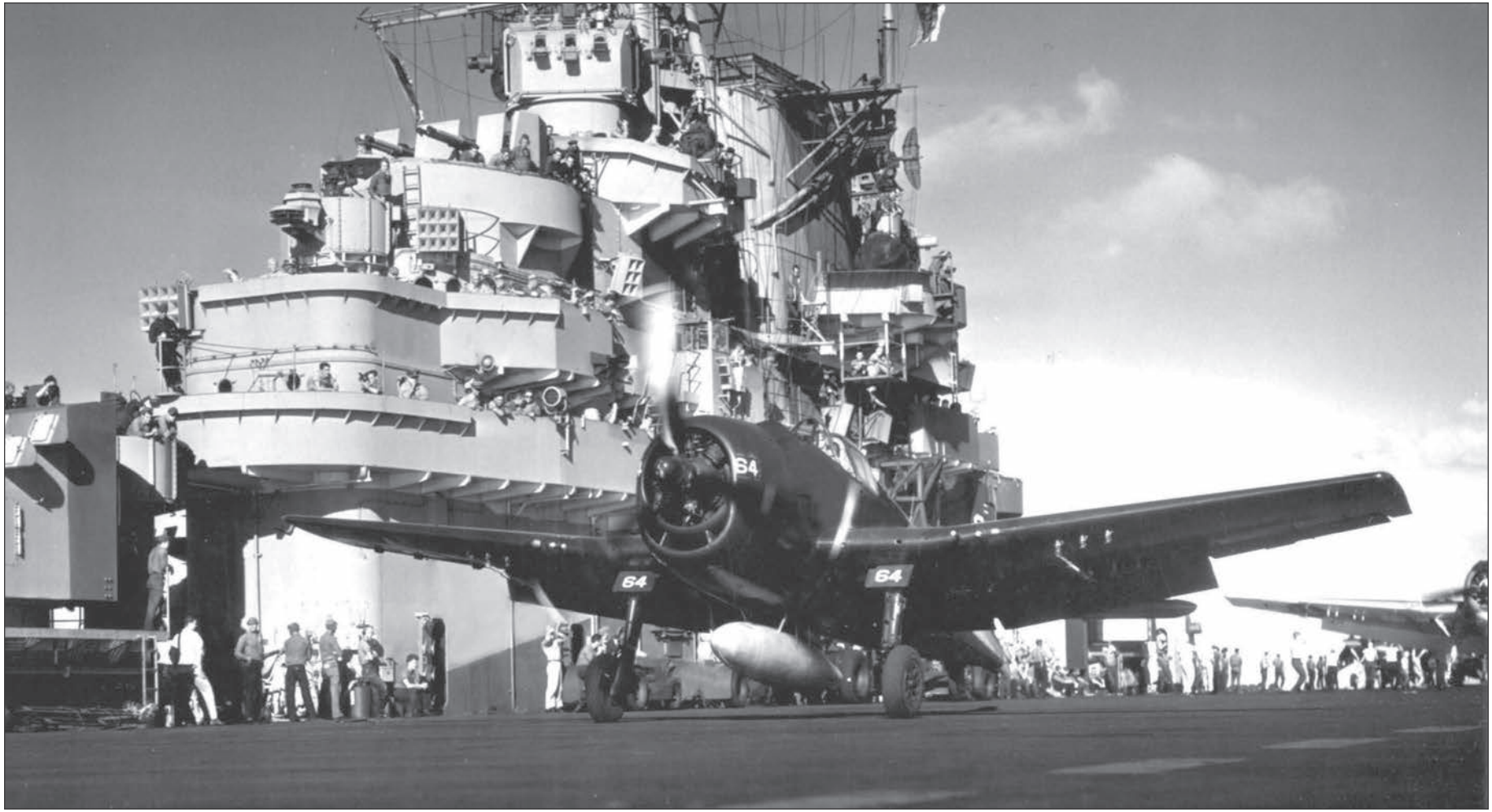
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LIFT OFF

