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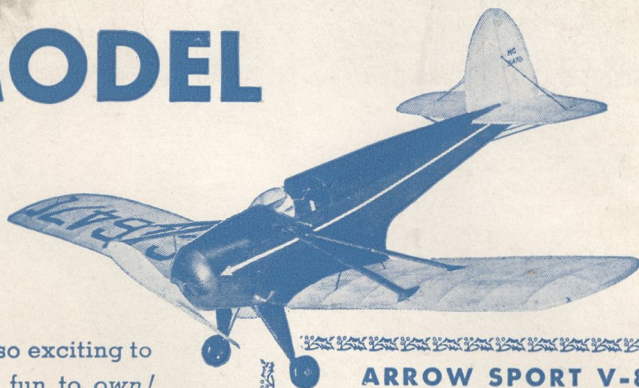
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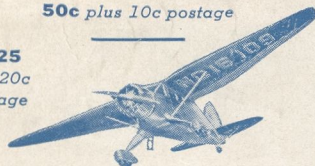


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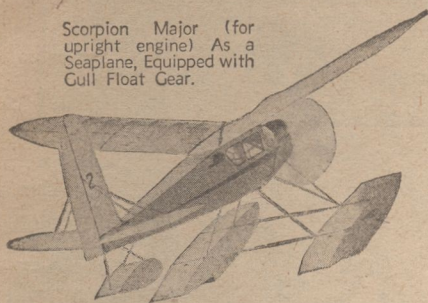


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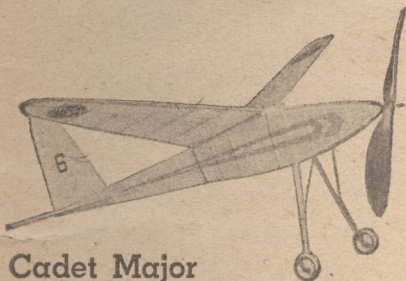
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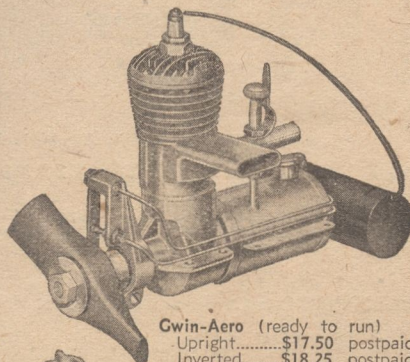
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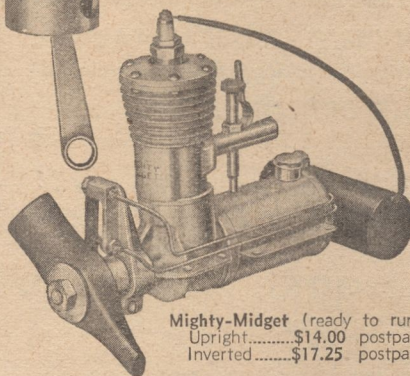
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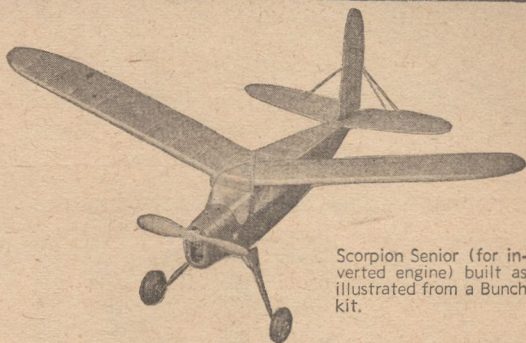
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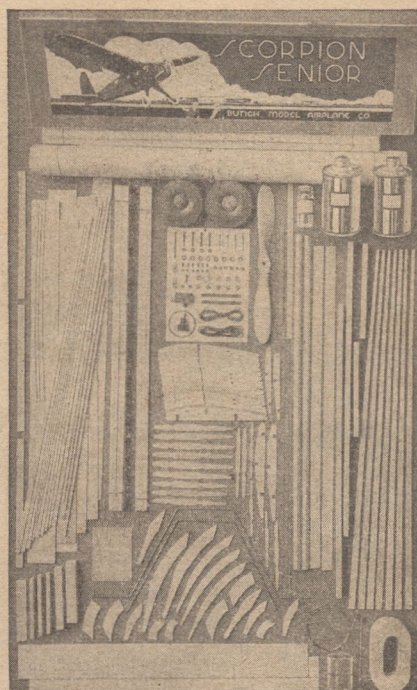
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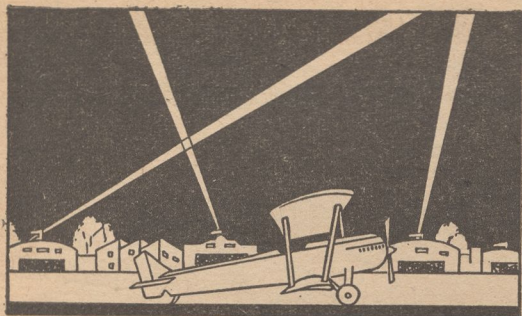
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## NEW MODELERS' FEATURE

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# FLYING ACES

A. A. WYN, *Publisher*

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NUMBER 2

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# Aces of Death

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By Donald E. Keyhoe

Author of "Skeleton From the Sky," "Hell Over China," etc.

\*\*\*

## CHAPTER I

### THE SILKEN CORD

**I**N the crooked little street that led to the side entrance of the Smiling Buddha night club there was only one patch of light, a shifting red spot on one wall from the glare of a burning building out in war-torn Shanghai. The three men who stole along by the opposite wall were but shadows moving in shadows, save where their faces made three white blurs in the gloom.

The man in the lead, taller than the others, carefully stepped over a litter of wreckage from a half-demolished shop, then froze with a warning whisper as a U.S. Marine Corps sentry passed the nearby intersection. The marine glanced into the side-street, went on. The tall man moved quickly across to the darkened Smiling Buddha, closed by order of the International Settlement council because of its proximity to the battle area.

Three faces passed through the light—the first clear-cut as a head on a coin, a face of action backed by keen, swift thought, the combination which had made Richard Knight the outstanding secret agent of the United States. The second countenance showed a lumpy profile accentuated by a belligerent jaw and a broken nose—a matter of cause and effect. The battered nose was only one of the relics Larry Doyle carried in memory of his service in the Marine Aviation Section. The third face was round as the roly-poly form of its owner, with wide, innocent-looking blue eyes that had made more than one man disregard Hank "Navy" Larson in the beginning of a scrap—only to find he had a Kansas cyclone in his wake.

Knight unlocked the door, and the others followed him into pitchy blackness. As he closed the portal, something behind him fell over with a thud.

"Don't make any noise," he muttered.

"Talk to this fat lummoX, not



me," growled Doyle. "What he needs—ouch!"

There was a crash and a splintering of glass, intermixed with Doyle's special brand of profanity.

"I never knew a Leatherneck yet that didn't stumble over his own feet," Hank said disgustedly from the darkness.

Knight switched on a pencil-size flashlight. Doyle was rubbing his knee and contemplating an overturned table and smashed glasses on the floor beyond. Hank, having bumped against a chair, was now calmly seated upon it, his uniform, that of a captain in the Chinese air force, unbuttoned for more comfort.

"Look at him!" snorted Doyle. "Can't even walk a block without getting out of breath."

Hank placidly folded his hands across his stomach. "Conserve your energy for important things, that's my motto," he grinned.

**K**NIGHT pointed his flashlight around the room. They had entered a cocktail lounge done in somewhat ornate style with a Chinese motif of red, black and gold. Chairs and tables were disarranged, evidently

in the course of hurried evacuation. Down a wide stairway another floor, that of the main restaurant, was visible, with an enormous Buddha smiling woodenly from a shrine against the wall.

"General Brett said he'd meet us down there," observed Knight. "We might as well go down and wait."

"It's mighty queer we have to sneak off here for a conference," said Doyle. "What do you think he's up to?"

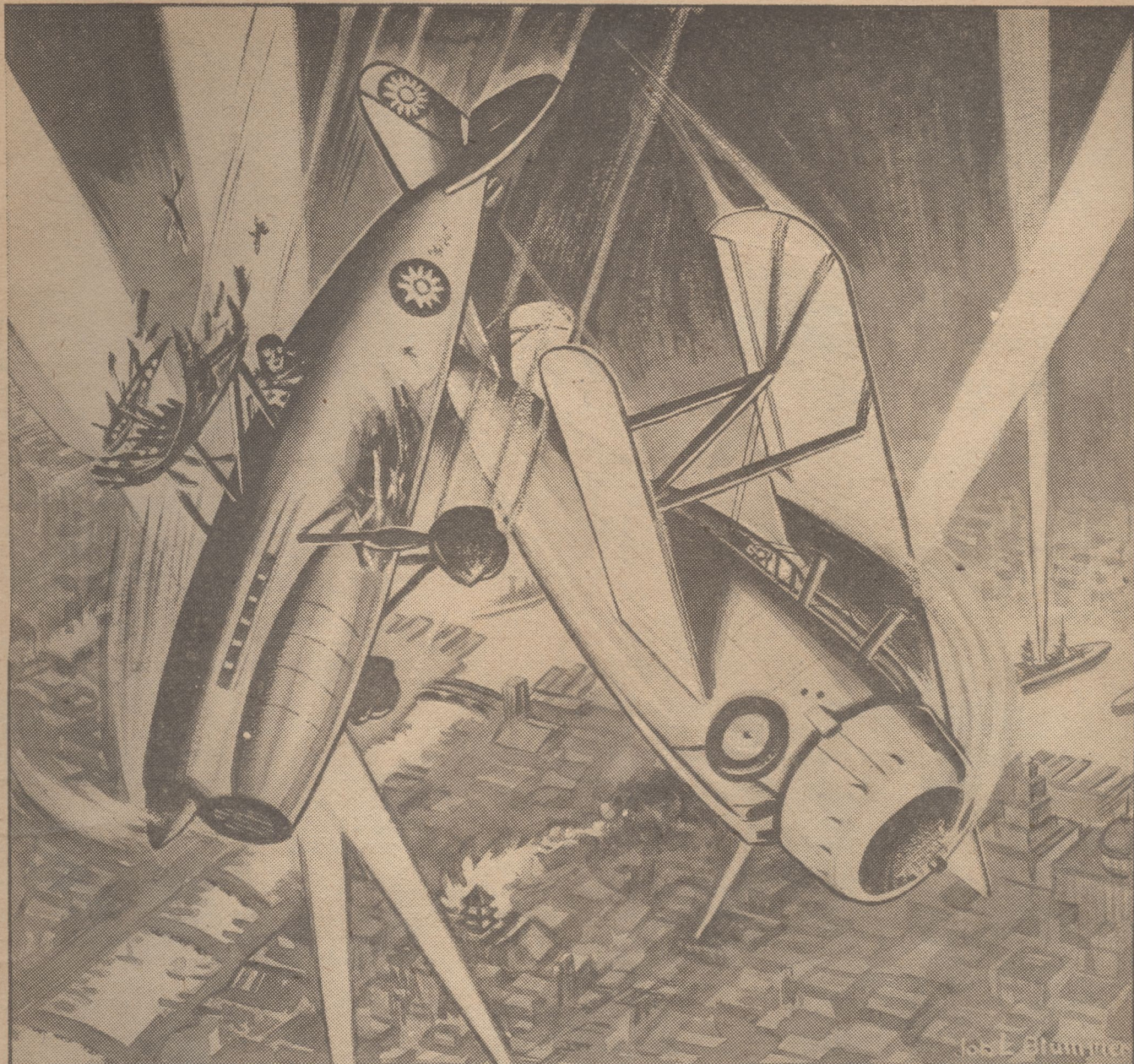
The tall agent shook his head. "I didn't even see him—he just sent that message and the key to this place."

"He's certainly given us the run-around," complained Doyle.

---

What infernal power had loosed those gun-bristling Grummans upon stricken China? And who were the merciless white devils who flew them like madmen and who fought like fiends? This sinister riddle called for the unfailing skill of Richard Knight. But even that ace agent was balked. For the winged killer from whom he sought to wrest its answer leaped into the flaming inferno of his own fallen plane—gave vent in his death throes to a defiant scream of triumph.





Suddenly Knight's heart leaped to his throat—for a Chinese Fiat with both wings shot off was plummeting down the sky directly in the path of his quarry! Frantically, the Grumman pilot jerked his stick, skidded wildly to evade that hurtling coffin.

"And then on top of it, sending word for me to keep away from the Marine compound when I've got a dozen old buddies there—"

"Now that *is* odd," said Hank, languidly getting up from his chair. "I could understand it if he'd told you to stay away from the Navy, which has a reputation to keep up. But one bad egg with a dozen other bad eggs couldn't— Oh, oh! What have we here?"

Knight's flashlight had passed across a long bar-mirror, in front of which numerous bottles still reposed. The plump little man moved around behind the bar with a sudden briskness, Doyle close at his heels.

"Ah, the correct assortment," he said pleasantly.

"If I'm dreaming, don't wake me up!" chortled Doyle. "What'll it be, Dick?"

Knight laughed. "Well, maybe Brett wouldn't object to our having just one. Make mine Scotch."

Doyle started to comply. Hank was placing six or seven

bottles on the bar. The ex-Marine glowered at him around his crooked nose.

"Why don't you get your car—so you can take the furniture, too?"

"I am now," Hank said with dignity, "about to prepare a rare libation once served me in Arabia. It is known, somewhat vulgarly I must admit, as a 'Camel's Gizzard,' but once tasted it will never be forgotten."

"That's what I'm afraid of," retorted Doyle. "I'll mix my own poison, if it's just the same to—" The rumble of heavy guns from the direction of Chapei momentarily drowned his voice. The bar glasses shook, and the windows rattled audibly behind their Venetian blinds and heavy drapes. As the noise lessened, Knight took the glass Doyle pushed toward him, laying the flashlight on the bar. Doyle paused to light a cigarette.

The match flame flickered for a second as though in a slight draft. Doyle paid no attention, but Knight flicked

## DICK KNIGHT IN A SMASHING CHINA AIR MYSTERY



a look toward the mirror. In its polished surface, the room was dimly reflected, the shadows deepening with their distance from the bar. Almost invisible in the now opened doorway a figure was crouching, with something metallic gleaming in one hand.

Knight slowly put down his glass. Then with a lightning motion he sent the flashlight slithering along the bar.

"Drop!" he shouted at Hank and Doyle and flung himself to one side. Something whizzed out of the darkness as he whirled around. It struck with a vicious sound near the top of the bar. He saw it was a knife with something fastened to its quivering hilt.

"What the hell!" bellowed Doyle.

Knight pumped a shot at the assassin, but the slam of the door proved the man had not been hit. He raced to the exit, Doyle and Hank behind him. With a jerk at the knob, he kicked the door open, jumping aside in case of another attack.

The assassin, doubled over, was just vanishing into a tiny alley-way which crossed the side street. Knight raced after him, but halted abruptly as he noted the blackness beyond and realized he was dimly silhouetted by the glare from the fires in Chapei.

"Keep back," he muttered to Doyle as the ex-Marine caught up. "He could pick us off if he had a gun."

"He's probably a block away, the rat," Hank said without any great show of emotion. "These Chinese cut-throats can run like sin. The question is, who put him up to it—and why?"

"There was something fastened to that dagger," said Knight. "We might as well see what it is. A patrol is likely to spot us out here, anyway, and Brett said to avoid being seen."

They returned to the night-club, locked the door, and made a hasty survey to be sure no one else was lurking in the shadows. Then Knight bent over the dagger, which was imbedded in the front of the bar.

"No cheap killer, at any rate. Look at that gold and silver inlay."

He pointed to the elaborate work on the blade, above which a small packet was secured to the hilt-guard.

"You'd have been just as dead with a butcher knife," grunted Doyle. "Boy, I don't blame you for moving fast—even if you did make me spill a perfectly good drink."

AS Knight unfastened the packet, the figure of a two-headed dragon done in exquisite jade was revealed on the dagger hilt. His eyes narrowed, and he quickly unwrapped the little package. A lacquer box about two inches long and an inch wide was revealed. Hank Larson started as he saw it.

"Good Lord! It's the same as—open it, quick!"

Knight held the box to his ear, sniffed at it, then carefully lifted the lid. Inside was a white silken cord tied in a running noose.

"It is the same—the white cord!" exclaimed Hank. All the laziness had gone out of his face. His eyes were suddenly grim. Knight looked at him a moment.

"Then you know what it means?"

"I know it scared one of my men half to death," Hank answered. "And I know of a guy who got a box and cord just like that and died for no reason at all within an hour!"

Knight opened the box wider, pointed to the inside of the lid where a jade dragon identical with that on

the dagger was inlaid. Hank examined it closely.

"Was it exactly like this box?" asked Knight.

"I don't know," said Hank. "I just got a glimpse of it. Li Wong—one of the pilots in my squadron—opened it by mistake out at the field this morning. His eyes popped halfway out of his head when he saw the cord, and he shut the box before I could see anything else. Then he looked at the name on the package and said it was for Li Chang—the mail-boy had made a mistake. I thought it was queer, but I had my hands full getting ready for that raid on Hongkew and so I forgot about it. Li Chang was my number five man in Flight One. He had a scared look when I was giving the outfit our orders, but I thought it was because of the scrap we were headed into.

"Anyhow, we hadn't taken off more than three minutes when his ship dived out of formation. He was tumbled over the stick, and the ship crashed across the river into Pootung without any sign of his trying to pull her out. After the fight, we got a report from a couple of Red Cross doctors over there. They said he must've fainted in the air. No signs of bullet wounds—and anyway there wasn't a Jap near us."

"I'd like to talk with this Li Wong," Knight said abruptly.

"He was out at the field when I left," said Hank. "But what about our meeting with General Brett?"

"He may be an hour late, or more, from what the message said, and this is vitally important."

"Look here," said Hank, "just what do you know about all this?"

"Enough to realize that one of us has been marked for death—probably all three of us. Have you ever heard of the Chinese secret society called 'The White Dragon'?"

"No," said Hank, "but I've only been over here a year or so, and you don't pick up stuff like that easily."

"Unless you're looking for it," replied Knight. "Five years ago I was over here on a mission, and I tangled with 'The White Dragon' then. They made a mistake—or I'd never have lived to be talking about it."

Hank and Doyle stared at the box and the cord.

"Then this is some kind of warning?" demanded Doyle.

Knight smiled drily. "It is a pleasant little invitation for the recipient to kill himself—and thereby save 'The White Dragon' the trouble of doing it. If you ignore it, they make it a little more painful, as a rule. It used to be the custom of the old Chinese emperors to send the white cord to subjects who had displeased them. Then the said subjects would bow themselves out gracefully or otherwise—a sort of Chinese hara kiri. The society of the White Dragon is supposed to have sprung up after the revolution, with a number of important mandarins at the head. The Chinese government denies its existence—but I believe it is a powerful influence in Nanking, even though it's unseen."

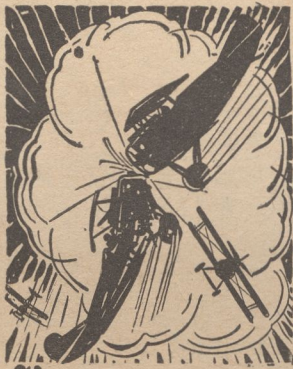
"Well, hanged if I'm going to bump myself off for half a dozen white dragons!" snorted Doyle. He drew his automatic from the holster under his left arm, glared around into the shadows. Knight grinned.

"That's the spirit, Lothario. Do you mind sticking here while Hank and I go out to the field?"

"Huh?" said Doyle. "Say, if you think—"

"All right, then we'll leave a note for General Brett down in that lower room. We'll probably be back before he arrives, at that."

Hank Larson found a supply of candles down at the Buddha shrine, and they left one burning beside the note, and two more up in the bar and the lounge so that the G-2 general would know they had been there and would not wait upstairs for them.





FIVE MINUTES later they were on their way in Hank's car to the temporary field near Chenju. They had passed the sentries at the border of the Settlement and were proceeding through a semi-darkened street westward when the bellow of motors sounded from up in the night.

"This is a swell place to be caught in a raid," said Hank. "The Japs blasted hell out of this area the last time they came over."

Searchlights probed up, were readily visible flashing across the tops of buildings through smoke from the burning buildings. Hank stopped the car with a jerk as two ships darted through one of the lights.

"Dick!" he exclaimed, "look at that fool in the second crate!"

Knight jumped out, stared into the sky. An Italian-built Breda 27 with regular Chinese insignia was twisting frantically to escape from a tracer blast that riddled its wings. He started as he saw the pursuing plane. It was pure white from nose to tail, and as it flipped around, blazing another fusillade at the Chinese ship, he recognized the outlines of a Grumman fighter. It bore no identifying marks.

"Where in the devil did that ship come from?" howled Doyle, "Grumman never sold any planes to Japan."

Two more white Grummans plunged out of the gloom, their wings brightly reflecting the glare of a searchlight. All three closed in on the seemingly doomed Breda, but suddenly six more Chinese fighters thundered into the battle, their approach masked by a wall of smoke through which they had dived. One of the Grummans pulled up crookedly, fell off in a hail of bullets from the Chinese planes. The other white ships reversed at terrific speed, with the rescuers and also the rescued pilot charging after them. Knight shaded his eyes as the crippled Grumman whirled downward in a tightening spin.

"He's going to crash near here!" yelled Doyle.

The Grumman came half-way out of the spin, screamed overhead, then vanished beyond a row of buildings. A grinding roar sounded through the din from the motors above. Knight leaped into Hank's car and took the wheel.

"Come on!" he rapped. "We've got to find out the truth about that ship!"

## CHAPTER II

### FACE IN THE FLAMES

HANK and Doyle sprang in, and Knight sent the car skidding around a corner. A block and a half away, flames showed where the fighter had crashed. It had struck on a sidewalk, its crumpled wing breaking in the window of a Chinese shop, which also was blazing. Frightened Orientals were fleeing the scene as Knight braked the car, but in the middle of the street he saw two men. One was the Grumman pilot, who had evidently been thrown free in the crash. He was struggling desperately with another man who seemed to be shoving him back toward the burning ship.

Neither of the two was an Oriental. Knight saw that much as he dashed toward them. A gust of fire drove him back for a moment, and he raced to the other side of the street to get around the wreck. Shading his eyes against the glare, he saw the pilot jerk himself free from his assailant. The man's hand flashed to his hip, and the crack of a gun cut through the roar of the flames. The other man staggered backward, his sallow face suddenly ashen, then his knees gave way and he fell.

The Grumman pilot wheeled unsteadily, and for a second he, too, seemed about to collapse. He rubbed one hand across his face, smearing the blood that streamed from his temple and down over his goggles. Knight tried

to reach him, again was cut off by the flames. The pilot's face twitched toward him, and he raised his gun in a shaking hand. A shot drilled the wall behind the secret agent. Knight jumped back, snatched out his own gun.

Doyle's automatic barked before he could take aim, and the pilot's gun fell from his bullet-smashed fingers. With a furious gesture, the man lifted his dripping hand, then whirled and leaped into the inferno!

As Knight and the others stood appalled, the pilot's flying-suit and helmet burst into flames. Sickened, Knight closed his eyes, but a cry from Doyle made him open them again. Stark amazement overcame his horror.

Weird yellow smoke was swirling about the doomed man's head, and through it he could see an uncanny transformation taking place. The pilot's face was changing, blurring—darkening even before the crackling flames touched it. Through that eerie smoke, brown

skin and slanting eyes began to emerge where an instant before had been the face of a white man. The smoke brightened, became a yellow flame, and in that second the terrible metamorphosis was complete and the face of a Japanese glared out at them!



The fire-swept lips opened, and a frightful scream rang out—a scream that held less of agony than of diabolical triumph. Knight's blood chilled in spite of the scorching heat. For a second longer

his eyes rested on that sinister face as it flamed and blurred again. Then the fire mercifully eddied across and hid the burning figure.

Knight saw Doyle's awe-stricken face as he backed away from the heat.

"Good Heavens!" Doyle said hoarsely. "Did you see that?"

Knight dazedly nodded. Hank was staring into the flames as though he doubted his senses.

"He turned into a Jap!" he mumbled. "But that's crazy—it couldn't happen!"

The wail of a distant siren brought Knight out of a trance. He turned quickly to Doyle.

"There'll be fire-trucks and ambulances here in a minute! Help me search that man the pilot shot—we may find a clue to this hellish business."

The victim had fallen on his face. Knight turned him over, stiffened as he saw the man's aquiline nose and olive-skinned features.

"Juan Savilla! What on earth was the 'Ace of Madrid' doing in China?"

"The Ace of Madrid?" said Hank, startled.

"The best pilot the Loyalists had," said Knight. "But I don't see what connection—" he broke off, commenced a hurried search of the dead man. He found a pocket-book and two letters, was starting to rip open the lining of Savilla's coat when Hank gave an exclamation.

"Look out, Dick—here comes a squad of soldiers!"

Eight Chinese infantrymen, led by a corporal, were running down the middle of the street, the light gleaming on their bayonets. Behind them swarmed twenty or thirty Celestials, men, women and children—the start of what would soon be a jabbering mob.

Knight thrust the wallet and the letters into his coat pocket, twisting as he did, so that the motion would not be seen by the approaching soldiers. But instantly, a shout came from somewhere on the other side of the burning ship.

"Thieves! The white men are robbing the corpse!"

"Run for the car!" snapped Knight.



Rifles cracked as they raced around the flaming Grumman. Knight blessed the wild aim of the excited Orientals as the three of them reached the car unhurt. Hank took the wheel, threw the engine into gear. A round hole abruptly appeared in the windshield, and another bullet drilled the window on the left side. Knight leveled his gun through the jagged break the second slug had made in order to cover their retreat.

**A**NOTHER car had arrived on the scene through an alley beside the shop where the Grumman had crashed. A man was firing across the hood, his body shielded as he knelt on the running-board. Knight triggered a swift shot, and the other man's hat was jerked from his head. A swarthy face, made handsome by prematurely silvered hair, was revealed by the glow of the flames, then the driver of the car sent it rolling backward into the alley.

"Step on it!" Knight flung at Hank Larson. "We'll be caught between the devil and the deep sea in a minute!"

The little man tramped on the throttle, and the machine roared away. He took the next turn on two wheels, and the sporadic gunfire of the Chinese soldiers died away.

"No lights!" Knight said tautly. "Keep turning till we're sure we've lost that other car."

"Things are happening too fast for me," Hank muttered.

"And for me," Knight said grimly. "Doyle, did you recognize the man who fired over the hood?"

"No, I was too busy ducking glass."

"It was John Christian."

"Holy cats!" breathed Doyle. "I thought he was dead."

"So did I. There hasn't been a sign of him for two years."

"Christian is a fine name for a gunman," said Hank.

"He's no gunman," replied Knight. "This is the first time I've ever known him to come out in the open. It must have been something desperate."

"If he isn't a gunman, what is he?" Hank said.

"Just about the smartest free-lance spy on earth—and the most cold-blooded. Nobody knows his right name or nationality; he calls himself Christian as a bit of irony. He's been mixed up in espionage all over the world. He'd have been murdered long ago, but he usually has other spies carry out his schemes."

"It's too much for me to figure," Hank said heavily.

He turned into a street running in the direction of Chenju. "That business at the night-club I could take, but all this—and that pilot who committed suicide! By Heaven, I don't think his face really changed—it must have been some queer effect of the flames. Or else there were two men in the ship."

"No, there weren't two men," Knight answered.

"But, good Lord, Dick—you don't believe in a Jekyll and Hyde act that can change a white man into a Japanese?"

"Not exactly, but I've seen some queer things in the Orient." Knight stared thoughtfully ahead. "Still, it must have been something powerfully important to bring Juan Savilla and Christian into it. According to dispatches from Spain, Savilla was reported to have shot down three Insurgent ships day before yesterday, which proves the Loyalist government is covering up his ab-

sence. But maybe these letters will tell us what he was doing in Shanghai."

The first letter proved to be a brief note from the Loyalist premier instructing the Spanish consul in Shanghai to aid Captain Juan Savilla in every way possible. Knight opened the other, held it close to the dashlight. He whistled softly.

"What is it?" exclaimed Doyle, from the rear seat.

"A letter of introduction to General Brett! It gives Savilla authority to speak for the Loyalist government, and asks Brett to cooperate with him. It ends with the phrase, 'in this matter concerning both our countries,' and it's signed by the premier, also."

"Maybe he'd already seen the general," said Hank. "Maybe that's why Brett wanted to see us."

"I think you're right," agreed Knight. "Something's come up which he wants us to do under cover, and he's counting on you for information about the Chinese angle, or to help out in the air."

"Then I'd better take you back there right away," said Hank, "though I ought to get to the field."

Knight leaned out and peered up into the night. Searchlights were still wildly stabbing the sky, and over the Hongkew area he could see a number of planes milling around.

"How soon can you get us to the field?" he asked quickly.

"Fifteen minutes, if those soldiers didn't take our number and send an alarm to the patrol-posts. But Li Wong is probably in the air—where I ought to be."

"That angle can wait. I want to force down one of those Grummans if possible."

**H**ANK stared at him. "If the Japs suspect you're United States secret agents it would be just too bad if you were forced down in their area."

"We'll have to risk that. This Grumman business will blow off the lid anyway, if we don't get to the bottom of it in a hurry. It was bad enough when Washington slapped the embargo on those twenty Bellancas intended for China. What are we going to say when the Chinese ask about those Grummans?"

"I was just thinking about that," Hank said glumly. "Where could they have come from?"

"We can probably find out—if you'll let us use a couple of your fighters."

"I'll have to say that you're volunteer pilots, and it'll kick up a rumpus later—but I'll do it."

The plump little captain stepped on the throttle again, and the car sped through the almost deserted streets, slowing only to avoid debris from bomb-wrecked buildings or to skirt an area where fire was raging. They passed through the old walled city, stopped for identification at a sentry-post on the Chenju road. There was no delay after the Chinese guards saw Hank's uniform, and they went on at increased speed.

"That knife trick at the Smiling Buddha worries me," said Doyle. "Brett might walk into a trap, if any of the 'White Dragon' outfit are hanging around there."

"He isn't coming alone," replied Knight. "General Wu Feng is to be there, and you can bet there'll be Chinese agents guarding him."

Doyle gazed back into the sky over Shanghai, where tracers, shell explosions, and searchlights made a vivid scene.

"Looks like the Fourth of July. Must be twenty ships in the scrap now, and the A-A's are banging away every time they get a chance."

"Yeah, and probably hitting their own planes two-thirds of the time," said Hank. He slowed for a bridge across a canal, swore under his breath. "I can't forget that devil's deliberately jumping into the fire. I thought

(Continued on page 58)

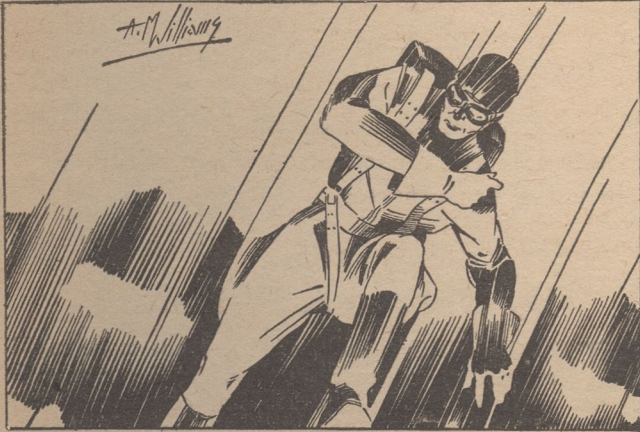




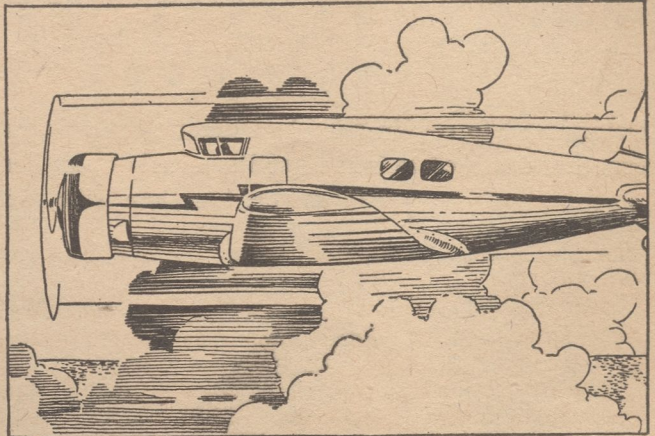
# They Had What It Takes

## XII—"DICK" MERRILL—ATLANTIC ROUND TRIPPER

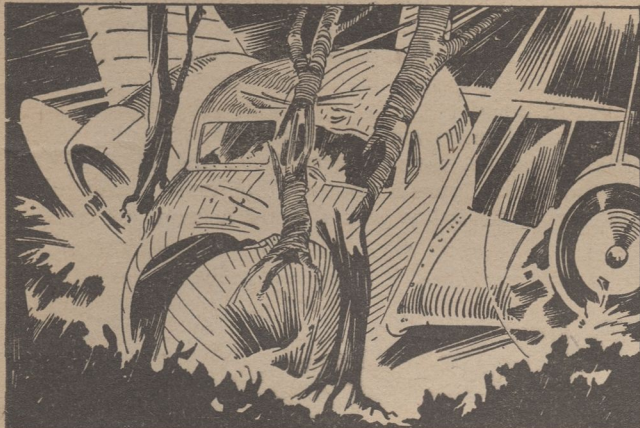
By ALDEN McWILLIAMS



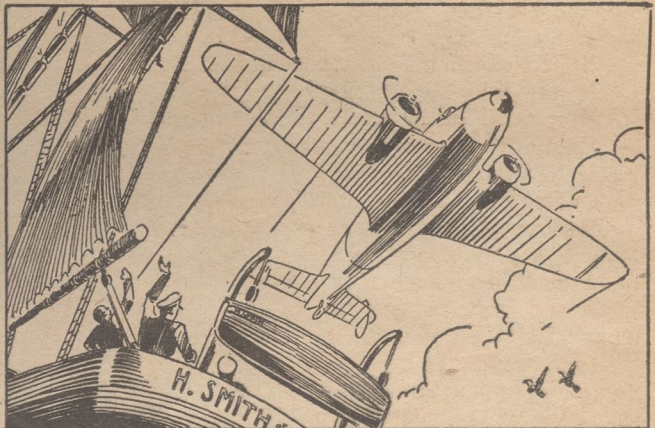
1—Born in Inca, Miss., in 1897, Henry T. Merrill was soon tagged "Dick" by virtue of his athletic prowess (from Dick Merriwell, you know). He attended the State U., won his wings after two years in the Navy, did some test piloting, then joined Pitcairn Air Transport. He first made the headlines by "caterpillaring" out of a fogbound mail plane near Charlotte, N.C.



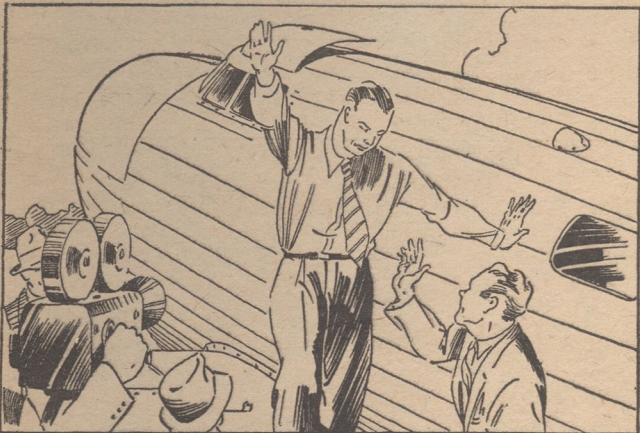
2—In 1935, Merrill completed a dramatic flight from Argentina to Antarctica, ferrying a Northrop to Sir Hubert Wilkins, who needed the craft to search for the then-lost air explorer, Lincoln Ellsworth. Then in 1936 the Mississippian twice crossed the Atlantic in a Vultee—over in August, back in September—with Harry Richman, the entertainer, as his partner.



3—Rejoining Eastern Air Lines, "Dick" was promoted to the position of chief pilot. Then Fate wrote his name in her "crack-up book." On his routine Miami-New York run, a terrific storm struck, forced him to pancake his Lockheed Electra in a forest. He suffered a broken jaw—but his skill in handling the ship brought his passengers through the ordeal unscathed.



4—Then in May, 1937, Dick Merrill chalked up his most sensational aero achievement. With Jack Lambie as co-pilot, he roared an Electra across the Atlantic to London, picked up photographs of the Coronation, and flew back to America—all in striking 1-2-3 fashion! The first feat of its kind, this memorable round-trip marked a new milestone in aviation.



5—Soon afterward, Monogram Pictures persuaded Merrill to star in *Atlantic Flight*, the current feature film dedicated to this skilled pilot's speedy double-conquest of the ocean. And so, Dick flew his Electra to Hollywood, and with Lambie accompanying him on this Thespian adventure, he faced a battery of cameras to prove that he was handy at reel flying, too.

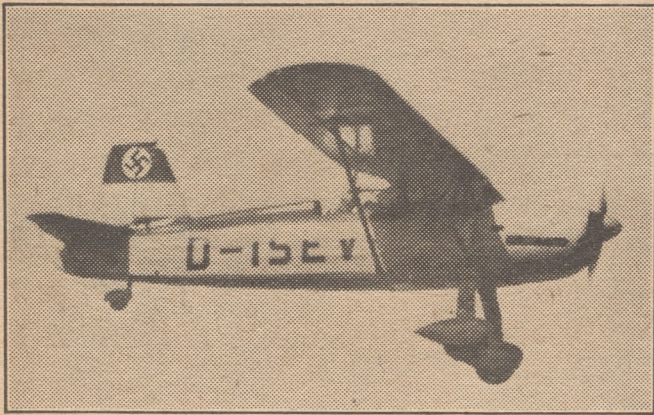


6—Having covered more than 2,000,000 air miles in 12,000 hours of flying—and that, fans, represents nearly a year and half in the sky—Dick Merrill is our outstanding air line veteran. And renowned as a great "precision flyer" by virtue of his consistent success in dramatic flights, he has won a first-rank niche in the International Hall of Air Fame.

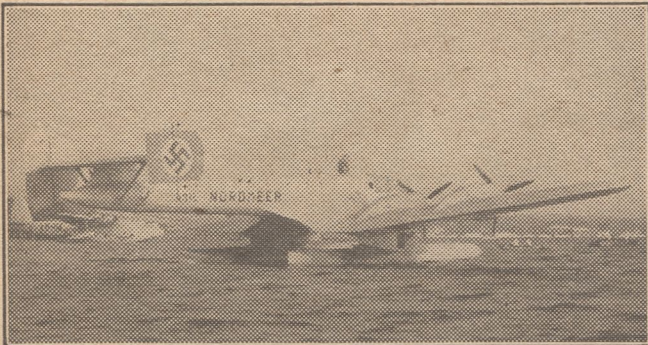


# Germany Re-Arms In the Air

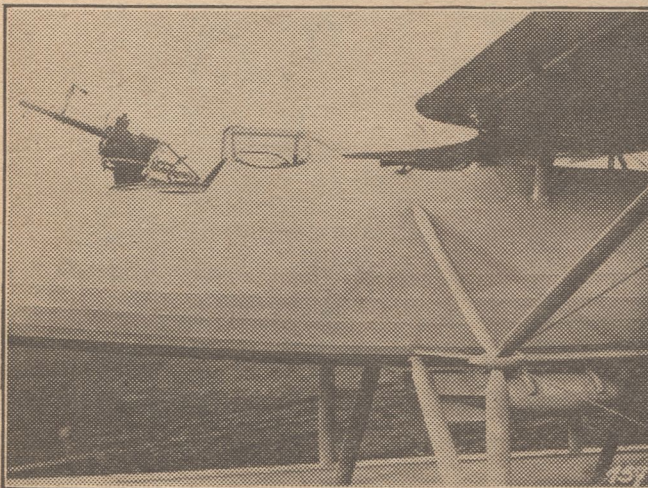
Determined to regain her place among the world's sky Titans, Germany is now completing a military air program destined to make her the equal of any European nation. Here's the true story of her fight for new power, together with pictures to prove her progress.



This 'dashing sky shot strikingly symbolizes the Nazis' new aero power. The ship is a trim Arado AR-76 single-place military trainer. She mounts the 240-h.p. Argus V-8 engine.



Now being tested for trans-Atlantic commercial service, Luft Hansa's huge seaplanes of this "Nordmeer" class could quickly be converted for war use. Four 600-h.p. Junkers Jumo Diesels power these Hamburger Flugzeugbau HA-139's.



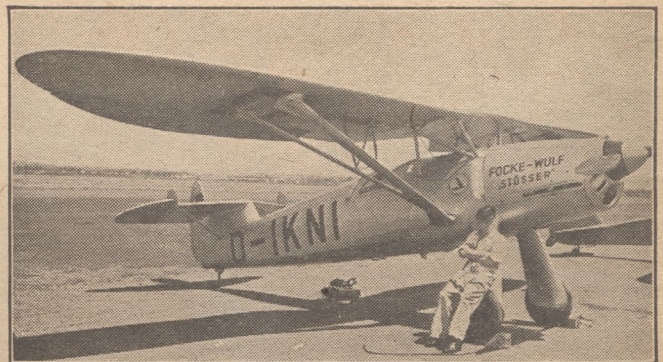
An interesting close-up of the efficient Dornier DO-22 observation-bomber seaplane. Bristling with both guns and bombs, she is fitted with the Hispano-Suiza "Y" motor, which gives her a speed of better than 200 m.p.h.

By Gordon S. Williams

**N**O COUNTRY in the world has made more rapid strides in military aviation in the past five years than has Germany. And considering the odds which have faced the "New Fatherland," these aero achievements are indeed amazing.

Stripped of her armaments after the War, and prohibited from making more by the Versailles Treaty, Germany's plight was a sorry one. But with the rise of Hitler came repudiation of the Treaty, and today the German Air Force has again unfurled the flag of defiance before those powers she feels is coercing her. Squadrons of trim swastika-marked fighters and bombers dramatically emphasize the fact that Germany is re-arming in the air.

Iron-bound secrecy hides the true air strength of the Nazis. Estimates vary between 1,500 and 4,000 planes, with the actual figure a mystery. But make no mistake; Germany could today give a good account of herself



Americans know that this Argus-powered Focke-Wulf "Stosser" has got what it takes. Her sensational maneuverability was demonstrated by the Nazi pilot Gerd Achgelis at our 1936 National Air Races.



Another German trainer which is as good as they come is that clean-lined biplane, the Bucker Jungmeister. Capt. Alex Papana, of Roumania, took second in aerobatics in one of these jobs at our 1937 Air Races. He's shown above in the cockpit.



against any European sky power, and daily come reports that new striking ships are being turned out by *Der Fuehrer's* aero factories.

We are told, for example, of the huge JU-90, called *Der Grosse Dessauer* because it is being constructed in the Junkers works in Dessau. Germany's largest plane, it will boast a span of 115 feet and a speed of more than 250 m.p.h. Four 800 to 1100 h.p. motors will power this transport, which will be easily convertible for warfare. Then, too, there comes word of the new Heinkel HE-112, a single-place pursuit job designed to *cruise* at 275 m.p.h. and fitted with four guns, two of them to be of the deadly new quick-firing type.