This is a F6F Hellcat just as it's being catapulted. The man to the right is the catapult man. He pushes the button, at the signal from the catapult officer. Note the catapult-wire right beneath the F6F. And note that the wing-flaps are down, to give extra lift at take-off. One of our aircraft, for some unknown reason, launched without the flaps down, and he went into the water. The man to the left is reporting as each aircraft leaves, a job I had for a few days. I can remember very clearly that after flight operations were over, I was not "released" from my post. This was alright , but because it was a cold, damp day, "it wasn't alright". So, being stuck there for no good reason that I could fathom, my only recourse was to "sulk" (because everyone else had disappeared). But what I remember the most was that for the next half-hour the people in the enclosed compartment right below me were playing, loudly, the record "Peg "O My Heart" by the Harmonicats. Continuously, for the next half-hour, I would hear this song being played over and over and .....again. So true to Pavlov, whenever I hear that song, especially if it's by the Harmonicats, my thoughts go directly to that time and place: on the catwalk, fifty feet above the water below, with a cold, damp wind getting to my very bones. I didn't mind doing an unpleasant job (not that this was a job), but what was galling was that there was absolutely no purpose to my being there. On my sound-powered phones I'd ask when I could leave my post, and I'd get a "negative" reply. Nobody else was topside, and I wasn't doing anything but freeze.. Duty is one thing, but stupidity is something else. A small thing, no doubt, but one with later symbolic significance, I was to learn. But that does not concern the purpose of this book, and so finis.

the amplitude and frequency of the voice is "imposed" onto the transmitted carrier wave while the latter changes the transmitted frequency according to the voice frequency). The received radio wave passes over the receiving antenna and induces a voltage represented by the transmitted wave. This electromagnetic energy is amplified in the radio frequency amplifier and sent to a "mixer" that combines the received rf signal with a locally (cont.)

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bodies that obey the laws sometimes with a vengeance to all concerned. Laws are to be "obeyed" here on the flight deck at the peril to those and them that don't. A simple picture does not convey but a fraction of all the power in motion during a flight operation: engines revved up to the maximum, aircraft wheeling about as they jockey to the take-off point, noise that shatters the senses in a small area of seeming pandemonium. In fact, the ship is replete with the examples of the laws of physics.

The Essex-class aircraft carriers were rife with varieties of communications equipment and radars to gun fire control to ship engines to electric machines to machine tools to whatever is needed in a highly sophisticated environment. From top to bottom and everything in between the ship is a veritable cornucopia of the applications of physics. Now let's return to close up the scientific methods that are so vital to the well-being of any society (including the ancient ones that made use of water-wheels and the like). The ultimate goal of science is explanation, not description. Another term for explanation is hypothesis. Wherever solutions are required hypotheses are sought, in science as well as our daily lives. These