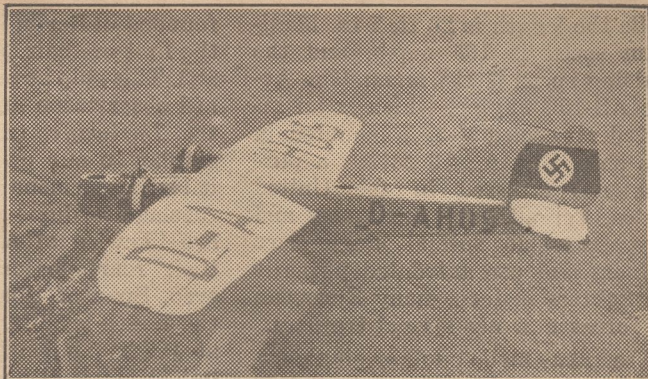
**N**ATURALLY, the complete post-War withdrawal of military aircraft from German aviation had serious results, and Nazi factories in most cases had to start from scratch when the new program was heralded. Nevertheless, the Junkers plant in Sweden and the Dornier shops in Switzerland had continued in operation and therefore had the jump on the other German plants when the call came. We must also remember that the German designers were *thinking* along military lines when they were building airline jobs, thus the present German bombing squadrons mainly comprise Heinkel, Junkers, and Dornier converted commercials.

One of these bomber-transport conversions is the Junkers JU-86 twin-engined monoplane which now mounts the efficient new Junkers Jumo Diesels. It shows a top speed in the neighborhood of 233 m.p.h. Meanwhile, the Heinkel HE-111 all-metal twin-motored job is Germany's fastest bomber, with a maximum speed of 254 m.p.h. Another former transport, the HE-70 low-wing, has become a fighter-bomber capable of 222 m.p.h.

Heinkel has also produced the HE-51, now the Nazis' standard single-place pursuit. This ship, similar to some of the modern American machines, does 217 m.p.h. with the B.M.W. V-12 liquid-cooled engine, but with the new Daimler-Benz inverted plant she'll do about 250. The famous Richthofen Squadron uses this plane.

Another recent single-seater is the flap-fitted Arado-68. Although designed for pursuit work, it is now being used as an advanced trainer for new fighting pilots. Its speed is 205 m.p.h. with the 750-h.p. B.M.W. A rather odd feature, reminiscent of the Wartime Albatros, is its tail unit; for the high, balanced rudder is placed well forward and the one-piece elevator extends back from the rudder hinge line.

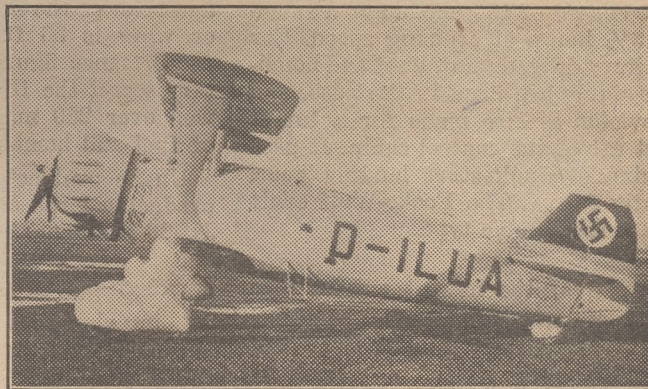
The Arado Company has specialized in the production of training machines, and many of Germany's finest school jobs come from their well-equipped factory. Another ship, their AR-76, is a single-place monoplane. It is used mostly for advanced training and is stressed for all maneuvers. Wing span of this AR-76 is 31 ft. 5 in.,



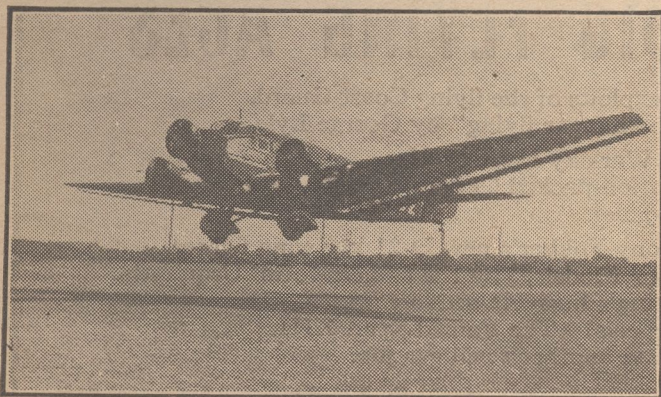
Two B.M.W. 650-h.p. "Hornets" power this formidable Dornier DO-23 transport-bomber—and she could quickly stir up a hornet's nest of trouble if war broke out. This craft is one of the Nazis' best.



The sleek Arado AR-66 two-placer is another of Germany's striking military trainers. Like the AR-76, she mounts the 240-h.p. Argus motor. Note the high-set elevator surfaces.



One of the most modernly accoutered machines of the "New Fatherland" is this startling Henschel HS-123 all-metal dive-bomber-fighter. A real triple-threat job, she carries the 650-h.p. B.M.W. "Hornet" engine.



Here we see a giant Luft Hansa Junkers landing at Berlin's Tempelhof Field. These staunch ships would make excellent bombers. The fact that this one carries the name "Manfried von Richthofen" is portentous.



Heinkel planes have long been a stand-by with the Germans. In fact, many smart Heinkel HE-70's, like the one shown here in the air, have seen war action in Spain. The ship on the ground is a Luft Hansa Junkers.



while the length is 23 ft. 7 in. Maximum speed is 166 m.p.h. and the cruising speed is 137 m.p.h. The Argus AS-10C engine, which is an inverted air-cooled V-8, is mounted in this ship. The AR-76 fulfills a purpose not stressed in the United States. For although our Army and Navy have no special single-place trainers and use antedated pursuits and fighters instead, many European air forces now use special trainers.

Arado has made another single-engined trainer—the AR-66 two-place biplane. The swept-back wings of this ship are of all wood construction with fabric covering. This plane was designed for a multitude of military duties. Among them are primary training, stunt flying, blind flying, night flying, single-seat fighter training (with rear cockpit cowled over) machine gun training, bombing, wireless training, and aerial photography.

Another type unknown to American military aviation is the twin-engined trainer which is now being manufactured in quantity by both Arado and Focke-Wulf in Germany. Each is of metal tubing structure with fabric covered wings and fuselage. The one put out by Arado has a top speed of 150 m.p.h. and a range of 3½ hours at cruising speed. For military duty, a gun turret and bombing sights are fixed in the nose, and provision is also made for a turret just aft of the control cabin. It uses a simple, single-strut landing gear, neatly faired. The Focke-Wulf craft has a retractable type.

ONE of the newest entries into German aviation is Henschel and Sohn, A.G. of Kassel, Germany, who have been famed producers of locomotives, trucks, and busses. Recently they began making planes.

The Henschel Flugzeugwerke was

founded in Berlin in 1933, and among the first of their planes was the HS-122. This ship at present is the standard observation and light bomber of the *Luftwaffe* (Air Force). Quite similar to our own Douglas O-46A, it uses a Siemens radial engine. The fuselage is dural monocoque. Wings are likewise of all metal type, but their rear portions are fabric covered. Span of this job is 48 ft. and the length is 33 ft. Top speed is rated at 167 m.p.h., and landing speed is but 51 m.p.h. Other engines of greater horse power may be installed for better performance.

One of the most interesting Henschel ships is the tiny HS-125 single-place trainer. This low-wing all-metal job uses the popular Argus V-8 engine and has a top speed of 174 m.p.h. The span is 33 ft., and the length is 24 ft.

Still another Henschel is the HS-123 dive-bomber-fighter. This high performance all-metal "biplane" uses a German built P&W 650 h.p. "Hornet" engine. A "bumpy" type cowling houses the power plant, and as an English writer puts it "gives the whole machine a somewhat American air." Span of the top wing, which is of regular plan form, is 34 ft., and span of the sharply tapered lower wing is 26 ft. Although actual performance figures are still a military secret the HS-123 is said to do well over 230 m.p.h. with full load of fuel and bombs.

Under contract, Henschel is also producing large numbers of Junkers JU-86 twin-engined bombers.

TWO interesting German training ships have been "guests" at our recent National Air Races. One, the Focke-Wulf "Stosser" is a high wing monoplane with a 240 h.p. Argus V-8 engine, while the other is the tiny Bucker "Jungmeister" biplane

trainer and aerobatic plane.

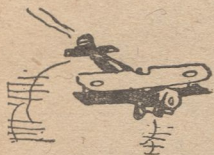
These two ships quickly proved to us that Germany is well out in front in the production of acrobatic and training machines. The Focke-Wulf trainer has a top speed of 170 m.p.h., while the smaller Bucker ship clips off a maximum of 136 m.p.h. Numerous foreign countries are using the Bucker "Jungmeister" and its two-seat version the "Jungman" as trainers.

Another German company newly engaged in aircraft design and construction is the Hamburger Flugzeugbau, a branch of the famous Blohm & Voss shipyards of Hamburg. Although this concern is producing various types of military machines, data has been released only on the HA-136 single-place trainer and the huge HA-139 four-engined seaplane.

Ships of the latter class—the *Nordmeer* and the *Nordwind*—have recently been tested for trans-Atlantic work by Luft Hansa, with catapult-fitted depot ships being used as floating bases.

Finally, we must not forget the various Dornier planes; and here we find an impressive list. To name a few, there are DO-18 twin-Diesel flying boat, the DO-22 observation bomber, the DO-23 transport bomber, the striking DO-K twelve-place cabin land monoplane powered by two tandem pairs of engines, and the DO-Y military job mounting three Bristol Jupiter-type power plants.

All told, then, Nazi-Germany had turned out an amazing force of varied-type sky-fighters in a few short years. Indeed, we have mentioned only a minor portion of them in this article. Truly, Germany has fought hard to regain her place among the air powers of the world, and she has already come so far that some nations fear the new *Luftwaffe* may become a menace to peace.



Don't Miss

## THE NEXT BIG FLYING ACES

**FACT**—"Outwitting Death Is Their Job!" Dramatic exploits of the flying Coast Guard.  
"Chalk Up a Couple For the Studes!" More "hangar flying" by George Lyle.

**FICTION**—Philip Strange flies again in a smashing War-sky mystery.  
Tug Hardwick and Beansie in another action-packed China air yarn.  
Phineas bags the felines in "Cat's Spad-jamas."

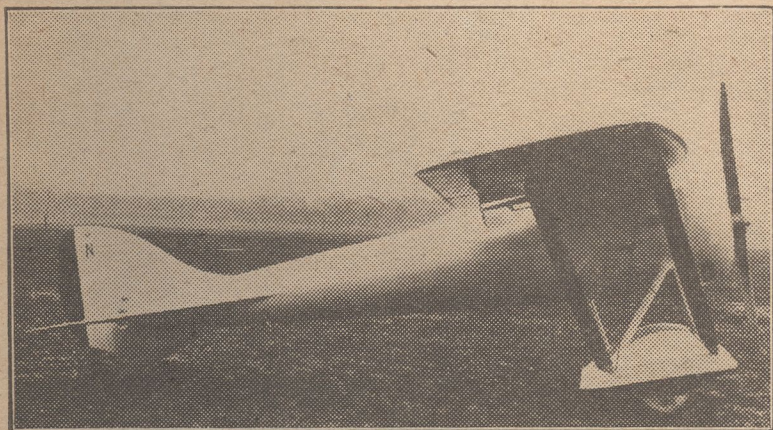
**MODEL BUILDING**—A great flying model of Tony Fokker's new D-21 low-wing fighter.  
"How To Photograph Your Models," by the camera-totin' Urquharts.  
Plans for a "solid" of Boeing's huge *Atlantic Clipper*.  
Struck's latest historical special—The Famed Spad XIII.  
And another swell gas job.

In February **FLYING ACES**

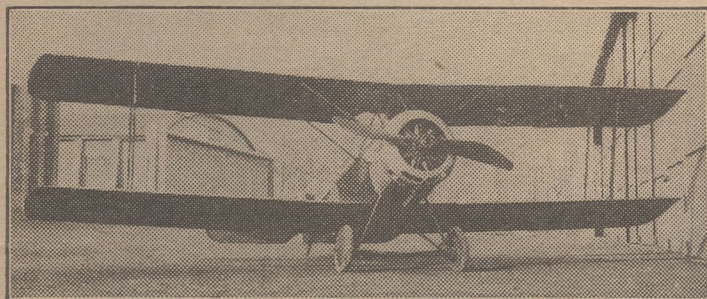
On Sale December 24th



# Snapshots of the War



Rarest of the rare is this shot of the Nieuport-Delage sesquiplane. Beyond the fact that it mounted a 180-h.p. Gnome-Rhone and was quite fast, history tells us little of it. Note the excellent visibility afforded the pilot. Right: Von Richthofen posing with Oberstleutnant Thomsen (left) one of the manufacturing directors of the German Air Service, and Generalleutnant von Hoeyppner (right) commander-in-chief of all the Kaiser's air legions, in Berlin in 1917. (Nieto photos).



The Sopwith 1 1/2-Strutter may have had you guessing as to what its designation meant. Here's a good photo of the famed war-time bus showing the W-strut arrangement at the center section. The outer legs of this W-strutting gave rise to the half-strut part of the name. (Gordon S. Williams photo).

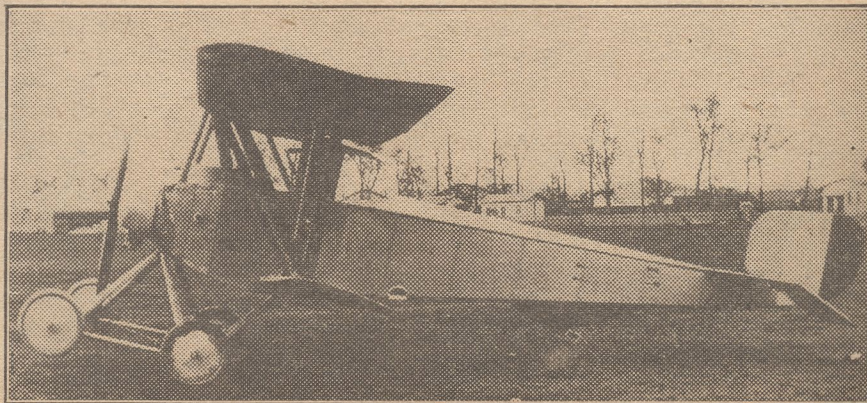


Two mechs "swinging the wood" on a British S.E.5. Note that the prop turned clockwise instead of the usual anti-clockwise. This was because the Hissco engine used was specially geared. "Contact, boys!" (Gordon S. Williams photo).



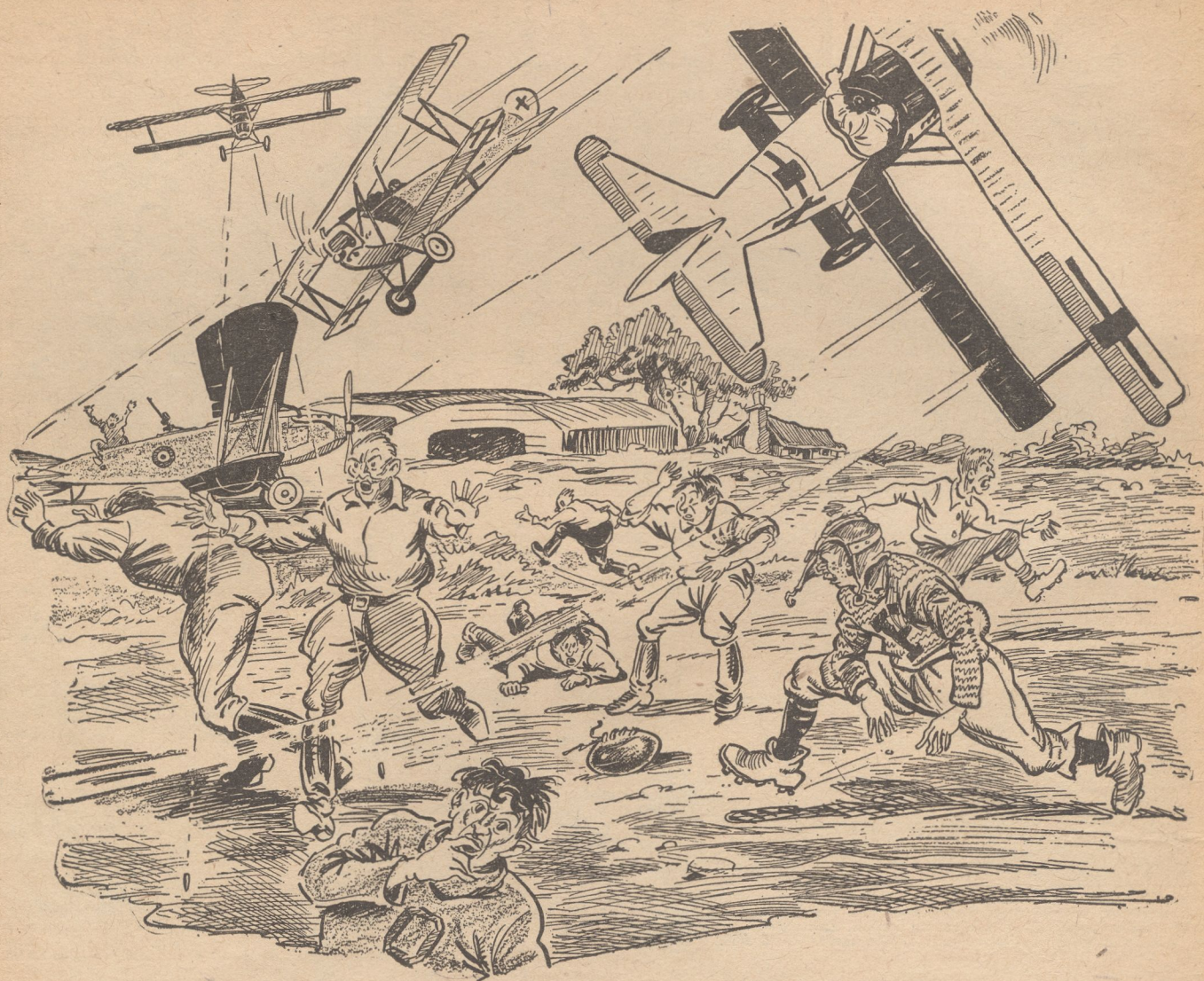
Above: This competent looking gentleman—Capt. Edouard Ritter von Schleich, the "Black Knight of Germany"—commanded that renowned fighting outfit, the Bavarian "Blue Tails," and was credited with 42 victories. He now holds a high rank in the Nazi Air Service. Right: That four-wheeled undercarriage on the French Nieuport 82-Ecole training job was certainly sump'n, huh? And take a gander at the forward-set tail skid. That was to protect the empennage when studes made bumpy landings. (Nieto photos).

Right: Here's a sturdy old-timer—the Armstrong-Whitworth FK-8. It was used by King George's sky men for artillery observation work, and as evidenced by her staunch structure, this tin-sided veteran could take a whale of a beating and still come through. Note the ear-like radiator and super-plumbing exhaust pipe. (Puglisi photo).





Just then a flock of Mercedes power plants drowned out the cheering section. "Boche!" yipped Garrity. "Run for the crates!"



# Flight Team Flight!

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By Joe Archibald

Author of "Yankee Doodling,"  
"Crash On Delivery," etc.

With Illustrations By the Author

"HOLD that line! Hold that line! Hold that line!" Uncle Sam's All-American team in not-so-sunny France heard nothing but that cry from the Chaumont coaching staff in the fall of 1917 while the Potsdam varsity hammered at their forward wall. Three thousand miles away, across the Big Pond, the same cry was being tossed out of the throats of sons and daughters of all the alma mummies from the Golden Gate to Hoboken. It was touchdown time where the home fires burned. It was keep-your-head-down time in the trenches in the land of *vin blanc* and snails.

In the backfield of the Allies' warring machine Major Rufus Garrity's aerial experts were girding their loins to make a few passes at the Von offensive. For two weeks they had made passes at the Krauts with little success and three of the Spads hurled into enemy territory had been grounded as prettily as the Huns pleased, never to return. Without warning the Heinies had taken time out and the board of U. S. strategy at Chaumont went into a huddle to ask one another what in the devil to expect next from the wiener makers. Signal snitchers reported that the Krauts were ready to uncork a big surprise,

that they had christened a new high explosive shell with puma sweat and were ready to send the spinner at the Allied lines to see what it could do.

While Chaumont brass hats waited with fingers stuffed into their ears,

life on the drome of the turbulent Ninth Pursuit Squadron savored of raccoon coats, chrysanthemums, and ticket scalpers. The pigskin fever had hit the squadron and football was the ruling passion when the Spads were not upstairs. Twelve miles away, a limey squadron, irked by certain remarks from an ex-footballer from Boonetown, Iowa, to the effect that the British rugby was a sissy's pastime, had challenged the Ninth to a game, American style. For three weeks the Limey pilots had been practicing under the tutelage of a Yankee top-kick who claimed he had once scored a touchdown for Weakfish Normal against Purdue.

Nor had the Ninth been wasting any time. Oblivious of the fact that the Krauts were manufacturing more mayhem, Garrity's buzzards went through scrimmage on the Yankee tarmac.

One crisp October day Major Rufus Garrity came out and eyed the play, then made some very caustic



# PHINEAS LETS GO WITH A PASS, A PUNT AND A PRANK

comments about the Yankee squad. "Hmph," he grunted, "you need a better fullback in there. Goomer could not bust through a Vassar daisy chain. Huh, call yourself a tackle, Gillis? Bah, when I played for Hurry-Up Yost at Michigan in '92, we played football! Pinkham, you're terrible."

"Oh yeah? When I was with the Boonetown High School, I was called the Iowa Hurricane!" Phineas retorted. "I invented more trick plays than—"

Garrity immediately took charge of the Ninth's football team and chased Sergeant Casey, temporary coach, to the hangar. "Where'd you ever play football, Howell?" he yipped.

"Yale 1912," the leader of "A" Flight replied, watching Phineas Pinkham pick up their scuffed, cheap-leather football and fool with the lacings.

"Yeah?" Bump Gillis exclaimed. "I was a tackle—Notre Dame 1913."

"What college has a stadium named after you, Pinkham?" snorted the Old Man stripping off his tunic.

"International-By-Mail University—any year," the unquenchable scion of the Pinkhams retorted, dropping the football. "I made three touchdowns one day against the Harvards, but they did not count as I forgot to mail the letter, haw-w-w-w-w! You're a great fullback, huh, Major? Show us, as I am all atwitter. Here kick it! I bet it won't go as far as the ammo shack."

Major Garrity set his jaw, took ten running steps and let the pigskin have it. The ball hardly left the ground. The Old Man howled bloody murder and picked up his right foot and tried to run with it. Phineas picked up the ball, hastily unloosed the lacings and dropped a good-sized rock to the ground. It was an innocent looking pigskin when Garrity demanded to see it.

\* \* \*

**"Crashity—spiff! Crashity—spiff! Kill the bums who eat roas' biff!"** So sang Sergeant Casey's grease monkey cheering section on that sunny day when Major Garrity led his hardy Ninth Pursuit eleven against Captain Hardleigh-Bryte and his lambasting Limeys. But meanwhile the Vons had put over a spinner that reversed the field so you could see into the basements of laundries in China. And if it hadn't been for Pinkham's timely lateral, the Allies might have ended up horizontal.

"Aw ya kicked the ground, Major," the sleight-of-hand professor laughed. "Haw-w-w, ya—"

"That rock wasn't there when I came out here," the C. O. bellowed. "Somebody—by cr-r-ripes—" He charged Lieutenant Pinkham and chased him all the way to the Nisson hut where Phineas and Bump Gillis holed up together when off duty. The workout for that day ended then and there.

**P**HINEAS was still barricaded in his hut two hours later when Howell, Gillis, and two other pilots demanded admittance. The Boonetown pilot

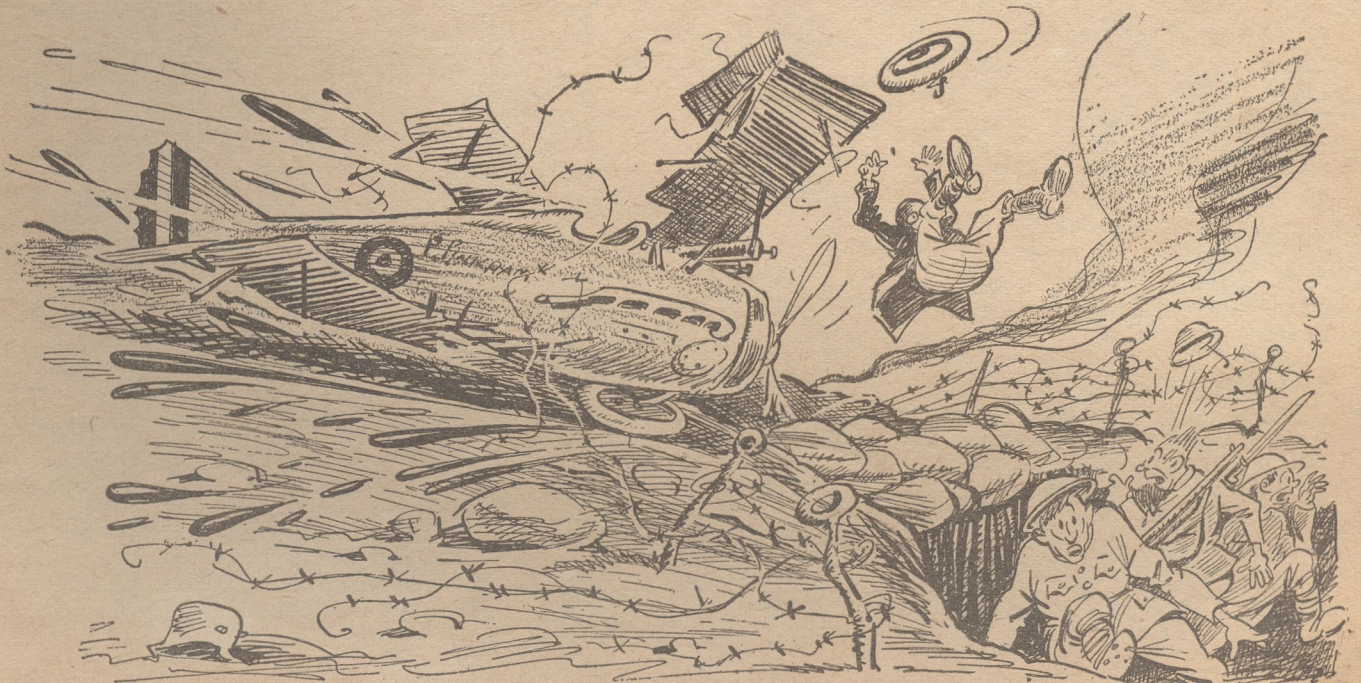
opened the door a crack, breathed deeply, and let them in.

"We've got to get the C. O. for a ball carrier," said the captain of "A" Flight. "You see him run after you? He's fast an' shifty, Carbuncle. You got to apologize as we have our next two months' pay on the line with the Limeys."

"We could lick 'em with anvils tied to our feet," Phineas declared, with a broad grin. "I scouted 'em yesterday. They've got a guy who has a whiskbroom to brush off anybody that gets tackled. The back they have asks who wants to carry the ball next and the one who does just says 'Rawth-er, ol' thing!' An' if they bump into each other, they bow an' chirp, 'Sorry, ol' chap. Jolly game, eh what?' I tell you, Bump, it's gonna be murder."

"Well, I have bet fifty smackers on us," his hutmate said, "an' that ain't hay. I got to be sure. I'm not takin' no chances, as they're not as dumb as they look. They couldn't be!"

"We've only got four more days to practice," Phineas said thoughtfully. "That is, if the Krauts don't shoot none of our team down. I'll tell you what! We will tell



**CR-RASH! KER-SPLAT!** Phineas had arrived—in a tangle of barbed-wire, a shower of mud, and a disintegrating Spad.



Garrity he can be a halfback if he keeps the best players we've got grounded until after—"

"You tell him," Howell interrupted. "We'll be right behind you."

Phineas Pinkham went over to the Operations Shack and put his cards on the table. He came out with a scorched empenage and a good mind to quit the Ninth Pursuit's football squad.

"Well?" Howell wanted to know. "Did you—er—?"

"He's a triple threat any place," the team's spokesman snapped. "Boys, what a kicker! We can't lose—if the Krauts don't shoot some of us in the A.M. We are goin' over every day as often as he says so until we locate where the Heinie high explosive shells are stored. That is football for ya, huh! Er—what's that? Did you hear anythin'?"

"It's the ackemma cheerin' section," Howell said. "Not so bad, huh? Listen."

*Crashity—crack! Crashity—crack!  
We are the boys who break your back!*

*Knock 'em down*

*Mow 'em down*

*Wash 'em down with  
co-o-ony-ack!*

*Crashity—spiff! Crashity—  
Spiff!*

*Kill the bums that eat roas'  
biff!"*

Phineas shook his head dolefully. "I'm changin' the name of the team from the Ninth Pursuit Maroons to the Ninth Pursuit Morons. That'd be a lowbrow cheerin' section even where I come from. Haw-w-w-w!"

After mess that night Major Rufus Garrity announced in correct military fashion that the Ninth Pursuit would do a little flying for the democrats at dawn and that they would keep on flying until told to stop.

"'A' Flight will take off at dawn and patrol the Mont Sec salient," he rumbled. "'B' Flight at six o'clock will meet three D.H. Nines over Vaubecourt and escort them over the German lines to bomb a Boche narrow gauge railway near Metz. That is all, gentlemen—with the exception that Major Rufus Garrity will play fullback against the British Lions on Saturday. That is all."

"Rah! rah! rah!" yipped Phineas Pinkham. "I've got a swell trick play. We will have an infantry band from Barley Duck with our cheerin' section, an' when a Limey happens to get loose with the ball, we will have it play 'God Save the King'! The Limey'll stop an' stand at attention and we'll sneak up an' flatten him, haw-w-w-w! I got another one where I slide the ball under Bump's shirt, and the ol' termater—the C. O. here—slides around the end like he has the ball an'—"

"Well, goodnight," Captain Howell broke in with a yawn.

"Yeah, and I gotta write a letter," sighed Bump Gillis, getting up. "Er—what'd you just say, Carbuncle?"

"Awright, awright! See whose brains win the game," Phineas said indignantly. "I've a good mind to quit the team. Ya needn't try to coax me back, either!"

"Make a note of that," Garrity bit out. "Casey plays right half."

"Is that so?" yelped the triple-threat man from Boonetown. "What'll ya play with if I don't play, huh? It's my football—the only one in France as far as we know. Them Limeys have been practicin' with loaves of bread. Awright, it's Casey at halfback. Don't forget the dough we have bet, boys. I will be in the cheerin' section hopin' you break a leg or three. Adoo!"

"Now look here, Pinkham," Garrity began soothingly. "Ha—er—we were only kiddin'. Why we wouldn't know what to do without you in there makin' touchdowns."

"Haw-w-w-w!" Phineas laughed. "Never mind the soft soap, as you will have me lookin' like a shavin' brush ad. Awright, I will play—if you can't get along without me."

The C. O. went out with his dental assembly emulating a rock crusher. For the first time since he had donned the uniform he wished the Boche luck against Lieutenant Pinkham when the new day broke.



That 'steentuple threat man from International-By-Mail University—Phineas "Carbuncle" Pinkham.

COWS were still sleeping in Frog barns, Roosters were only beginning to lubricate their crowing pipes, and the sun was nowhere near ready for passing out heat when the members of "A" Flight, Ninth Pursuit Squadron, tumbled out of their cots and grabbed at flying leather. Phineas Pinkham pawed sleep out of his big, bleached-blue blinkers as he nibbled at burnt toast in the mess shack. Then he hurried out to watch grease monkeys warm up his sky chariot a few seconds before Glad Tidings Goomer bolted out onto the tarmac a couple of steps ahead of a chair, an assortment of crockery, and a general chunk out of a captured Fokker prop. From the safety of an apple tree, Glad Tidings yelled for the C. O.

"Now what's the matter?" Phineas yipped. "That was only a substitute for coffee he fed you bums. It's called Bustum an' I brought it from Boonetown. Real coffee is never given to football players. You'd oughta know that. Tsk!

Tsk! Why—er—I fergot. I dumped that Bustum out the other day an' put somethin' in that can—er—I got to stop gettin' so absent-minded. I know—it was snuff! I was goin' to kill bugs an'—"

Major Garrity appeared on the tarmac in his skivvies a few minutes later. He brandished a gun, threatened to shoot Gillis and Howell if they did not let Pinkham up. The captain of "A" Flight dropped the spanner wrench he was aiming at the Pinkham cranium, gagged, and spat out some of the terrible taste in his mouth. Then he got off Phineas. Bump Gillis reluctantly let go of the culprit's air tubes and promised to take up where he had left off at the first opportunity.

(Continued on page 84)



## Our Navy's New

# "Flying Dreadnaught"

## STIRRING STORY BEHIND OUR COVER PAINTING

★ ★ ★

**M**ORE than two years ago, tactical officers of the U.S. Navy discovered a broad flaw in the defense set-up of the Naval Air Service. They found that our coast defense plans were outmoded when they first witnessed the amazing routine flights of the *Martin Clippers* back and forth across the Pacific. They were further convinced when they saw Germany turn her attentions to long-range flying boats which spanned the South Atlantic to tie Berlin with South American ports and when they saw British flying boats connecting London with the far reaches of her great Empire.

In the space of a few weeks, our geographical defense map had shrunk to dangerous proportions. Foreign bases in the Pacific, across the top of the world, and in the West Indies—which might become *enemy* bases—had suddenly been moved closer to our shores. Closer, we mean, in air time. And when flying boats can make 3,000 mile hops carrying massive loads, it is quite evident that our military bases and our vital centers of population and industry are open to a new menace.

The tacticians could have sat back and simply said: "We must strengthen our coastal defenses, add a few more fighter squadrons to the Navy, and put in a few more A-A batteries." But in wiser fashion, our tactical chiefs decided instead to fight fire with fire. "If we are to be threatened by long distance sky raiders," they said, "let us build long-distance flying boats to stop them. Why should we figure on waiting until an enemy reaches our outer defenses or our key cities along the coast? Why not stop them before they get started?"

All this called for a great deal of planning. It meant training men in a new science. It meant developing aviation to the *nth* degree. Few realized a year or so ago when the Navy patrol outfits were doing what were called "routine flights" to Panama, to Coco Solo, and more recently to Pearl Harbor in Hawaii, that men were being trained to fly ships that had not as yet been built. Few realized that an entirely new branch of the service was being developed. And today, as far as we know, no other country can boast of such wide experience in the long-distance patrol category. This long-range patrol flyer is an airman of a new breed, a true son of the sea whose home is the ocean sky lanes many miles from shore.

But with the realization that this new service was necessary there came the demand for a craft suitable for this exacting work. The Navy men looked over the available planes seeking a fitting basic model, and after careful consideration they selected the Sikorsky PBY-1 patrol bomber as a pattern.

The designing and construction of the ship went on under government supervision for more than two years.

The first mock-up, constructed of wood and fabric and requiring six months to complete, was a full scale replica, representing the ship to the last detail. Thousands of drawings were needed during the building and hundreds of thousands of man-hours of engineering and shop labor were expended.

The result was the Sikorsky XPBS-1 Patrol Bomber, better known as the "Flying Dreadnaught." And our artist, Mr. Schomburg, has presented a striking picture of it on this month's cover showing the ship engaging in a theoretical sky scrap with the planes of an enemy nation. It is shown nailing the would-be raiders before they can really get started. We have assumed that two "Flying Dreadnaughts," making a routine run miles from their base, have spotted the approach of an enemy aircraft depot ship.

Simply for purposes of our story, Mr. Schomburg has depicted his depot ship and planes along the lines of Germany's mother ship *Schwabenland* and her brood of HA-139's. Such a vessel could come within 1,500 miles of our coast and catapult its seaplane raiders, which would

bomb important or strategic points and return. There is no reason why other nations may not adopt this form of aircraft dispatching. It is quite simple, and a comparatively small loss would be suffered were one or two destroyed. There is a belief abroad that this type of aircraft tender may eventually replace the modern aircraft-carriers.

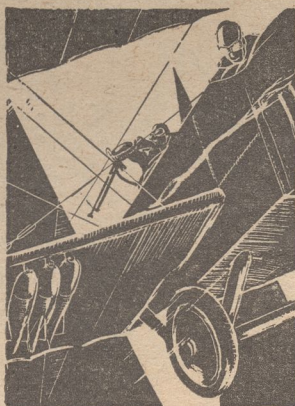
**B**UT to return to our theoretical action, let us assume that one of our Flying Dreadnaughts has spotted an enemy depot

ship. The commander immediately radios this information back to his Air Admiral in a secret code. He will, in turn, be ordered to stand by at a strategic altitude and maintain his watch. In due course, the coastal defenses would be warned by raid signals flashed from naval vessels to the shore batteries. Then the full force of the Dreadnaught patrol would set out to intercept the raiders. They would be apprised of the enemy's position by the spotter plane; and with a speed of better than 200 m.p.h., they would waste no time getting there.

With the tactics carried out properly, the defense patrol would work to time its arrival and attack just when the enemy seaplanes were about to get away. They could then bomb the depot ship to prevent the catapulting of the planes. Indeed, if the main Dreadnaught force did not arrive in time, the spotter patrol officer could carry out the initial attack himself.

There are many new armament features on the Flying Dreadnaught. It carries bow, rear, and center gun turrets and will most likely be fitted with at least one air cannon. Four 1050 h.p. Twin Wasps power her.

How the great Sikorsky XPBS-1 Patrol Bomber — sea-going counterpart of the famed Boeing "Flying Fortress"—could stave off enemy raiders long before they reached our shores.



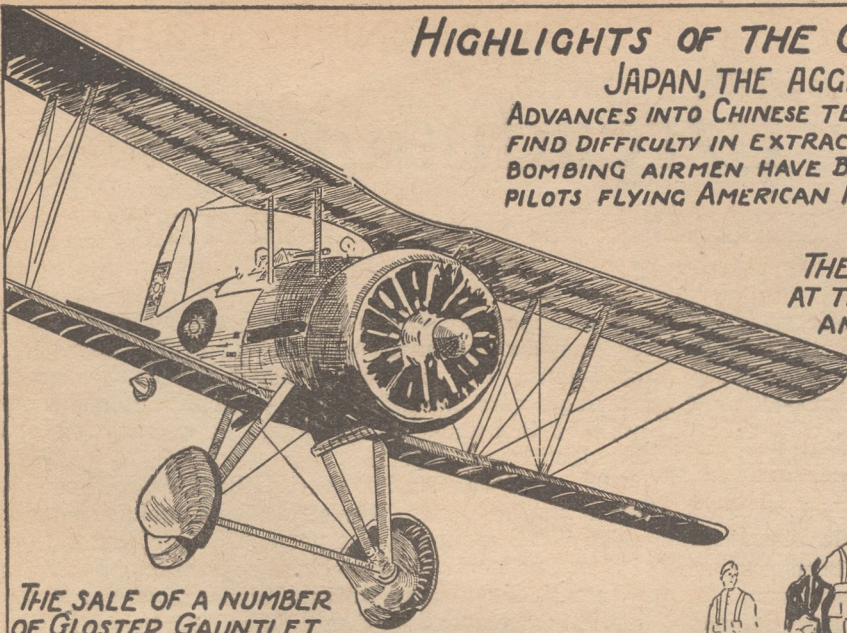


## HIGHLIGHTS OF THE CHINA-JAPAN WAR!

JAPAN, THE AGGRESSOR, IS MAKING COSTLY ADVANCES INTO CHINESE TERRITORY FROM WHICH SHE MAY FIND DIFFICULTY IN EXTRACTING HERSELF ~ SO FAR HER BOMBING AIRMEN HAVE BEEN NO MATCH FOR CHINESE PURSUIT PILOTS FLYING AMERICAN PLANES.

BUT—

THE REST OF THE WORLD IS AMAZED AT THE SUCCESS OF JAPANESE ANTI-AIRCRAFT GUNNERY

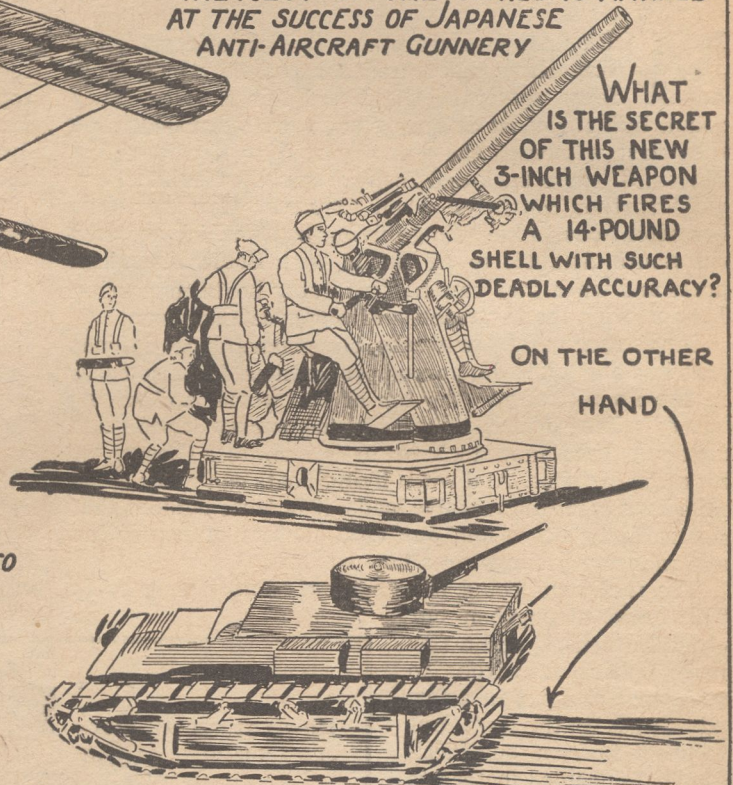
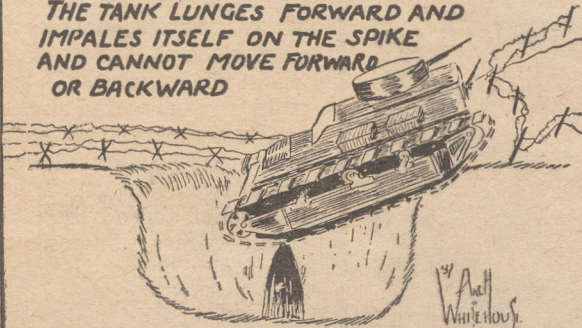


THE SALE OF A NUMBER OF GLOSTER GAUNTLET FIGHTERS TO CHINA BY GREAT BRITAIN MAY EMBROIL THE BRITISH EMPIRE IN ANOTHER WORLD WAR!

### THE CHINESE TANK TRAP!

THE JAPANESE TANKS ARE LURED INTO CAMOUFLAGED PITS IN WHICH A HEAVY

POINTED STAKE HAS BEEN DRIVEN ~ THE TANK LUNGES FORWARD AND IMPALES ITSELF ON THE SPIKE AND CANNOT MOVE FORWARD OR BACKWARD



WHAT IS THE SECRET OF THIS NEW 3-INCH WEAPON WHICH FIRES A 14-POUND SHELL WITH SUCH DEADLY ACCURACY?

ON THE OTHER HAND

JAPANESE TANKS HAVE BEEN A MILITARY FLOP AGAINST THE CHINESE TROOPS ~ THEY HAVE NOT BEEN PROPERLY HANDLED AND THE INFANTRY HAS NOT BEEN TRAINED IN CO-OPERATING WITH TANKS DURING ATTACKS ~ MANY HAVE BEEN 'LOST' BECAUSE OF THE LACK OF SUITABLE FIELD COMMUNICATIONS.

# Deadlock In the Orient

\*\*\*

THE "undeclared" Sino-Japanese war has been going on for several months now with very little of value to show for the efforts of either side. True, many thousands have been killed. Towns and villages have been wiped out. And international relations with Occidental nations have been strained almost to the limit.

But at the time of writing, practically no important military gains have been made. Thus it is easy to understand why the rest of the world has so far looked on without interference. And anyway, not one sound principal of cause has yet been raised by the attackers, and no official plea for aid has yet come from the defenders.

The belligerents are embroiled in a bloody deadlock.

As yet, no outside nation has become directly involved, but neither China nor Russia is making any se-

cret out of their *unofficial* alliance. Japan is the traditional enemy of Russia, and any move the Soviet government could make to embarrass Nippon without making any "official" moves in the way of declaring war, will no doubt be carried out.

Since the Manchukuo affair, Russia has naturally taken offense at any move that Japan makes in a northeasterly direction, and in an effort to keep the Japanese forces occupied further south they have managed to ship munitions and military equipment to the Chinese forces in the Shanghai area. It is a known fact that a number of Russian tanks have reached there, and a number of high speed fighting planes are understood to be on their way via a devious route through French Indo-China.

We in the United States naturally wonder what even-



# STARTLING ASPECTS OF THE SINO-JAPANESE STRUGGLE

By David Martin

Author of "Can China's Air Power Stop Japan?", "Why Call 'Em 'Secret List Ships'?", etc.

With a drawing by Arch Whitehouse

tual effect the war will have on our own country. In the first place, there is every reason to believe that if the war lasts long enough we cannot help but become involved. For there are too many chances of "international incidents." Japan has been almost insulting in her attitude toward the effort of the United States in defending its citizens and property. And China, on the other hand has not altogether shown consideration for American lives and property in the war area. So it would seem that nothing less than our complete retirement from China can keep us from eventual hostility.

Such withdrawal would be an embarrassing situation for us to face; but we'll have to make some such "retreat," unless we are ready to accept the chances of fighting a war six or seven thousand miles from our mainland.

A blood-money-minded politician with the proper story could hurl us into a war with Japan within three months. For the Japanese have been the theoretical enemy of the United States for more than thirty years, and it would take but very little to work up our "potential" army to the point where it would willingly take up the bayonet and turn its gaze across the Pacific. It didn't take long to arouse us during the World War, you know, and the Germans at that time were considered second only to the British as our "national cousins."

If we attempt to take a pacifistic attitude toward all this war talk, we cannot ignore the fact that tremendous sums of money have been appropriated by our government for new and modern equipment. And our Army and Navy are recruiting again.

Moreover, our Air Services are accepting candidates for flight training under less strict requirements than ever before.

The Navy shows a leaning toward "flying dreadnaughts," and more long-distance patrol-bombers are being built. A new aircraft carrier has been launched for fitting, and the Coast Guard has received new flying equipment. Already, too, we hear talk of further fortifying the Philippines and certain islands of the Aleutians. Most certainly if we have no intention of going to war, we must have some idea that a scrap may be brought to us soon.

We are prone to blame wars—particularly the wars in which the United States has been involved in—on the munitions makers and those who have "interests"

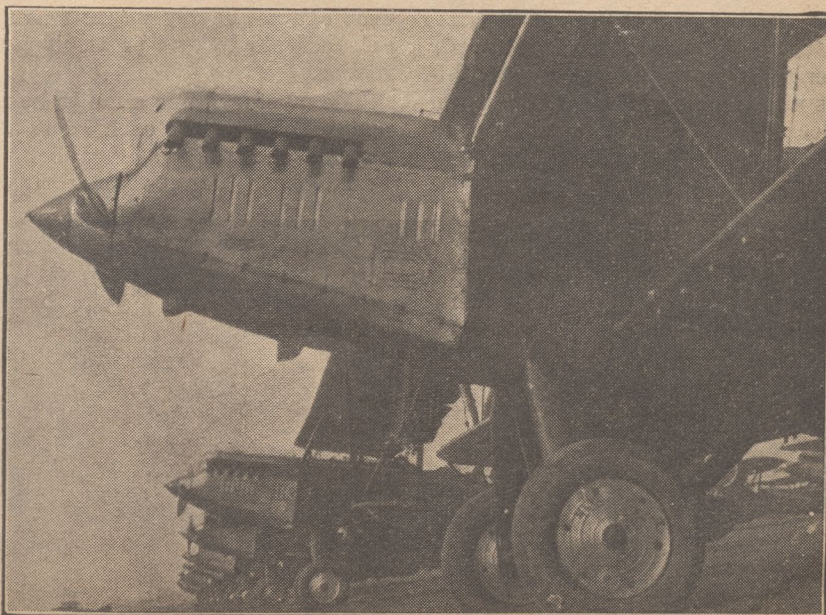
With formidable new sky-fighting equipment and improved ground armaments being rushed into action by both China and Japan, a bloody deadlock grips the Far East. Worst of all, "international incidents" are daily occurrences in the midst of the Cathay carnage. And at any moment this friction may kindle a fateful spark—a spark which may inflame the Western powers in another world conflagration.

in foreign countries and while this may not always be true, as long as our exporters continue to send their supplies into the war zones, we cannot expect anything but trouble. Besides war materials, American planes, parts, and engines have been shipped across the Pacific. And eventually, one belligerent or the other will be unable to pay for these goods and the exporters may suggest to Washington that something be done about it.

And after that? Well, public opinion is easy to sway, and hundreds of our young men who should know better would leap

at the chance to get into a war.

WHAT has actually happened in China is hard to decide. But while the actual word "war" has not been officially brought up, no one can deny that war has broken out and that at this minute war is still being waged. Airplanes are bombing redoubts, railheads, concentration camps, and innocent spectators. Tanks are spitting horrible death as they rumble across barren fields, wide-mouthed howitzers are spewing out merciless destruction, and human beings with saw-toothed bayonets are ripping at the vitals of other human beings, against whom they have absolutely no personal grudges. And even British and American soldiers and civil-



Should the Sino-Japanese war finally involve the Soviet, such ships as we show in these two pictures would undoubtedly be flown by the Russians against the pilots of Japan. Upper picture: A Russian A.N.T.-3 craft powered with a 450 h.p. Napier-Lion engine and equipped with two guns. Lower picture: An impressive display of R-5 two-place reconnaissance jobs. Powered with Soviet-built B.M.W. M-17 engines, these great ships carry four guns each. Racks for light fragmentation bombs are faintly discernible under the lower wings of the first ship.



ians have been among the victims.

A close study of the actual warfare program provides some interesting points for argument. In the air, Japan's great air force has turned out to be somewhat of a flop. The equipment is there, but the pilots and observers have been unable to maintain any great standards of military precision or accuracy. In the point of actual results, their bombing of unfortified towns has been only fair. And where they have encountered aerial defenses, the Japanese have shown glaring weaknesses.

The Chinese skymen, on the other hand, have shown remarkable skill and ability in repulsing the raiding Japanese bombers. And as single-seat fighters, the Chinese have far outclassed the enemy.

China plans to purchase American planes, avoiding the embargo regulations by having them first shipped to France. We have already learned that a large number of Seversky fighters have been shipped to Argentina, and it is quite possible that these planes will eventually find their way onto Chinese war-dromes.

Great Britain, realizing that her vast shipping trade with China is being cut to the proverbial bone, has already indicated that she is willing to sell modern high speed fighters in an effort to help break up the Japanese blockade of the China coast. Here we see a specific incident which may bring war upon Great Britain or her colonies. In attempting to insure free access for her traders into Chinese ports and markets and at the same time assist China, Great Britain is leaving herself wide open for Japanese retaliation.

Practically the same situation may be found in this country, only American planes will first be sent to France or to Argentina before being turned over to the Chinese government.

But to get back to China's air strength, we must admit that if China's pilots should get their hands on a flock of British Gloster Gladiators and American Seversky P-35's, they would be able to play merry havoc

with the raiding Japanese bombers—presuming, of course, that the ability of Nippon's flyers did not necessarily improve. Even if Japan got better flying equipment, say from Germany or Italy, we feel that a *well-equipped* Chinese air force could eventually "take" them.

On the other hand, those interested in anti-aircraft measures have been stunned by the comparative lack of defense put up by the Chinese gunners. They have had plenty of targets but so far have accomplished but little. To be sure, one or two Japanese bombers have been brought down—but usually because of their own stupidity or because of engine failure while they were within range of ground machine guns.

The Japanese, meanwhile, have startled the anti-aircraft experts with their successes from the ground. Guns mounted on surface vessels outside Shanghai and in Hangchau Bay have been amazingly accurate and effective. And reports originating in Tokyo say that Japan is actually ahead of the rest of the world in A-A armament; for that country has long realized that any thrust made against Nagasaki, Kobe, Tokyo, or other Japanese cities, must of necessity come from the air. And when one considers the flimsy nature of the majority of structures in Japan, it is easy to realize that aerial bombing would cause widespread destruction.

For this reason, then, Japanese ballistics experts have been devoting much time to A-A defense weapons, realizing, perhaps, that their airmen cannot be expected to put up much of a defense. And from all accounts their new A-A guns are weapons of a higher caliber than are usually used for such work.

Some of this new ordnance was secretly landed at Shanghai, and when used against enemy aircraft at suitable heights it was particularly effective.

The mystery guns seem to be normal 3-inch weapons each firing a 14-pound shell through a 40-caliber tube. Fixed base range-finding instru-

ments are used in the batteries, but what range-finding or fire control methods are employed has not been learned.

**A**NOTHER point developed in the Sino-Japanese war is that concerning the actual value of tanks. So far, many of the claims made for armored cars and tanks have not been substantiated in either the Spanish civil war or in the war between Japan and China.

Japan has tried to use tanks against the Chinese infantry, but while they may have forced the Chinese troops back, they have not inflicted heavy losses.

On the other hand, the Chinese have made up for their lack of anti-tank guns by use of topographical defense measures. They have set up secret tank-pits—brush-covered holes with spiked poles on their floors onto which the tanks have fallen.

And the Japanese have not developed the use of their tanks in conjunction with moving infantry or machine-gun sections. Above all, they have not learned the lesson taught by the Great War—that any tank attack *must* have a defense against the enemy anti-tank defenses outside of the defense provided by other tanks in the formation.

In other words, either the infantry or the aviation attack service must defend friendly tanks during an attack.

This, then, is the general situation in the Sino-Japanese war. Japan, the attacker, has no doubt lost fully 40 percent of its original expeditionary force of 90,000 men. And China the defender, has lost perhaps as many, but not all of these have been trained soldiers—most of the Chinese casualties will be found in the unfortunate ranks of non-combatants caught in the toils of war.

To predict the outcome of the strife is impossible. We can only hope that no other nations will be drawn in. If this does happen, additional widespread carnage will result and the white race may find itself fighting for its existence.



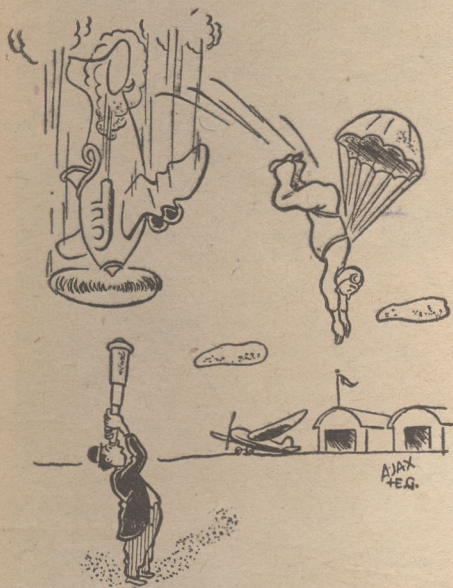




# WISECRACK-UPS



Taxi in on this runway and pick up a plane load of laughs! In this department, we present a collection of jokes, cartoons, and humorous verse. For all original contributions which we can use here, FLYING ACES will pay \$1. Contributions cannot be returned. Address all letters to WISECRACK-UPS.



"Boy! This telescope sure brings things close!"

## EASILY SOLVED

After carefully inspecting a new plane, the prospective purchaser shook his head sadly.

"I'm afraid this make of ship won't suit us," he told the salesman. "My girl cannot reach the control stick and the rudder bar at the same time."

"But, sir," insisted the salesman, "the plane is perfect. Why not try a new girl?"

## THE POOR F.F. AGAIN

Sign on a service & repair hangar:  
PLANES WASHED \$1.00  
FLYING FLEAS DUNKED \$.50

Dumb Dora thinks pilots are funny people. "They're forever washing their planes," she says. "But darned few ever change the poor things' pants."

## ACCIDENT

Bill: Say, what happened to Bob's Flying Flea? It looks as though it crashed in a 9-G dive.

Jim: A 9-G dive, my eye! One of them darned mechanics was walking in his sleep last night—and he tripped over it.

O-O-O-O-F!

Grease monkey: Ya goin' to the big dance at the airport tonight?

Pilot: Whatya mean? There ain't no dance at the airport.

Grease monkey: Sure there is. The bulletin board says that two planes are going to Charleston!

## AND NOW HE'S ITCHING

Mrs. Blotz: You say that fat husband of yours has been taking reducing exercises?

Mrs. Glotz: Yes, and he's getting along famously! Why that Boeing "Flying Fortress" he had tattooed on his chest has shrunk down to a mere Flying Flea!

## NEEDED ALTITUDE

Rural Postman: I say, Zeke, why hev ya put thet thar mail box of yourn 'way up atop that 300-ft. pole fer?

Farmer Zeke: Had ta, consarn it all! M' daughter Effie's gone ta th' big city and she sed as how she wuz agoin' ta write us air mail.

## SHORT STORY

"Bank it! Bank it! That's it. Now cut it! I said, cut it! But hey, quit banging that stick against my knees, will you? Boy, you sure hit a pocket that time! And here's an—oh, oh, it's seven o'clock and time for dinner. Anyhow, you're getting so you can play a nice game of pool, son."



"Sh-h-h! The pilot is asleep!"

## ANOTHER WORRY

"What will all of us model builders do," asks Malcolm Inglis, Jr., "when everybody shaves with electric razors and they stop making razor blades?"

## KER-PLUNK!

Phineas: Ya know, Colonel Hipplethwaite has doped out a swell new tail skid.

Bump: Tail skid? Why that old kiwi has never been near an airplane in his life.

Phineas: Yeah, but you shoulda seen him when he hit that icy stretch over near the Operations shack.

## MORAL

There are many old pilots.

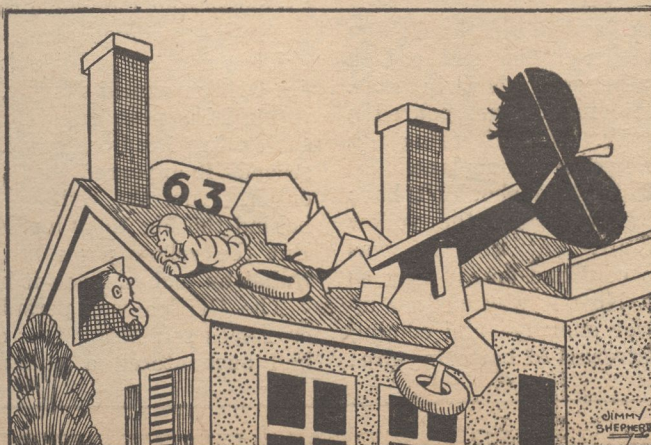
And there are many bold pilots.

But there are darned few old bold pilots!

## UNKINDEST CUT OF ALL

Pilot: Dang it! I can't get this Flying Flea started!

Modeler (standing nearby): Don't worry, mister. You just get in and I'll hand launch it for you.



"Excuse me, mister—but does Miss Susie Smith live here?"



# Griffon's Nemesis

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By Arch Whitehouse

Author of "Shanghai Snare," "Scourge of the  
Spy Brood," etc.

Illustrated by Alden McWilliams

**T**HAT yellow monoplane kept pace with the black amphibian no matter what the Griffon did to get more power out of his Avia motor. This had been going on for more than thirty minutes now—ever since they had passed over the south-western tip of Cape Cod.

The Griffon turned, glanced at the man behind him who sat peering up through the Plexiglass top of the Black Bullet. His gnarled hands gripped the black handles of the twin-Browning guns that snuggled under the fuselage hump.

"Take it easy," the Griffon warned. "He'll get tired of following us."

The man in the rear pit grunted, then said: "But what's he tailing us for? I'm not taking any chances on him. But hey! There's that strange light again. What's that?"

The Griffon looked up, saw two sharp pencil lines of light flash out from the forward portion of the yellow monoplane. He instinctively flinched, drew back half expecting to feel the thud of a bullet.

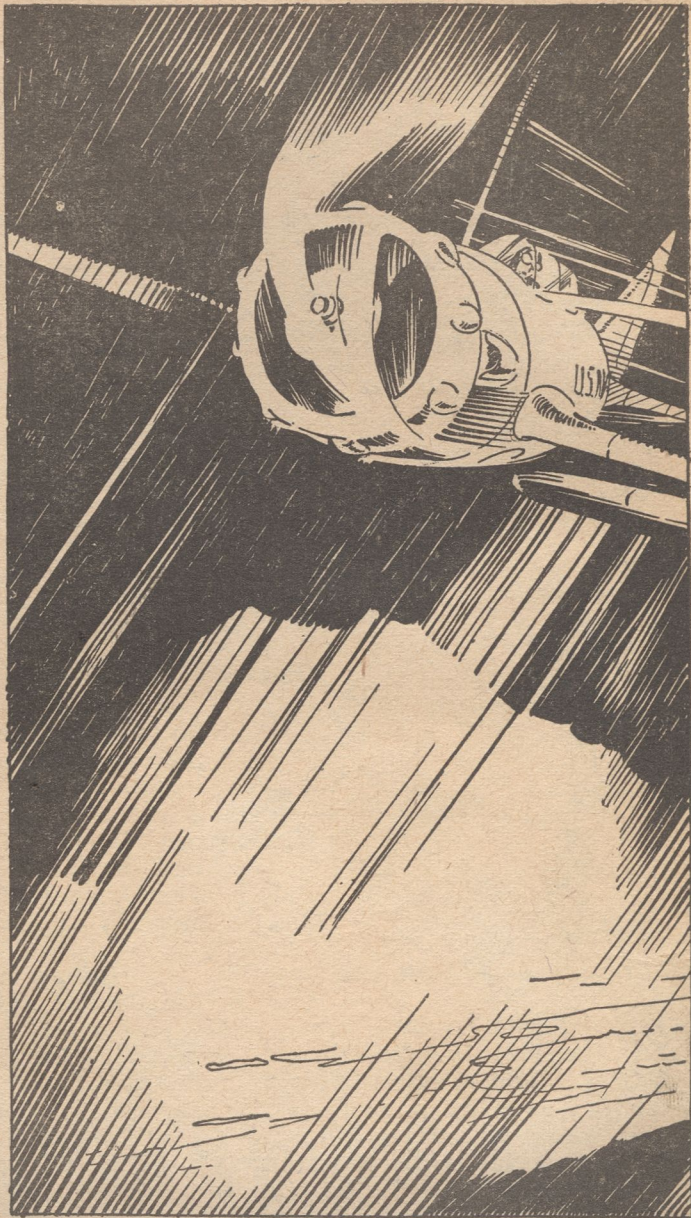
"That's the second time he did that," the man behind growled. "What's he doing?"

The Griffon stared up again, waited. He had an idea about that strange light. The realization made him go cold, and his mind raced like wildfire turning over the details of a new science of which he had recently read.

But when he quickly pushed the throttle of the Avia, she responded perfectly. No, that was not it. The engine purred beautifully. Then what the devil *was* that man doing up there?

Again the weird light flashed, and again the Griffon winced. Then there was a sudden scuffle as the man behind the Griffon quickly unlimbered his twin guns. The Brownings danced on their mountings, poured a hail of lead across the sable sky. That withering fire bit into the fuselage of the eerie yellow monoplane.

"No! No!" the Griffon yelled. "You shouldn't have done that," he barked, expecting to see the yellow intruder disintegrate in mid-air. But then he was startled to see the weird ship continue on its way as though nothing had happened. Now it was curling up in a beautiful arc, slipping over sharply—and coming down upon them hurling four streams of battering fire!



The Griffon acted fast. He had to, to get clear. The yellow monoplane slammed at them with all the fury of hell, gave the Black Bullet a terrible beating around the tail surfaces. The man in the back seat now went into action again, and as the yellow monoplane swished up over them he directed a deliberate stream of spinning lead full into the mud-flecked belly of the ship. But again, nothing happened!

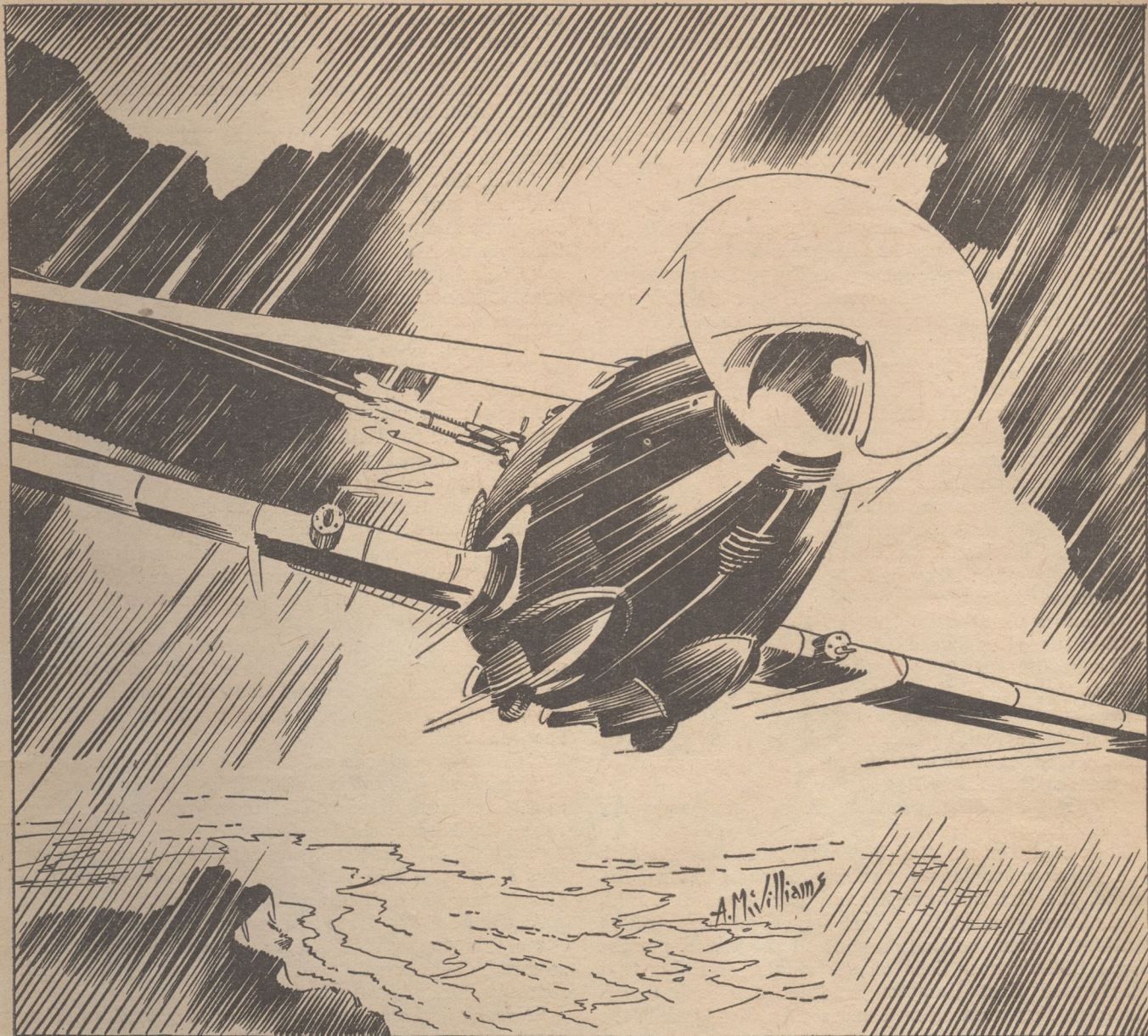
"Holy Mither o'Moses!" the gunner guy gasped. "What is that damnable thing?"

The yellow monoplane cleared, curled over in that skilled turn, came back at them once more. This time, the Griffon turned sharply, drew his stick smoothly, and pressed his nose gun triggers. The two ships came at each other head-on, spurting streaked fire. For a few seconds it appeared that they would meet in a terrible crash. True, the Griffon held his course, ducked low behind the big 1,000 h.p. Avia, and hammered through. But the yellow plane swished up, clearing the Black Bullet by inches. Then it hoiked hard and climbed high.

The Griffon was perspiring. He had seen with his own eyes something that even he could not believe. He had encountered a bullet-proof plane—there was no

DRAMATIC KERRY KEEN MYSTERY NOVELET





Quickly the man behind the Griffon unlimbered his twin guns, poured a hail of lead across the sable sky. But from that eerie yellow monoplane there came only a weird beam of white light—a merciless luminous finger that the Griffon could not evade!

question of that now. But what was its strange secret?

He renversed, watched as the yellow craft held its same position just above them. The man in the back seat continued to flame off short bursts at it, but the weird monoplane never wavered.

"Get the divil oot o'here," the man behind almost whined. "We can't do anything against that bird. But look! There's that light again!"

Two more fine jets of light flashed out—and the Griffon knew he was trapped—knew that this was the outcome of their secret trip north.

They'd taken a few weeks of rest, camping in the Hudson Bay section, thus regaining strength and enthusiasm for what might come in the future. It had been a happy month only interrupted when they made a couple of secret trips down to Montreal to arrange for shipment to Graylands of some necessary equipment.

But that was all over now

They were back, facing grim facts of intrigue. Already they had tasted gunfire—and with it came the realization that something had slipped up. Who was this swine in the yellow monoplane who had so easily intercepted them at 10,000 feet over Cape Cod? What did it all mean? What was this man in the bullet-proof plane after?

The Griffon and his gunner knew they were in a tough spot. They had to land soon. And even though the night was perfect for a secret landing at Graylands, there could be no secrecy unless they could get rid of their yellow nemesis.

**That winged wraith man called "The Griffon" had long ruled those midnight skies. And no man had ever succeeded in piercing his mystic veil. But now there roared out of the heavens a sinister devil who tore the scarlet mask from that phantom, who seized his sleek "Black Bullet," who laughed at his helpless plight. The Griffon had met his match!**

**T**HE Griffon sat back. They were over Block Island now and already had spotted the tell-tale beams of Montauk Light. Their secret hide-out was only a few miles south-west of that light.

With a quick move, the Griffon made an adjustment on his variable pitch prop. Then he set his



wing-flaps and gave the man behind a signal.

"Chuck everything that we don't need overboard. We're going upstairs. You may need your oxygen, so play safe. If he is armored, he'll have a devil of a time getting up there."

Then began a mad duel. The Black Bullet climbed like a fiend. The Griffon kept pushing her higher and higher, watched the needle of the altimeter pass the 15,000 foot mark. The yellow monoplane tried to keep up with them. But by the time they had reached 18,000, the Black Bullet was several hundred feet above her.

The man behind kept one eye on the yellow monoplane as he jettisoned box after box of sporting-rifle cartridges, hunting clothing, hatchets, and knives. A complete camp kit went next, then the parts of a folding gasoline stove. Finally there was nothing left but three expensive sporting rifles and a brace of revolvers.

Twenty thousand feet! They were well above the yellow monoplane now. The Griffon sucked on his oxygen tube, adjusted his throttle and supercharger level, and sat back. The Black Bullet was still climbing. They had checkmated their pursuer!

"What is that bus?" the Griffon turned and asked.

"Looks like a Seversky P-35 to me. Has all the lines of one, anyway," the man behind him replied. "But I don't get that bullet-proof business or that funny light business."

"I do!" the Griffon growled. He was obviously very perturbed.

They finally eased off at 26,000 feet and peered about. The yellow monoplane was nowhere in sight now. Relieved, the Griffon headed away for Montauk Light. Their journey ended, they spent several minutes circling cautiously, then the Griffon shut off the motor, put the Black Bullet's nose dead on the ringlet of lights that represented East Hampton, and let her drop like a plummet. For what seemed hours they dived, while the slipstream screamed its banshee wail.

As the short-line of Long Island became more distinct, the Griffon turned back toward Montauk. Then with a quick curl, he eased out of the dive, cut in the Skoda mufflers to deaden the Avia's roar, and S-turned down to a smooth landing.

Gently the sleek ship taxied across the inky smooth waters to a dim boathouse. Then the amphibian's wheels came in contact with the hard-packed sands and she quietly crept up the beach, rolled over the well-groomed turf, and found the shadows of a great arbor.

Within another minute, the Black Bullet rumbled through the great rock garden doors and into the secret hangar.

TOGETHER, they studied the plane after the great doors had folded back, and they found that in spite of the heavy armament of the yellow monoplane, comparatively little damage had been done to the structure of the Black Bullet. A few metal patches here and there and she would be ready for action again.

They went upstairs, tired and hungry. The gunner chap threw off his flying kit and hid it away with that off the Griffon's. Then he broke out a bottle of O'Doul's Dew, a bottle of champagne, and a large dish of crackers and cheese. And together they sat swigging and munching while they pondered on the events of the night.

The Griffon finally went across to a bookshelf, selected a volume and fingered through its pages until he came

to a treatise on black light. Then he sat down to read.

"Here we are, Barney," he suddenly cracked. "It was just as I thought. That bird was using a black light camera on us. He probably got a few neat shots of the Black Bullet tonight—and of me."

"Wow!" gasped the Irishman. "That does cop the prize, huh?"

"Well, that means we've got to get a new bus. If we can't run away from ships like that, we'll have to quit this game and go to work—and nothing annoys me more than work."

"When did you ever work to find out?" Barney asked, grabbing another hunk of cheese and pouring himself another drink.

"We'll skip that," the Griffon said. "But we've got to do something about this yellow monoplane bloke. He's bad news."

At that instant the telephone bell rang. Both the Irishman and the Griffon exchanged a glance.

Barney started to pick up the receiver, but the Griffon signalled him off, took up the receiver himself, and listened a moment before he spoke. All he heard was a low annoying chuckle.

"Hello!" the Griffon said in a well-modulated voice.

"Hello!" came the answer from the other end, followed by another low chuckle. "That you, Mr. Keen?"

"Keen speaking. Who is this?"

Again came a chuckle, then a name was given which was not quite distinct. Keen queried again, but the man on the other end only laughed aloud this time. Keen then gave Barney a signal, whereupon the Mick darted into another room.

"Nice ship you have out there, Keen," the voice said.

"What are you talking about?" the ballistics expert asked, stalling for time to give Barney a chance to check where the call was coming from.

"Stop it! Stop it!" the voice said. "I just want to say that I got some nice pictures of you—and you won't be able to talk yourself out of that evidence."

At the word "evidence" Keen went cold.

"Is this you, Lang?" he asked suddenly; for there seemed to be a certain timbre to the man's voice which reminded him of Drury Lang.

"Never mind who it is. I'm wise to you, Keen. How about getting in on your racket?"

"I don't know what you are talking about?" Keen parried.

"So you didn't fly down from Canada tonight. And you didn't exchange a few shots with a yellow monoplane, and you didn't climb up to about 25,000 feet to evade me, eh? Well, you'd better have a good story ready when the authorities get the evidence I have."

"What's your game?" Keen asked.

"The same as yours, and I'd like to get in with you. You seem to have the inside on a lot of things. What about it?"

"I'd better have a little time to think it over," answered Keen, who knew when he was cornered.

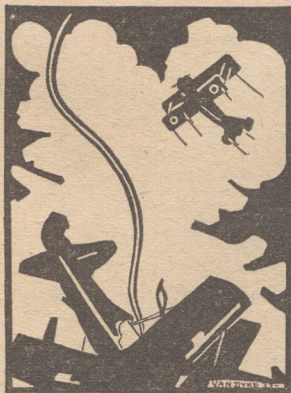
"All right. I'll give you a few hours. I'll call you at your 55th Street place in New York City tomorrow."

"You mean you'll call on me tomorrow?" asked Keen.

"Oh no. I'll simply call you on the telephone—and then we'll plan a joint meeting somewhere else. I'm not dumb, you know."

"All right, and good night," Keen replied, hanging up the receiver. But he did not hang up quick enough to avoid hearing that taunting laugh again.

KERRY KEEN stood there for several moments, stared into space and tried to figure what the man was getting at. Why had he so carefully followed him? How did he know he was on his way down from Canada?





And how did he know who he was and where he lived?

He pondered on the voice again. Certain words and phrases the man had used reminded him of Drury Lang. But it *couldn't* be Lang. Lang was not a pilot, and he was certain that the yellow monoplane was a single-seater.

Then Barney came in wearing a puzzled frown. "He was phoning from a booth in a cigar store in New London," the Irishman said.

"New London?" Keen replied, wrinkling his brow. "Then it really *could* have been the same bird that was in that yellow monoplane!"

"Faith, and I think we'd better be packing our bags," Barney cracked glumly.

"You can buzz off if you like, but I'm sticking around here," said Keen sternly. "He's not frightening me out. He's got to come out in the open and tell his story first. I have an idea he's trying to work me for something. But still I can't figure out how he traced me—and the Bullet."

"What are we going to do?" asked Barney, indicating his loyalty in spite of his reference to the business of packing bags. "You say he wants to get in with us? What for?"

"That's what we'll have to find out tomorrow. He's calling at 55th street."

Then the telephone bell rang again, and once more they exchanged glances.

Keen took up the receiver, and this time it was unmistakably Drury Lang.

"So you got back, eh? Where you bin?" the Secret Service man asked at once.

"Oh, just tootling about the country, keeping away from telephones," explained Keen blandly. "What gets you to a telephone at this time of night? Someone swipe an aircraft carrier?"

"It's worse!" Lang wailed over the wire. "Do you know anything about codes? The Navy's lost theirs."

"Probably some gob dropped it down a funnel while he was chipping paint," chortled Keen, wondering what Lang was getting at.

"No, this is real. The new Navy Yarnell code, supposed to be the only unbreakable code in the world, has disappeared. I thought you might have an idea about it. We're stuck."

"My line's ballistics. Pop-pop stuff, you know," Keen went on, winking at Barney. "I don't know much about codes."

"Will you be in town tomorrow?" asked Lang "I'd like to see you about it."

"I'll give you a ring sometime before noon."

"Well, here's the dope. It'll be something for you to think about. A young Navy Intelligence Service Captain named Walter Glendon, who has been conferring with a Professor Neville Letchworth of Yale—he's a cryptologist, or something—was on his way down from New Haven with a complete copy of the Yarnell code. He was found in his compartment when the train pulled in, drugged and his brief case cleaned out. The Yarnell code book was missing, and the Navy is raising hell about it."

"He was carrying the code book? What for?" asked Keen.

"I tell you, he'd been up to New Haven conferring with this Professor Letchworth. From what I can make out this Letchworth is hot stuff on this sort of thing, and I suppose he's in with the Navy, and had been asked to clean up a few of the points about it."

"Then Letchworth knows all about the code, eh?" Keen queried.

"No—not all of it. Only the particular points in question. As far as I know, not even Glendon knows the full details of the thing. He was really little more than a trusted courier."

"When did all this happen?" cracked Kerry Keen.

"Three days ago—on Tuesday night."

"Three days! Then they've had ample time to photograph the book from cover to cover. There's nothing you can do about it."

"That's what I thought, but Glendon says no. It is useless unless they have what he calls a key book. The key book itself is useless without the code book. From what I can make of it all, the key book changes with each day in the year, and any messages sent on a certain date are keyed to that date. So actually, then, the code book is really 365 codes all in one."

Keen growled. "Well all they have to do is stop anyone from getting the key book."

"That's the way it stacks up with me. But the Navy wants that code book back, and we're tagged. You'd better run in here tomorrow. I'm getting sick of it."

"I'll give you a ring," Keen said, and he hung up.

Barney drained his glass, glanced up, his mug mournful. "We'll both probably end up with a hunk of chain dangling from our ankles," he said. "I'll never be able to sleep a wink this night."

KEEN sank into a large leather club chair, lit a cigarette. For the first time in his career as Raffles of the airways, he caught himself casting quick glances about the room and inspecting the windows. When a log in the open fireplace crackled, it made him jump.

He got up, paced the floor back and forth, and tried to fathom the meaning of it all. Who was the man whose voice at times sounded like Drury Lang's? He kicked himself mentally for not checking Lang's call.

Finally he went into his library, found Professor Neville Letchworth's biography in a scientific tome, then checked back through his elaborate file system and uncovered a full-page photograph of the man. The latter had appeared with an article on the Rosetta Stone published in a fairly recent edition of *Scientific Digest*.

Keen studied the photograph, re-read the man's biography. The son of an English savant, Letchworth had

graduated from Harvard with high honors and had then spent considerable time in Egypt with the Harvard Archaeological Association. He'd been responsible for deciphering several important tablets that had been unearthed at El Qaitara in 1927. He was about five years older than Keen, but his photograph proved him to be a man in splendid physical condition. The rest of the biography related to his



skill in the art of cryptology.

Keen returned to his studying of the portrait. Letchworth certainly did not look like the accepted criminal type. He had a broad forehead, an aristocratic nose, a firm jaw. Then suddenly something in the picture caught Keen's eye and he peered at the picture with a magnifying glass.

Finally, he smiled, took down a violet-colored book from a shelf, and flipped its pages. He came upon a reproduction of the tiny emblem he had discovered in the lapel of the man's coat.

"Now we are getting somewhere," he said aloud. "Just suppose that someone has a copy of the code key book and has already photographed it without anyone else knowing. Then all he'd have to do would be to get together with the thugs who stole the code book and split the profits."



He pondered on that angle for some time, jotted down several notes. "Glendon and Letchworth," he finally muttered, "could be in this together. Glendon could have faked that hold-up gag. He probably didn't have the book with him at all during the return journey. Very likely Letchworth had it all the time and is now trying to contact the man who has the key book. But if it's Glendon who has the key and knows that Letchworth has the code book, they already have all they want and can sell out quickly," he argued with himself. He looked at Letchworth's picture again. "No, Letchworth may have stolen that code book, but he doesn't look like a double-crosser. This business is a last effort toward something or other. Glendon may be the dark guy in the woodpile."

Keen suddenly got a new idea. He remembered that he was slated to meet the man who had flown the yellow monoplane—the man who threatened his whole existence . . . his freedom. The old fear came back. But with a sudden decision he folded his papers, put the books away, and went to bed.

**A**FTER a good breakfast and a glance over the morning paper, Keen hurriedly packed a bag with a strange selection of garments, small boxes, and bottles. He gave orders to Barney to get the Black Bullet into shape for a possible flight that night.

Then he stowed his bag in the Dusenbergs, slipped behind the wheel, and drove toward Manhattan. It was refreshing to speed along the broad concrete ribbon, but he realized that he had a tough job ahead of him. This time it was something more than a matter of bullets and air speed. He had to outwit someone, and first he had to find out who was his real enemy.

His 55th Street penthouse apartment was neat and ready. He quickly changed into a drab, baggy Harris tweed suit, and a pair of thick soled shoes. Then he took out the photograph of Professor Neville Letchworth and placed it against the mirror of his dressing table.

His fingers worked fast. First he trimmed his eyebrows to get that upward curl so noticeable over Letchworth's right eye. Then he drew up the skin of the bridge of his nose, and injected special wax with a medical syringe, thus producing the slightly hooked nose of the Yale professor. After shaping the abbreviated sideburns of hair in front of his ears, a small military mustache carefully applied and a pinked in chin cleft completed his disguise into the character of Letchworth. And the result was astonishing.

"Very satisfactory," he agreed, selecting a battered felt hat. "If Letchworth is the man, all well and good. If not, I may learn something intended only for Mr. Letchworth's ears."

He stood off, practiced a self-satisfied smile in which one corner of the mouth turned up higher than the other. He had nearly perfected the grimace when the phone bell rang.

"Hello?" he said, taking up the instrument.

"That you, Keen?" It was the voice of the man in the yellow monoplane.

"Right. What's your plan?"

"Can you meet me in half an hour?"

"I can—and will. What place would be convenient?"

"Anywhere you say."

"What about the Armor Room at the Metropolitan

Museum of Art? You're an armored plane expert!"

"That's Okay—but be sure you get there."

"Don't worry," replied Keen. "I'll go directly to the 16th Century Armorer's Shop exhibit."

"Very good. I know it well. I once did some . . . well, never mind. In half an hour, then."

"But do you know me?" Keen asked. "I mean will you recognize me?"

"No. I've never seen you—that is, no closer than we were last night. But we should have no trouble at the Armorer's Shop, should we?"

"No. There won't be any one there at this time of morning, except perhaps a few tourists—and I assure you I don't look like a tourist."

"Neither do I," the voice at the other end said.

"Half an hour, then," concluded Keen. And he smiled to himself—for the man had taken the bait.

**S**LIPPING on a pair of dark glasses, Keen left his apartment fifteen minutes later, walked a few blocks, then signalled a cab. He arrived at the museum exactly on time and hurried upstairs to the Armor Room.

He first wandered quietly through the exhibits, taking his time about heading toward the Armorer's Shop set up on the west side of the museum room. He feigned interest in a French collection which included breastplate and headpiece for the charger. He was really listening, rather than seeing, however. Finally he took off the dark glasses and moved on slowly. A grayhaired caretaker in Museum uniform came up, glanced affectionately at a suit of a Crusader's armor, then went out a door at the other end of the room.

Kerry Keen halted and glanced about. He sensed that something unusual was about to take place. Footsteps could be heard hurrying up the stairs at the end of the room, so he darted behind a case of ancient weapons and listened. The footsteps crossed over to the north side, then slackened down on nearing the 16th Century Armorer's Shop.

Keen was about to step out from his shelter when he caught the sound of another set of footsteps, hurrying up the stairs. He pondered on that, hesitated a minute. Since the footsteps followed the others, he decided to investigate. Keeping well in the shelter of exhibition cases and mounted armor sets, he worked his way across the south side and peered around.

There was a man standing there—a fairly tall man, wearing a trim worsted suit, who stood erect in what might be described as a painful way and kept both hands in his pockets. He was listening to the approaching footsteps.

Keen knew at once that this was *not* Letchworth. He sensed too that something had slipped up—either that or he had been tricked into a meeting with more than one man.

The man suddenly looked up the aisle, saw Keen who had stepped out from behind a Flemish exhibit and was now in full view.

"Letchworth!" the man called. "Hey, Letchworth!"

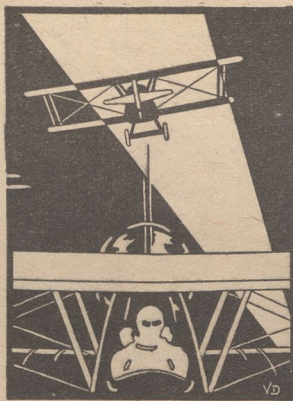
The footsteps hurrying along the other side of the room seemed to hurry faster. Then as Keen started to step back, the man at the Armorer's Shop suddenly let out a low scream, staggered, and fell forward on his face!

There had been practically no sound, but Keen had sensed the quiet chug of a silenced pistol.

Keen waited a moment, heard retreating footsteps. Then he darted to the fallen man and turned him over.

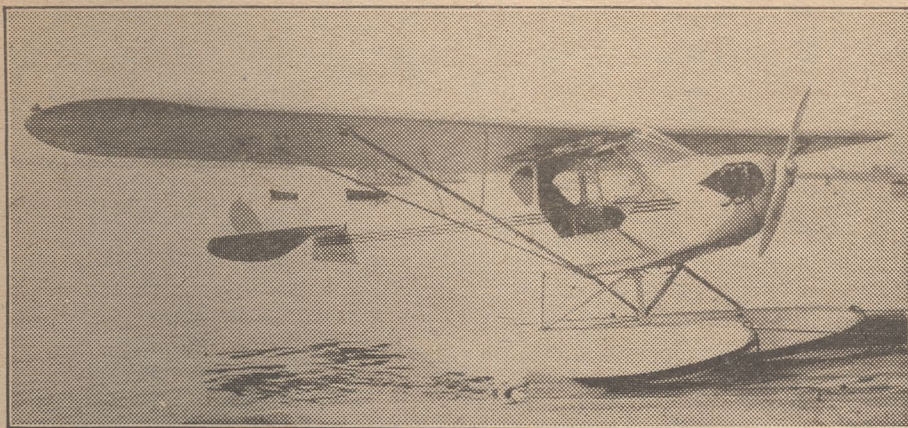
"Letch . . . he got me . . . from behind," the man gulped, trying to struggle to his feet. "Got me in my . . . in my back. Can't make my legs work."