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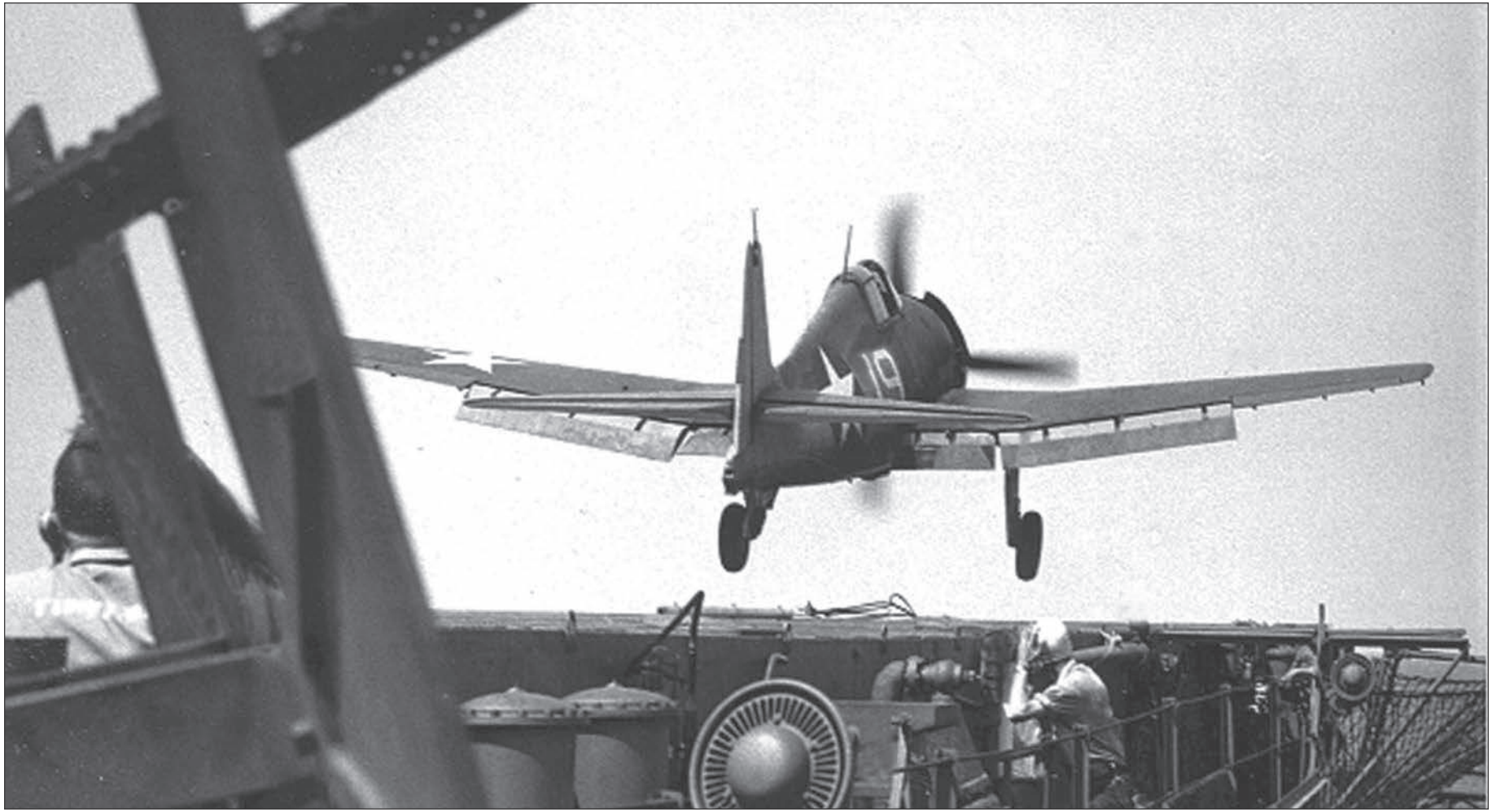

AWAY WE GO

A nice view of the TBF/M at lift off. This is a normal launch. This is one of the older ships because it doesn't have that distinctive "clipper bow," a bow that extends forward farther to make room for two 40-mm guntubs. Those ships were called the "long hulls" (including the Antietam). The same could be said for the stern. Those people of course are standing on the catwalk, and I believe that was frowned upon because every aircraft didn't necessarily go straight off.

if (intermediate) frequency. This is called heterodyning. This signal can now be amplified at the more manageable if frequency. A detector now "strips" the audio intelligence from the if wave which is then sent to an af (audio) frequency amplifier and thence to the loudspeaker. The frequency modulated receiver (fm) is essentially the same as the amplitude modulated (am) receiver except that it has a "limiter" to maintain a constant amplitude received wave. Since the fm receiver maintains a constant amplitude it thereby eliminates static in the area (lightning, etc.). As is true of all equipments, the radio equipment must be made of rugged construction to withstand the stresses felt by the ship (I can vividly remember when the gunnery department had practice. A 5-inch gun may seem rather unimposing, however when it fired the entire ship would vibrate. No mater where you were on the ship, you knew full well when that gun fired.) Back in those days, before electronic digital circuits and miniaturization, the (cont.)