(Continued on page 72)





Those neat Taylor Cubs continue to hold their popularity with the sport flyers. And now how do you like this Silver Cub on Edo floats? It has space for a pilot, passenger, and baggage. The floats, incidentally, only weigh 98 pounds.



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## How About Night Flying?

### A Reader's First Solo

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# On the Light Plane Tarmac

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#### HOW ABOUT NIGHT FLYING?

**T**HERE are, we grant, added risks in flying after dark, but the light plane enthusiast who only flies by day isn't getting everything out of the game, out of his ship, or out of his investment. Meanwhile, it is no secret that outside of scheduled air transport and a few advanced training squadrons of the services, very little night flying is done in this, or any other, country.

Yet when we consider how far the airplane has advanced and to what extent our air routes have been marked and the fields flood-lighted, it is hard to understand why so few amateur pilots put in any night time. The skilled sport flyers continue to confine their flying to the week-ends or daylight periods after business hours, but they might attempt a few night flights when the weather is reasonable.

There is a thrill, a sense of complete satisfaction, in flying at night. And with a little experience a sport flyer who "knows the score" should be able to complete a two-hundred mile trip with comparative safety. He should not attempt it, of course, without proper aviation lights, a radio set, and a thorough knowledge of the ground over which he plans to fly. He should first make several day trips over the terrain in order to acquaint himself thoroughly with the topographical layout. Then, after carefully selecting his weather and assuring himself that the field at the other end is suitably lighted for night operations, he should complete his plans by donning a parachute and a "thinking cap" of confidence.

There is, by the way, a definite market for a compact two-way short-wave receiver such as is used in our single-seat fighters. After proper installation, the pilot would need to acquaint himself with its correct use regarding weather reports and beam signals.

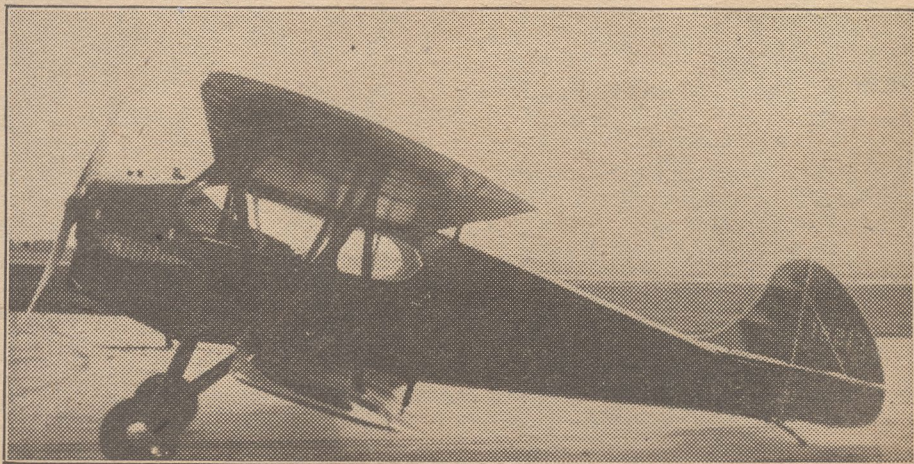
Unfortunately, there are only a few fields in the country where flood-lighting is available at all hours. Many of the smaller fields patronized by the private pilot

may have sufficient flood-lighting equipment, but whether there is a charge for providing the convenience after certain hours, should be ascertained before starting out. It wouldn't be any fun to find you had to spend your gas money on a lighting bill.

The time will come, of course, when our amateurs will fly nearly as commonly by night as by day. It is all a matter of equipment. Many of us can recall when a night trip by motor car was something of a hair-raising adventure. For in those early days there was always the chance of mechanical breakdown, roads were not well marked, and maps, if any, were simply something to print a tire advertisement on. Added to all this was the lack of suitable lighting equipment. Many of us can remember the old brass oil lamps. They were followed by the first smelly and unreliable carbide lights which preceded the finally-successful electric headlights. What days those were!

Light plane aviation will have to worry through the same sort of thing. True, our modern motors are far more reliable and we do have lighted air routes and splendid maps. But until the pioneers get out and make it worth while for the radio set makers and for the airport managers and owners, we cannot expect to make a real go with night flying.

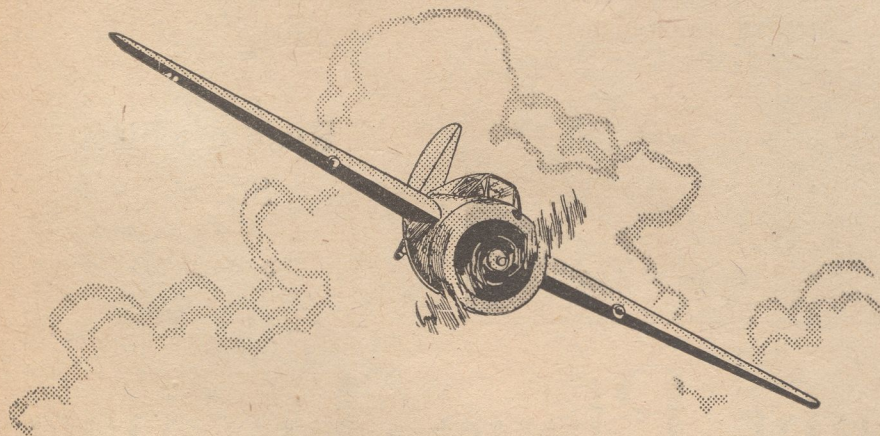
(Continued on page 93)



Here's another sport plane using the Ford V-8 motor. It's the new experimental Schauss recently turned out in Minneapolis. Top speed is 120 m.p.h. and cruising speed 105. Moreover, light crafters will appreciate her landing speed of only 35 m.p.h.



# Modern Planes Album



*BREWSTER*

ware clean and the glasses washed.

Finally, scout-bombing is all the rage now. We have seen several which have been purchased by our air service, and we wonder in what ratio these types are being devoted to the gentle art of scouting and how much to bombing. Meanwhile, it looks as though the single-seat fighter may be gradually re-designed into a one-man aerial torpedo.

The latest job in the scout-bomber class has just been built by the Brewster Aeronautical Corporation of Long Island City. It is intended for use in the United States Navy. This firm is composed of a group of men little known in aviation headlines, but they are men who are well-versed in air knowledge and aero design. They have been working on this particular model for some time and from meager details so far available, they seem to have brought out something decidedly speedy.

In general, the Brewster is a mid-wing monoplane with full cantilever wings. It is powered with a Cyclone engine supercharged for high altitude work. It can carry either one 500-pound bomb or several smaller ones, and in addition the pilot will have four guns to handle.

**BREWSTER SCOUT BOMBER**  
**D**EMANDS on military aircraft designers become more complex with the years. A short time ago a fighter was a fighter—that and no more. In similar fashion, a bomber was a ship designed simply to deliver a load of explosive where it would do the most good. And an observation plane was a craft intended only to convey a skilled observer over enemy positions and get him back with whatever info he had managed to pick up.

But today fighters are expected to

lend a hand with the general patrolling and sometimes to chime in with a little photography. Likewise, Navy patrol ships go in for a side-line of bombing. And giant bombers have reached the point where they engage in punitive fighting expeditions as well as bombing, furnish their own protection, photograph their own destructive work for the Brigadier—and then top it off by providing their crew with a four course meal prepared aboard and served in a flying mess room.

We do hope they keep the silver-

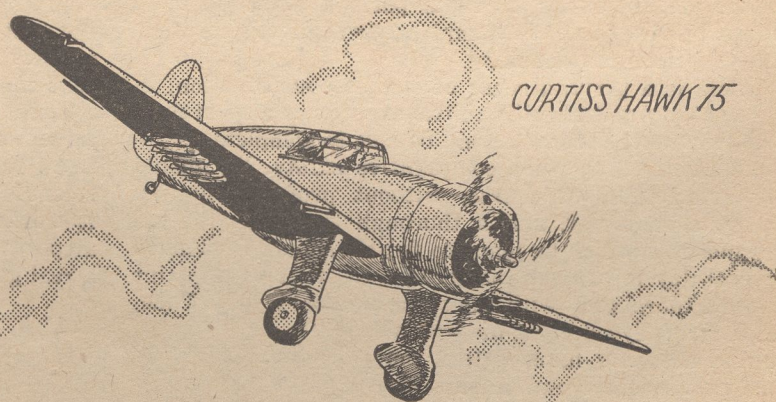
**CURTISS HAWK 75**  
**O**UR author, Dave Martin, told you in our October issue that many of our best planes, presumably “secret-list” ships, were being sold to foreign countries. His article caused quite a furor, and since it appeared *FLYING ACES* has received several tips from readers concerning shipments of planes that were supposed to be on the hush-hush list.

Well sir, now we get the startling news that Curtiss is manufacturing for export a new type Hawk which is admitted to be developed from the Y1P-36, of which 230 were recently ordered for the U. S. Army Air Corps! The statement does not say whether this “development” was an improvement over the Y1P-36 or a less effective model, but we show it here so you can draw your own conclusions.

The Hawk 75 is an all-metal low-wing monoplane designed not only for short range high performance interception and pursuit but also fitted to operate over a very wide range with full military load as an escort for bomber groups. For example, it can do a show at cruising

speed—cruising speed, mind you—of 240 m.p.h. over a range of 1,380 miles! And if the cruising speed is cut down to 210, the range goes up to 1,540 miles.

It is not that we object to Curtiss selling a fine airplane, but rather that we must not forget that in doing so they are telling the world just about what our first line pursuits are carrying. For instance a very elaborate booklet, available to any interested in the ship, explains that the Hawk 75 carries one .30 caliber and one .50 caliber Colt machine gun



*CURTISS HAWK 75*

mounted in the fuselage, firing forward, and synchronized to shoot through the propeller. Two additional guns may be mounted in the wing panels outside the propeller disc, and bomb racks are installed under the lower surface of each wing to carry ten 25-lb chemical bombs or ten 30-lb fragmentation bombs.

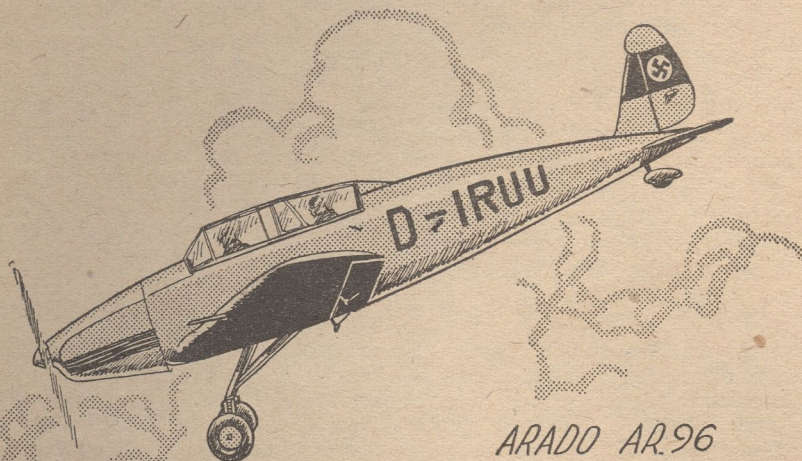
In other words, they've laid their cards on the table as to what the Y1P-36 carries! And so we say, what price secrecy?

The Hawk 75 is fitted with an 840 h.p. Wright Cyclone.



## ANOTHER BATCH OF NEW MILITARY JOBS

In a never-ending parade, improved fighting craft are being taxed onto the test tarmacs of the world's air powers. This month we present America's new Brewster scout bomber, the Curtiss company's striking Hawk 75, Germany's sleek trainer fresh from the Arado factory, and Britain's Supermarine Walrus Fleet Air Arm amphibian.



ARADO AR. 96

### GERMAN ARADO AR. 96

**N**AZI Germany continues to get into the headlines with news of her military craft, and while as yet she has not attained the air strength of the Big Five, she seems to be well on the way.

This month we present the Nazi's new Arado Ar. 96 trainer, which looks a great deal like the better-known Arado fighter. It is a low-

wing monoplane built by the Arado Flugzeugwerke of Potsdam.

The Ar. 96 carries an all-metal cantilever wing set into a duralumin sheet monocoque fuselage. The wings have flaps for low-speed landings, and the undercarriage is retractable. The Ar. 96 is built for all-around instruction work, including training in photography, bombing, aerial machine-gunning, radio aviation, and communication.

Powered with the 300 h.p. inverted

Vee-type 8-cylinder Argus engine, this Arado has a top speed of 202 m.p.h. and a cruising range of 560 miles. The general specifications are as follows: Span, 36 feet; length, 27.4 feet; height, 8.7 feet; wing area, 184 square feet; weight empty, 2,117 lbs., gross weight, 3,076 lbs., wing loading, 16.7 lbs., power-loading, 12.8 lbs., landing speed, 50 m.p.h.; and ceiling, 18,000 feet.

The ship appears to carry a wooden propeller. The engine is well streamlined. There are two cockpits fitted with sliding tops, and, as in most Arado models, the fin is set high on the fuselage and well forward of the fixed stabilizer. The rudder might be called semi-balanced, and the tail-wheel carries a streamlined spat.

In general, the Arado is a high-performance machine, well-made and of such design that it appears that it could be turned out in quantities should the occasion arise. It appears to have been built with this idea in mind; for if it is properly stressed—and it certainly appears to be—there is no reason why it could not be fitted with 750 B.M.W. engine and thus become a fast fighter.

### SUPERMARINE WALRUS

**T**HIS British flying boat is not particularly new, for it has been in service with the Fleet Air Arm and the Royal Australian Air Force for some time. But it is such an interesting machine that we feel that it is well worth offering.

Actually, it is a high performance single-engined amphibian designed especially for Fleet-Spotting work. In Australia it is known as the Sea-gull V. According to British reports, the Walrus was the first amphibian to be catapulted with a full military load.

The wing construction makes it a single bay biplane. The small center-section is mounted just above the engine on small splayed-out struts. The outer wing-panels fold back on the rear spar, thus making this plane particularly adaptable for stowage aboard cruisers carrying catapults. The wings are built up on stainless steel spars with tubular flanges and corrugated webs. Spruce and three-ply round out the structure, with a plywood covering over the leading edge. The airfoil is covered with fabric. Inset ailerons are carried on



SUPERMARINE WALRUS

all four of the wing panels.

The hull is flat-sided and has a single step. It is covered with a special electrically-treated aluminum-alloy. The wing-tip floats are built much the same way.

The power plant, a Bristol Pegasus, is set as a pusher. It is fitted in a monocoque nacelle with removable panels to assist in servicing and repairs. Two fuel tanks, each carrying 75 Imperial gallons, are set in the upper wings, and the oil tank is set

in the nose of the engine nacelle.

There is a bow cockpit fitted with a Scarff mounting and affording a stowage space for marine gear. The pilot's cockpit, which is enclosed, carries a spare set of controls for the right-hand seat. Between the pilot's seat and the front spar frame is the aviator's compartment, and between the spar frames is the wireless cabin. Aft of the wings is a rear gunner's cockpit with a special gun mounting believed to carry a light air cannon.



# All Questions Answered

This section of FLYING ACES is at your service. So if you have an aero query, fire away and we'll answer it here. All questions will be considered in the order they are received. For a personal reply, send stamped, self-addressed envelope.

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**E. Gayer, Boston, Mass.:**—There are no figures available from which we can compute the relative power of anti-aircraft guns or their destructive qualities. These things can never be known until they are tried out in actual warfare. The *U.S.S. Ranger* carries eight five-inch guns and a number of light anti-aircraft guns. My opinion as to which is the world's best machine gun would hardly be worth much. It is often a matter of personal preference. I like the Vickers and the Lewis because I knew them well. But many experts believe the new Brownings are better.

**Robert Williams, Brooklyn, N. Y.:**—I shall be most pleased to get your information on this "emallite" which is said to make a plane invisible. We'll get to the bottom of this subject yet.

**Louis Friedland, Brooklyn:**—The term "range" usually means the distance a plane can go out from its normal base and return. We often have to use fictitious names for planes in our fiction. It all depends on the demands of the story, of course.

**Al Alves, Fall River, Mass.:**—Where a three or four-bladed propeller is used in connection with synchronized guns, the gear simply has three or four cams to control the pulsation timing. You see, the gun fires at its normal rate of fire, except when a prop blade is in line with the gun barrel. Then the gear cuts out the release bar and stops the gun from firing.

**Ned Vukomanovich, Chicago:**—The picture you sent me is that of the Army Douglas O-38-D.

**Elmer Carteret, Collinsville, Ill.:**—One of the best books I know of on modern airships is *Up Ship!* by Commander C. E. Rosendahl. Published by Dodd, Mead and Company of New York, its price was \$3.00.

**E. L. Gaden, Brooklyn, N. Y.:**—The Allmenroeder story has never been fully straightened out, but all the facts indicate that he was a member of von Richthofen's outfit

and was shot down by Ray Collishaw on the Western Front, not on the Russian front. The British used a few Wright-type ships as school trainers in the early part of the War, but not actual Wright-made planes. I have no record of the Wright seaplane.

**John Flynn, Watertown, Mass.:**—I advise you to write to the tire companies concerned for an explanation of their dimensions, etc. I can't figure them out myself.

**Edward Katz, Newark, N. J.:**—According to some figures Newark airport is the largest and busiest airport in the world, but many will argue with you about this point. "Airport" is the modern word for "airdrome" or "aerodrome." Howard Hughes' racer is the fastest land plane in the world, being officially rated at 352 m.p.h. I have no records of the number of accidents suffered by the various airlines, but American Air Lines have had the least in this country.

**Stanley L. Osborn, London:**—You want to swap war-time and modern aviation photographs with American readers? Fine. We hope our photographers will appreciate this. (Osborn's address, fellows, is 27 Ivor Place, Baker Street, London N.W.1.)

**Frank Stranad, Glendale, Queens, N. Y.:**—I do not know for certain where Bert Hall is today. The last I heard

of him he was having a few unfortunate differences with the law. I have the inside dope on the film *The Woman I Love* as I did a little work on it. The air shots were actually taken in France where the picture was originally made from a French best-seller.

**Jack Wills, St. John, B. C.:**—The Spitfire is made by the Vickers-Supermarine Aviation Company. Write to the Air Ministry for full details on becoming a R.A.F. Cadet; they will be glad to send them. I believe the Spitfire and the Hawker Merlin are the only two British single-seaters with speeds of more than 300 m.p.h. The Seversky P-35 is supposed to be the fastest fighter in the U.S. Air Service. America won the Schneider Cup Race twice.

**Herry Reydt, Brooklyn, N. Y.:**—While most figures available are none too reliable, it is generally believed that Great Britain has the largest and most efficient air force in the world. During the last twelve months more than forty new squadrons have been added to the Royal Air Force. Both Russia and Italy have large air services; but their equipment and personnel, while good, do not quite reach the standard attained by Britain.

**Clifton Uckerman, Manti, Utah:**—Sorry, but I do not have that photograph of von Richthofen any more. I gave it away with dozens of others in the good old days when I was easy with my war-time treasures. So now I have virtually none left. I won't argue with you about the death of von Richthofen because even the so-called official records are uncertain as to what actually happened. Thanks for the pictures of your models. We will try to use one on our model page.

**J. Slater, Greeley, Colo.:**—See our October issue for a one-bladed prop. I don't know the R.A.F. officer you mention. The efficient Junkers Diesel is used on many German transports. The D.H. Dragonfly uses two 130-h.p. Gipsy-Majors and does 237 m.p.h.

**D. M. Smith, Jr., Valdosta, Ga.:**—The old Sopwith firm is now the Hawker firm. The S.E.5 most certainly was not a better fighter than the Camel. The records prove it. The Spad was a stronger ship than the Nieuport 28, but the Nieuport was more maneuverable. The answer to the personal question you ask is: Yes—thirteen planes and six kite balloons.

BY ARCH WHITEHOUSE

## And Now We'll Ask You a Few

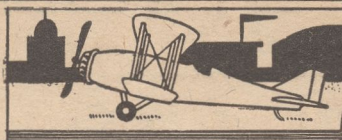
- 1—For what was the Barkley-Grow airplane designed?
- 2—What type Bellanca was recently bought by the Chinese Air Force?
- 3—What type plane will Sir Hubert Wilkins use in continuing his quest for the lost Russian fliers?
- 4—What is the horsepower of the new Wright Cyclone known as the GR-2600A-2?
- 5—What is a Blenheim *Bolingbroke*?
- 6—What is unusual about the Gwinn Aircar?
- 7—Why was Michel Detroyat's Caudron C-460 missing from this year's National Air Races?
- 8—What American was recently named head of Canada's transcontinental airway system?
- 9—The Soviet government recently awarded a \$750,000 contract to the Consolidated Aircraft Company. What for?
- 10—When air pilots speak of "the Kollsman" what do they mean?

(Answers on page 95)



# HAPPY LANDINGS

BY ARCH WHITEHOUSE



## Our Air Strength—And How To Figure It

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NOW that the American sky militarists have startled the world with their "Flying Fortresses" and "Flying Dreadnaughts," it might be interesting to consider what all this means to our future air strength. That the giant bomber, either in land plane or flying boat form, is fast becoming the backbone of all the "Big Time" air services, no one denies. To be sure, the pursuit, the attack, and the observation ship still have their places in the well-rounded sky-fighting system, but just as the battleship is the bulwark of a Navy, so the aerial mammoth is becoming the main weapon of the air.

We've been calling attention to this new trend for years now—and several times disdainful sniffs have greeted our ideas along this line. Yet this big-ship slant was not my own personal invention but rather the combined ideas of aviation experts whose volumes I have been reading assiduously for years. These men weren't writing for newspaper headlines or for so much a word. And many of them would be called dry-as-dust lecturers. But they had experienced the unpleasant thrill of having been shot at in the air, and war in the air had been a serious proposition to them.

They thought in terms of tactics, ballistics, weather, and ground conditions. They knew that a certain plane may have a top speed of 200 m.p.h. and a cruising speed of 170, but that when you take six or twelve such jobs and put them into a fighting formation, the net cruising speed must be that of the slowest machine. Moreover, they knew that maneuverability can only be reckoned in terms of the ability of the least skilled pilot in the formation. In other words, the chain of air fighting strength is only as strong as its weakest link.

It was the men who thought all these things out who, as far back as 1920, envisioned the fading of the pursuit plane. Today, these same men are figuring five years ahead, and they now tell us that the air strength of a nation can only be considered from two angles: (1) The potential strength of available man power; and (2) the potential strength of available equipment.

Angle Number 1 asks the question, how many pilots, observers, and mechanics can we mobilize within a period of six weeks in case war breaks out? Here, we utter the fond hope that the light plane sport will become more popular in the United States and thus increase the pilot population. Obviously, the airlines and our military services alone cannot train the full number

of flyers that would be needed in such an emergency. True, they are doing a splendid job with the equipment, time, and money they have available. But the real potential strength in sky fighting personnel should, and must, be built in the private flying field.

In other words, is it the duty of thousands of Americans to learn how to fly—to maintain our rank as a first-rate aero nation and as a preparedness measure in a war-mad world.

Equally important is the potential strength of equipment. We can no longer figure a country's air power simply in terms of first-line military ships. In an emergency, anything capable of getting into the air would be commandeered. Even the little Cub might become the sky mount of an executive or a despatch carrier, and an Aeronca might take a surgeon and a nurse to a sorely pressed battalion. Meanwhile, five-place commercial ships could in many instances replace the rattling ambulances common in the great War days in order to remove wounded men to hospitals well back from the fighting area where the finest of treatment would be available far from the maddening thud and crash of the front lines.

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**Pilots of all classes and aircraft of all classes! Those are the terms in which power in the sky must be reckoned.**

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IN the fighting category we only have to look at the Boeing "Flying Fortress" and the more recent Sikorsky "Flying Dreadnaught" (see our cover painting) to understand what we mean by potential air strength. The "Flying Fortress" is really a development of the Boeing transport, and the "Dreadnaught" is an overgrown and militarized Clipper ship. And so, if we have one thousand commercial transport planes

handy when war breaks out, we shall by the same token have one thousand fighter-bombers within three weeks—provided we're properly organized to make the conversion.

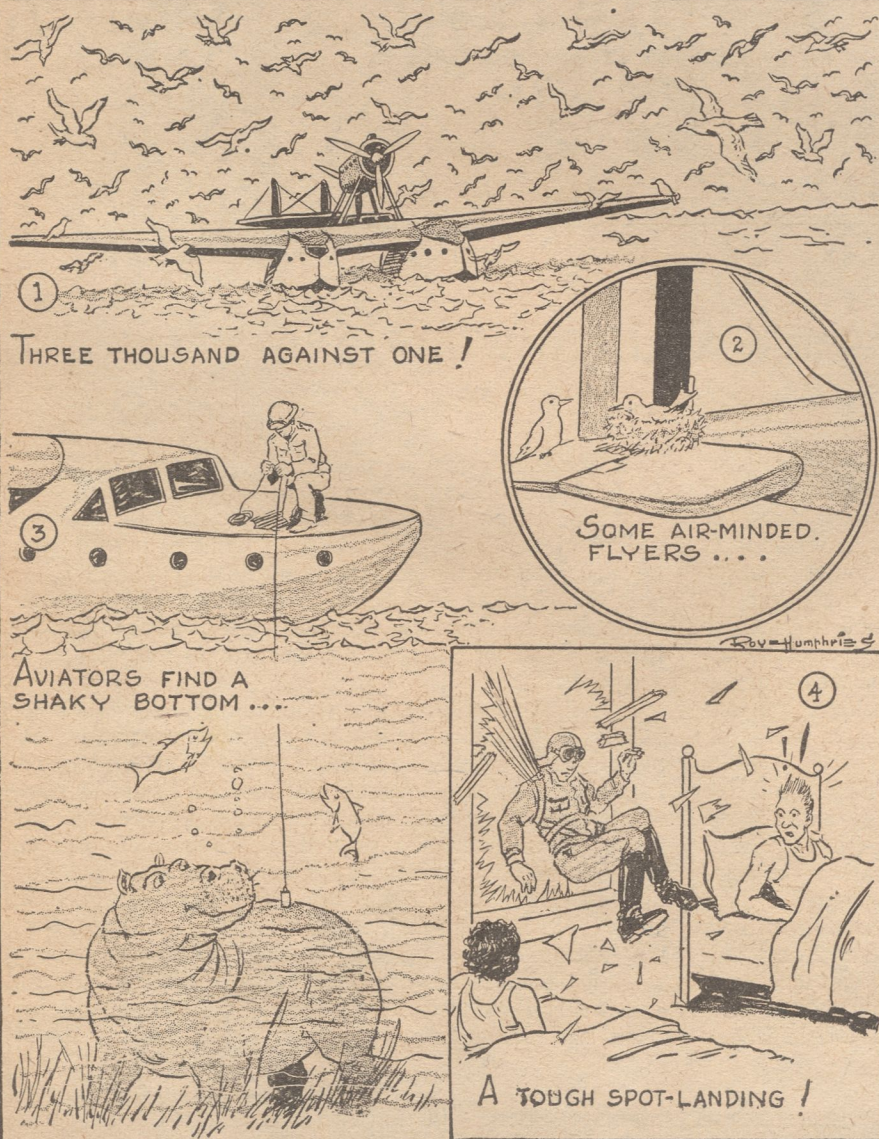
As I write, I have before me a photograph of a new Lockheed 14. There are two cross-section drawings of it, one showing the transport as a ten-passenger airliner, and the other revealing its interior as a bomber. The change was accomplished simply by removal of the passenger seats, installation of a dismountable bomb rack, and provision of two glassed-in gun turrets fore and aft. It is my guess that if these bomb racks and gun turrets were made up and kept in a handy place, the Lockheed 14 could be converted from a transport to a 200-m.p.h. bomber within six hours.

With very little trouble, Pan American Clippers could



# PILOTOPICS

By ROY HUMPHRIES



## Stories Back of the Above Pictures

1—WHEN the Alaska airliner bearing Pilot Tony Schwamm and nine passengers was unreported for nearly twenty-four hours recently, airway officials wondered what was up. But it developed that Pilot Tony had a bird of a reason for not completing his flight on time. A southbound flock of more than 3,000 seagulls had tangled with his northbound plane and forced him down!

*Hey, you seagulls—don't you know nothin' about traffic rules?*

2—MYNA birds over in Hawaii have become overly aeronautical, according to a report by the Navy. For the airmen at Pearl Harbor recently found several of the pesky feathered critters making nests on various parts of the Consolidated patrol planes that had been brought in for servicing and repairs.

*Yep, the Myna is certainly air-Myna-ded!*

3—IN a recent South African aero survey, Imperial Airways engineers studied various lakes and rivers in a search for suitable flying boat bases. On several occasions their sounding lines indicated "obstructions" beneath the water line. But the joke was on the engineers—for the sunken impedimenta later proved to be huge hippopotami!

*Just chalk it up as a hippopotamistake.*

4—ALBERT ULRICH, of North Bergen, N.J., had never been introduced to the E. K. Whitmores, of Sea Girt. But he visited 'em anyhow, and not bothering to knock at the door, he busted right in through the bedroom window and woke his unsuspecting hosts out of an afternoon nap. Al, you see, was doing a parachute jump—and the wind wasn't just right.

*Wonder if the W's asked him to "drop in again sometime"?*

be turned into long-range patrol bombers; the present Douglas, Lockheed, and Stinson airliners would make splendid bomber-fighters; and many of the five and eight seaters now used in private business could be commandeered for several kinds of special duty work. After all, a ferryboat load of London busses and a few dozen Paris taxicabs carried the British and French armies to the Marne in 1914 and stopped the German march on Paris!

But this conversion business is not an American prerogative. As a matter of fact, several European countries have been doing it for years. The German Heinkel He-70 became a splendid bomber-fighter and has already seen service in Spain. The Junkers G-38 has a counterpart in the German Air Service as a long-range bomber. The Dornier "Wal" became a Naval seaplane in more than one European service. In Holland, they took the Koolhoven F. K50, an eight-place cabin-monoplane, put in a nose turret, and called it the F.K. 50B. And now it carries 2,200 lbs. of bombs, a crew of four, and two gun mountings.

Italy took the Breda-32, an eleven-passenger commercial monoplane, changed the Pratt & Whitney motors to Alfa-Romeos, mounted a lot of Breda-Safat machine guns and racks for 2,000 kilograms of bombs—and overnight she became the Breda-46.

The great Caproni 101 bomber, which did so much damage during the Ethiopian campaign, was originally nothing more than the Caproni 133, a passenger plane designed for colonial service. The Savoia-Marchetti S-81 bombers were only S-79 eight-passenger commercial monoplanes daubed up with military insignia and given fixed undercarriages instead of retractable landing gear.

THE British have been particularly hot at this sort of thing. In a test exhibition, the Airspeed Envoy was changed into the "Convertible Envoy," a military fighter-bomber, in seven hours—just to show how easy it could be done. And thereupon the Envoy people received an order for a large number for the South African Airways. In times of peace, they'll be transports; but if guns begin to pop around German East Africa, you'll see what happens.

The Armstrong-Whitworth A.W. 23 was listed right off the bat as a transport bomber—so you can use it on an airline, or for blowing up a railroad siding. The Armstrong-Whitworth "Whitley," a splendid bomber, is only a more pugnacious-looking A.W.23. Moreover, Great Britain's noted coastal-reconnaissance

(Continued on page 91)



# JOIN THE FLYING ACES CLUB

## Honorary Members

President and Mrs. Franklin D. Roosevelt  
Vice Pres. John Nance Garner

Casey Jones	Rear-Admiral Byrd
Wallace Beery	Capt. Edward Rickenbacker
Al Williams	Colonel W. A. Bishop
Col. Searoni	Major G. A. Vaughn, Jr.
Major von Schleich	Willy Coppens
Lieut.-Col. Pinsard	General Balbo
G. M. Bellanca	Walter H. Beech
Capt. B. Sergievsky	Frankie Thomas
John K. Northrop	Dwane L. Wallace
Colonel Roscoe Turner	Josef Veltjens
Charles W. A. Scott	Frank Hawks
Richard C. DuPont	Donald W. Douglas
Maj. A. W. Stevens	Capt. Edwin C. Musiek
Capt. O. A. Anderson	Clarence D. Chamberlin
Major Fred Lord	Mrs. Charles S. Baylies
Lieut.-Col. Theodore Roosevelt	

## Official Charters

F.A.C. Flights and Squadrons are recognized at GHQ only after they have received their official charters. These illustrated documents, printed on fine paper and portraying various features in the field of aviation, are excellent for framing and display. Their inspirational text is in keeping with the high ideals and aims of our Club. Each charter application must include a full list of proposed group members and their addresses. Each of these members must hold his regular F.A.C. card, obtained by clipping and sending in the membership coupon printed on this page. If applications are approved, Flight Charters are issued for 25c, and Squadron Charters for 50c. Send the correct fee with your application. It will be returned if the Charter is not granted.

### WIN YOUR WINGS

*Save This Whole Coupon for  
CADET OR PILOT  
insignia of the F.A.C.*



All members with Official Membership Cards are eligible for Cadet Wings. This coupon, with two others and 10c, entitles members to Cadet Wings. Do not send this coupon alone. Save it until you have three. Then send them in all together with a self-addressed envelope and 10c to cover cost of wrapping and mailing (sixpence overseas).



All enrolled members who have won their Cadet Wings are eligible for Pilot's Wings. This coupon, with four others and 10c, entitles Cadets to Pilot's Wings. Do not send this coupon alone. Save it until you have five. Then send them all together with a self-addressed envelope and 10c to cover cost of mailing.

### Send the Whole Coupon

regardless of which kind of wings you wish. Separate sets of coupons are needed for each insignia. The coupon begins where it says "Win Your Wings." Canadians send International Reply Coupon for 15c. British and other overseas readers send coin or coupon for one shilling. Only one pair of either kind of wings to a member. If yours are lost, send 25c for new ones (one shilling overseas). [18]

## Do Your Full Share to Advance Aviation

### No Dues—No Red Tape

**T**O advance the cause of aviation, over 50,000 men and women, boys and girls, have banded together to form the **FLYING ACES CLUB**.

It is the easiest club in the world to join. Just clip the membership coupon, fill out, and mail it to GHQ with a stamped, self-addressed envelope. Your official card will then be forwarded to you. After joining, you can quickly win promotion and the right to wear the various insignia of the Club.

In the **FLYING ACES CLUB** there are two kinds of local organizations, known respectively as Squadrons and Flights. A Squadron must have eighteen members, including its leader. A Flight must have a total of six. You can start either of these groups in your own community by enrolling your friends in the Club, then applying for an official charter as detailed in the column at the left. Each member must hold an F.A.C. card.

Meetings and activities are conducted among the squadrons and flights according to the wishes of the members. GHQ has established no rulings in this respect, nor are there any dues or red tape whatsoever. The entire idea of the Club is a common meeting ground in an international organization for the lovers of aviation in its various phases. Many local Squadrons and Flights hold regular contests and public events. Many hold weekly meetings for model building, and instruction, and even regular flight training.

### The Highest Awards

After the membership card, and Cadet and Pilot's wings, comes the Ace's Star. This is awarded for enrolling five new members, using, of course, a separate coupon for each. As an Ace, you are then eligible for membership in the **FLYING ACES ESCADRILLE**. Then you may win truly handsome awards. Among these are the Distinguished Service Medal and the Medal of Honor, two of the finest decorations the Club's professional artists have ever designed.

### Correspondence

In all correspondence with GHQ where a reply is desired, enclose a stamped, self-addressed, return envelope with your letter. GHQ receives thousands of letters weekly, and cannot undertake to answer all of them unless this is done.

### Special NEW Service!

**This Aviator's Positive Identification Bracelet**



**Registration and Bracelet Only 25c!**

A valuable identification service for F.A.C. members is now offered with our World War type aviator's bracelet. Every one now issued will bear a serial number—which is the key to your confidential identification record on file at GHQ. In emergencies where prompt identification is needed, this number may be sent to GHQ, and identification facts will then be furnished. When ordering, send your name, address, occupation and full physical description—age, height, weight, color of eyes, hair and complexion, etc., together with name and address of nearest kin. Overseas readers may receive bracelets and be registered for 2/- in coins or Int. Money Order for same amount.

## Flying Aces Escadrille

Any member who has reached the rank of Ace is eligible for membership in the **FLYING ACES ESCADRILLE**, an advanced organization which supplants the former G-2 unit and opens the way for participation in a definite program contributing to the forward movement of aviation. The popular and attractive **FLYING ACES** awards may be won by Escadrille members who qualify. To enroll, an Ace must apply direct to Escadrille Headquarters, care of **FLYING ACES CLUB**, giving his name, age, address, rank, and highest award already won in the Club, and enclosing a self-addressed, stamped return envelope. If he is approved for membership his assignments will be mailed. At present Escadrille membership is only open to Americans and Canadians.

### Keepers of the Log

In order to keep in touch with GHQ, every squadron should appoint a member with a facility for writing as Keeper of the Log. It shall be the duty of the Keeper of the Log to send in regular reports of interesting doings of his squadron. His is an important job, because it is only by means of interesting squadron reports that life can be given to the monthly **Flying Aces Club News**.

### Stationery and Pennants

Due to popular request, we have ordered a new supply of F.A.C. stationery and official F.A.C. (paper) pennants. The stationery is of high quality with the **Flying Aces Club** letterhead attractively hand-lettered, and the price is amazingly low—100 sheets, postpaid for 25c. The attractive pennants (with glue on the back) sell at 6 for 10c or 20 for 25c.



**The  
Beautiful  
F. A. C.  
Ring**

The official F.A.C. club ring is a beauty and should be worn by all members. It is self-adjustable, to insure a perfect fit. It is finished in antique silver. Sent postpaid anywhere in the U. S. and possessions for only 50c. It will be sent postpaid to foreign countries for three shillings. A similar Sterling Silver ring can be had for \$1.00, or 5/- overseas.

### January Membership Coupon

I, the undersigned, hereby make application for membership in the **Flying Aces Club**. I agree to live up to its rules and regulations; to foster the growth and development of aviation; and cooperate with all other members in the work of spreading aviation information, building up confidence in flying for national defence and transportation. I will aim to build up the Club and its membership, and do my best to win the honors that the **Flying Aces Club** offers.

My name is .....

Age ..... [18]

Street .....

City ..... State .....

Mail this application, enclosing a self-addressed, stamped envelope. Canadians send International Reply Coupon worth 5c. Overseas readers send a similar coupon worth sixpence.

**FLYING ACES CLUB, 67 W. 44th St., New York**



# Flying Aces Club News

From the "Isle of Ould Erin" to the Philippines would be a sizeable hop for 'most any kind of ship! But the trusty news transport of the Flying Aces Club takes you to both places as fast as you can read the paragraphs below. For there's been "heavy doin's" in our far-flung Club of late, and here's Clint Randall revvin' out the latest dope on all of 'em.

\*\*\*

**O**UR Club News this month, fellows, should start out with an initial letter printed in green, since we are giving you reports of the activities of two leading Erin outfits. One report comes from the First Ulster Flight, F. A. C., of Belfast, and the other is from F. A. C. Squadron No. 1, of Dublin.

These units of the Club have really been doing things since we last heard from them. And no less a personage than Dublin's Lord Mayor, Alderman A. Byrne, T.D.—an honorary F. A. C. member, incidentally—distributed the prizes in a recent model meet sponsored by the Dublin squadron.

Major Brian Murphy, F. A. C., commanding officer and original organizer of the squadron (back in 1934) sent me a digest of His Honor's talk before the F. A. C. members and onlookers.

"It is most encouraging," the Lord Mayor said, "to see you young men and boys taking such an interest in

**By Clint Randall**

*National Adjutant, Flying Aces Club*

both the flying and the mechanical sides of aviation. For your training, I am sure, will lead to an excellent future for many of you as pilots.

"And from the point of view of air transportation," he continued, "Ireland, because of its convenient position, with regard to Atlantic travel, will some day be one of the leading countries of the world. So it is important that you young people in the Flying Aces Club prepare to play your respective parts in our development."

Major Murphy supervised this meet. All entries were rubber-powered. And many handsome prizes were given, including a fine Flying Aces Trophy donated by Major Murphy personally.

Several members of the Dublin squadron's Flight "A" are taking actual flight instruction. And a member of Flight "C"—A. Bedford—recently resigned to enter the Royal Air Force. We hope he'll keep in touch with us through Major Murphy.

The Ulster Flight has continued with its many routine activities during recent months. And in addition, its members won two shooting matches against another Belfast team of crack shots. The Flight recently had a swell trip to old Bushmills, the point on the North Ireland coast where the Giant's Causeway ends its huge stepping-stone track from Scotland.

**A**ND NOW we'll hop back to the States and see what Harry Curtner, C. O. and Keeper of the Log of Flight "B," Dayton, Ohio, has to say about his outfit.

"Flight 'B,'" Harry reports, "is all a-revvin' with activity, Chief! We've all chipped in to buy a second-hand typewriter, too. This is the first report to be written with it.

"We have a *real* airminded gang in my Flight, you know. Every single member has been up at least five times. And when a new chap comes in, if he hasn't already been upstairs, we see that he gets a chance to do so right away. We always give the new fellas a right royal welcome. And we visit the airports regularly to see that the "spirit of the skies" stays with us.

"And another thing you ought to tell everybody about, Chief, is this—if the new chaps don't buy FLYING ACES regularly, they're *made* to. Or we don't admit 'em to the meetings. And to help a non-modeler get started in the game, we all contribute some of our supplies for a 'grub-stake.' Anything to help a fella get airminded, doncha know!

"At a recent meeting, one lad conceived the idea of keeping a permanent record of our Flight's activities. So we bought a big scrap book, and now we're filling it with our regular meeting records, photographs and clip-

pings and anything else that's needed to make the material complete. Like the idea, Clint?"

You bet I like it, Harry! And I'm suggesting right here that our other flights

**LOCKHEED**  
*Aircraft Corporation*  
BURBANK, CALIFORNIA

March 11, 1937

Mr. Ross Smyth,  
31 Wilfrid Avenue,  
Toronto, Canada.

Dear Mr. Smyth:

I am awfully sorry to be so long in answering your letter of February 12, but I am sure you will understand just how busy our Company is at the present time.

The Lockheed Company is always glad to hear from you young men who are showing such a strong interest in this great game of Aviation. The work of the Flying Aces group with its 50,000 membership is a wonderful boost for not only the airline operators, the private pilots and the corporations which use airplanes, but also to us in the manufacturing end of the industry.

Thank you for your invitation to accept an honorary membership in your great organization. I am very happy to accept this, not only because it will help you to win the distinguished service medal, but because I am personally very highly honored to be able to unite with your organization.

Please accept my best wishes for the success of the Flying Aces Club, and for your own activities in this work.

Very cordially yours,

LOCKHEED AIRCRAFT CORPORATION

*Carl B. Squier*

Carl B. Squier  
Vice President and Sales Manager

CBS:G:EL

We're pleased indeed to be able to reprint such a letter as this one, written by Carl B. Squier, of Lockheed. For it shows the fine attitude taken by the real leaders in the aeronautical game toward our organization. Welcome to our Honorary Tarmac, Mr. Squier—and thanks a lot, Ross Smyth, for flagging him in!



and squadrons "take a leaf out of your book"—not the record book, of course—and follow suit.

**W**HILE we're in Ohio, by the way, I want to give an official welcome to a new outfit, the Cleveland Aces Squadron recently organized by George Hassen. George's "Number One Man" is George Faust. Commanding the three flights of the Aces Squadron are George Hassen, Air Aces Flight; Ed Serkownik, Suicide Aces Flight; and Walter Serkownik, "X" Aces Flight. Every member of each flight is working toward the rank of Ace, so we'll be looking to hear great things from Cleveland.

It's been two or three months before I made much mention of honorary members in the Club News pages. This month, though, we have a whole scad of new arrivals on the tarmac. Among them is Lawrence D. Bell, president of the firm that's making the trim new twin-engined pusher, the XMF-1. Addison Plummer, F. A. C. member living at Milwaukee, Wis., gave Mr. Bell the welcoming flag.

And Ross Smyth, who has been mentioned before as "that dandy little liner-upper from Toronto," made a three-pointer with a whole transport-load of new H.M.'s. First to pile out of the ship was J. E. Schaefer, president, Stearman Aircraft Corp., Wichita, Kans.; and right after him came Mark M. Woods of the Arrow Aircraft Co., Lincoln, Neb. Then in rapid succession from Ross Smyth's air transport—or was it an air mail letter?—came C. L. Egtvedt, Boeing Aircraft Co., Seattle; W. T. Piper secretary-treasurer, Taylor Aircraft Co., Bradford, Pa.; E. J. Sias, pres., Lincoln Airplane and Flying School, Lincoln, Neb.; Walter H. Beech, pres., Beech Aircraft Co., Wichita; Alvin P. Williams, pres., Western Air Express Corp., Burbank, Calif.; V. J. Burnelli, pres., Burnelli Aircraft, Ltd., Keyport, N. J.; and lastly, W. W. Kellett, Kellett Autogiro Corp., Philadelphia.

Bill Busch, of Minneapolis, Minn., rolled in his "H.M. special" with M. B. Freeburg, of Northwest Airlines, Inc., as a passenger. And from Loughborough, England, John Coltman ushered into honorary membership Sir Alan Cobham, K.B.E., A.F.C. Sir Alan, as many readers will know, is one of England's pioneers of the air, having made many adventurous and important survey flights over British Empire routes. At present he is concentrating upon flight re-fueling experiments.

Sir Alan's sponsor in the Club, you'll remember, is the active British F. A. C. who welcomed to our hon-



Up from Australia comes this swell shot of F.A.C. member Jack Mathews, of Sydney. Jack's also a bombardier in the Royal Australian Artillery (Militia) and this is the nifty uniform in which he paraded on Coronation Day.

orary tarmac the Japanese "Divine Wind" flyers, K. Tsukagoshi and M. Iinuma.

**B**RACELET APPLICANTS, attention! Captain Sam Bessin, F.A.C. Supply Officer, informs me that he's holding up shipment of an enormous number of our Positive Identification Bracelets, because the members who ordered them failed to include the necessary information with their applications.

So if you are waiting for yours, this is probably the reason. Look right away at the Bracelet notice on our "Join the Club" page, then shoot in the necessary dope.

Before I forget one thing. Remember us telling you awhile ago about that new Monogram picture *Atlantic Flight*, starring our Honorary Members Dick Merrill and Jack Lambie? Well, I saw it at a special preview the other day. Dick was there himself, and so was another F.A.C. Honorary—none other than Captain Eddie Rickenbacker.

And here's something else—as a sort of informal contest, see if you can pick out that aeronautical error near the start of the film.

Captain Rickenbacker was mighty pleased with the picture. When it was all over he said to me that he thought Dick had certainly done a fine job!

A real compliment by one F.A.C. about another, wouldn't you say?

This month we have a couple of additions to the Club's "Zoo." Here they are—Bill Botter, of Johnstown, Pa., who wants to be known as the *American Eagle*, and Charlie Himes, of DuBois, Pa., who lays claim to the title of *Lone Eagle*. Seems that Bill is flying kind of high, I'd say; but there's some point in Charlie's idea, for his first initials, C. A., are the same as those of the original Lone Eagle, Colonel Lindbergh. And is your middle name Augustus, Charlie?

Yep! And now we have still another request for an International Squadron—this time from Wally Bickmire, of St. Marys, Pa. Well, fellows, we can't go too far in this business of international friendships, for the better we know the chaps in foreign lands, the less we'll be disposed toward scrapping with them. So you F.A.C.'s who are scattered in the far corners of the globe, write and introduce yourselves to Wally. He lives at 527 Schissle St., St. Marys, Pa.

"Randall to West Orange. Randall to West Orange. Randall to—"

A special broadcast, this one, to F.A.C.'s in West Orange, N. J., who want to line up with a squadron now being organized and which promises to be one of the liveliest units in the Club. Alfred Munch, of 33 Colony Drive East, is starting it. Alf is one of the Club's charter members, and has a collection of over 5,000 books, magazines, and the like on aviation.

For his new squadron he's planning an all-round program of regular meetings, airport trips, model contests, and discussions. Get in touch with him, either by mail or phone.

Remember my asking what F.A.C.'s attended the Scout Jamboree at Washington? Well, besides myself I find there were quite a few others. I've had several letters from members who were there as representatives of their home town troops. The only letter I can dig out at the moment, though, is from Donald Dill, of Junction City, Oregon. S'funny, too—I rambled through the Oregon section of the Jamboree Camp on Columbia Island, right next to the Washington Airport.

Don thoroughly enjoyed being so close to the center of Washington's air activity, and he had a swell time going through the Aircraft Building of the Smithsonian Institution. (Glad to notice your accuracy in names, Don—calling it the Institution instead of the Institute).

**W**HOA there! Skysters, I'd already closed up my copy and was putting it in the envelope for the printer when a swell letter from Captain Berig, commanding officer of



the Dawn Patrol and Chief of the F.A.C. Radio Communications Corps., was dropped onto my desk. It's the first we've heard from him since his heavy summer activities began, and I'm pleased as can be that I can add some of it to the Club News now. I'll quote direct:

"I've just completed one of the busiest summers I have ever put in with the Dawn Patrol, and from the looks of the winter program on which we have already started, it's going to be 'nip and tuck' with us all winter long.

"The radio angle of our Club is still perking. I've been in constant touch with most of the stations throughout the summer and they've

been working fine. Here at the Headquarters Station we're establishing a new office, and our entire receiving and transmitting apparatus will be replaced with new and up-to-date equipment.

"All of the divisions of the Dawn Patrol are being equipped in like manner, also all of our cruisers. So outside of Governmental organizations such as the Coast Guard service, the Dawn Patrol will be the only organization in the world to have a complete, world-wide radio net.

"At present, stations of the Dawn Patrol and the F.A.C. Radio Communications Corps are located here in Boston, at Helmetta, N.J.; Larchmont, N.Y.; Hollywood, Calif.; Los

Angeles, Calif.; Geneva, N.Y.; Rochester, N.Y.; The Admiralty, London; Brisbane, Australia; Transvaal, South Africa; and at many other places all over the globe. Those just named are our key stations.

"We still have vacancies in the net for interested amateurs, Clint; so F.A.C.'s who are not already lined up with us should get in touch with me direct. Address Captain Lionel K. Berig, Dawn Patrol, Inc., 30 Essex St., Boston, Mass."

So there you are, radio fans. Here's a swell chance to join with one of the finest life-saving outfits in the world—if you're really up to snuff on your dit-dit-dit-da-ing.

—CLINT RANDALL

## The Airmail Pals

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**W**ANTED: A SORCERER! Yes sir, air mail laddies, some of your requests for peculiar types of correspondents are becoming more than a mere editor can handle. That's why I think hiring a real sorcerer to do some conjure-up-ing would be the best way out of the problem.

Now I don't mean just a professional magician, for Clint Randall used to be one of those "way back when," and he confesses that his type of skill isn't at all the kind that's needed to help out here.

You see, one applicant for a pal writes: "I want to correspond with a truck driver who weighs 173 pounds and who sings, yodels, and plays a guitar." Another one says, "Please connect me with a blonde chap in the East who's exactly 5 ft. 10½ in. tall and who enjoys all sports and big game hunting. He should also be able to play *Yankee Doodle* on a jews' harp!"

Yeah! And do card tricks besides, eh?

Believe it or not, these are actual quotations from letters dropped on my desk this month! So you see why we ought to have a sorcerer helping out the old R.H.P.D. Even so, every request that comes in is taken care of as soon as I can find a pal that comes near the stated requirements. The only letters that are disregarded are

those whose writers fail to comply with the few rules printed in the box on this page.

Incidentally, air-mails and fe-mails, if you ever *do* get a pen pal letter which isn't a hundred percent to your liking, please be courteous and at least drop its writer a note of acknowledgement in order that he'll understand that his letter wasn't lost.

You might like to know that Ross Pentel, of Chicago, is the chap who started me out on that "magician" tack this month, palsters. He wrote a swell letter saying that he knew I wasn't a magician, but could I give him a 20-year-old pal with scientific interests, who lives in New Zealand or Australia, and who loves high speeds and dangerous situations. And why?" Ross continues, "Well, since we have lives, we really should *live* them instead of just sitting around."

Not a bad idea, Ross, but you'd better watch some of those "dangerous situations"; for you don't always escape when they get too tough.

Say! Here's a note from Des Ryan, of Dunedin, New Zealand, who's interested in "anything and everything—but primarily in model-building." Des is a stamp-collector, too. And he adds some mighty-much appreciated words about how FLYING ACES has kindled the flame of flying in the hearts of many an Anzac down his way. Thanks a lot, Des.

By the way, the R.H.P.D. had quite a compliment this month. Maybe I'm something of a magician after all! For another chap writing up from Dunedin—13-year-old Trevor Metcalf—states that he recently bought his first copy of FLYING ACES, and while enjoying it he was "suddenly *hypnotized* by the Airmail Pals page and immediately decided to write for an American pal." So I introduced him to Jack Whalen, 12, of Hicksville, N.Y.

One of the neatest and best-written letters I have seen in a long while came from Doris Browman, of International Falls, Minn. Doris says she has a whole flock of hobbies—radio, flying, collecting stones and fossils, photography, dancing, music, and the like. I almost swapped her letter with one from Bill Westcott, of Downieville, Calif., but I suddenly remembered that Bill says he doesn't like the name Doris. So I sent the missive to Alf Held, of East Boston, Mass., instead.

And now, pals, I'll close by telling you the name of the Texas post office from which Pen Friend Zelia Cole wrote. The name is—Goodnight!

—THE RIGHT HONORABLE PAL DISTRIBUTOR

### HOW TO GET AN AIRMAIL PAL

**F**IRST, write a letter just as if you were writing to your new pal—the kind of letter which tells your age, particular interests in aviation, your hobbies, et cetera. (If you wish, you may include a separate sheet of paper telling us, in a general way, what kind of a pal you seek.) Next, send this letter to Airmail Pals, care FLYING ACES, 67 West 44th St., New York City. And be sure to enclose a stamped, self-addressed envelope.

Now, when your letter arrives, we select a Pal for you from our batch of letters—the sort of Airmail Pal your letter indicates you want—and we mail his letter to you in the stamped envelope you send us, and we mail *your* letter to him. Then you're all set! Of course, if you want additional Pals, just write us again.

#### REGARDING FOREIGN PEN PALS

**I**N case you do not reside in the United States, write a pen pal letter as above—but do not enclose a stamped, self-addressed envelope or send any money for stamps. Your pal letter will be forwarded to an American correspondent, following which you need only wait for his reply.

If you are an American who wants a foreign pal do not write a pen pal letter. Instead send us a short note telling in a general way what kind of a chap you are, and what kind of a foreign pal you seek. Enclose a self-addressed, stamped envelope. A foreign writer's letter will be sent to you, then you may begin writing him direct from your own home. Foreign airmail pals are cared for in this fashion because foreign stamps sent in from other countries cannot be used in the United States to forward letters to Canada or across the seas.

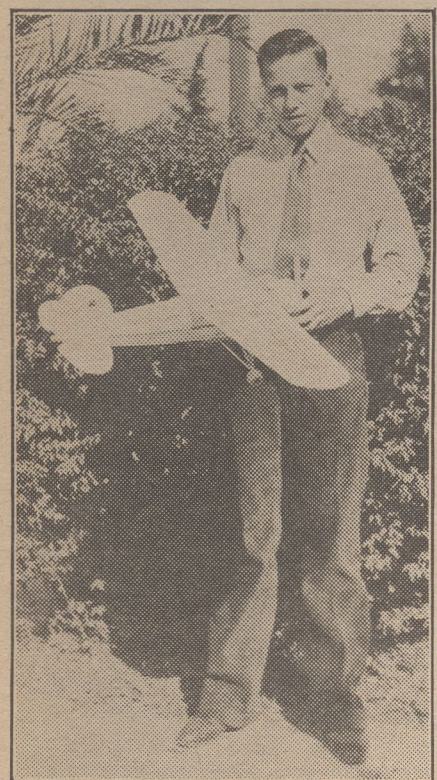
Those of you who seek foreign pals will be given American correspondents whenever the supply is exhausted. Please note also that we cannot supply you with foreign pals in non-English speaking countries where FLYING ACES is not distributed.



# With the Model Builders



For months on this page, readers, we've been showing you models rather than the modelers themselves. This month, though, we found a nice batch of prints for a page of personality pictures. So above, we present Gregory Kocaja, a model fan from Chicago. And to save you the trouble of guessing, we'll tell you that his ship is Pan American's Sikorsky S-42.



Above: We're pleased to present another prolific producer of splendid planes—Don Nelson, of Santa Ana, in the State Where the Sun Always Shines. He's displaying his "Winnie Mae" model for your approval. Incidentally, D n's a lucky chap, since he has a swell aunt who helps him a lot in his model hobby.

Right: Although we don't like to "repeat" on this page, we're giving you this second picture of C. Hobson because it's just too good to hold over. Here's a few of "C's" twenty-odd models, and most of them were made from plans in F.A. "C's" home, you know, is in Cheshire, England, from whence comes much fine cheese. But we'd hardly be able to call these swell jobs cheesey ones, would we?



Here's an old FLYING ACES fan from England—fifteen-year-old C. Hobson, of Stockport, Cheshire. He's holding his old reliable "Mister Mulligan." But for a real display of his handiwork, aim your eyes at the bottom right-hand corner of this page.



Surprise! Yes sir, fellows! Here's a starter for D. W. Cooper, of Cheddresden, Derby, England. "D.W." doesn't know that this picture of himself and his models is to appear, since it was sent "on the q.t." by his older brother, E. J. Cooper. They're neat-looking models, "D.W." But what's your full name?

## Here's An All-Personality Page

Left: Presenting the second "Don of the month." For here's smiling Don Woodworth, of Seymour, Conn., with his nifty 24-inch model of a Taylor Cub. And we suspect there's a little good-natured rivalry up Don's way, since he insists that we correct a statement made some time ago, that he's a graduate of Seymour H.S. No sir! Don got his diploma at Woodbury School, instead!





# Try Our "Sphinx Moth"

\*\*\*

By Paul Gustafson

**M**OST of you modelers will agree that speed models in full flight are perhaps the most spectacular of all model airplanes. And when you consider a performance of 60 m.p.h. or more—you've got something!

Well, here's a snappy speed ship of which I am quite proud—the *Sphinx Moth* racer. She's unique in more ways than one, particularly in her mono-strut landing gear. I can see many of you modelers looking a little askance at this innovation, but I assure you that you'll find the *Sphinx Moth* sufficiently sturdy for such an undercarriage to satisfactorily break the force of any rough landing.

As a matter of fact, my first *Sphinx Moth* model had no landing gear at all and she did quite well, making 70 m.p.h. at a clip. But when I made her heavier and changed some of the other features of design, I had to add the strut for balance. And even now the present ship is capable of snapping out well over 60 m.p.h. with 14 or 15 loops of  $\frac{1}{8}$ " rubber.

But let's get started. The first feature on the program is—

## THE FUSELAGE

**C**ARVE this out from two pieces of medium hard balsa 1" by 2½" by 20" after first coating them on one side with a mixture of equal parts of clear dope and cement and clamping them together until dry. Remove the clamps and trace the side view of the fuselage (Plates 3 and 4) on one side of the block. Cut to shape and repeat the process with the top view. (Plate 1.)

Following this rough preliminary work, the fuselage is shaped to an elliptical cross-section at all points, then smoothed and polished by three successively finer grades of sandpaper.

The fuselage is next separated into its halves with a thin-bladed knife and each half is then hollowed out to a thickness of approximately  $\frac{1}{8}$ ", leaving solid the portion 2¾" from the tail. On both sides of the solid part grooves are cut to fit the tail hook (Plate 4) which is then cemented in one of the sides and the two halves permanently put together.

At this time an elliptical section may be cut from the right hand side of the fuselage opposite the tail hook.

When the fuselage sides are firmly joined, one inch of the nose should be cut off and a new nose made from pine or basswood. In carving the block it is best to first make a  $\frac{1}{4}$ " thick plug (pine or basswood) to fit the opening in the nose. The plug is then cemented to a roughly-cut nose block and after drying is inserted in the nose. The block can thus be curved to the exact contour of the fuselage.

When this has been done, the fuselage is covered with long overlapping strips of model airplane silk, cemented lengthwise.

## LANDING GEAR

**T**HE construction of the landing gear strut is similar to that of the fuselage; that is, two pieces of  $\frac{1}{2}$ " by 3" by 3¼" medium-hard balsa are cemented together, carved to shape, split apart, hollowed out, and cemented together again.

The cross-section at the root is of streamline form (Plate 3) and changes to an ellipse at the tip. The thickness of the sides changes from  $\frac{1}{8}$ " at the root to  $\frac{1}{16}$ " at the tip. Before the halves are recemented together, the shock-absorbing system—your own favorite method—must be installed and the wheel placed in position.

The wheel may be carved by hand from two pieces of pine, hard balsa or basswood 1" by 1" by  $\frac{1}{8}$ " laminated cross-grained, or it may be turned on a lathe. In either case the cross-section should be elliptical, and the bearing should be  $\frac{1}{16}$ " (outside diameter) brass tubing. The wheel is protected by several coats of clear dope, and a black tire may be painted on for realism.

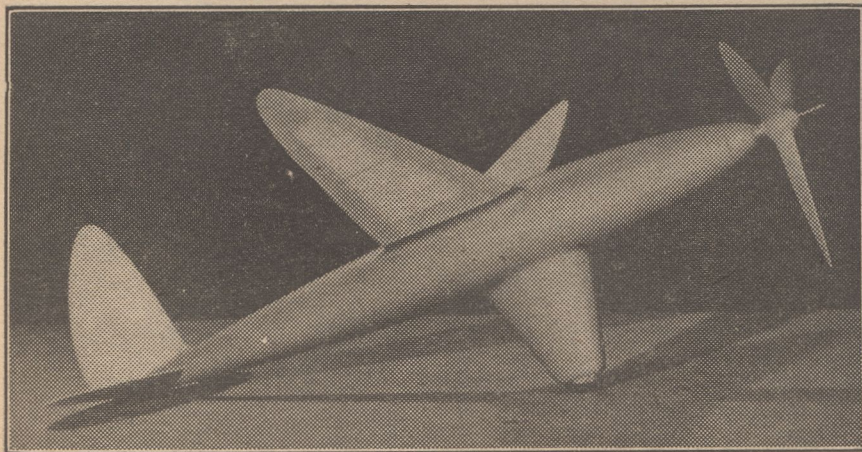
When the two halves of the mono-strut have been put together, the top is curved to fit the bottom of the fuselage. The strut is then held in the correct position while a line is scored around it on the fuselage. The scored section is cut out and the strut cemented in place.

The fillets shown on the plans are mixed from balsa dust, clear dope and cement. After being roughly applied, they are finished with several grades of sandpaper. The complete strut is covered with strips of silk which run from top to bottom and overlap on the fuselage.

## TAIL ASSEMBLY

**P**ATTERNS for the rudder and stabilizer (Plates 3 and 4) are traced on hard 3/32" sheet balsa and the surfaces cut to shape. The rudder is sanded to a streamline section, while the stabilizer is cambered more on the top than on the bottom. Both surfaces are given two or more coats of clear dope or wood filler, with fine sandpaper used between coats. The stabilizer is inserted in the fuselage at 0° incidence (relative to center line of fuselage) and the rudder should be in perfect alignment.

When the tail assembly is finished the propeller can be carved—or it may



Following the ancient Greek idea that in the Sphinx is embodied all knowledge, our "Sphinx Moth" model shown here seems to typify all that is known regarding aeronautical speed. For there's "Rush!" in every line of her, from the boss of her three-bladed prop back to the very tip of her tail. And she's just as sturdy as she is graceful!



be purchased. Since it is of the 3-bladed type the blades are separate pieces of wood. Pine or basswood are recommended. Three propeller blanks (Plate 4) are made, and glued together with casein glue. The blades are then carved out, after which the hub should be well-wrapped with strips of silk. (If the builder does not feel that the 3-bladed propeller is worth the time and effort, a 2-bladed one may be made; in this case, a larger blank should be used, say 7" by  $\frac{3}{4}$ " by  $1\frac{3}{8}$ " and of the "X" or helical type.)

Either a ball-bearing prop shaft may be installed, or a washer placed between the prop and the noseblock. In the case of the former, about  $\frac{1}{4}$ " must be cut from the nose to secure a snug fit. A  $\frac{1}{8}$ " shaft is then drilled through the block and the prop shaft is cemented in place. The front hook is bent similar to the rear hook.

#### WING

**H**ARD BALSA should be used in constructing the wing (Plate 2). First the leading and trailing edges are pinned in position over the plans and elevated by slipping small strips of  $1/32$ " sheet balsa beneath them. For the ribs, rectangular pieces of  $3/32$ " by  $\frac{3}{8}$ " balsa are cemented at the proper places. As soon as these are securely fastened, the wing tips and roots are attached.

When the whole framework is firm, the leading edge, trailing edge, ribs, tips and roots are cut to shape and sanded smooth. For this operation the sandpaper should be wrapped around a long balsa block to eliminate the possibility of bumpy ribs and consequently an uneven air foil.

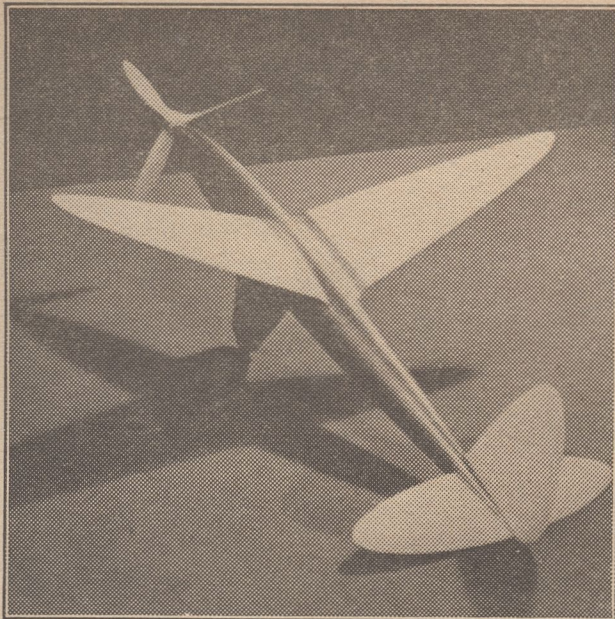
The centerline of the wings is placed directly over the center of gravity, which is determined by balancing the complete model including the rubber. When this point is found the wings are secured in the fuselage by the same method used for the landing strut.

The incidence of the left wing should be very slightly positive, while the incidence of the right wing should be slightly negative. Fillets should be applied similar to those on the undercarriage.

When the wings are finished they are covered with silk running lengthwise, and clear dope is applied until all wrinkles have vanished. Six or eight coats are usually necessary for a tight covering job.

#### FINISH

**N**OW that the model is completely assembled, the fuselage and mono-strut are polished with fine sandpaper, and several coats of clear dope or wood-filler applied. The fuselage, landing gear and wing roots should be painted in



*So that mono-strut landing gear has you guessing, huh? Well, it had us guessing, too, until we received Paul Gustafson's assurance that it has satisfactorily strutted its stuff following many a landing after 60 m.p.h. flights. This picture shows also the sheer simplicity of the "Sphinx Moth's" outline.*

order to disguise the fillets, which are normally a darker shade than the wood. Metallic-blue, the result of mixing blue and silver dope, is recommended. The propeller may be painted silver. When the dope is dry, the model is ready to be flown.

#### FLIGHT

**T**HE model will cruise smoothly for long distances when powered with seven or eight loops of  $\frac{1}{8}$ " rubber, but for speed over a distance of 100 feet, the most efficient power is from 10 to 15 loops of  $\frac{1}{8}$ " rubber. The motor may be wound by hand, but better results will be obtained with a winder. If a winder is used, the rubber should be attached to a  $\frac{1}{2}$ " diameter ring instead of the usual "S" hook.

Whenever possible, the *Sphinx Moth* should be flown over tall, thick grass. Short grass is more harmful, and bare ground is often disastrous. The model will cruise for comparatively long distances when powered with from five to seven loops of  $3/16$ " brown rubber, or from seven to ten loops of  $\frac{1}{8}$ " brown rubber. For fast contest or "show-off" flights over 100-foot courses, the best motor for the *Sphinx Moth* is eight to ten loops of  $3/16$ " or twelve to fifteen loops of  $\frac{1}{8}$ ".

#### WINDING AND LAUNCHING

**T**HE MOTOR may be wound by hand, but better results will be obtained if a regular winder is used. In this case, the prop end of the motor should be looped onto a  $1/16$ " wire S-hook, which is then slipped into the hook on the propeller shaft.

Since so many articles have been written about winding and handling the model airplane rubber motor, it is hardly necessary to go into full detail about the process right here. Just crank up your *Sphinx Moth* the same as any other outdoor endurance model.

While the motor is being wound, the fuselage can be held between the landing strut and the nose with one hand and between the wing and tail with the other. You'll find that the sturdy monocoque construction permits this without injury to the model.

Hand launching is much safer for this ship than the R.O.G. take-off. For the regular hand launching, one hand holds the fuselage beneath the wing while the other holds the prop, and the model is given a fast forward shove into the air from head-level, the prop being released at the same instant.

The object here is to keep the model at a constant height and pointed in the right direction while the hands are moving forward.

Other good methods, although they require practice before the direction of flight can be controlled

(Continued on page 94)

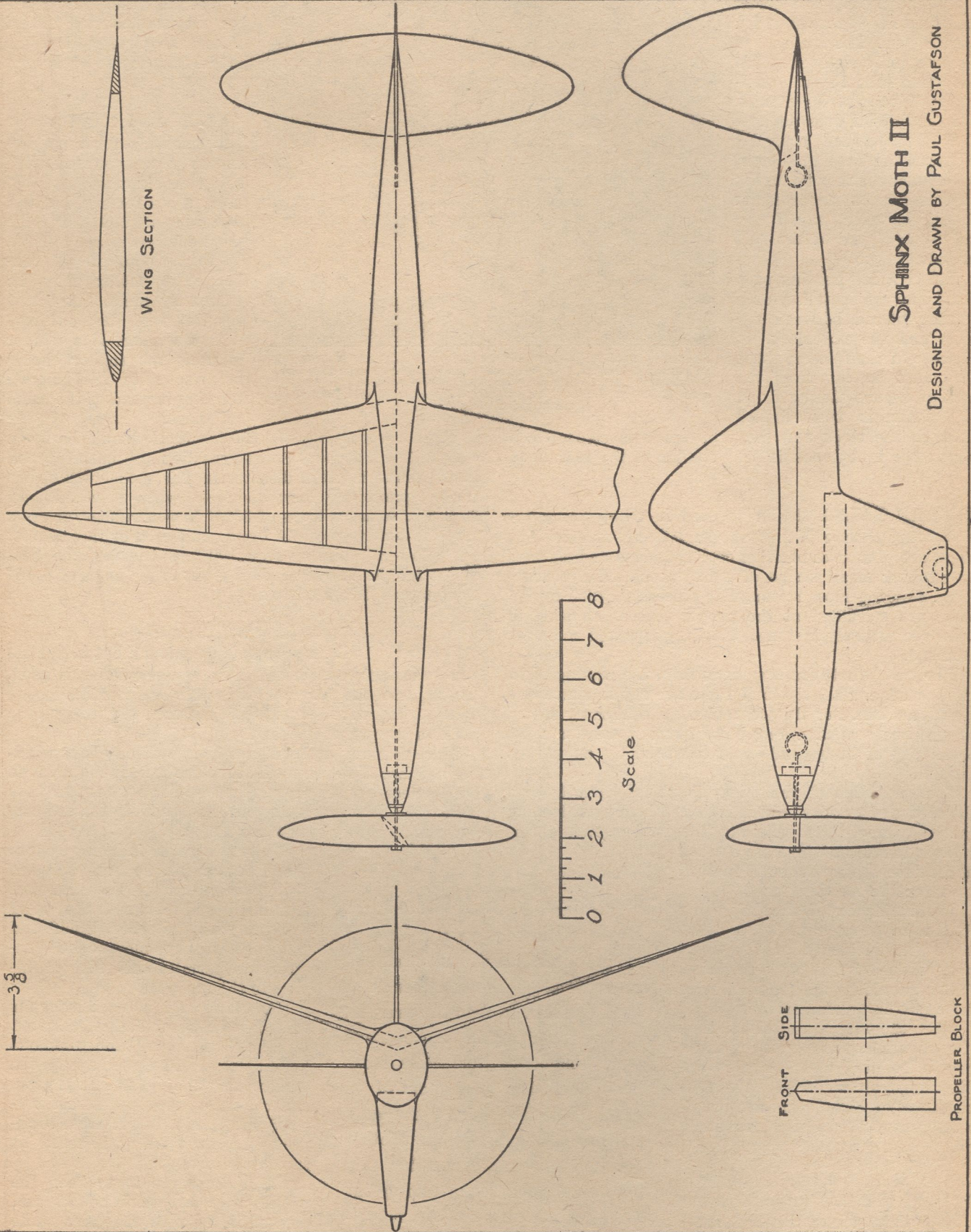
## Speed and Beauty!

Really a novelty in the field of racing models is this streamlined creation from the workbench of Paul Gustafson. And the original model from which these plans were developed has repeatedly been clocked at just short of 70 m.p.h. But speed isn't the only feature of our "Sphinx Moth," for you can easily see that she possesses good looks and great strength besides. Yes sir, modelers! For a unique ship that's got what it takes, you can't do better than build this swell blue streak of the skies.

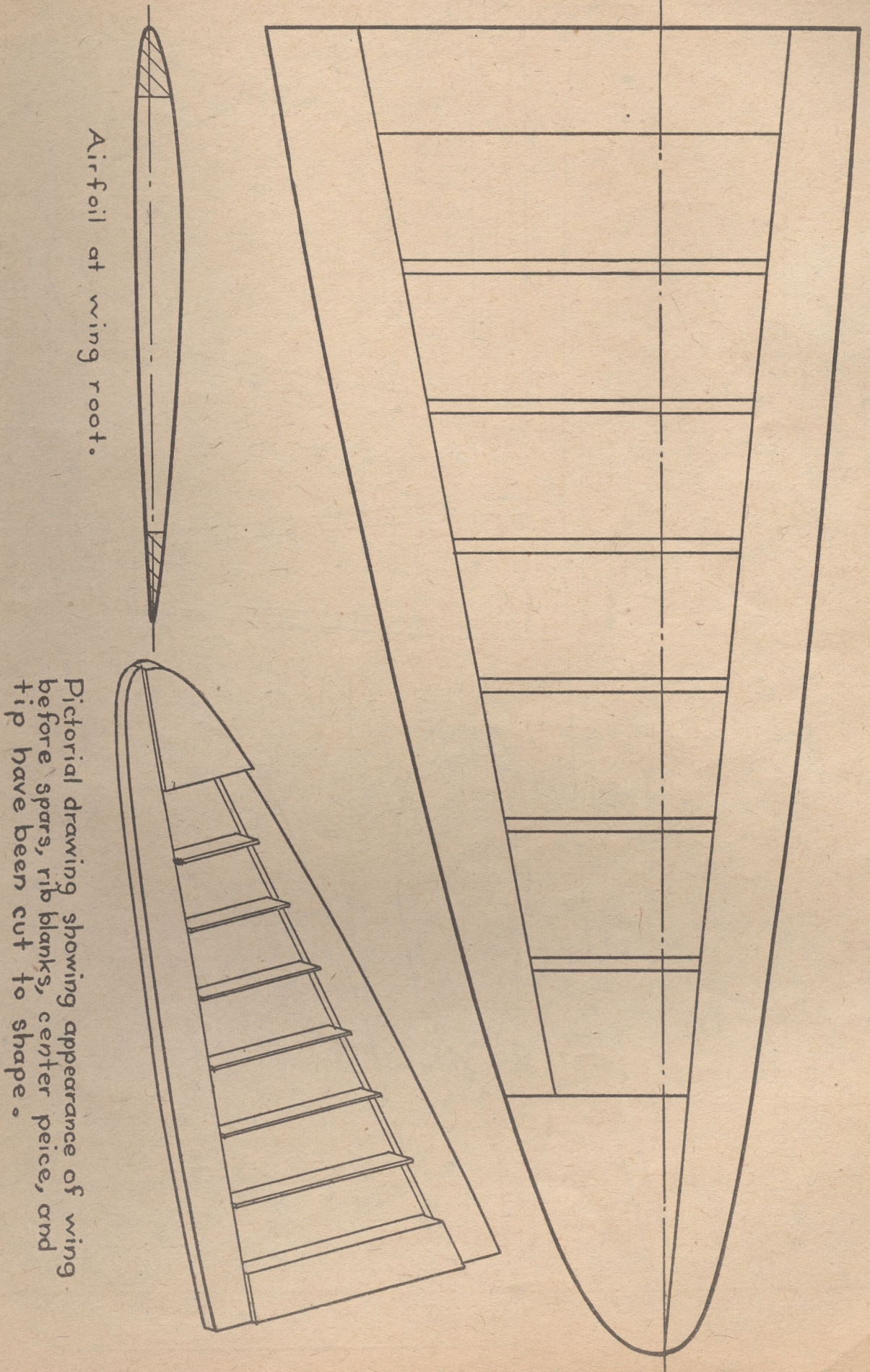


# SPHINX MOTH II

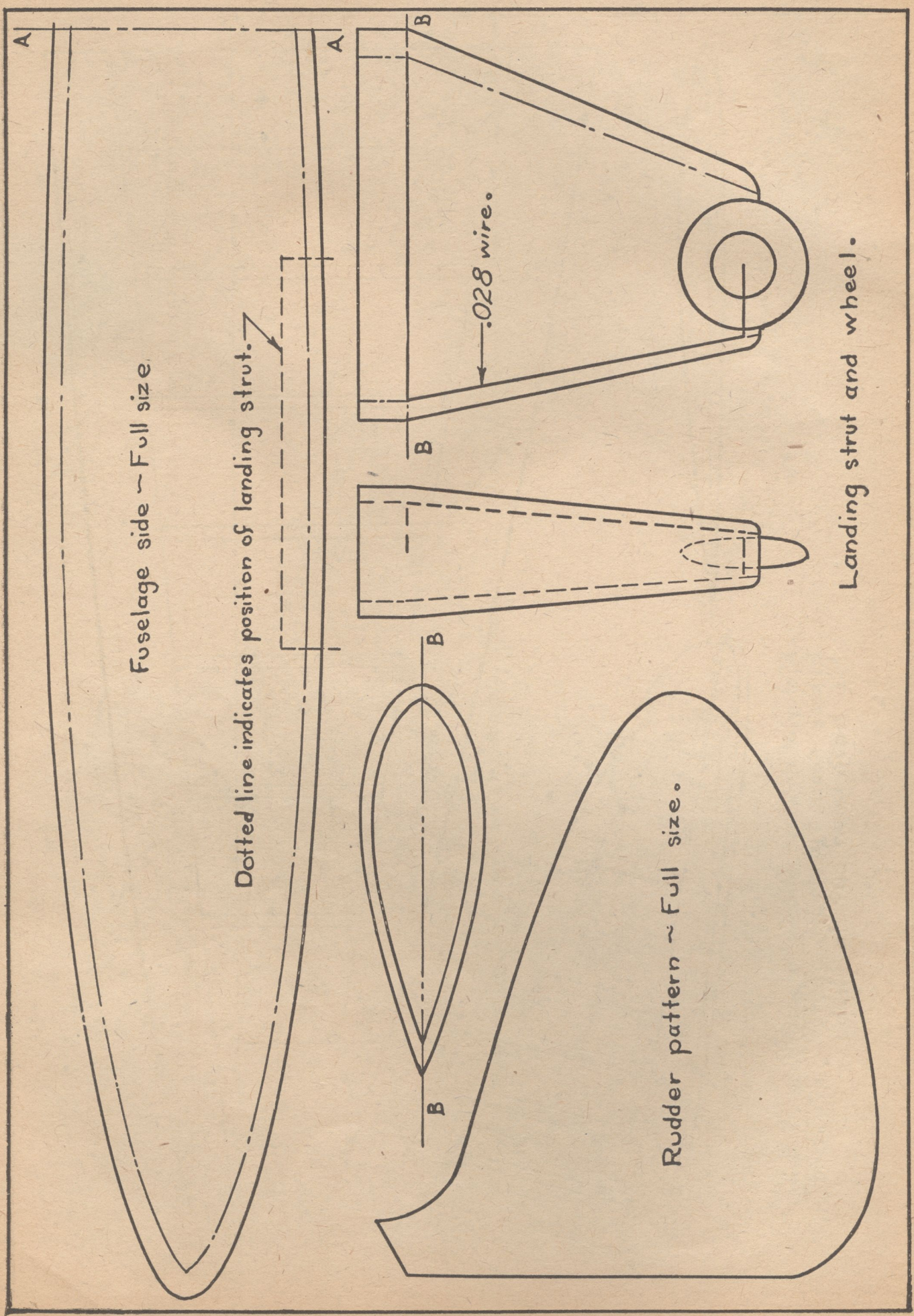
DESIGNED AND DRAWN BY PAUL GUSTAFSON



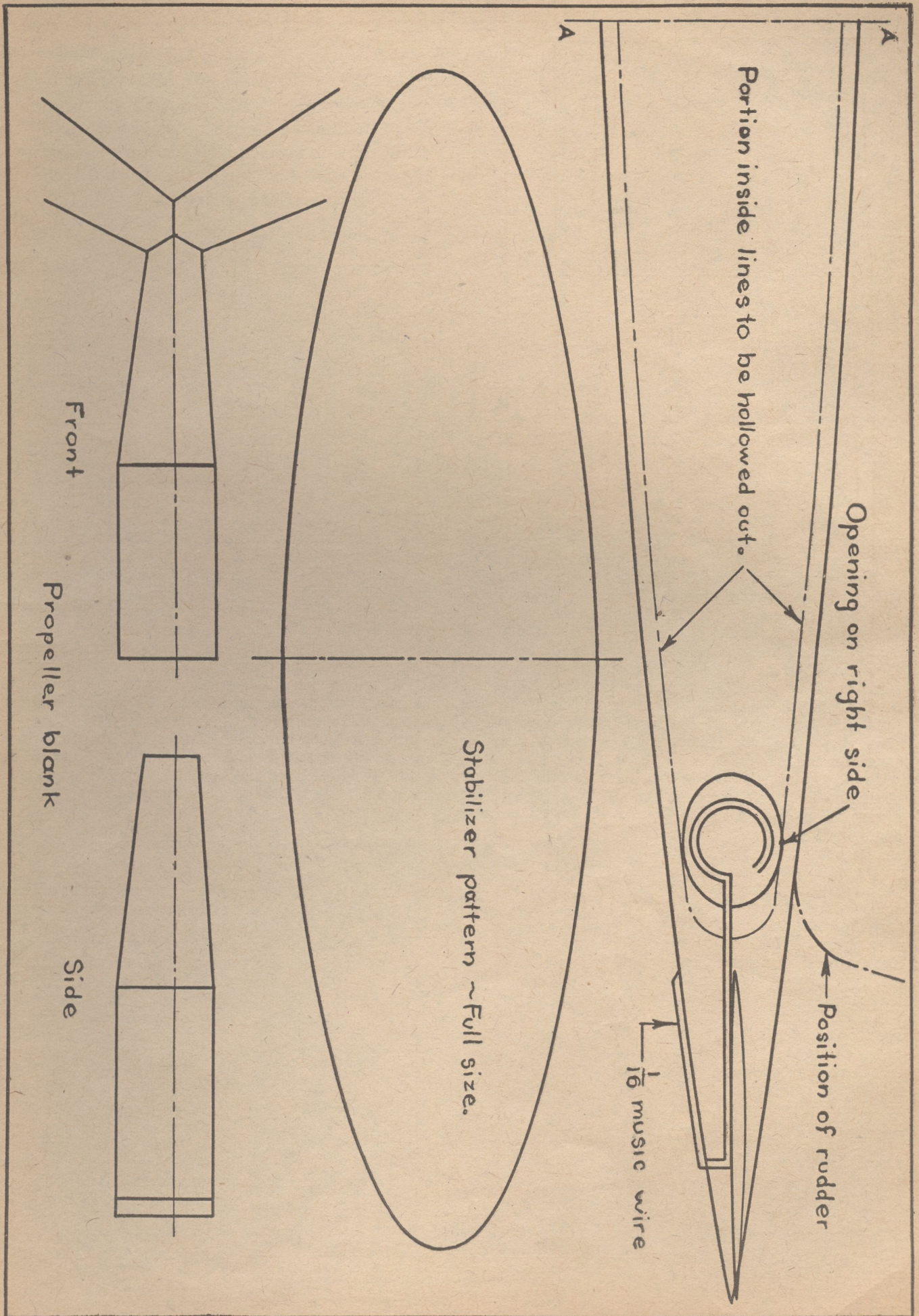






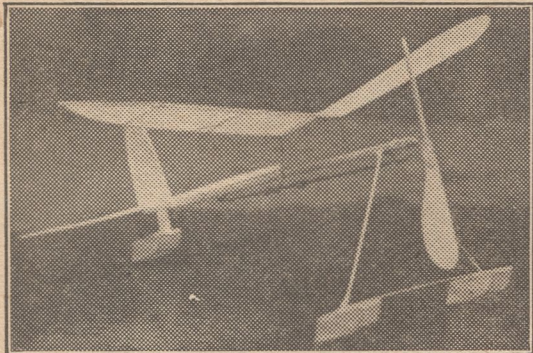








According to the authors, this started out to be a picture of the "Puddle Jumper" in a portable bathtub. But Alan's dog tipped the tub of water over, so we had to show the model poised in the puddle. And that's how the ship got its name. Use this swell shot as a guide in making your model.



## OUR FLYWEIGHT INDOOR CHAMP!

There's plenty of pep in this unique little flyer, fellows. We almost called her the "stick job to K.O. all other stick jobs," since she's got just what it takes to register a knockout blow. For she's novel, she'll make a swell water bug take-off from the family bathtub, she's inexpensively made from scrap wood and other leftovers, and she's one of the simplest built jobs we have seen in a long time.

Presenting—

# The Puddle Jumper

**L**ADEEZ AND GENTLEMEN! Presenting, in this cornah, the *Puddle Jumper*—undefeated champ of the fly-weight model airplane building world. He weighs in at an approximate total poundage of about two houseflies.

"And why is he titled the *Puddle Jumper*? Because, ladeez and gentlemen, he is to a mud puddle what the *Spirit of St. Louis* was to the Atlantic Ocean!"

Yep, model fans! And there goes the starting bell. You'll find this nifty little bus a scrapper in more ways than one, since it can be made almost entirely from such scrap wood as you have laying around on your workbench. And you don't need an armory to fly it, for it's light and safe enough to be turned loose in any fair-sized room in a china shop. All you need is a tub of water for the take-off.

So let's go on with the battle—we mean the building of this model. The fuselage is made from a piece of  $\frac{1}{8}$ " square balsa  $7\frac{1}{2}$ " in length. Round off the top corners slightly. If you don't have a small thrust bearing handy, just glue a strip of balsa to the nose end of the fuselage and run the prop shaft right through. The shaft and the rear hook are both made of light wire of whatever diameter you happen to have on the bench.

The tail boom is of  $\frac{1}{16}$ " sheet balsa  $2\frac{7}{8}$ " long, tapered as shown on the drawing given on the opposite page. The method of splicing is shown in detail. The rear float mount is also of  $\frac{1}{16}$ " sheet and is glued in position  $\frac{1}{2}$ " from the rear of the tail boom.