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vary from a hunch to very sophisticated theories for problems both simple and complex. An hypothesis is essentially a guess, albeit an informed one, until it can be verified under many various circumstances, when it becomes a theory and then a law. It cannot be marred by internal contradictions. An hypothesis must be physically possible if it deals with the physical world. (a theory in the intellectual world is a much more sometime thing). An hypothesis must be conceived in such a way that it can be tested for its veracity under all conditions (otherwise it would be merely a guess). An hypothesis should be simple in that it involves a minimum of assumptions (the fewer assumptions the more elegant the hypothesis as well as the more useful). An hypothesis must be able to account for all the facts of a problem for which it was devised to explain (if some relevant facts counter an explanation, the hypothesis is bogus (this begs the question as to what is relevant). In such cases they can be considered "working hypotheses". An exposed false hypothesis is useful in that it narrows the field of possible explanations. In any event, an hypothesis must be subject to testing and observation or experiment. When an hypothesis has been formulated it must be elaborated by

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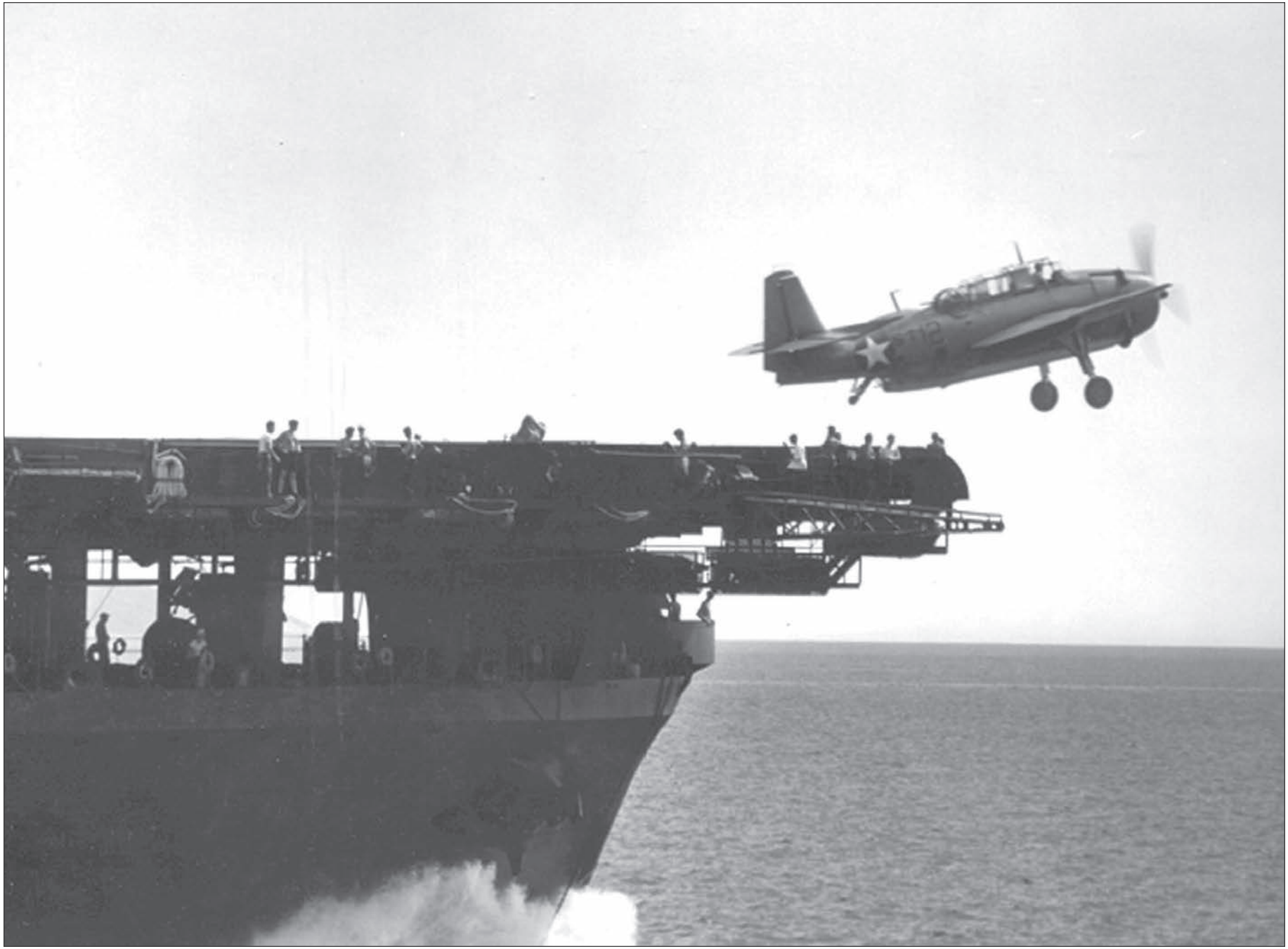