### WING

**O**F extremely simple construction, the wing shouldn't take more than a very few minutes in the making. The spars are of  $\frac{1}{16}$ "

By Alan Orthof And  
Louis Milowitz

square balsa. For the ribs,  $\frac{1}{20}$ " thick, make a template from the drawing, using any suitable material, and slice off each rib from

$\frac{1}{32}$ " sheet balsa by cutting around the template held in position against the wood.

Make the wing-tips from  $\frac{1}{32}$ " sheet. Shape two pieces and join them together.

When the wing framework has been completed, gently crack the two main spars to form the dihedral. Drop a generous quantity of glue onto each joint and set aside to dry. After drying the wing will be ready for covering.

The tail surfaces are made in somewhat the same manner. The tips are made from  $\frac{1}{32}$ " sheet. Use great care in attaching them to the framework.

Make the wing clips as shown on the drawing, shaping them from .016 wire. The double bend shown at the top of the clip is needed to strengthen the wing. The front clip is made  $\frac{1}{32}$ " higher than the rear one.

### LANDING GEAR

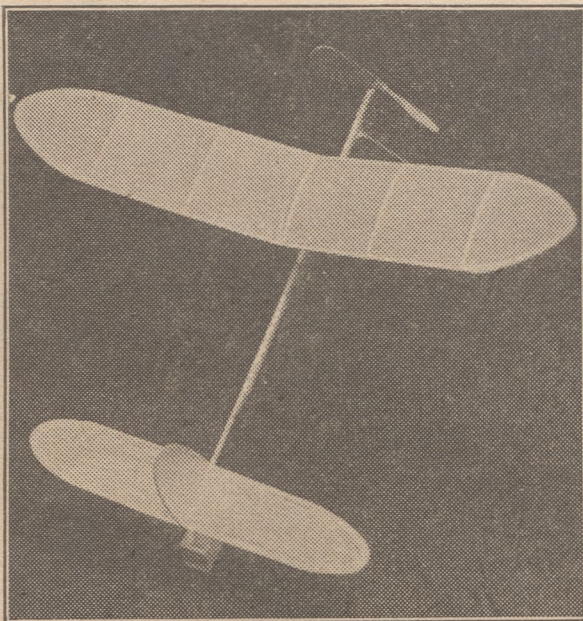
**S**HEET BALSA,  $\frac{1}{20}$ " thick, is used for the sides of the floats. Note their construction on the drawing. After the floats are cut, glue the horizontal braces in position. These are of  $\frac{1}{16}$ " sq. balsa and are butt-jointed to the inside walls.

Next cover the floats with light tissue but leave the sides "as is." It is not necessary to water-spray them. Just apply two coats of dope. All three floats are identical.

Since mounting the rear float is the easiest, glue this one in place first. The balsa mount must of course be installed before this can be done. Use plenty of cement.

The front landing struts are made of  $\frac{1}{20}$ " sq. bamboo and are  $3\frac{3}{16}$ " long. Point them at the tips and drive

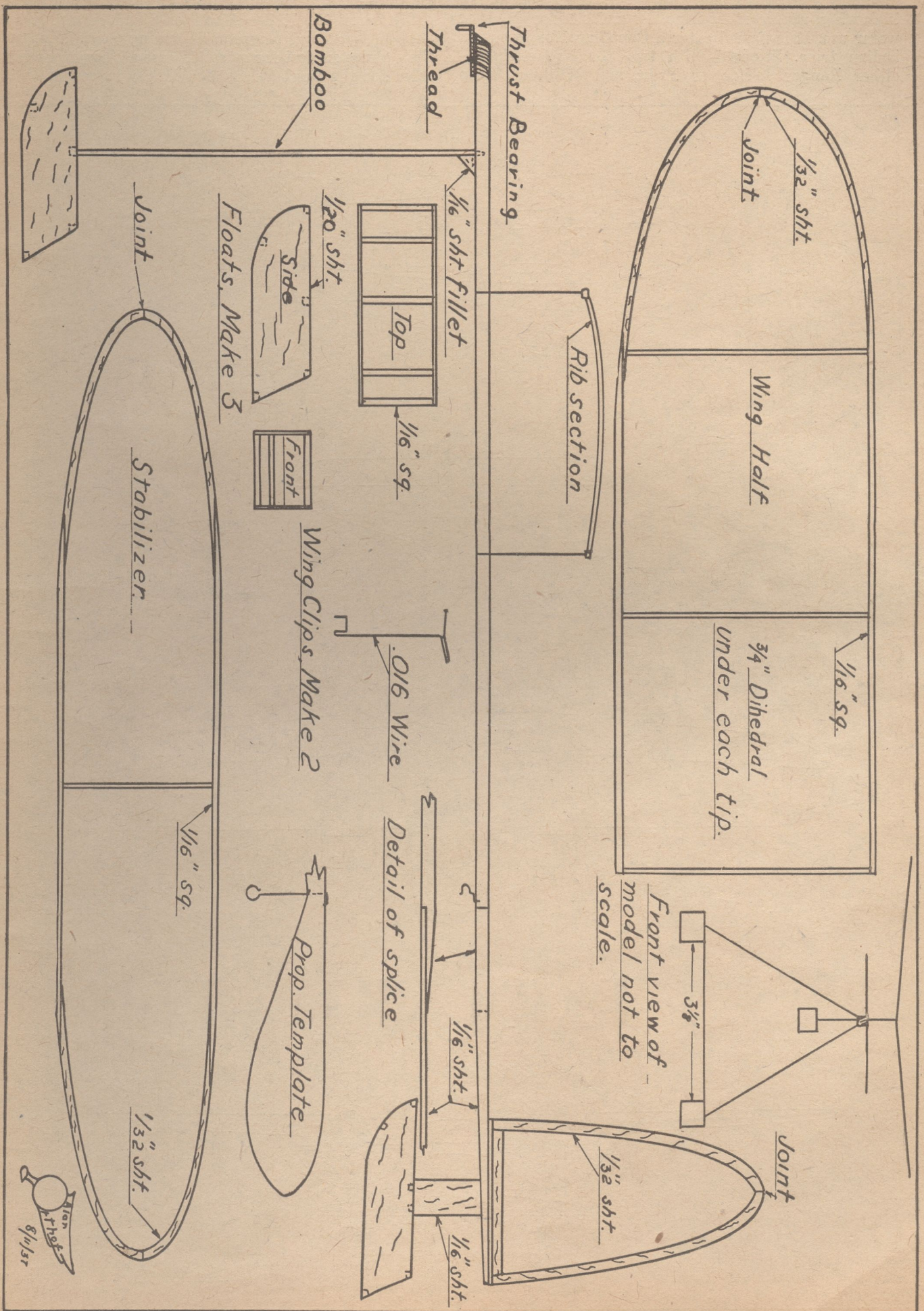
(Continued on page 72)



Here we have a close-up "top-side" shot of the "Puddle Jumper." Note that there's nothing complicated or difficult about building this ship, since the fuselage is a simple balsa stick, and the wings, stabilizer, and rudder are easily made frameworks covered with tissue.



# PRESENTING THE PUDDLE JUMPER

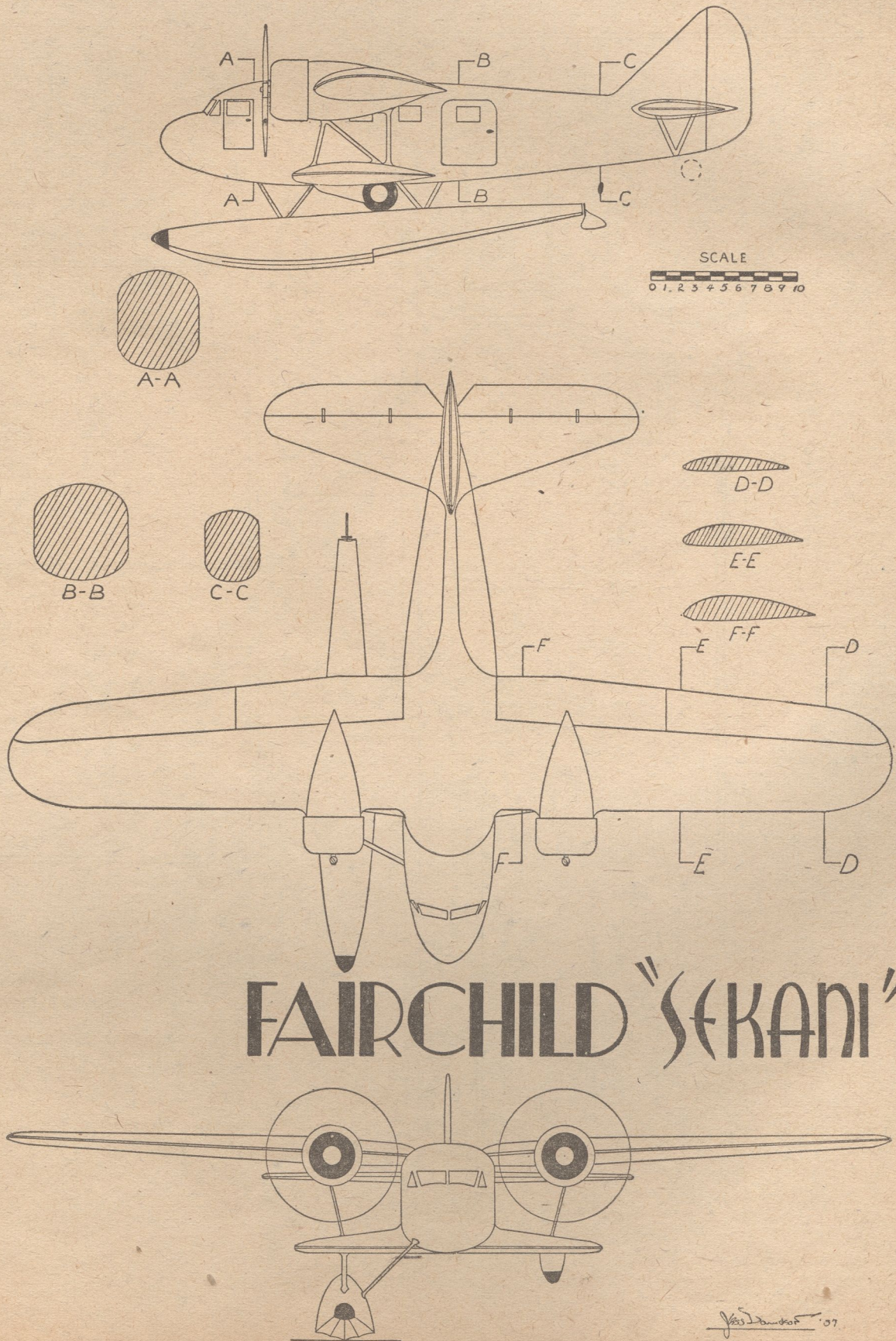




## CARVE A SOLID FAIRCHILD "SEKANI"

HERE'S Fairchild's latest product, the "Sekani," a high-wing utility monoplane convertible for land or water use. It is named after a Canadian Northwestern Indian tribe. Powered with two 400 h.p. engines—either Ranger in-line or Pratt and Whitney Wasp

Juniors—it is licensed for 13 passengers but will normally carry 11. It has Hamilton-Standard c.p. props, dual controls and retractable landing gear. Yep, and she's a nice subject for a "solid." Use a block of medium balsa for the fuselage. Outline details in pencil.





# Shereshaw's "Pioneer"

She's easily built! She's sturdy! She's good-looking! And she'll fly swell! Yes, and Ben Shereshaw—who's long been listed among the leading gas designers of the world—still considers "The Pioneer" his favorite petrol plane. The ship is an eighty-inch wing-span job designed for a one-sixth horse-power motor. You'll find full plans for its construction on the pages immediately following.

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**R**EGARDLESS of the fact that during the past several years I have designed and built scores of gas models of all shapes, sizes, and styles, none has given me greater personal pleasure and satisfaction than that derived while working on *The Pioneer*, which was the first *real* gas model that I made.

And even now, this ship remains one of my favorites. For she's comparatively fool-proof, has excellent flight characteristics, is extremely sturdy, and is quite easily built.

But perhaps an additional reason for my liking *The Pioneer* is that she has served somewhat as a flying laboratory for my designing experiments, and many features now popular were developed upon this ship. Among these are piano wire landing struts, wood motor mounts, and other kinks too numerous to mention.

Incidentally, this ship was one of the very first gas models to make a sustained flight lasting more than thirty minutes.

So it can easily be seen that *The Pioneer*, while not absolutely the newest thing in gas jobs, is still one of the most dependable models for a chap who wants a ship which he *knows* will fly—and fly well.

In constructing the model, the first thing, of course, is the fuselage. Select a suitable flat surface on which to make the fuselage jig. The jig is constructed over a full size layout of the top and side views of the fuselage. In scaling the drawings (Plate 1 and 2) to full size, use a mechanical engineers' scale. Then tack the layouts to your flat working board.

Small blocks are then fastened to the board over the layout to accommodate the longerons and compression members. Blocks are not required for the rear diagonal members. Before assembling the fuselage sides insert the longerons in the jig and sight along the members to check for any distortion. Distortion can be corrected by re-locating the blocks. In selecting the fuselage material be sure that the wood possesses uniform texture and grain structure throughout.

Assemble the sides first, and keep your eye on the correct alignment of the longerons. Use a good grade of model cement, and form a heavy gusset of cement at each joint. Be sure that correct butting of the joints is secured. Allow the sides to dry at least four hours before removing them from the jig.

The next step is joining together the fuselage sides. This step is also simplified by the use of a jig which may be constructed of wood blocks over the top elevation. The fuselage is assembled in an inverted position. Start by binding together the sides at the stern post.

The cross members around the cock-

By Ben Shereshaw

pit section are then cemented in place and left to dry for several hours. After this you may resume completion of the fuselage by inserting the forward and rear cross-members.

The landing gear (Plate 2) is next. Scale the gear member outlines up to full size, and refer to them constantly while bending the wire. Do not form sharp corners while bending the wire, because this is apt to encourage crystallization and consequent weakness. Lash the wire struts to the cross-members of the fuselage with heavy linen thread, and then apply a heavy coat of cement.

The gear members are then joined at their outer ends with thinned wire and soldered with resin core solder. The forward member carries the axle, and the rear member at its base should run parallel to the front member for  $\frac{3}{4}$ " to facilitate binding.

## BULKHEADS

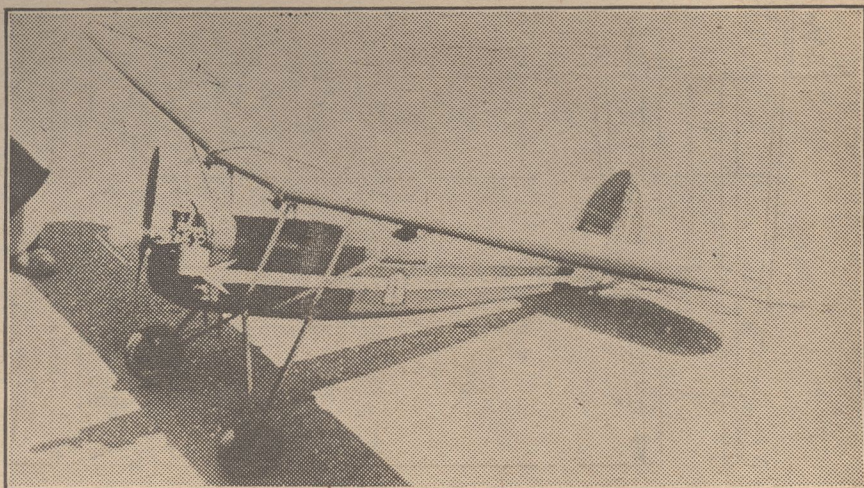
**I**NTERNAL BULKHEADS and the motor mount form our next problem. The bulkheads (Plate 4) are of two  $\frac{3}{32}$ " balsa sheets glued together with their grains running at right angles to each other. Before cementing them to the fuselage, the motor bearer notches should be located and cut.

After this step the motor bearers are notched so that the cross-members of the fuselage will pass through the motor bearers. They are then slipped through the internal bulkheads, and liberal coats of cement are applied.

You will note that the upper longerons are longer than the lower ones. The extended portions of the upper longerons are attached to the tip of the motor bearers.

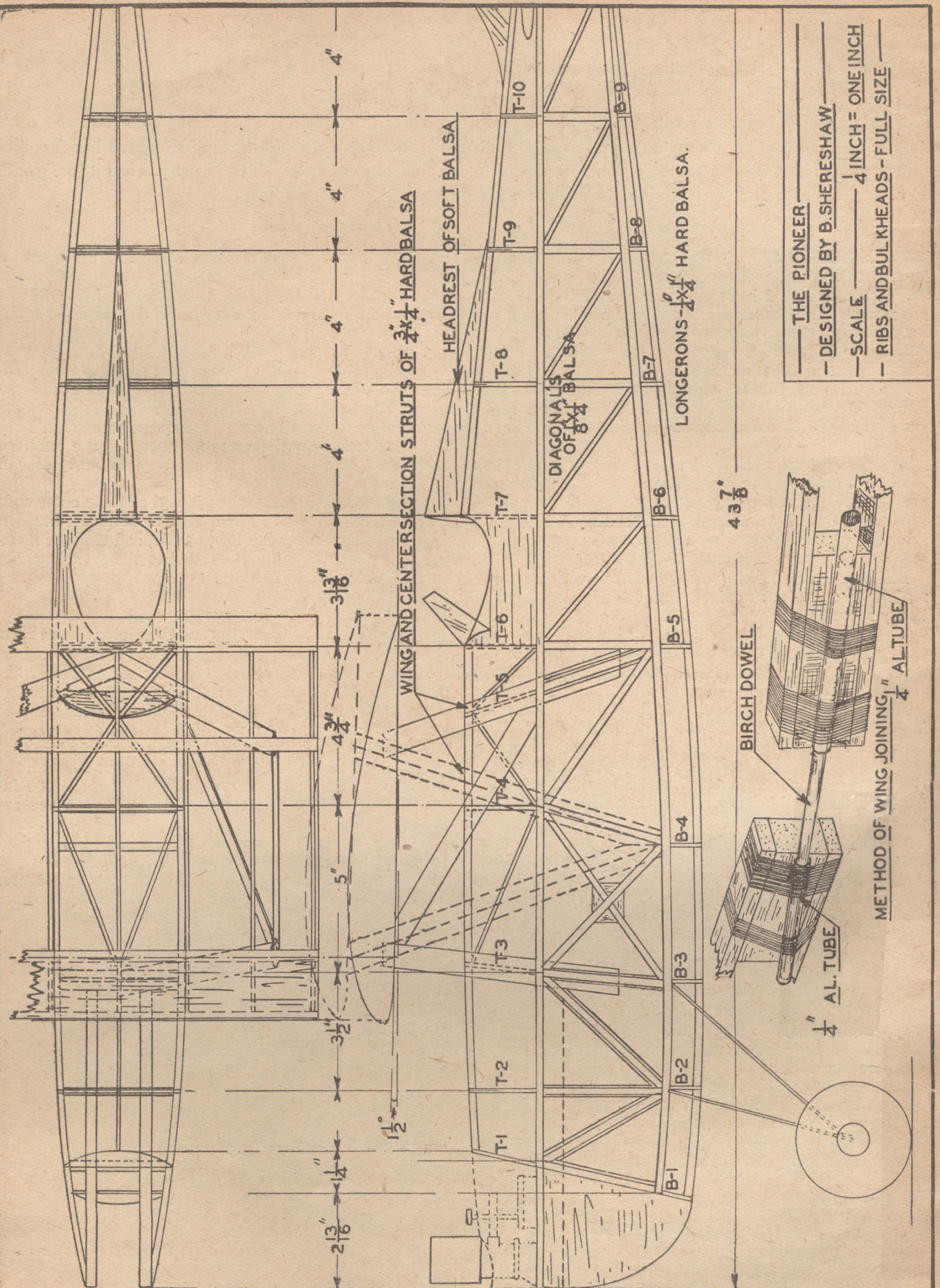
The bulkheads are then cut from  $\frac{3}{32}$ " medium sheet balsa. Next mark off the basic stringer locations as

(Continued on page 91)



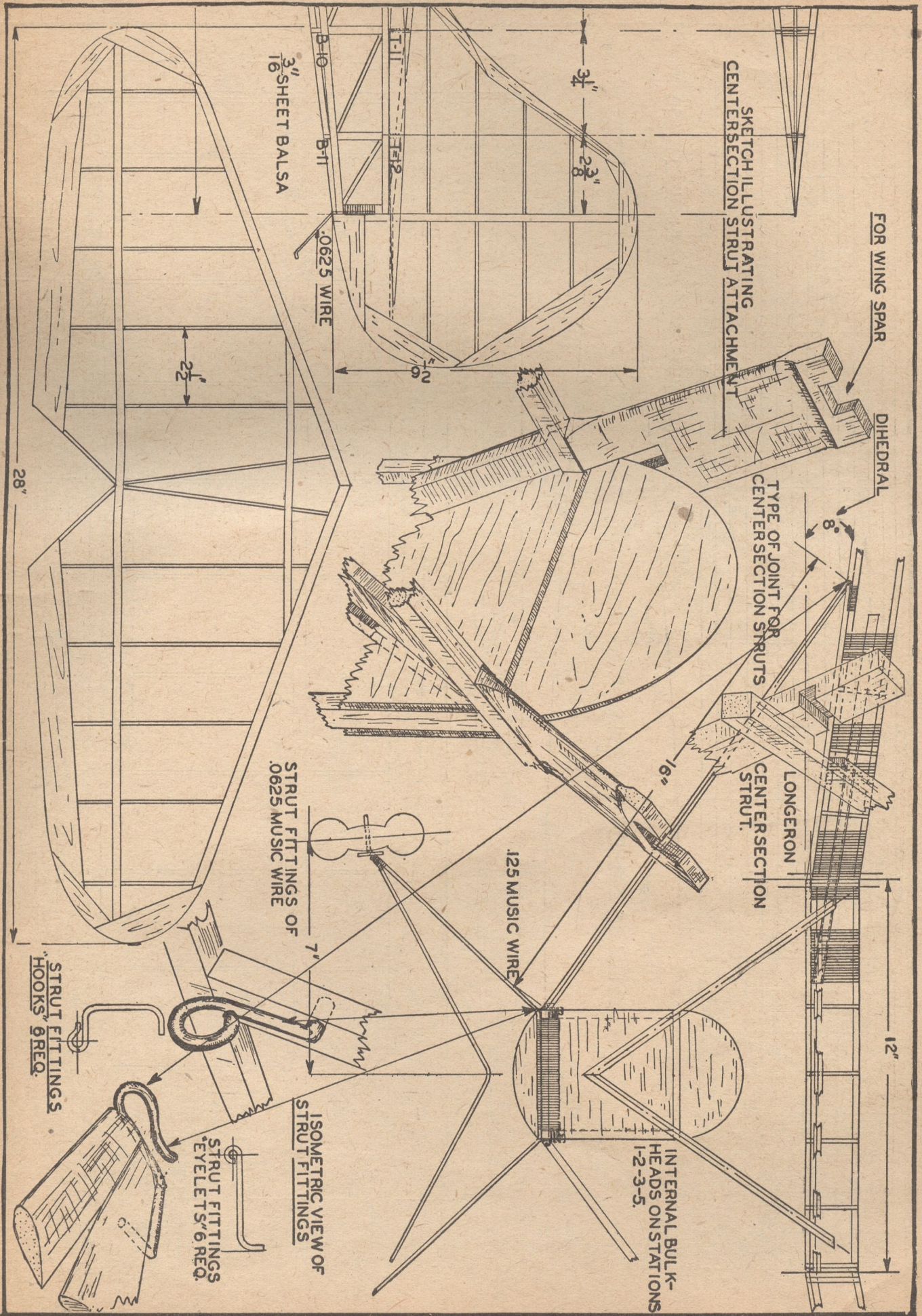
Here's the guinea pig of the gas models, fellows! It's Ben Shereshaw's "Pioneer," the ship on which a whole scad of popular model features were developed. This shot might be called an unusual natural history picture too, since Ben's flying guinea pig has a tail—and the regular g.p.'s don't.



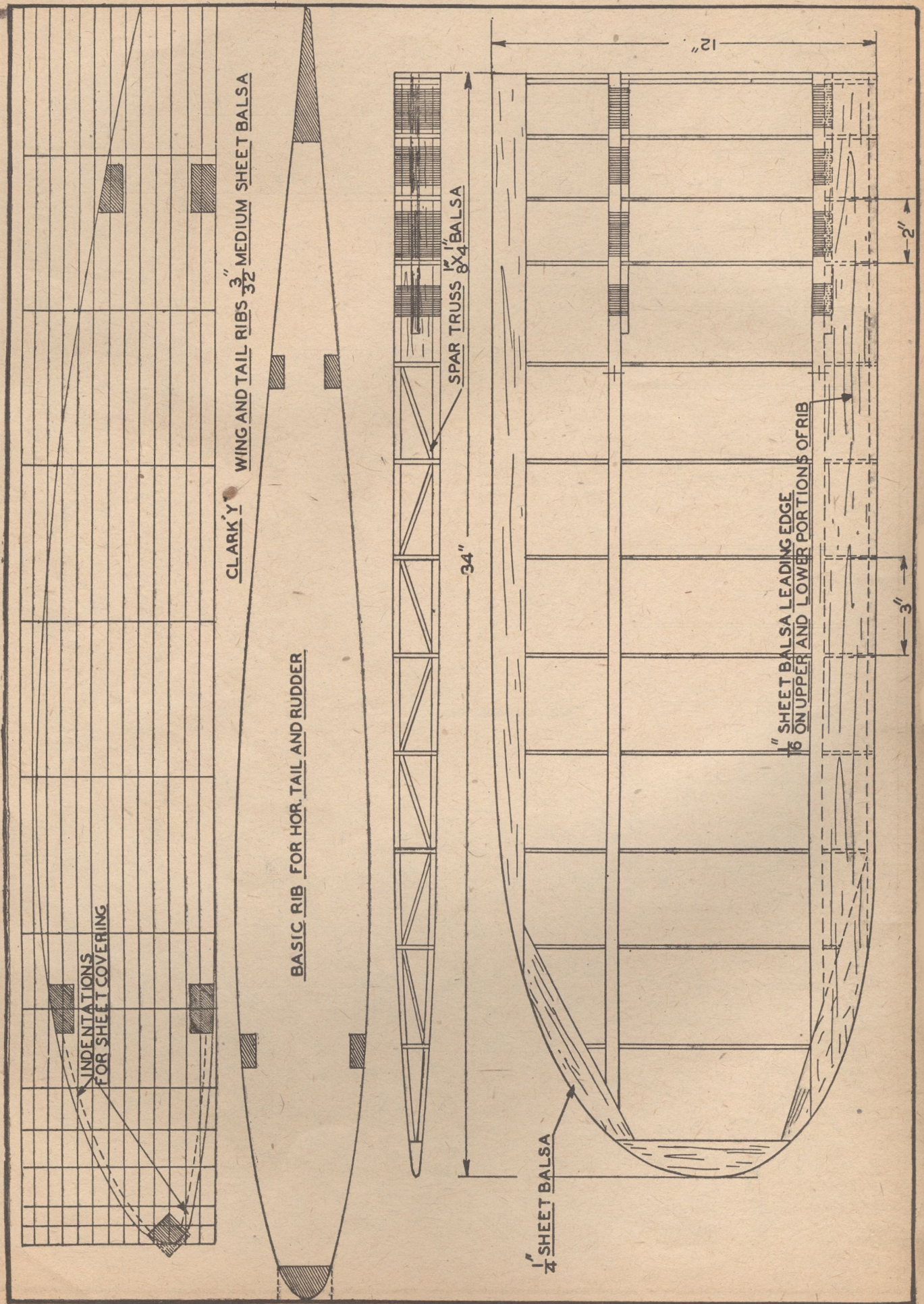


— THE PIONEER —  
 — DESIGNED BY B. SHERESHAU —  
 — SCALE — 1/4 INCH = ONE INCH —  
 — RIBS AND BULKHEADS — FULL SIZE —

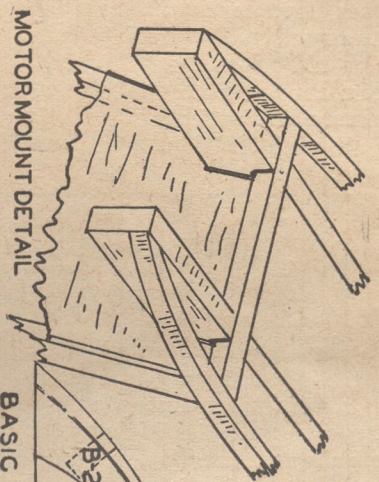
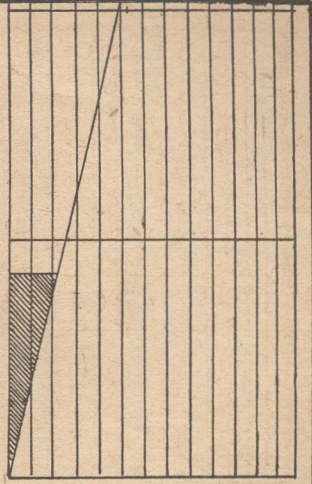










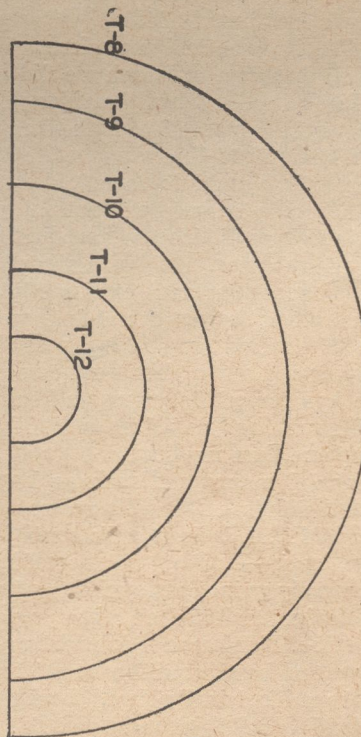


MOTOR MOUNT DETAIL

BASIC STRINGER LOCATION FOR LOWER BULKHEADS



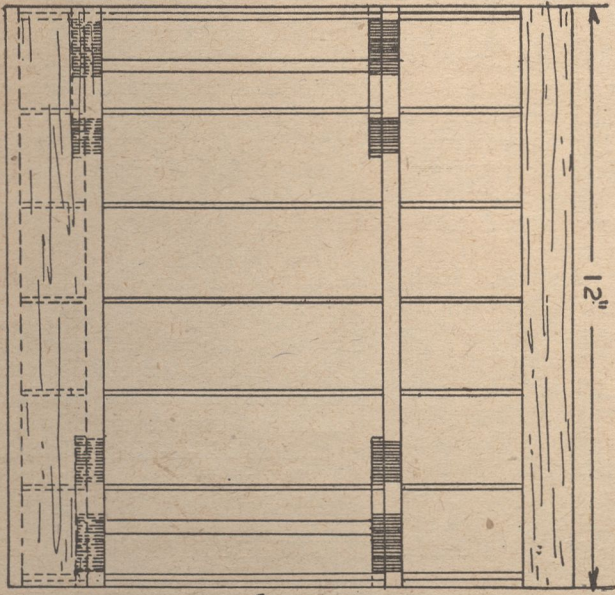
BASIC STRINGER LOCATION FOR TOP BULKHEADS  
1" AL. TUBES.



1" STRUT MEMBER  
2x2" BALSA

ALL BULKHEADS OF 3/32" MEDIUM  
SHEET BALSA.

T-3-4-5-6-7- T-2T-1



CENTERSECTION



# Logging the Model Market

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By Nick Limber

SINCE the field of model aeronautics has attracted so many new manufacturers and supply houses to its ranks during recent months and so many of the older model firms have contributed products that are new, **FLYING ACES** Magazine offers this new monthly department in order to help its readers keep abreast of all these developments.

In this way, we will keep you posted on trade developments in the gas, rubber, and other branches of the miniature airplane manufacturing world, and we would appreciate it if readers would promptly notify Mr. Limber, in care of **FLYING ACES**, of any commercial modeling news that comes to their attention. And now

for our "maiden flight" through the Model Market:

**A. C. Champion Spark Plug Co., Flint, Mich.** A new plug planned expressly for gas model airplane fans has been developed by this company. It is designed to prevent short circuiting of the spark and is supplied with points that are stated to be the finest on the market.

**Berry Brothers, Detroit, Mich.** This company, known throughout the "big brother" aviation world as the maker of Berryloid aircraft finishes, has recently inaugurated a division to deal exclusively with the model airplane enthusiast. The same finish used on real aircraft is now available in its natural thickness for the modeler, to be thinned by him to suitable weight for his specific use.

A booklet on model aircraft finish-

ing has just been published by this firm. It contains information of value not only to the novice but also to the seasoned expert. It can be obtained free of charge, either direct from Berry Brothers or from Polk's Model Craft Hobbies in New York City. Send a self-addressed stamped return envelope.

**Aero Manufacturing Co., Washington, D.C.** Here's a concern that is offering a unique idea particularly for the young modeler who is absolutely without experience and is hesitant about trying his hand at building a model entirely on his own. Aero's N-A-Minute kit, in 18" and 30" wing-span models, comes practically ready to fly, with all parts finished. The modeler needs only cement the fuselage sides together, glue the ribs into the wings, add the tail, and the job is done. Polk's in New York are national distributors.

**Model Airplane Utility Co., 5307 New Utrecht Ave., Brooklyn, N. Y.** have just announced a new line of solid scale models and a new 2-in-1 gas job. Among the solid kits, which retail at .50 each, are included the aircraft carrier *Lexington*, the *H.M.S. Hood*, the *Spirit of St. Louis*, Lindbergh's *Miles Mohawk*, the Vought SBU-1, and several others. All parts are printed on balsa and everything is supplied but the paint.

The new gas model offered by this company is the *DH Leopard Moth*. It is convertible from a straight flying scale job into a contest model, since two fuselage and tail assembly designs may be furnished.

**Ideal Aeroplane and Supply Co., 21 West 18th St., New York, N.Y.** This company has just released the *Air Chief* gas model kit. Designed for all-round flying, the *Air Chief* has a 61" wing-span and an overall length of 39". Its stability and rate of climb are declared to be increased through the incorporation of double dihedral. The fuselage structure is of basswood.

The kit contains a ready-made battery box complete with soldered terminals and a tension coil spring. Twenty-five die-cut balsa ribs, all fully finished and notched, are also included. All balsa parts are printed. The manufacturer supplies a full set of drawings and instructions for the use of any type of model airplane gas engine. Steve Kowalik is designer of the kit.

## What Do You Say?

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*Here's your corner, buzzards, and it's open to all readers who have a model argument they want to get off their respective chests. Make your comments short and snappy, and we'll try to squeeze 'em in.*

### TALE OF A MODELER

Editor, **FLYING ACES**:

Here it is near the end of August and I have just gotten the newest number of your most excellent mag. And I'm so glad to have it that even though it is now 3.00 a.m. I'm planning to read the rest through before I call it a "day."

But right here I thought you'd like to know some of the difficulties that confronted we older aeroplane modelists down in this "dark continent" of South Africa. I've been modeling for over twenty years, you know!

To begin with, material was expensive and funds were low. Elastic (rubber, to you Americans) was as precious as gold. Most of the time we used old motor car tyres (*Yeh! That's the English spelling of tires—Editor*) cut down to thin strips. They were very crude and inefficient, of course, but we made them "do."

And many is the time I have seen the space around my workbench almost kneedeep in shavings from soup or fruit boxes. We used to cut the wood down into strips and scrape or plane it to 1/16" square. Often we used the edges of broken glass to get

just the right touch. Balsa? We'd never even heard of it!

Of airplane design we knew absolutely nothing, although we did have a faint idea of what the ships of the day were supposed to look like. And we knew that the wings were cambered, but couldn't have told *why* if our lives had depended upon it.

Sure enough, it was heart-breaking in many cases. We'd work hard for every spare moment on some 'plane, then when it was completed, wound and launched, something would go wrong and down she would come. All we had for our labor was a bunch of splinters that looked no more like an airplane than my boot.

Model magazines such as **FLYING ACES** didn't exist (*We almost did! For old F.A. is now in its tenth year, you know—Editor*) but nevertheless we slowly gained a knowledge of model design, balance and bracing, and the like. Hard earned knowledge it is true, and hard work it was getting it. But we liked it. By "we," I mean my friend Bill Robinson and I. Bill and I were separated during the week but on week-ends we got together, worked, and discussed points on what we called "modeldynamics." Mighty interesting conversations they were too—especially if some of the present-day modelers could have listened in unseen!

I remember one thing we tried, a  
(Continued on page 72)



# News of the Modelers

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## NATIONAL SCALE CONTEST ANNOUNCED

**P**RIZES totalling two hundred and fifty dollars are being offered in a new national Junior Aviator contest covering scale models of Major Al Williams' new Grumman Fighter, the *Gulfhawk*. The contest is divided into three divisions, No. 1 Division comprising boys up to 14 years of age, No. 2 from 14 to 18 years and No. 3 taking in all contestants over 18.

The *Gulfhawk* models for the contest may be made from any model material—*papier mache*, white pine, cardboard, balsa wood, tin foil, metal or "what have you." They may be solid or built-up and made from purchased materials or dealers' kits. The main requirement is that the models for the contest must be built to scale (*any* scale, large or small) and be like the ship that Major Williams flies.

Elimination contests for the meet will be held in each city where there is a Junior Aviator squadron. Local winners will thus be selected for participation in the finals, which are scheduled for April 2, 1938, at Pittsburgh, Pa.

In cities where the Junior Aviators are not represented, local model clubs or N.A.A. chapters are invited to sponsor the contest. Representatives of such clubs that desire to assist should contact the national director

of the J.A.'s, Ed Clarke, at The Press Building, Cleveland, Ohio.

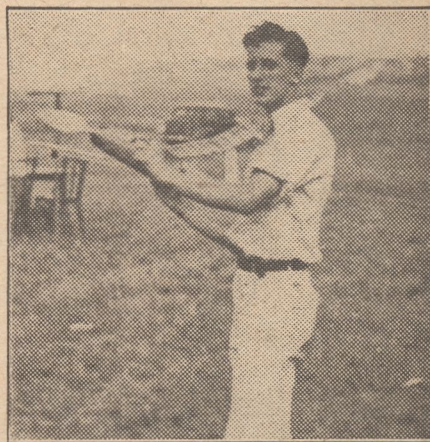
## SAN DIEGO MODELERS ORGANIZE

**E**LECTION of officers for the newly organized San Diego Aeroneers was held recently. Leighton "Spider" Webb was named president, Albert Erickson vice-president, and Dan Holacy secretary and treasurer. There are twenty-five members in the club ranging in age from 16 years to 30.

An approved N.A.A. contest is planned by the Aeroneers for the near future. Participation in events will be limited to club members only.



Winner of the Major Al Williams Trophy for the outstanding flyer in the recent Junior Nationals at Cleveland, Harry Walker, 23, of Cleveland, is shown here with one of his models.



Here's Jerry Kolb, 17, of Cleveland, a new world record breaker with the stick job flown in the recent Junior Nationals. His ship raised the senior stick event record from 33 min. to 41 min. 15 sec.

The proposed program lists such events as glider (H.L. and tow), stick (H.L.) commercial (R.O.G.) and gas models.

## CANADIAN CONTEST

**S**PONSORED by the Victoria Model Aircraft League of British Columbia, Canada, an outdoor model contest was recently held at a Victoria field. The grand aggregate cup in the senior class went to Leighton Manning, and a similar cup for juniors was taken by Harry Doe.

John Moran took first place in the novelty event with his *Space Conqueror*, a trim little high-wing monoplane of unique design with a wingspan of 36".

A group of Vancouver contestants was expected to show their gas models, but in pre-contest practice  
(Continued on page 72)



With his features shaded by the big, white "Quaker City" helmet, Joseph Kapral, 17, of Philadelphia, and a member of the Quaker City Gas Model Airplane Club is shown at work on the job with which he won a FLYING ACES Magazine trophy in the club's recent Eastern States Meet. Joseph's ship made an excellent stunt flight. Joe, Joseph's twin brother, is looking on.

## Workbench Tips

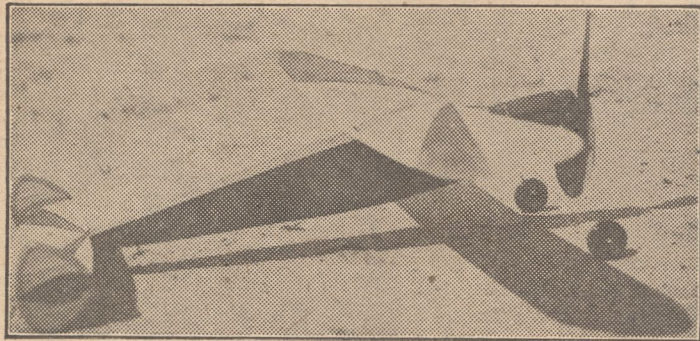
### TEARDROP MOTOR STICKS

**M**ANY model builders have difficulty in bending tear-drop motor sticks and tail-booms for indoor models. The first step in making these is to secure a piece of hardwood; any kind will do. From this make a former or a solid stick around which the balsa sheet is to be bent. This former should be slightly smaller in cross-section than the finished stick is to be.

Take the motor-stick blank and cut it to the correct size and weight according to the plan of the model you  
(Continued on page 72)



Yes sir! She's all set to hop. And there's something about this pose of "Ol' Reliable" that reassures one. For she looks dependable, and ready for any job that might be handed out—whether hauling freight, "spotting" enemy guns, or leading hostile pilots on a merry chase.



## "PERFECT UTILITY SHIP!"

Usually, a specific type of airplane is built for a specific type of work. And seldom indeed can we successfully assign a ship of one kind to duties of another. In the field of original model design, though, we sometimes find a craft that fulfills the basic needs of several different types of models. We have such a ship in "Ol' Reliable," described in these pages. For "Ol' Reliable" has the speed of a racer, the toughness of a transport, the deftness of a fighter—and the grace of a bird.

# Here's "Ol' Reliable"

SOME of "us boys" were guzzling at the corner druggeries a while ago, when up came the question of the "perfect utility ship." In itself the subject was quite harmless, but when one bright lad suggested that we try to design one, the smartest thing would have been to blame it all on the heat—and shout loudly: "Another strawberry, Mike!"

Instead, we took a stab at it, and after four attempts the present *Ol' Reliable* was evolved. Our original specifications were quite stringent to be sure, since the perfect utility model had to be good-looking, sturdy, fast, small, and light! And in addition to excellent duration and soaring possibilities, there was required an abundance of power for clean flights and exceptional durability. Whew! The first model lasted out for more than four months of active flying—and after its first fifty flights we stopped counting.

The present (fourth) *Ol' Reliable* averages above a minute on every flight, and has made two soaring hops of admirable duration.

Good looks are a matter of opinion—but we think "O. R." can be lined up side by side with a number of standard scale models—and no excuses need be offered.

The average power run of *Ol' Reliable* is about 30-45 seconds depending on the power used—but by the end of that period you are already polishing your binocs and rewinding your stop-watch!

### CONSTRUCTION

IN the constructional details, we strove for simple ruggedness. The fuselage has a rectangular cross-section and is built in the usual manner of 3/32" medium hard

By Malcolm Abzug

strips, with the two sides connected by horizontal compression members.

While each fuselage side is still pinned down to the plans, build the tail cradle, which consists of two pieces of 3/64" sheet balsa cut out on the top to snugly fit the bottom chamber of the stabilizer. These cradle pieces should hold the stabilizer exactly in line with the thrust-line before downthrust is given to the prop—that is, as 0 degrees. Pay special attention to this adjustment.