BON VOYAGE

Here's another nice view of the F4U Corsair as it leaves the forward flight deck. Again, that's a fuel-tank under the plane. Within ten seconds the landing gear will be retracted so as to reduce the drag and increase the speed, important considerations at this time. Wing-flaps are down, providing more lift. But this picture was included for the view of a "hot" plane. As I understand it, it was the first WWII plane to go 400 mph in level flight. The silhouette makes more apparent the rakish lines of a Corsair. This flight will strictly be as a fighter since it's not carrying bombs. In a way, that officer to the right seems to be saluting a "bon voyage." Who knows?

equipments were all large and heavy and solid. Many of the electron tubes were the size of light bulbs (one electron tube equals one transistor). The maintenance required difficult disassembly (not circuit board replacement). Times back then were difficult in many ways. I sometimes wonder if the present generation realizes how well they have it, even the least of us. Before closing out the discussion of communications on board ship, let's consider interpersonal communications. One form of communication is that we "tell" others who we are by the company we keep. (Thus perhaps I should understand why I have been excluded, but at the same time it should not cause me to change who I am; this is a peer-pressure I'm glad to resist. I would rather walk alone than walk with the unacceptable. With the above I absolutely object to snobbery of any kind. I invite the reader to undergo the same analysis I just presented. It might be ameliorative to your psyche.) *(cont. p. 484)*

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deducing from it all the consequents which it generates. The ideal should be an hypothesis which leads to the quantitatively precise deduction (prediction) of an existing unknown phenomenon which cannot be deduced from many other hypothesis. This is an ideal that is hard to construct. The elimination of one hypothesis does not necessarily give credence to the other hypotheses. By means of probability, hypotheses have degrees of certainty. Hypotheses can be thought of as a simple IF-THEN statement with antecedents (IF) and consequents (THEN). I have something of a problem with the logicians who deal in YES-NO antecedents. I believe the antecedents are seldom specific. To wit, "is the apple red?" Well, yes but it has a yellowish tint to it, i.e., not red but not yellow either. Fortunately in recent times the concept of "fuzzy logic" has taken its place in the pantheon of logic (and none too soon). [This is a subject in and of itself and "fuzzy logic" has proven itself with flying colors in the real world. Give it at least a generous gesture of attention, the more the better.] Analogy and basic intelligence play a strong part in deriving hypotheses which in turn requires a good deal of experience in the given field of study. The decisive test of an

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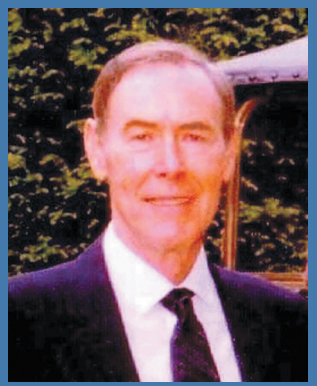
hypothesis is the extent to which and the accuracy with which they make possible the induction of the law which are descriptive of observed phenomena. Hypotheses may be modified and adjusted by new facts and observations by amending the original assumptions. If a new theory gives a better account of the facts it will replace the old, original theory (hypothesis) which inadequately explained the facts of phenomena. Comprehensiveness is the "gold standard" of the scientific method. Finally, let's consider the subject of assumptions. A comprehensive theory must be able to account for an ever increasing set of facts presented to it. Also, its basic terms must not be explicitly defined in terms of observable phenomena and its postulates must not be restricted to concrete descriptions of specified models. The basic assumptions, abstractly stated, must be so conceived that their very meaning is but the system itself in its ever widening application, subject to varying interpretations required by the facts which are to be explained. This implies that the most useful assumptions are those which tend toward the purely mathematical and logical. Assumptions should cater to the concrete, reproducible elements of a problem and steer clear of culturally induced premises which can not be measured in any accurate way. These theories are found primarily in the social sciences (not the "hard" sciences). It's true that the concept of social science has taken hold of the social scholars but since the assumptions can only be "assumed", the results of a theory based on them must be suspect (this will probably raise objections from those in the social sciences). Everyday life presents many opportunities for the application of a modified "scientific method" to arrive at decisions. For example, there are too many who form opinions simply on the basis of their feelings of guilt which in turn causes them to NOT think things through. Rather, they want to feel good about themselves which in and of itself is good but which also often can lead them astray. A guilty conscience can wreak havoc on rational thought and can lead to unintended consequences: not learning the language of one's domicile in many ways disrupts the environment of a sanguine society.

Feelings of compassion, just as feelings of guilt, can be misapplied. Compassion wants to fulfill one's feelings of distress wrought by the plight of others. This is human and humane and admirable but it can also lead to to missteps. (while compassion for self-interest steps down to the low rod). Compassion becomes misplaced if it seeks only to relieve a present distress (because the one relieved remains just as dependent as before if not more so since he comes to expect the same treatment again, and again). This is not only counterproductive, it's also deleterious to his future; dependence of able-bodied people is a pestilence and demeaning. Real compassion would lift him off dependence: enable a job, not a loaf of bread. The former is robust, the latter is ephemeral: cure the disorder rather than the symptoms. Feelings (compassion/guilt) only identify the problem while the intellect resolves them. The intellect can determine if the feelings are warranted or suspect. Feeling sorry about someone's plight must not obscure one's intellect concerning how to resolve the situation. It would be a mistake to misconstrue a situation for what it is not, compounding the problem. Don't disfavor someone by giving him something he should be earning: don't mock the virtues of compassion; we need it.

The title, “On Which We Serve”, is an anthology of values and virtues as derived from the activities taking place on the flight deck of a WWII fleet aircraft carrier as experienced by the author. This book consists of 355 full-page National Archive photographs, each of which has a half-page caption that seamlessly segues into a half-page discussion of life-lessons learned on that flight deck based on First Principles. These topics are such as responsibility, accountability, respect for others and self, earned self-esteem, empathy, trustworthiness, (those who have such will “never” do anything antisocial) and similar values and virtues. The title also embraces the Navy motto: Honor(to see one’s duty), Commitment (to do one’s duty) and Courage (to fulfill one’s duty). This book is truly unique in that it is one of a kind for all time (first person) as well as being timeless.



The author grew up in Montclair, NJ where he attained the Eagle Scout Badge w/ Bronze Palm at age 14 and played on the Newark Academy Varsity football and basketball teams. He then served in the navy during WWII, then graduated from Yale University (BS Business Administration). Next he worked in NYC banks and electronic companies. After seven years, he earned a BS Electrical Engineering degree. Next he worked for a company managing the Polaris Missile System for the U.S. Navy. This led to working for the U.S. Navy Electronic Systems Command in Washington, DC as a management engineer until retirement in 1991. His outside interests centered on the field of robotic devices and the use of computers to develop neural network applications (in medicine, maintenance, decision-making, and other IF-Then problems). Later on he compiled a Trilogy consisting of this volume and two additional volumes (www.navy-wwii-memoir.com, with a changed Volume 1 front cover).