The nose-block is roughly cut to shape and lightly cemented to the front fuselage. When this temporary joint is dry, cut and sand the block until its lines flow smoothly into those of the fuselage.

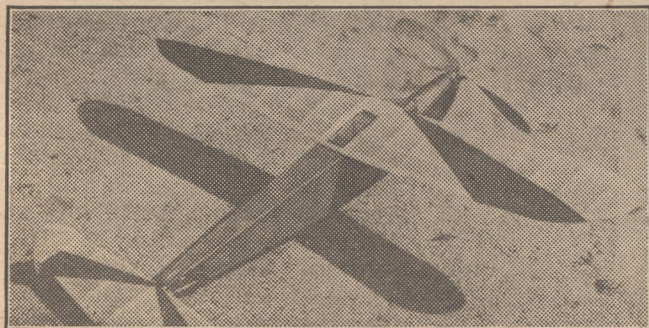
Pry the nose-block free, and add the 3-sided hard balsa retainer to its flat side. The nose-block retainer, usually a solid block, is built up in this case to provide a handy place to put the balancing weight that is needed. Paint the nose-block to correspond with the proposed fuselage coloring.

### LANDING GEAR

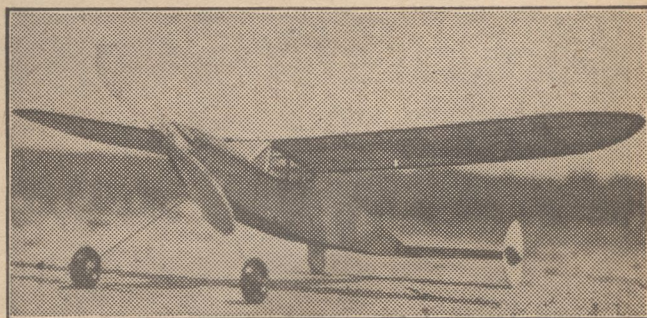
THE landing gear is a single strut of .040 wire. Not only is it strong, flexible, and crashproof, but I think it a good step forward from the unsightly-looking "bird cage" gear that is often placed between the wheels and the fuselage.

The wire is bent to shape and a piece of 3/32" sq. balsa—the width of the fuselage—is bound to it at the correct height. This piece of balsa, and the wire itself, is then firmly fixed to the fuselage longerons and cross-braces with thread and cement. The wheels are held on the axles by rubber strands wound on the ends under

(Continued on page 94)



What ship does she resemble? Don't you catch that likeness to the Stinson Reliant? Or is it the Puss Moth? As a matter of fact, it's both! For Designer Abzug "borrowed" from these two ships the distinctive feature of the wing curving down to meet the fuselage.

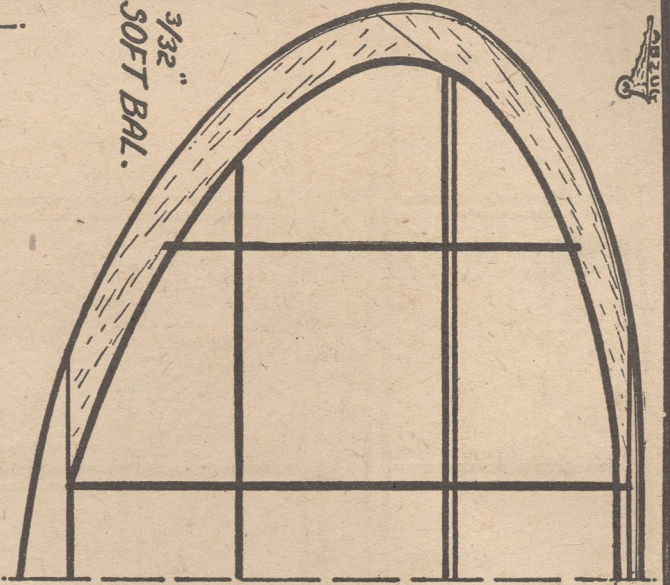


And can you see where our ship's a little related to the Lockheed Electra, too? Look again—and then notice that tail assembly. The landing gear, by the way, is Abzug's own idea—it's steady in a hard landing, but doesn't have "that birdcage look."

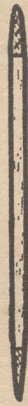
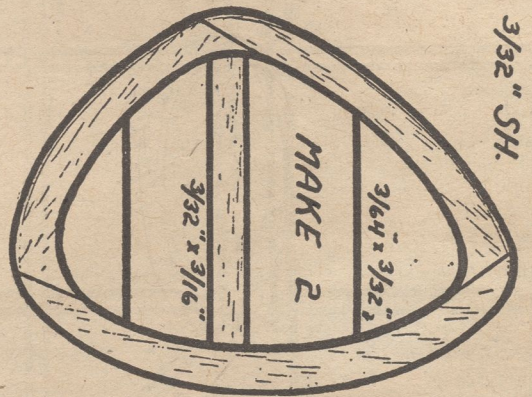




$\frac{3}{32}$ "  
SOFT BAL.



$\frac{3}{32}$ " SH.



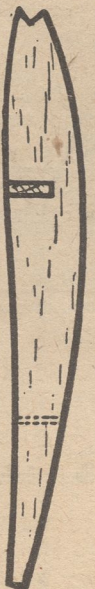
$\frac{3}{32}$ " SQ.

$\frac{1}{16}$ " x  $\frac{1}{4}$ "

$\frac{1}{32}$ " x  $\frac{1}{4}$ " RIB-  
SPACERS

$\frac{3}{32}$ " x  $5\frac{1}{16}$ "

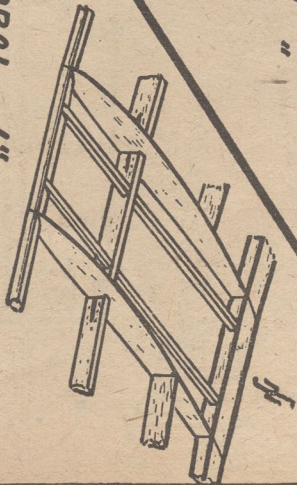
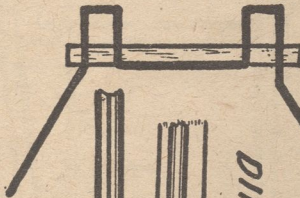
AIRFOIL ~ MOD. R.A.F. 32



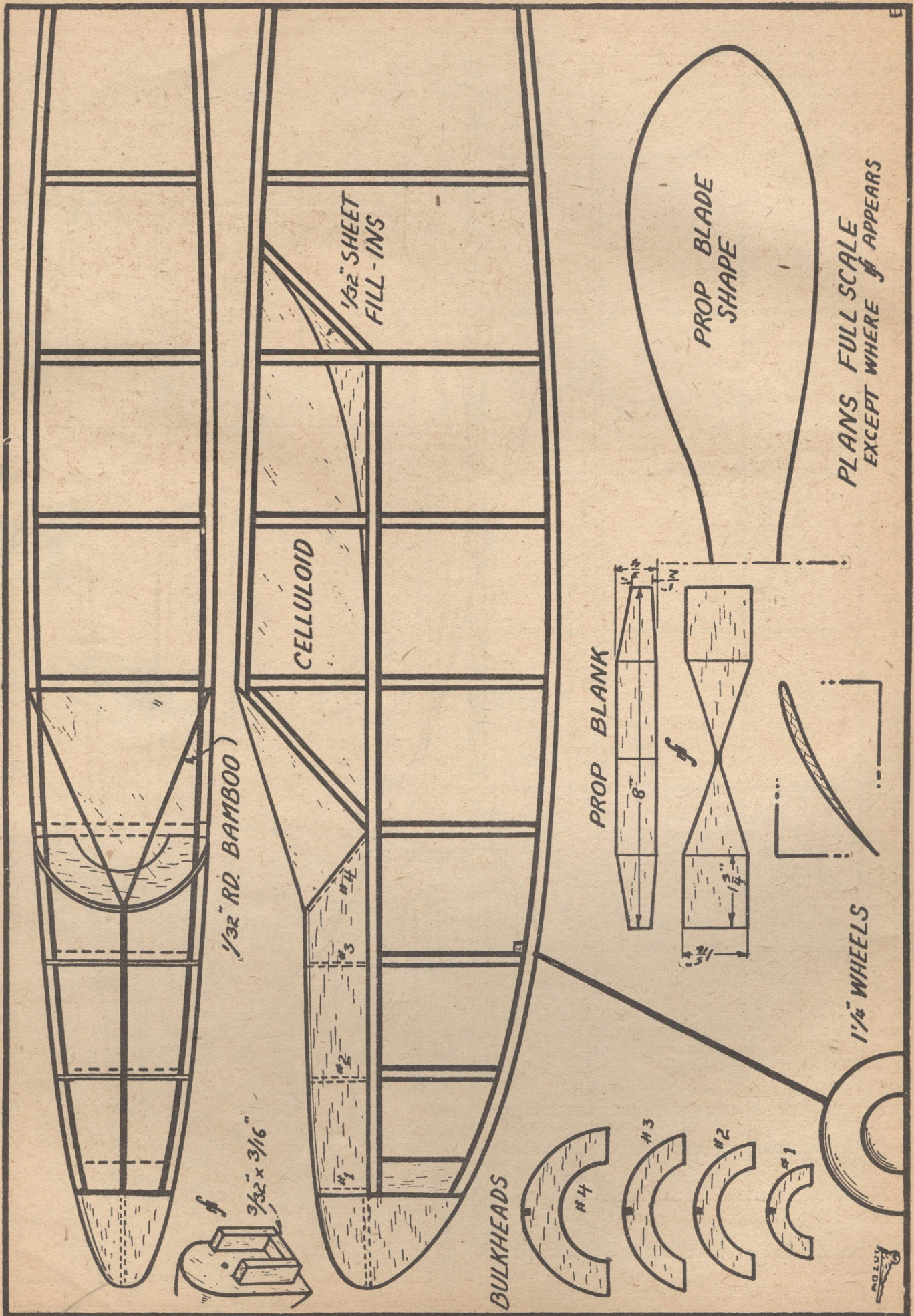
MAKE 16  $\frac{3}{64}$ " RIBS  
2  $\frac{1}{16}$ " "

.040 WIRE

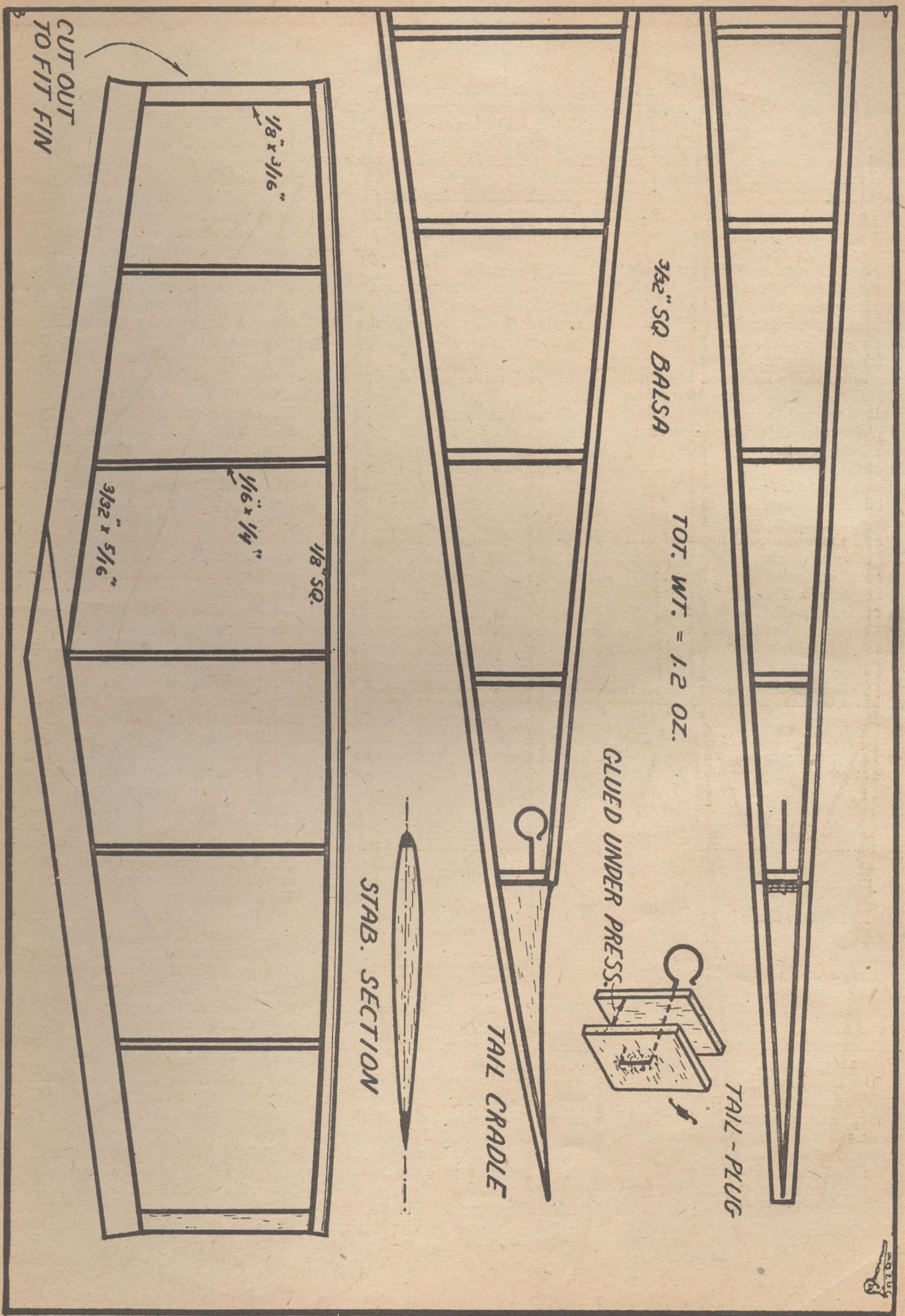
DIHEDRAL ~ 1"













## Aces of Death

(Continued from page 8)

at first your Spaniard was trying to shove him in, but he must've been trying to keep him back."

Knight was silent, as he too recalled that gruesome scene and the eerie transformation of the face in the flames.

"What do you really think?" Hank demanded bluntly. "Was he a white man or a Japanese?"

"I don't know. An Oriental would be more likely to throw himself into the fire rather than be captured—but I saw the pilot clearly. He had the face of a white man."

"It's odd how 'white' runs through everything that's happened tonight," said Hank. "The white cord, the 'White Dragon,' those Grummans—"

"What color do Chinese mourners wear at funerals?" interrupted Knight.

Hank jumped.

"I'd clean forgotten that! They wear white, when we'd wear black."

"And the white cord means death. The color was chosen purposely to bear out the suggestion of the noose."

"Then those Grummans must have been painted white for the same reason—so they'd mean death to the Chinese. Death-ships! But—hell's bells, you don't think the 'White Dragon' society is back of it? That would be Chinese fighting Chinese!"

"It's happened before," Knight said somberly. "There was no Japanese insignia on those Grummans. It might be part of some plot hatched by a group of traitors. But I don't think it's that simple."

"Well, if nailing one of the Grummans will help, you'll soon have the chance—providing the fight lasts a few minutes longer."

**P**POINTING to three hangars which loomed vaguely a short distance ahead and to the left of the highway, Hank now drove in past the operations office and stopped near the line, where several Breda 27's and Curtiss Hawks stood surrounded by a crowd of Chinese mechanics. A tall, thin Chinese major came running over as Hank squeezed from under the wheel.

"Captain Larson!" he cried shrilly. "What does this mean? Where have you been? Why did you give your pilots leave of absence when—"

"I didn't give anybody leave of absence," Hank cut in. "And I had permission to be in Shanghai."

The Chinese officer was almost dancing with rage.

"Six pilots are absent—I was told you let them go! And now the Japanese are attacking—"

"I know that," snapped Hank. "I

got here as fast as I could, and I've got two new volunteers ready to fly."

He shoved past the major, motioned Knight and Doyle toward two of the Bredas. Mechanics scurried for helmets and goggles.

"Thank Heaven they haven't identified those Grummans yet," he whispered to Knight. "Maybe we can shoot down the others before hell starts popping."

"No, we've got to force one down in the Chinese lines," Knight replied in an undertone. "And with the pilot alive, if possible—so we can drag the truth out of him."

"All right, it's your show," said Hank.

The mechanics came running up with the flying-gear, and in a few seconds the three Americans were ready. Knight looked grimly at Doyle.

"If your engine conks, it had better be over a Chinese area."

"You're telling me?" snorted Doyle. "Boy, there are about a hundred Japs just itching to get their mitts on me, after that 1932 row."

The Bredas' powerful Alfa-Romeo "Mercury" engines had been started and were blasting clouds of dust across the field. Knight swiftly scrutinized the instrument board as he settled himself into his cockpit, then fastened his belt and ran up the engine. Idling it, he let the mechanics swing the ship, then he taxied out after Hank, who was avoiding the rough spots caused by hastily-filled bomb-craters.

A floodlight went on, and the tail of Hank's ship lifted. Knight opened the Mercury, and the Breda hurled itself into the wind. With Doyle at his left, he sent the fighter boring up into the gloom.

### CHAPTER III

#### SHANGHAI SHAMBLES

**W**ITH prop set flat, he climbed steeply, clinging hard on Hank Larson's right wing. At a thousand feet, Hank signalled and swung across for him to take the lead. Knight veered into point position, warmed his guns, then climbed slightly to the south of Chapei in order to approach the Hongkew section from over the Anglo-American part of the Settlement.

Ahead was a wild and brilliant picture. A-A guns were blazing from the fighting lines and from the Japanese cruiser *Idzumo* in the Whangpoo. Heavier batteries had joined in the action, the Chinese shelling Hongkew and the Japanese vessels lying

farther down in the river, and the Nipponese responding with furious barrages on the Chinese positions northwest of Soochow Creek.

In addition to A-A blasts, starshells of white, blue, and orange color were bursting over an area roughly seven miles square, leaving trails of colored smoke to float through the searchlights as their glow died away. Against this fiercely beautiful background, at least fifty planes were fighting a furious battle, darting through searchlights, renversing at mad speed to avoid collisions, their guns lacing the sky with bright streaks.

Knight hunched a trifle lower in his cockpit, took a tighter grip on stick and throttle. Death waited ahead for the man who made the slightest mistake, whose keyed-up nerves led him into the tiniest error. Behind his goggles, he searched for a flash of white wings.

It came, directly above Soochow Creek, and in a split-second he was hurling his Breda above the twisting Grumman. Three Chinese ships—two Hawks and a Fiat—were pouncing upon the white ship. But before they could drive in a finishing burst, two Nakajima 91's dived frenziedly into the fight.

One of the Hawks burst into flames and went whirling down toward the creek. The remaining Hawk and the Fiat swerved hastily to defense tactics, and the Grumman lanced away, momentarily free. Knight dived after it, driving it toward the Whangpoo with a burst past its left wingtip. The pilot skidded, tried to cut back over Hongkew only to meet a savage blast from Hank's guns.

With a violent zoom, the Grumman pilot tried to shake off Knight, whipping around in a vertical bank. Knight stabbed a burst past the man's prop, and Doyle plunged in with cowl-guns pounding. The white ship slid off, caught itself, then dived across toward the Bund. Knight was pitching after it, with Hank and Doyle about to herd the mystery ship toward Pootung, when four Kawasaki 92's drilled in from the northeast.

Knight caught sight of the first ship as a blue star-shell burst close by it. He snatched a flare-pistol from its clip, sent a red Verey rocket streaking above Hank's Breda. The little man jerked around, flung a swift signal to Doyle. A blast from the first Kawasaki's guns ripped through the fuselage back of Knight. He snapped his Breda into a light-



ning turn, raked the tail of the Nipponese ship. The Kawasaki rolled over with a shattering force that tore the rest of the crumpled tail to pieces. Knight saw the brown-faced pilot sag down in his pit, either shot or knocked unconscious by the impact of his head against the fast-whipping plane. Engine wide open, the tailless ship plunged down into the heart of Shanghai.

**J**APANESE bullets had torn away part of Knight's wind-screen and enclosure. He pawed a sliver of debris from where it had stuck in his cheek, pitched after the now fleeing Grumman. A Chinese Fiat with both wings shot off came plummeting down the sky. The Grumman pilot skidded wildly to evade the hurtling coffin, and the stripped fuselage dived on and vanished. Knight pulled back his throttle, jockeyed the Breda in behind the half-stalled Grumman. The pilot cast a tense glance backward, went rigid as he saw his pursuer.

Thumb against his cowl-gun's trip, Knight stared at the man before him. In the glow from searchlights and star-shells he could plainly see that the pilot was a white man. But that was not all. There was something familiar about that face. Somewhere, he had seen it before—some time when it had not had that frozen fear upon it.

Only an instant, he had that glance, that fleeting impression. Head still turned, the Grumman pilot slammed his stick back and sent the white plane rocketing upward. Knight jammed his own stick to his belt, and the Breda screamed after it. Hank and Doyle were also zooming, converging on the mystery ship. Knight held his fire, but his grim eyes kept to his sights. That devil must have guessed they intended to take him alive, or he would never have risked that trick while under the Breda's guns. The next time it might be better to shoot off the Grumman's prop and give the man no chance to escape.

The white ship went suddenly onto its back, its spouting guns aimed down at Knight. But the secret agent had been prepared for that maneuver. At the first flip of the Grumman's wings, he snapped the Breda into a tight roll, and the Grumman roared by with its guns burning only the air. Hank and Doyle were instantly on top of the white fighter, as Knight had intended. He dived after them, triggered a quick burst that kept the pilot from zooming again.

The Grumman was directly under his guns, with Hank and Doyle riding close to its wings, herding it back toward Chenju, when two search-

lights weaved across the smoke-filled sky and spotted the white ship's wings. Knight looked around anxiously. They had contrived to isolate the Grumman without being seen, but there were still at least twenty Nipponese ships in the air. A swift glance showed that most of the battle was still over Hongkew, but through the glare of the two searchlights he saw a smaller group of ships fighting less than a mile northward.

Suddenly one of the planes broke loose from the conflict and raced toward the Grumman and the three Bredas. Knight dropped back a hundred feet, ready to fend off an attack but still keeping in line with the Grumman. Red spots abruptly flashed on the cowl of the approaching ship, and tracer lines probed out at Knight's wings. He threw the Breda into a tight bank, tripped his wing-guns. A burst flamed across at the newcomer, then he hastily lifted his hand from the clamp.

The ship was a Curtiss Hawk from Hank's squadron, and the Chinese pilot, seeing them grouped about the Grumman, apparently thought they were traitors protecting the white ship.

Hank signaled madly to the Chinese, and the Fiat's guns went dark. The interruption took only a second, but the Grumman pilot shot into a lightning zoom before Hank



could turn back. Doyle cut loose with all four guns as he chandelled after the Grumman, and Knight—hurdlng the open-mouthed Chinese in the Fiat—backsticked to block the pilot from turning toward Hongkew.

The white ship was now clearly visible, for one of the searchlights was clinging tenaciously to its easily-followed wings. Knight was driving it back toward the river, and Doyle was chopping short bursts across the right wingtips, when a powerful flare blossomed a thousand feet above them.

Knight's head jerked back for a quick look, then he gazed up in blank amazement. A flight of Nakajimas was plunging down the sky with a U. S. Navy Grumman at the point!

**T**HE Navy ship was almost on him. Suddenly it lanced to one side and charged at the white fighter. The white Grumman spun at amazing speed, and its guns crashed

a smoking torrent through the wings of its sister-ship. At once the Nakajimas broke formation and screeched down at the Bredas. In a flash, the sky was a tangle of wings, with tracers piercing the wind-whirled smoke.

A Nakajima plunged under Knight's ship so close that he could have rolled his wheels on its wing. He jerked his stick, kicked frantically away. Then his rudder leaped under his feet, and flicking a look back, he saw that half his rudder was in shreds. The Breda lurched drunkenly as another Nakajima crashed a barrage through the left wing. Knight kicked furiously, slammed a burst dead-on at the Japanese, and the Nakajima's prop went to pieces.

Knight now saw the man in the Navy Grumman fighting desperately with two of the Nakajimas he had seemed to lead. The white ship had zoomed clear of the colliding planes, but now it returned with a fierce dive at the Navy fighter. Knight crouched behind his sights and jammed his throttle open. A brown face twitched sidewise from the pit of a Nakajima. Knight grimly squeezed his cowl-trips and the brown face vanished.

The pilotless ship fell off to the left, grazed the white Grumman. Knight shot the Breda into the space left as the mystery pilot kicked clear. His guns were almost on the second Nakajima when a third Jap ship flashed in on his right. The blast of the new man's guns tore Knight's cowl wide open. Fragments of metal and rivets pelted him in the face, and a cold splash of alcohol told him that his compass had gone to pieces.

The fumes blew into his mouth, up his nostrils, and he gasped for breath, wiping madly at his goggles so he could see. The Breda was trembling under a battering hail of lead, and a sudden erratic pound proved that the engine had been hit. He flung his goggles away, found the Breda in a tight bank, with smoke coming thinly from under the cowl. The Navy Grumman was in a spin, and Doyle and Hank were battling like demons with three Nakajimas and a Kawasaki which had joined the fight. There was no sign of the white Grumman.

Knight pulled the faltering Breda around for one last burst at the Japanese ships. He saw his tracers scorch across the tail of a Nakajima, saw the ship slide out of the fight. Then the Breda's nose dropped in a whistling dive.

He pulled it up, nursing the motor. He was about to turn back toward Chenju when he saw the Navy Grumman come out of its spin. A second later, fire spouted from one side of the plane, and he saw the pilot tumble off into space. There was no



other ship near, and he knew that the man must have fired into the Grumman's tank to burn the fighter.

Abandoning his first intent, Knight nosed down toward the falling ship. Five hundred feet below, silhouetted against the Whangpoo River, the pilot was swaying back and forth under his parachute. Knight slipped closer, and the pilot stared across at him. The flaming Grumman whirled on by, and by its glare the secret agent could see that the pilot was wounded. His face was ghastly, and the right side of his flying-suit carried a large, dark stain.

With an obvious effort, the man raised one hand, pointed off into the night. Knight ruddered in as close as he dared, jabbed his finger down toward the Whangpoo to warn the Navy man of his danger. But the pilot's head had sunk forward on his breast. Knight blipped his engine, and circled tightly. The engine roar seemed to arouse the wounded man. He lifted his head, made an effort to haul on the shrouds as he saw the water below.

Apparently confused, he slipped the wrong way, toward the center of the Whangpoo. Knight saw him fumbling with his chute harness as he saw his mistake and realized he would drop into the river. Closing his throttle, the secret agent switched off the sputtering Breda, though he could have reached the field at Chen-ju. Skidding to kill his speed, he followed the Navy man down.

A searchlight from the *Idzumo* caught the figure in the chute just as the man settled into the water. Knight fish-tailed vigorously, braced himself as the Breda stalled, nose-high, six feet above the Whangpoo. The fighter dropped, hit with a resounding smack, and buried its nose in the water. Knight flicked open his belt and was tossed twenty feet through the air. He struck headfirst into cold water, came up not far from the struggling Navy man. He hastily pulled off his shoes, ridded himself of helmet and goggles, and swam to aid the pilot.

THE man had freed himself from his chute, but was almost exhausted when Knight reached him. He turned on his side, made a feeble attempt to strike at the secret agent, then gave a gasp of relief as he saw Knight's face.

"Thought . . . you might be . . . a Jap," he said huskily.

"It's all right, sailor," Knight said reassuringly. "Turn over on your back, and I'll get you ashore."

"No—I'm done for," whispered the other man. He clawed at Knight's

arm. "But . . . don't let the Japs . . . get . . . my body."

The searchlight from the *Idzumo* threw a dazzling glare upon the spot, and Knight saw that the pilot's eyes had closed. In the same moment he heard the rapid exhaust of a fast motor-boat from beyond the blinding light. Suddenly there came the crack of a rifle, followed by another quick back. The searchlight went out.

"Good shooting, Jones!" said a crisp voice. "All right, coxswain, get in there before they spot us."

A U. S. Navy gig swung in, and Knight and the other man were hauled aboard by blue jackets. As the gig roared away, another searchlight from the *Idzumo* found the



white spread of the collapsed chute and probed around the water nearby. The crisp voice spoke again.

"Hold those lines tight so the tarpaulin over the bow can't slip off. They must not see the name if they pick us up with another light. Keep down, men, so your uniforms won't show."

The searchlight danced back and forth but failed to spot the gig. By its glow Knight saw a Navy two-striper bending over in the stern-sheets to look at the pilot.

"He's dead," the officer muttered.

"Do you recognize him?" said Knight.

The two-striper stared at him in quick suspicion.

"Who are you?"

"Admiral Wardell will vouch for me," replied Knight. "You're from the *Augusta*, aren't you?"

"Yes," said the two-striper after a brief hesitation. He bent closer, spoke in an altered tone. "Aren't you the man who came on board with General Brett about ten days ago?"

"Yes," said Knight. He lowered his voice so that only the two-striper could hear him. "I'm working under cover with both the general and Admiral Wardell. You won't be breaking any confidences if you tell me where that Navy fighter came from."

The officer looked at him blankly.

"I was hoping you could tell us that. Even the admiral doesn't know—he was as startled as the rest of us when he saw that Grumman."

"And those other white Grumman's?" said Knight.

"What! You mean the white planes were of American make, too?"

"They were," Knight answered grimly.

"But the pilots! What were they—Japanese or white men?"

Knight gazed up into the smoky sky, slowly shook his head.

"I wish to Heaven I knew."

\* \* \*

## CHAPTER IV

### WHISPERING IDOL

ON the lower floor of the Smiling Buddha night club the rumble of gunfire was almost inaudible, and a grave silence pervaded the room where three men waited for General Brett. Knight, clad in a uniform borrowed from a Navy commander, looked across the candle-lit table at General Wu Feng, and red-headed Arthur Dawson, the American vice-consul.

"And that's the truth, gentlemen. Admiral Wardell has no idea where those planes came from. The only possible clue is that a message to the *Augusta*, in Navy code, was begun several days ago and suddenly discontinued, as though the sender had been afraid it might be decoded by some one else. It was not from the Navy Department, and the *Augusta* radio operator thought it came from a vessel in the China Sea."

The Chinese general sat motionless, his black, almond-shaped eyes fixed on Knight's face.

"It is most strange," he said in a sibilant voice. "About the transformation of faces which you describe—that, of course, must have been a mistake. You saw the man's skin darken as it scorched, and you imagined the rest."

"General Wu," Knight said courteously, "I don't blame you for thinking it incredible—but three of us saw the same thing. Captain Larson and Mr. Doyle will tell you the identical story."

Wu Feng's saffron face was inscrutable as he replied.

"You are sure, then, that they were not destroyed in the battle?"

Knight sobered.

"They may have been, but they seemed to be getting the best of it when I was forced out, and some Chinese pilots were coming to help them."

Wu Feng took a photograph from a dispatch case at his elbow.

"Mr. Knight, this picture shows you and Mr. Doyle and Captain Larson—the captain is wearing our uniform, you notice—standing beside an American plane upon the deck of a Japanese aircraft carrier and being greeted by Japanese officers!"

"It's obviously a faked picture!" Dawson burst out.

Knight calmly picked up the photograph.



"No, it's correct — except that they've left out the guards who were covering us. Look at our expressions — do we seem to be very pleased?"

The Chinese general permitted himself a dry smile.

"On close examination, there does seem to be a certain lack of happiness upon your faces, but the Japanese officers appear to be quite pleased."

"They had just captured us," Knight began, but Wu Feng stopped him with a slow movement of his hand.

"I am acquainted with the details, Mr. Knight. Your esteemed General Brett has told me how you and your two comrades saved Shanghai from even worse disaster than the Japanese bombings, when you destroyed the American invention which froze men by means of a light-beam. I am quite satisfied that you three are innocent—but the average Chinese would see only evidence of treachery in this photograph. As you must know from previous visits to China, many of our people resent foreigners because of the International Settlement."

"The city has certainly profited by it," began Dawson, but Knight gave him a warning glance and he subsided.

"Yes, Shanghai has become a great metropolis," said Wu Feng wearily. "And more than a million Chinese live within the Settlement borders—living on a much higher standard than those outside. But the masses outside have always resented the situation—as you would be angered by a Japanese city in the heart of your New York with its own laws and police."

"I don't see what that has to do with these white planes," Dawson broke out again before Knight could stop him.

**W**U FENG'S face became very solemn. "It has everything to do with them, Mr. Dawson. I am trying to show you that there is already a basic peril in this situation." He hesitated, seemed to come to some decision. "I will expect what I am about to say to go no further—may I have your pledge?"

Both Knight and Dawson quickly agreed, and he went on.

"I have heard rumors of an ominous sort, concerned principally with the population outside the Settlement. These rumors come not only through our military intelligence but through the Society of the White Dragon, of which I am a ranking member."

Knight carelessly lifted one hand and adjusted his tie. "The White

Dragon, you say?"

Wu Feng inclined his head. "Yes, one of the oldest secret societies in China."

"I am already acquainted with the White Dragon," said Knight. With his eyes fixed on the Chinese, he slowly brought out the lacquer box, which he had transferred from his wet civilian clothes. Opening it, he produced the white silken cord, which the tight-fitting lid had kept dry. General Wu Feng looked at the box and the cord in apparently genuine amazement.

"Where did you get these?" he asked quickly.

"They were a gift," Knight said in a wry voice. "That's what I meant in my note to General Brett," he explained, watching Wu's saffron face.

"Then it is worse than I thought," muttered the Chinese. "Mr. Knight, this warning was not from the White Dragon. Such occasions are few—and I would have been the one to order it, here in Shanghai."

"Five years ago, another such attempt was made on me," said Knight.

"In 1932, as now, there were many spies in Shanghai," replied Wu Feng. "You were mistaken for an enemy of China, and your death was decreed. I, myself, rescinded the order at the last moment when I learned you were an American agent."

For a moment longer, Knight looked into the elder man's dark eyes. Then he stood up.

"I believe you, General Wu. May I thank you for saving my life?"

Wu Feng bowed.

"I am very happy that the error was discovered in time. But now—"

He stopped as footsteps sounded on the upper floor. In a moment, General John Brett came hurrying down the stairs, with four Chinese agents in civilian clothes. Brett's kindly face was pale and his eyes betrayed a powerful emotion. He nodded hastily to Knight and to Dawson, turned to Wu Feng.

"I apologize deeply for being late, General Wu, but a terrible thing has occurred."

Wu Feng motioned to the four agents to wait at the exit. As the men disappeared up the stairs, he looked at the distraught Intelligence general. "It is, perhaps, this matter of the Grumman planes which Mr. Knight has told us about?"

Brett wheeled to the secret agent.

"You saw the fight?"

"I was in it." And Knight swiftly sketched what had happened.

Brett looked at him in astonishment when he described how the first Grumman pilot had leaped into the flames and the metamorphosis which had followed.

"It's some fantastic trick, of course!" he exclaimed. "But we've no time to worry about that part now. Those white Grumman must be found and destroyed. I'm counting on you and Doyle, and as many Chinese pilots as can be spared for the search—that's why I wanted to see you here, General Wu, to explain this situation, where Knight and Doyle would not be openly linked with our actions."

Wu Feng looked at him intently.

"Then you already know something about the white planes?"

"Yes." Brett dragged a gilded chair from in front of the Buddha shrine and nervously seated himself. "But not until—"

"And you know the reason for the American Navy plane appearing, at first with the Japanese?" interrupted Wu Feng.

"Navy plane?" General Brett said in consternation. "What do you mean?"

From somewhere in the room came a faint sound, like a sigh of relief. Knight looked around swiftly, then sprang to his feet. The eyes of the Buddha were suddenly alive!

"Thank you, General," a whisper came from the lips of the idol. "You have greatly relieved my mind."

**B**RETT jumped up, overturning his chair, and Wu Feng and Dawson rose quickly. Knight leaped to the side of the Buddha, snatching out his gun, but the idol's eyes instantly narrowed to slits.

"*Dje li tai!*" Wu Feng shouted up the stairs. A cry from his bodyguard answered him, but simultaneously two steel doors shot from niches at the foot of the steps. Dawson ran wildly for the stairway, but the doors clicked together and locked before he could get through. A soft laugh sounded from inside the idol. Knight fired straight at the Buddha's smiling lips. There was a metallic clang and he knew that steel or iron protected the man inside. The seemingly wooden surface was only a clever deception.

A clatter arose from the other side of the stairway door as Wu Feng's guards hammered fiercely against it. Dawson gave a sudden exclamation.

"Look! The corners of the shrine!"

From tiny apertures hidden in the carved wood, two streams of almost colorless vapor were issuing.

"It's gas! We'll be killed!" Dawson moaned.

Knight desperately renewed his attack on the Buddha, pounding it with the butt of his gun in hopes of finding an unprotected spot. Brett picked up a chair, crashed it against



the idol's head, but it splintered vainly upon the metal figure.

"Try to stop the gas from coming out!" Knight exclaimed. He ran to one corner of the shrine, but no sooner had he stuffed his handkerchief over the tiny hole when the vapor began to stream from a point at the top of the shrine.

"*Kwai hsie!* Hurry!" Wu Feng was yelling madly to the guards on the other side of the door. "I will be dead in a minute!"

Knight staggered back from the shrine as a sudden dizziness gripped him. Lifting his gun, he placed the muzzle against the Buddha's mouth and emptied the magazine. The shots roared in the locked chamber, but when the powder smoke lifted he saw that the metal had been merely scarred. General Brett was doubled up on the floor, gasping for breath. Dawson and Wu Feng were both hammering at the steel door, but the vice-consul's blows abruptly ended and he tumbled down in a heap. Knight tottered toward the other end of the room. He knew the door at that end was locked, for Wu Feng's agents had tried it when they first arrived, but he hoped to find a spot where the gas was less thick.

He realized in a second that the vapor had spread swiftly to all corners, a heavier layer settling to the floor. His half-drugged brain sent him staggering to the nearest table to keep from collapsing in that thicker layer. Just as he reached it his knees gave way and he sprawled across the surface, one arm dangling over the edge. A second later a sharp whisper came in accented Chinese from the Buddha.

"They're all unconscious. Hand me my gas-mask and release the locking-handle."

A faint squeaking was audible above the furious assault of Wu Feng's guards on the steel doors.

"*Kwai hsie!*" hissed the voice from the idol. "Those doors will not hold forever—they can get a crowd and a pole for a battering-ram in a few minutes."

Rapid footsteps sounded, and Knight felt himself lifted from the table. Even if he had tried, he could not have moved a muscle. His eyes were glued shut, and the voice of the whispering leader seemed to come from far away.

"The ambulances will be in the second alley a few feet from the passage exit," he heard the man say. "Move swiftly and there will be no danger—all the crowd will be around the building and inside."

Knight's shoulder raked against something sharp, and he groggily surmised he was being carried into

the passage behind the Buddha. The hammering of Wu Feng's guards quickly died away, for his bearers were now proceeding at a run. Cool, damp air seemed on the point of bringing back his strength. He began to breathe as deeply as he dared, hoping to recover enough strength to free himself and give the alarm when they reached the alley.

He felt himself being carried up a steep stairway. He heard a door open, caught the throb of an automobile engine. Before he could summon his will to what he knew would be an almost hopeless attempt, something hard struck against his head. Sound crashed within his brain, and a black pit seemed to open up and swallow him.

## CHAPTER V

### THE MAN CALLED CHRISTIAN

IT seemed that only a few seconds had passed when Knight felt his senses return. Then he heard a voice speak sharply in Mandarin Chinese.

"Slow down, we're within a mile of the Chenju airdrome. We don't want to arrive until the Condor lands."

It was the voice which had whispered from inside the Buddha, and now, devoid of that muffled effect, it had a cool, incisive note that Knight recognized. The speaker was John Christian.

Knight felt the surface under him jiggle slightly, and from the swaying motion he knew that he was lying on a stretcher in an ambulance. His head ached dully from the blow it had received and from the stupefying effect of the drug.

"Everything has worked out perfectly," he heard Christian continue. "Wu's guards will spread the story that he was abducted by the three Americans, and Shanghai will be seething. With this affair at the field added to it, we will be ready for the final step."

"I do not hear the planes," another voice said, with an uneasy tone. It sounded like a Chinese.

"Naturally," snapped Christian. "They were not to take off until the last moment. The Condor might be suspected if the sound-rangers heard other Japanese planes approaching at the same time."

"Even so, they may suspect it," said the other man.

"Impossible," came Christian's retort. "The plane was captured in the North, near Paotingfu, and there has been no time for a report to reach this far—even if the Chinese up North realized it was not destroyed in the forced landing. Also, the in-

signia has been changed to that of the Cantonese squadron so that it appears to be an officers' transport."

Knight could see no glow through his eyelids, and after a moment more he cautiously lifted them a fraction of an inch. The roof of the ambulance was about two feet above his head, and from the corner of his eye he could vaguely see the heads of three men who sat on a bench running lengthwise and at the left side of the ambulance. Evidently there was another laden stretcher slung beneath him, for he could hear its straps creaking. The car was proceeding with headlights extremely dimmed or with none at all, for no illumination came back from the front.

"The vice-consul is stirring," the third man said suddenly. "The gas must be wearing off."

"Tape his hands," ordered Christian, "and his mouth, also. I thought the effect would last longer. When you have finished with him, tape the other one."

"There is no danger from him," replied the third man. "That blow he received when the door flew back is enough, with the gas, to keep him senseless another hour."

"Tape his lips, anyway," said Christian. "A groan coming from a supposedly empty ambulance would be hard to explain to the sentries at the entrance."

"Are you sure, *kuan*, that real ambulance crews have not come for the wounded pilots?" asked the man who had spoken second.

"Do you think I am a fool?" Christian said impatiently. "Every step has been arranged. The sentries will admit the two ambulances without question, and we will not drive in until the Condor is almost on the ground. I told Ho Tiang to fire the four-star signal at exactly one o'clock, and it is now one-thirteen, so the ship should appear within two minutes, and the others will approach down-wind with their engines switched off for the last few miles. We shall have the prisoners transferred to the Condor and in the air before Larson and his men recover from the surprise."

"I hope so, *kuan*. It will be very unfortunate for anyone whom they find has harmed General Wu Feng."

"Think of the gold you are to receive, and it may bring back a little courage to your blood," Christian said with a cold contempt. "Ah! There are the Condor's lights!"

The ambulance speeded up at once. Knight let his head be rolled sideways, so that he could see the three men better. Christian was leaning forward over the driver's seat, hold-



ing a canvas curtain aside. Knight saw close-spaced landing-lights through the opening, as the Condor circled the field. The man in the middle, a pock-marked little Chinese, was also staring at the lights. The third man, a light-skinned Eurasian, was just finishing the task of taping Dawson. He straightened up, peeled a strip of wide first-aid tape from a roll, and cut it with a flick of a scalpel from a surgical kit beside him on the bench.

For a split-second, Knight weighed the chance of immediate action, but Christian abruptly dropped the curtain and turned. The secret agent let his eyes close. The Eurasian reached up, slapped the tape across Knight's lips, laid on a second piece and pressed them both firmly into place.

The ambulance lurched in a swift turn, and Knight was almost thrown from the stretcher. He heard the roar of the Condor's motors diminish as the American-built ship nosed down for a landing.

"Hurry!" Christian snapped at the driver. "And remember, don't stop unless the sentries bar the way."

THE car sped on for a short distance, slowed with a squeak of brakes. The driver shouted something, and speeded up again, his words evidently satisfying the sentries.

"That was simple—the other ambulance has already gone through," Christian said to the traitor. "You and Loo-Fi be ready to rush the prisoners into the plane. The attack should come at any second."

He had barely finished when a raid-siren screamed out a shrill warning, and a thunder of motors came from the sky. The ambulance swerved, amid a bedlam of shouts out on the Chinese base. Light came on in the car as Loo-Fi flung open the rear doors.

Knight lay motionless, but with nerves taut, staring from under his eyelashes. Machine-guns crackled into action, not far away, and the nearer roar of the Condor's motors was swelled by the sputter of fighting-plane engines.

"Turn off those lights!" bawled a voice, and Knight's heart leaped as he realized it was Hank Larson's. "Doyle, help me with the gun-crews!"

The Chinese and Loo-Fi were halfway to the plane with the stretcher bearing Dawson. Christian had jerked back the front curtain.

"Help me with the other man!" he rasped at the driver.

Knight hurtled from the stretcher just as Christian turned. Dismay shot into the spy's swarthy face, and he dived for the rear of the ambulance.

Knight sprawled against the narrow bench, snatched up the scalpel Loo-Fi had put back in the kit. Christian was now outside, a gun half-visible as he plunged his hand into his coat. Knight drew back his arm, whipped the scalpel straight at the other man. Christian threw himself to one side, caught his heel and stumbled. Before he could recover his balance, Knight sprang from the ambulance. The impact knocked the spy flat, and his gun landed several yards away.

The driver was racing around the end of the ambulance, and two brown-faced men suddenly popped from the cabin of the Condor. A bullet ploughed into the ground near Knight's shoulder as he hurled himself after Christian's gun.

"Japs!" Doyle's voice burst through the clamor. "Train that Lewis on the Condor!"

Knight's clawing fingers closed on the pistol-butt. He rolled over, fired pointblank at the ambulance driver, who was almost upon him. The man fell, shot through the chest. One of



the Japanese blazed another shot at him. The secret agent's gun crashed in the same second, and the little brown man sagged down with a cry.

"Get into the plane, you fool!" Christian screamed at the other Japanese. He had reached the cabin door, and the big ship began to move even as he shouted. Knight dashed forward, noting with despair that the other ambulance, which was standing nearby, was empty.

He pumped two shots at the nearer propeller. The second Japanese whirled, after vainly trying to catch up with the Condor. A blast from a Lewis gun riddled him as he aimed his pistol at Knight. The secret agent spun around desperately, as the machine-gun tracers flipped on toward the Condor. Waving his arms he ran toward the gun. Doyle saw him coming, let out a yell.

"Dick! Where in the name of—"

Knight lunged against the spouting Lewis, knocking the gunner from his seat. Then he ripped the tape from his lips.

"General Wu Feng—he's a prisoner in the Condor!" he cried. "So are General Brett and Consul Dawson!"

Doyle swore furiously, wheeled to the gunner.

"Wu Feng—prisoner—don't fire at plane!"

The man's eyes bulged, then he leaped up and ran. Knight shouted after him in his own tongue, but the screeching roar of diving ships drowned his words. Knight jerked a tense glance skyward.

A white Grumman was plunging at the field, with nine Nakajimas behind it!

KNIGHT threw himself down behind the Lewis, loosed a fierce burst at the white ship. The Grumman jumped sidewise, and the Lewis barrage caught the first Nakajima. The Nipponese fighter pulled up sharply, sheared off its right wing, and struck with an ear-stunning crash.

A dozen machine-guns were pounding from as many points about the field. The Nakajimas now spread apart, diving for swift strafes at the gunners. Knight raked a ship, crouched as a torrent from another Japanese plane dug up the earth behind him.

Three Curtiss Hawks from Hank's squadron were charging out for hasty take-offs. One of them whirled back to the ground in flames before it had climbed a hundred feet. A Chinese ground-gunner shot the tail off the Nakajima which had dropped the Hawk, and over near the Chenju road another Nipponese plane came plunging down to ruin as three gunners raked it at once. Knight jumped to his feet as Hank dashed up.

"What the devil?" erupted the pudgy captain.

"Condor — Japs and John Christian took Brett and Wu Feng!" exclaimed Knight. "Give me a ship—I'm going to follow them."

Hank's mouth opened and closed. "Come on!" he shouted. "There's a Hawk and two Bredas left—"

A deafening bellow cut him short as five Nakajimas plunged with machine-guns clattering. A score of Chinese mechanics wilted to the ground, and fire leaped up from a ship on the line as the Nakajimas zoomed.

"There goes a Breda — and the Hawk's flippers are shot to pieces!" groaned Doyle.

"There's a Vought Corsair in that end hangar!" yelled Hank, as a Lewis roared close behind him. "You birds take that—I'll see if I can spot the Condor for you."

He ran to the remaining Hawk as fast as his short legs could carry him. Knight and Doyle dashed for the Corsair, stopping twice to dive back of sandbag emplacements as Nakajimas screamed down again. They started the engine in the hangar, and Knight



took the front pit, warming up with a reckless disregard for established procedure. Above and on the field, guns were pounding with an incessant din, altered only by the thundering dives of the Japanese fighters.

"The gunners knocked down one more Nakajima!" Doyle exulted as he came running back from the front of the hangar. "And Hank just picked off another!"

"Good!" said Knight. "Get in—and we'll see if we can help!"

Doyle vaulted into the rear cockpit, and Knight sent the Corsair roaring out into the open. A Nipponese pilot spied them instantly and dived headlong. Doyle swung the rear guns, and the Nakajima whipped aside as Knight lifted the wheels from the ground. With a quick renversement, the Japanese shot back, trying to get under the two-seater for an upward blast. Knight snapped the ship almost beyond the vertical, and Doyle's guns beat out a furious rhythm. The Japanese ship shot up as though for a loop, whipstalled with a fury that tore the motor from its bearers. A few seconds later the wrecked ship melted into the earth.

White wings flashed down, lanced up again, and the two remaining Nakajimas fled in the wake of the Grumman. Knight saw a Curtiss Hawk pitch in toward the white ship. The Grumman whirled, and glowing yellow lines streaked across at the slower ship. The Hawk jumped, then slowly nosed down as though suddenly very tired. Knight saw it crash, and a sick feeling went over him.

"That devil got Hank!" he said huskily through the Gosport tube.

"That wasn't Hank," Doyle shouted back. "I saw him dig out after the Condor—after he knocked off that Jap."

"Thank the Lord," said Knight. The coldness left his heart, and he bent over the stick with a new intensity. The white Grumman was twisting around toward them. He climbed at full speed away from the field, so that the light of the burning ships would not make them an easy target. The Grumman pilot banked, circled tightly, and then shot off after the Nakajimas.

Knight climbed to four thousand feet, keeping the white ship in sight. It was easier to do after a minute, for again the searchlights in Shanghai were splitting the darkness, and the Grumman and the Nakajimas were discernible every few seconds. Anti-aircraft batteries began a fierce barrage, but the fleeing planes were soon out of range.

Star-shells burst below and behind the Corsair, as Knight followed the other ships northward toward Woosung. He waited until only an

occasional light or rocket showed, then eased the stick forward.

"They must be heading for a Jap carrier," Doyle said through the Gosport.

**K**NIGHT peered down into the increasing gloom. Now and then he could make out the exhaust flames of the Nipponese ships. After a minute he looked at his compass.

"They've changed course, Doyle. I wonder if they've spotted us and it's a trap."

"We can give 'em a good scrap," growled Doyle.

"Not until we know which is the Condor," returned Knight. "Wait—they've straightened out again. I think they're headed out into the China Sea."

"Have you got a map up there?" demanded Doyle.

"No. Is there one back there?"

"Not a trace. I'll sure tell Hank about this next time I see him."

Knight's eyes had been roaming across the instrument board.

"You might also tell him to keep his tanks filled. We've enough gas for about 40 minutes."

"Wow!" groaned Doyle. "I wouldn't mind so much gettin' bumped off in a good fight—but I hate like hell to get drowned. There ain't any glory in it."

Knight grinned in spite of his growing sense that their good luck was just about finished. He leaned on one side, shading his eyes against the Corsair's exhaust-flames, trying to keep those other red stacks in sight. Twenty minutes passed, and still the Japanese planes forged on into the night.

"We can still make it back, Lothario," he spoke into the tube, "providing we turn around now."

"Would you turn around if you were alone?" grunted Doyle.

"Maybe," said Knight.

"You're a cock-eyed liar," said Doyle. "And you needn't turn around now, either."

The Corsair droned on through the night. After a minute, Knight spoke again.

"Switch on the radio and see if you can hear anything. They may be following some kind of a beam signal."

There was a brief interval.

"No luck," said Doyle through the Gosport. "But I can hear the *Augusta* operator talking to Manila in the 'E' code. He's telling 'em about the white Grummans."

"See if he mentions the Navy Grumman," Knight said quickly.

After another minute, Doyle reported.

"He's just ended, and the last thing

he said was 'all trace of Garrison and his possessions lost. Do not believe friends or others will find him'."

"Garrison was the name of that Grumman pilot!" exclaimed Knight. "We found the name in his helmet. Admiral Wardell is obviously trying to tell Manila that there's no danger of the ship or the pilot being traced back to the U. S. Navy. But when I talked with him, he didn't mention Manila at all."

"Maybe they called him after you left the *Augusta*. He's probably got a new slant on this business. Shall I buzz him?"

"No, they might happen to tune to that wave-length in the Condor or one of those Jap ships. But hold the dial setting."

The exhaust-flames of the planes they were following now began to swing northward, then took a north-westerly course.

"Say, they're heading back toward land!" Doyle said in a tone of vast relief.

"It may be too late," Knight warned him. "I don't think we've enough gas to reach the mainland."

"Oh, Lord, please let that gauge be a few gallons off," Doyle asked in fervent prayer.

Knight looked at the indicator, then forced his mind from the thought of their cracking up in the sea. After a few moments he gave an exclamation.

"Doyle, I just remembered where I saw the pilot of that second white Grumman. It was at the National Air Races last year."

"Who is he?" demanded Doyle.

"Jake Overman—one of that stunt team they called the 'Three Flying Fools.' He must have signed up with Japan."

"Not a chance!" Doyle yelled through the Gosport. "Jake Overman may be screwy, but he'd never—say, wait a minute. Didn't I read something about that trio signing up to fight with the Loyalists in Spain?"

"They must've backed out, or we'd have run across them when we were there," said Knight. "Or else—hold on! I'm beginning to get it! What if they double-crossed the Loyalists and—"

"Look!" Doyle cut in excitedly. "The Condor's going down!"

Knight had caught the glow of the ship's landing-lights at the same moment. He peered over the cowl as he closed the throttle and nosed down. A wide tongue of land became visible in the twin beams from the gliding Condor, and above the transport he saw the white Grumman and the two Nakajimas. He was looking around anxiously for Hank's ship when a



bright glare flooded the Corsair from the rear. And out of that brilliant glare came a furious hail of bullets!

## CHAPTER VI

"FOR THE MIKADO!"

**K**NIGHT had hit the throttle and jerked the stick back at the instant the light appeared. Now he threw the Corsair into a violent chandelle. Tracers and solid slugs gouged the two-seater's wings, gashed the crash-pad before him as he hoiked up from the attacking ships.

Doyle was blazing away fiercely with the rear-pit guns. Knight cast a taut look over the side, caught a glimpse of two planes similar to the one he was flying. As one cut swiftly away from the glow of the other's lights, he recognized it as a Nakajima 90-11 two-seater—a Japanese copy of the American plane. The zooming ship stormed through a burst from Doyle's guns, and one of its lights went out. Knight banked vertically to give Doyle a better shot, at the same time crashing a fusillade from his cowl-guns as the other Nakajima came almost in line with his sights.

The second Nipponese flung away, renversed, then came back with its forward guns flaming. Knight lanced up and whipped the Corsair around in a terrific Immelmann. Doyle lost his balance and swore like a pirate, but he managed to scramble up out of his cockpit and seize the spade-grip in time to rake the other Jap ship. By now, the two Nakajima single-seaters and the white Grumman were whirling in toward the battle, but the white ship zoomed clear as the fighters plunged in. Knight made a lightning decision, slammed the Corsair into a vertical dive. The Condor was swinging into the wind at about five hundred feet, and he caught sight of hooded guide-lights on the ground below.

With a shout through the Gosport to warn Doyle of what was coming, he hauled the two-seater out of the dive. A force of seven times that of gravity pulled him down in his seat, jerked Doyle's guns from his hands. The side of the Condor leaped out at them. Knight ruddered hard, and the two-seater swung in parallel, hardly ten feet from the cabin. The baffled Nakajima pilots sheered off, twisting and darting up and below the Condor in the effort to get a safe shot at the Corsair.

Knight eased closer to the Condor, snapped a burst just under its lower wings. The pilot instantly opened his throttles, taking the hint to fly

straight. Doyle bawled something through the Gosport.

"—in the cockpit!" Knight heard. "When the devil did he learn how to fly!"

The secret agent shot a glance toward the nose of the ship. The window on the left-hand side was open, and he saw Christian's silvered hair gleaming in the light. Abruptly, a window in the rear of the cabin flew open and a machine-gun blazed into the side of the Corsair. Knight dived under the Condor's wings and instantly the four Nakajimas were after him. He pulled up, trying to fly under the belly of the transport, but a bomb-trap opened and a machine-gun snout appeared.

"Call the *Augusta*!" he shouted into the speaking-tube, as he kicked aside. "Tell them we've found the white Grummans' base."

R-r-t-t-t-t-t-t-t! A gun-clatter from the nearest fighter drove him into hasty action. He nosed down, then shot up and over the Condor in a tight loop. The pursuing ship



turned to keep from hitting the transport. Knight hurriedly looked around at Doyle as the other Japs charged to intercept him in his dive. To his dismay, the ex-Marine was sprawled in his seat, one hand clutching the radio-set switch.

"Doyle!" he cried. "Doyle, old man!"

"I'm . . . . all right . . . just nicked a bit . . . ." Doyle's voice trailed off. Knight booted the rudder, hammered a burst into the nose of a single-seater that flashed under his guns. The Nakajima skidded madly, fell off from a stall. Knight jerked the Corsair level, released his belt, and reached back for the microphone Doyle had dropped.

"Q—Q to Wardell!" he shouted at the top of his lungs. "Q—55—Wardell. White Grummans—based at—"

Crash! The Corsair was knocked twenty feet sidewise as a plunging two-seater hit its wing-tip. Knight's grip on the stick was all that saved him. He dragged himself back into the seat, snapped his belt as the Corsair reeled into a spin. Three hundred feet below him, the Nakajima fighter had crashed. The sight of that massed wreckage drove him to superhuman skill. A fierce shove at the rudder, a forward slam of the stick, and the Corsair was out of the dizzy whirl, its nose pitching steeply earthward. He braced himself, pulled

back with a silent prayer for the bullet-torn wings.

Another blast of Jap lead ripped across the cowl as he brought the nose level. There was a loud crack from the engine, and its throaty roar ended. Knight cut the switch, leaned out to the right trying to see through the oily smoke which was now pouring back into the cockpit. The wheels touched, and the ship bounced two feet or so. He let it settle, bobbing from side to side in the effort to see.

The ship was on the ground and slowing, when to his consternation it dipped down a sharp incline. For a second he thought it was plunging into the sea. He stood on the brake pedals, threw his hand before his eyes. With a splintering crash, the Corsair swung to the left and stopped.

**O**UT of the blackness came a confusion of voices, mingled with the subdued roar of engines above and behind. Then a flashlight cut whitely through the dark and pointed across toward the ship. Knight had ducked the second the light appeared, and a gabble of Nipponese voices arose as the beam twitched from Doyle to the apparently empty cockpit.

"One has escaped!" a shrill cry rose above the others. "Guard the ramp and the exits!"

The flashlight quickly poked around the Corsair and away. Knight could see the beam turning, and as comparative gloom fell over the wrecked ship he swiftly climbed out onto the crumpled left wing. After a moment, he cautiously lifted his head. A short, chunky Japanese lieutenant was standing about thirty feet away, spotting the base of a taxiing-ramp with his flashlight. Six brown-faced soldiers with rifles were strung out along the ramp's inclined surface.

He could see Doyle's head where it rested on the edge of the rear pit. The ex-Marine's right arm was dangling over the side with blood slowly dripping from the fingertips. The swiveled twin-mount was pointing up toward the roof of the underground airdrome. All this he saw in a flash, then the Nipponese lieutenant wheeled, and he had to drop hastily. He bent low, waited.

The man came around the tail of the ship, stooping to pass under the tilted flippers. His flashlight shifted to rest on Doyle—and in that second Knight leaped up. The rasp of his shoes on the wing was lost in the thunder of taxiing ships near the ramp, but some instinct must have warned the man, for he whirled just as Knight's hands reached out for his throat. His lips flew apart for a cry that never came. Knight's fingers



closed, sunk deep into his flesh. Horror shot into the officer's black eyes, and he clawed frenziedly at the hands that were taking his life. His sharp nails tore flesh from Knight's knuckles, and warm blood spurted out, dropping upon the fallen flash-light.

It was quickly over, and Knight grimly laid the inert figure upon the floor. As he snatched up the flash-light to turn it off, white wings shone, a short distance across the underground hangar. He swore under his breath as he saw at least a dozen Grummans. Japanese mechanics were hurrying up the ramp, in response to shouts from above, and he could see others moving around between the berthed planes.

Doyle's eyes flickered open as Knight took off his borrowed Navy coat. His homely face looked blank for a second, then he stared around the base, trying to lift his head.

"Lie still!" Knight said tensely. "I'm going to see if I can trick these devils."

He took off his helmet and goggles, put them on, then shoved the man's arms into the sleeves of the Navy coat, leaving one arm extended so that its three gold stripes would show. In another moment he had the man lying face down. Motors blasted loudly from the top of the ramp, went silent as the Condor started to roll down into the hangar. Knight sprang up on the wing of the Corsair, crouching beside the fuselage to remain unseen. Doyle grinned down crookedly from a few inches above him.

"Good shooting, Dick!" he whispered.

**S**LOWLY, the Condor came down the incline, rolled to a stop about a hundred feet beyond the Corsair. Mechanics swarmed after it, and the tail was soon placed on a dolly, and the ship swung around to leave space for the others. Dim lights had been turned on at the side of the ramp and within the base, and with fading hope Knight saw an ever-increasing number of Japanese officers and soldiers. In quick succession, the three Nakajimas and the white Grumman came down the ramp and were turned into position.

As the last plane was berthed, a low, grinding sound was audible. Knight peered across the tail of the Corsair, and a weight seemed to settle about his heart. A large balanced door was descending, blocking the ramp. The lights of the underground hangar brightened as the door closed, and Knight heard one of the Nipponese exclaim on seeing the body of the dead lieutenant.

"Ai! There is the other one—tell

Colonel Karika!"

"Here he comes now," said another voice. "But look! They have captured a Chinese general!"

A third voice, high-pitched and harsh, sounded from the direction of the Condor.

"We are greatly honored, General Wu, that you should visit us. I hope that the reception I have arranged for you and your American friends will not disappoint you."

"Where are the two who flew the Vought plane?" the cool, crisp voice of John Christian broke in.

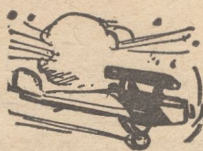
"There they are, Baron," said an obsequious voice. "As you see, both are unconscious—and probably they are dead."

"Make sure of it!" Christian said sharply.

Knight's eyes were on Doyle's face. "Drop!" he whispered.

Doyle lifted his dangling arm—unseen by the men on the other side of the plane. As he popped out of sight, Knight sprang up and seized the spade-grip of the twin guns. A chorus of cries rang through the underground base, but he whirled the muzzles toward Christian and the officers before anyone could fire.

"Raise your hands!" His staccato Japanese cracked through the han-



gar. "Keep them up and stand still!"

Christian, after a start of dismay, elevated his hands and stood impassively staring at Knight. The secret agent's eyes flicked over the others—a colonel above average height for a Nipponese, with a small, scraggly beard and febrile black eyes; five or six other Japanese officers, and at least a hundred mechanics, some their brown faces taut with fear, others glaring like wolves at bay. Close to the Condor, General Brett lay on a stretcher, his lips still taped, like those of General Wu Feng and Dawson, who were standing, surrounded by half a dozen guards.

The nearest man was the pilot of the white Grumman, who had been passing within fifteen feet of the Corsair when Knight leaped up. His face held the same expression of frozen fear which the secret agent had noted there during the battle, but the eyes back of his goggles had an almost maniacal glitter.

"Taisa!" he cried suddenly. "What shall I do?"

The bearded colonel's lips drew back in a snarl. "Serve now!" he hissed.

Knight tilted the gun a fraction of an inch.

"Keep back, Overman—or I'll cut you in two!"

The pilot took a step backward as though in terror, and Knight moved the gun to cover the group of officers. A wild cry burst from the pilot's stiff lips.

"For the Mikado!" he screamed, and hurled himself at the Corsair.

Knight whipped the gun downward and a thunderous blast struck into the charging man. The pilot's white face vanished in welter of blood, but his frantically clutching hands touched the muzzle of the gun. They were torn instantly into bleeding stumps, and another burst threw his mangled body backward, but his suicidal leap had not been in vain. From two directions, Japanese had charged at Knight as the Grumman pilot sprang.

The secret agent whirled the gun and mowed down a dozen mechanics, but the second group ran in front of the ship before he could swivel the weapon again. Something struck his shoulder, knocked him off balance. He heard Doyle curse a Jap non-com who had leaped on the wing, and he swung to hurl him to the ground. Three brown-faced guards were dashing around the tail of the Corsair. He threw himself backward, blazed a fusillade at the trio, and at the same time kicked savagely at the screeching non-com. His boot caught the man under the chin, and the Jap tumbled backward. He was trying to spin the twin-mount around to rake the other mechanics when two arms shot around his neck from behind and he was dragged headlong out of the cockpit.

A spindly-legged captain jumped forward with drawn pistol, but a shout from Christian halted him.

"Don't fire! I want them both alive!"

In a second, Knight was surrounded and pulled to his feet, his arms pinioned behind his back. The captain held his pistol against Knight's head, waited until Doyle had been brought down from the Corsair. Then he turned to Christian with a smart salute.

"Your commands have been obeyed, Baron."

Knight recognized the obsequious voice he had heard before, and even in that moment of despair he noticed that Christian and not the Japanese colonel seemed to be more feared by these men.

"Take them to the old altar room," Christian ordered.

As Knight's captors shoved him past the Corsair, he saw the mutilated body of the Grumman pilot. Brown skin showed where bullets had torn



away the man's clothes in several places. Nearby lay something of light-colored, curved like a molded section of a man's jaw, and spattered with red.

## CHAPTER VII

### TORTURE CHAMBER

THE shrewd eyes of John Christian caught Knight's change of expression as he saw the thing on the floor.

"So you finally comprehend, Mr. Knight? I gave you credit for a faster brain."

The Japanese colonel gave Knight a murderous look. "Then this is the man who wrecked the other scheme?" he demanded.

"With the help of several more, *Taisa* Karika. One was this ugly brute who was in the rear of the plane. And Captain Larson was another—where is he, by the way?"

"He is being brought in through the upper entrance, Baron," the skinny captain replied.

Knight hid his dismay. He had been hoping that Hank was by now racing back to form a raiding expedition. Dully, he noted the details of the underground hangar as he and the other prisoners were taken to a doorway at the right. It seemed to be of recent excavation, and he saw pumps and suction-fans for drawing air from above and taking exhaust gases out of the base. The roof was braced at intervals by steel columns imbedded in concrete. Fuel tanks, boxes of supplies, spare engines, and other material, covered a square section near the doorway, and on the other side he could see rows of cots and some mess-tables.

General Brett had been unbound and removed from the stretcher, and Knight saw a red welt on his face where the strips of tape had been ripped from his lips. The G-2 general swayed once as he was marched along with Wu Feng and Dawson, but he caught himself and strode on, his eyes stonily fixed in space. Knight was the last one taken through the doorway. He found himself in a chamber about fifty feet long, with a raised dais at the farther end, behind which the figure of a white, two-headed dragon was inlaid against black porcelain.

The carving on the throne-like chair behind the dais and the other chairs ranged on both sides of the room was old and blackened, and Knight could tell at a glance that this room had existed many years before the base had been created. He saw General Wu give a slight start and followed his gaze toward what at

first seemed a large oval-shaped covered well in front of the dais. It was about seven feet long and four feet across. Its sides were of white brick, now yellowed from age. A metal pin protruded slantwise from a hole in the side of the well toward Knight, with a thin wire cable attached to it and running through a pulley to a ratchet and pawl device on the wall. A similar cable was visible extending from the device to the other end. A black line ran lengthwise down the center of the oval-shaped top, widening at the far end into a dark spot about the size of a man's face. Knight suddenly realized that the black line was a crack where two hinged sections overlapped and that the round spot was a hole with only a sinister blackness beneath. He saw Colonel Karika's lips draw back over pointed teeth in a wolfish grin at Wu Feng.

"I perceive, General Wu, that you recognize the old headquarters of the White Dragon."

Wu Feng looked past him at Knight and General Brett.

"They have brought us to Tsung Ming Island," he muttered. "This is the cellar of an abandoned castle."

Karika laughed shrilly.

"Very much good that will do them to know now," he said. Then he looked around sharply. "Where is the other American—the one who flies for China?"

"Here, *Taisa*," bowed the skinny captain, pointing to a door at the left of the dais. Three Japanese soldiers appeared, uniforms disheveled and their faces bearing marks of conflict. With them was Hank Larson, one eye purple and an upper front tooth missing. Hank looked mournfully around the room.

"Well, I gueth they got uth," he lisped through the spot where the tooth had been.

"Tie all but this man into chairs," ordered Christian, pointing to Knight. "Do it quickly—there is little time to spare."

THE soldiers went to work, the skinny Japanese captain importantly overseeing their performance. Dawson resisted and was promptly knocked down. Knight watched helplessly, with two Nipponese holding pistols against his sides. Karika turned to Christian as the captives were being tied.

"Are you sure we are safe, that there is no clue left for them?" he said with a hint of anxiety.

A satisfied smile crossed Christian's darkly handsome face.

"There is nothing to fear, though my plans were not carried out exactly as ordered. General Wu designated the Smiling Buddha club for the

conference place, as was reported, and we were ready—"

"A thousand curses on my feeble mind!" Wu Feng said harshly. He turned to Brett. "I had no knowledge of that secret passage, General, but I should have suspected the place. I recall now it was once rumored to be a rendezvous for foreign spies."

"Your lack of memory," Christian said with a suave irony, "was most helpful to my plans." He glanced back at Karika. "Unfortunately, Knight and these two pilots came early. It was reported to me at once, and I ordered a hatchet-man to kill Knight, using a White Dragon knife and their usual ritual: I expected Larson and Doyle to rush out and report Knight's death, which would spread the White Dragon murder story all over Shanghai. Then when Wu vanished, it would look like a reprisal, as he was known by high officials to be head of the White Dragon society. But the hatchetman missed, and these three started to go to Chenju field. I heard their plans when they came below to leave a note. We could have captured them then, but I feared Wu and his agents might appear and it would destroy everything. So I let them depart and decided to intercept them before they reached the field. They were intending to investigate the incident of the box sent to Li Chang."

"What was the result of that plan?" interrupted Karika.

"Quite successful," said Christian. "Li Chang died in the air after drinking the poisoned tea, as I intended, and the Chinese pilots who had heard of the White Dragon warning deserted tonight when they received similar warnings. I have already planted the idea that Larson permitted them to leave and thus crippled the squadron."

Karika grinned maliciously as Hank lisped a blistering comment on Christian's ancestors.

"And the Grumman attacks?" he said. "They focussed the attention we expected?"

"Even more," responded Christian, watching the stern face of General Brett. "All Shanghai saw the fight, and my men have already started spreading the word among the coolies that the white planes are from the American Navy, with their insignia painted over."

"No sane man would ever believe that!" grated Brett.

"You mean 'educated' man," Christian said silkily. "And the Chinese masses, my dear General, are not very well educated."

Brett looked anxiously at Wu Feng, who was being tied into a chair across from him, but the Oriental's face was inscrutable.



"One Grumman was lost," Karika said quickly, "but I have no fear there—all the Sons of Death will sacrifice themselves as they pledged."

Christian nodded, his silvered hair gleaming in the light.

"I should never have doubted that. I saw the pilot fling himself into the flames and die."

Karika stared.

"You were there to make sure, Baron?"

"No, I was following these three, and they drove to the scene of the crash. I turned into an alleyway and arrived in time to see the last act. Savilla, the Spanish ace of whom I told you, must have reached there first—undoubtedly intending to force the pilot to tell him where the other Grummans were hidden. He was lying dead, and I think our pilot had shot him, for he was then firing at Knight to keep from being saved. I tried to shoot Knight, thinking he had seen too much, but he seemed to bear a charmed life—then."

Karika bared his sharp teeth.

"I do not think it will be so now."

"No, this time he will not slip through my fingers," Christian said with a suddenly ugly note. "But he helped me, as it developed. He was in that fight when the Navy plane appeared with you and your men after it."

Karika grimaced.

"For a while I thought all was lost," he said. "We had been scouting, trying to locate the American aircraft-carrier, and we finally saw its lights northeast of Chinsan Island when some of their planes took off to investigate us. The pilots pursued us, a while, then turned back—all but that one. We hemmed him in and drove him inland, and finally he tried to reach Chenju field. That was when the Chinese planes attacked us."

"The Navy pilot dropped into the Whangpoo, as you undoubtedly know," said Christian. "Knight followed him down, after the pilot set fire to his plane and took to his parachute. Men from the *Augusta* rescued Knight and took the pilot's body—but it will be a boomerang, that affair. They will have a hard time explaining the body when Chinese officials demand to see it."

**G**ENERAL BRETT had been holding in, but now he burst out furiously.

"You'll never get away with this, Christian! I know what you're up to. You found out about those Grumman planes a South American power bought and re-sold to the Loyalists in Spain. You learned they were sending the freighter around Cape Horn to keep from going through the Pan-

ama Canal where we could discover the truth, and you sent Japanese submarines to capture the vessel and force her crew to sail to Japan. You covered it up by leaving bits of wreckage on the water and having S.O.S. calls sent from one of your subs after the freighter was safely away."

"Excellent deduction, General!" said Christian. "Or is there, I wonder, a spy in Tokio whom we have overlooked? At any rate, you could never prove a word of it."

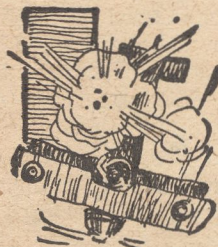
"What have you done to those American pilots who volunteered to fight in Spain?" thundered Brett. "They were on board the vessel, too."

Karika laughed with a shrill mirth.

"They will never tell anything, American!"

Brett glared at him. "Don't lie to me! They're alive—you're making them fly those Grummans by some ungodly means."

"No, General," Knight said dully, "the Grumman pilots are Japanese wearing masks moulded from moulage—the stuff used in the F.B.I. and other crime laboratories for duplicating the face of a corpse. Mouflage



will reproduce even the hairs on a man's head. I should have thought of it when that first pilot's mask melted and caught fire."

"If it tricked you, think of what it will do to men who never heard of mouflage," said Christian triumphantly. "Those Chinese pilots will swear the Grumman pilots are white men."

"You poor fool!" Dawson said in a venomous voice. "China will never believe we've been helping Japan. I happen to know the State Department is about to condemn Japan as the invader of China!"

Christian and Karika exchanged glances, then the spy master shrugged.

"It will be too late. It will appear like an attempt to hide guilt."

"You're stark mad!" General Brett rasped. "The whole world knows our sympathies are with China."

"The whole world—except China," Christian replied pleasantly. "The average Chinese regards Americans as interlopers in his country, the same as the British and other foreigners. Your recent embargo on planes for China lessened belief in

American sympathy, as did the law against enlisting men in the United States for Chinese service. Closing the Settlement gates to a million homeless and starving refugees has also helped our cause. You see, my dear General, I too am head of an Intelligence service—the Japanese think enough of my talents to make me a baron and give me full power. And I have not been idle. My spies have started rumors that you Americans have made a secret deal with Japan to help her if she will not molest the Settlement or curb American interests in China after the war is over. I have circulated photographs of American-made trucks used by Japanese soldiers, and I have spread the belief that these trucks and other equipment were donated by your country. Certain other photographs have been of aid—namely the one which General Wu's agents discovered after I released it in Shanghai—the picture of Mr. Knight and his comrades on a Japanese carrier. Chinese became quite infuriated on seeing a picture of an American volunteer in Chinese uniform paying a friendly visit to enemies of China."

"General Wu's staff officers know the truth about that incident," retorted Brett. "They will smother your lies with an official statement of what happened."

"They will have no time," said Christian. "In less than an hour the sky will begin to lighten, and all of the white Grumman planes will be flown to Shanghai again. This time they will dive from a high altitude and strafe Chinese refugees huddled in certain designated areas. We know from intercepted radio messages that two Shanghai defense squadrons, one a bombing unit, have been ordered to follow the Grummans the next time they appear, and destroy their base. I planned on this, but it came sooner than I had hoped. The rest will be very simple. From Shanghai, the Grummans will fly at full speed to your aircraft carrier off Chinsan Island and will dive as though attempting to land upon it. It will be about dawn, and the United States flag will hardly be discernible—even if the Chinese pilots should look for a flag. And they will not look, for they will never dream of an American carrier hiding so close to China."

"It's hiding, obviously, because the Navy has been ordered to destroy those white ships!" flamed Brett.

"Ah, but the Chinese will not know that," purred Christian. "Their bombers will attack what seems to be a Japanese vessel, and your gunners will defend the carrier and shoot down Chinese planes. Probably some of your Navy pilots will be ordered to repel the attackers—for in the heat



of it the Chinese may be suspected of being Japanese using captured planes. A few Chinese survivors will fly back to Shanghai with proof that the white Grummans were American planes operating from a United States Navy carrier. Among those survivors will be two men in my pay who will photograph the vessel after dropping flares to illuminate it brightly. They will radio their discovery at once, and Shanghai will become an inferno. A million maddened refugees, spurred on by the news and that Grumman strafe, will sweep against the Settlement and wipe it out."

"The officials will see through the trick—they'll stop them!" Brett said through ashen lips.

"Have you ever seen an Oriental mob?" the spy-master asked softly. "They will come like a vast tidal wave. Your marines may kill a few thousand before that wave sweeps over them. After that, anarchy. There will not be a white man, woman, or child left living by sundown."

**T**HERE was a terrible silence, and Knight saw the beads of perspiration on Wu Feng's brow.

"He speaks the truth," the Chinese general said in a shaken voice. "Shanghai is a volcano ready to erupt."

"And by that eruption she will be destroyed," said Christian. "The Caucasian world will seethe with fury. World opinion will swing instantly to the side of Japan. The hatreds of the Boxer Rebellion will be revived—Japan may even find allies in her conflict with China. And you, General Wu, will be the martyr whose death will serve to keep Chinese hatred against the white race blazing."

Wu Feng's eyes went slowly to the split oval cover Knight had noticed. He raised his head with quiet dignity.

"I am ready."

"You misunderstand—I do not mean the old pit," said Christian, nodding to Karika. The Japanese colonel rattled off swift orders, and the obsequious captain brought a tripod camera from one corner, with a flashlight-powder pan extending out at the side on a long bracket. A cardboard with a square opening was secured over the lens, with small wires fastened vertically in front of the open space.

Wu Feng's chair was now pushed into the center of the room, and the camera focussed so that General Brett's head and shoulders were also included, but not the ropes around his chest. Karika looked anxiously at his wrist-watch as they finished.

"Can we let some of the men go back to their work now, Baron? It will soon be time to start the Grum-

mans warming up for the attack."

"Yes, the fewer witnesses to this the better," Christian said curtly.

Karika sent out all the soldiers but the two guarding Knight. Christian turned to the secret agent, slowly withdrew a knife from under his coat as he approached.

"You are going to play a leading role in this scene, Mr. Knight. I advise no resistance. The lives of your three companions depend on this—as well as your own."

He extended the hilt toward Knight, and the two guards pressed their guns tighter against the secret agent's ribs.

"You are to stab General Wu, standing here so that your face shows toward the camera," Christian continued as coolly as though he discussed the weather. "After that—"

"You butcher!" Knight broke in fiercely. "I'll see you in hell first!"

Silently, Christian stepped to the wall and tripped a small latch under the ratchet device. A spring jerked the slanting pins Knight had seen, and the hinged halves of the oval-shaped cover swung down inside what had seemed the top of a well. The guards pushed Knight closer, and Karika tossed a piece of stone into the blackness. It rattled against the sides of the pit now and then with a metallic clink. The sounds grew fainter and fainter, and at last ended.

"It is two hundred feet deep," the spy-master said calmly. "There are iron spikes projecting here and there from the walls and from the bottom—though the latter are probably covered with the bones of White Dragon traitors. Make your choice!"

Cold horror gripped Knight. As he stared down into the pit, Wu Feng spoke gently.

"Do as they ask, my son. They will kill me, anyway."

Christian again held out the dagger. Knight recoiled with an oath.

"No, by Heaven! I won't do it!"

Dark blood flushed Christian's handsome face.

"We will see about that!" he snarled. He made a furious gesture, and Karika whirled the ratchet-handle, drawing the hinged covers level again. The skinny captain inserted the pins holding the covers from dropping, and then hastily placed a candle on a ledge above which three strands of rope ran to the ratchet-mechanism.

"When the first strand burns through," Karika grinned into Knight's face, "the spring will let the pawl slip one notch. When the third strand burns, the pins will be jerked out."

The guards drove Knight backward to the top of the pit. He lashed

out frantically at one of them, trying to seize his gun. Karika and the captain leaped to aid the guards, and a terrific kick on the shin dropped Knight to his knees. In a moment he was stretched, face down, upon the hinged covers, with only horrible blackness below.

## CHAPTER VIII

### SONS OF DEATH

**"YOU fiends!"** Brett was shouting. "You damned fiends!"

The Japanese captain wheeled with his fist drawn back, but Christian stopped him.

"Not now! I don't want any bruises to show in the photograph."

Knight twisted his head sidewise to keep from looking down into the pit. A cold sweat was rolling down his face, and his heart constricted as he saw that the first strand of rope was smoking. Christian smiled down at him cruelly.

"I regret this is necessary, but I need a final clinching bit of evidence to show American treachery. In my dispatch case yonder I have complete proof that you are, as the Chinese would say, 'Number One Secret Agent of the United States.' A photograph showing you murdering General Wu, with General Brett of the American Army looking on, can never be refuted—especially when General Wu's body will be discovered with this same knife in it. Those wires will look like prison bars, and will confirm the story that the picture was snapped by a Chinese spy through a cell window."

There was a snap, and the hinged covers dropped two or three inches. Knight held back a groan, but his blood was like ice. The two guards kept his arms twisted so that he could move only his head. He saw Brett's ashen face, saw Doyle and Hank Larson struggling wildly but vainly against their bonds.

"Will you kill General Wu?" came Christian's cool voice.

Knight gritted his teeth, his eyes glued to the second rope under which the candle was now burning. There came a quick rapping at the door to the underground hangar, then the sound of idling engines, and in a moment the Japanese captain hurried up to Christian.

"Baron, the Grummans will soon be ready for the Sons of Death to come down from their quarters. But you said you wanted no witnesses—"

"Send word for them to be ready," snapped the spy-master.

Knight saw a Nipponese officer hurry through the room and disappear through the doorway which led up into the old castle. The door



closed, and the candle flickered. With a terrible fascination he watched the second rope. It parted abruptly and he dropped several more inches. Only the width of his body now kept him from plunging through to frightful death. He had to twist his head side-wise to keep it from sagging through the open space between the parted iron covers.

The third rope was smoking, blackening. He tore his eyes from it, shifted them across the room for one last look at Doyle and the others. But as the camera came into his range of vision his heart gave a frenzied leap.

"Stop!" he cried out. "For Heaven's sake, save him—I'll do what you want!"

Karika sprang to the ratchet-mechanism as the two guards pulled Knight to his feet, but the cord burned through before he could hold the pawl and the hinged covers swung down against the sides of the pit. Knight froze in genuine horror at the nearness of his escape.

At a swift nod from Christian, the Japanese captain jumped to his camera and poured flashlight powder into the pan. The spy-master came quickly toward Knight, and the two guards stepped aside. Knight put one hand before his eyes as though to shut out the horror he had escaped. He took a staggering step backward, then seized the candle and tossed it at the powder-pan.

There was a bright flash.

Knight hurtled against the half-blinded spy-master, and Christian went over backward, the upper half of his body dangling into the pit. Knight seized the man's legs and lifted them.

A terrible scream burst from the spy-master's throat as Knight held him at the very brink of the pit. Karika and the two guards, momentarily blinded by the flash, sprang toward the spot.

"Get back or I'll drop him!" Knight rasped.

**T**HE three men halted in consternation. Back of them the Nipponese captain stood with knees shaking. Knight riveted his eyes on the frightened officer.

"Pick up the knife! Cut loose Captain Larson!"

A strangled cry came from the spy-master as Knight's grip on his legs slipped a trifle. The Japanese captain snatched up the dagger in trembling fingers and turned to Hank Larson. Karika quivered in helpless rage.

"Stand still!" grated Knight. "Tell your guards to lay their guns on that second chair!"

Karika moaned out the order. One of the soldiers obeyed, but the other

man crouched for a wild spring at Knight. Hank Larson catapulted himself from his chair as his severed bonds dropped away. A fist backed by one hundred and ninety pounds smacked on the brown man's jaw. Hank wrenched the gun from his hand before his senseless body hit the floor, and in the same whirlwind sweep cracked the second guard over the head.

"Cover Karika and watch the captain till he's cut the others loose," Knight said tensely.

In half a minute Doyle and the two generals were free. Doyle scooped up the second guard's pistol and took Karika's gun from his holster. Not until Karika and the terrified captain had been driven into a corner did Knight motion for Hank to help him pull the spy-master up from the pit.

"I'd give a month's salary to let him go!" Hank said savagely, but he seized one of Christian's legs. The spy-master collapsed on the floor as



they brought him out, but after a moment some of the color came back into his pasty face.

"What are you going to do with him?" General Brett asked hastily.

"Give him the medicine he wanted me to give General Wu," said Knight. "Humph! I thought that would bring him around."

Christian's eyes had popped open, and now he lay there, glaring up at the Q-Agent.

"We're in a tough spot," Doyle muttered. "We'll be bumped off the second we show up in that hangar—and we've got to have ships to get off the island."

Knight looked anxiously at General Wu Feng.

"That door by the dais—where does it lead?"

"To the main hall," said Wu Feng. "I am afraid—"

Clang-g-g-g! A bell dinned loudly, out in the underground hangar, cutting through the thunder of motors. Knight shot a fierce look down at Christian.

"What's that?"

"General alarm!" said the spy-master viciously. "It means you're caught."

Some one pounded at the hangar door. Motioning for Hank Larson to cover Christian, Knight prodded Ka-

rika toward the door with his own gun.

"Ask him what he wants!" he ordered in a low voice. Karika obeyed, as Knight held the gun at his head.

"Enemy planes approaching the field!" a high-pitched voice sounded faintly through the door. "The sound-crews report they are flying straight this way from the direction of the American carrier!"

Karika's eyes dilated wildly. Knight clapped his hand over the man's mouth.

"Tell him to have the ramp door opened and the Condor started at once to rush the prisoners to a safer place! Change one word of it and I'll splatter your brains on that wall!"

Berserk fury came into Karika's eyes, but he gave the command. Knight spun the Japanese colonel around and looked grimly at Brett and the rest.

"The carrier operator must have caught my message to the *Augusta*, when I tried to tell where this base was. Probably they and the *Augusta* took bearings on the message and got a 'fix.'"

"They'll be all set to bomb the place!" exclaimed Brett.

"We've still a chance if we can get to the Condor," Knight returned. "They'll have dim lights out there, once they open the ramp door. We'll have to take Karika and Christian and make it seem they're guarding us—and then break for it at the last second."

Doyle thudded his boot-tip against the spy-master's ribs as Knight opened the hangar door half an inch.

"On your feet, bum! We're going places!"

**T**HE whine of an inertia starter sounded from out in the base. Knight peered through the crack.

"They're starting the Condor's motors and the ship will be in the clear as soon as they taxi a Grumman out of the way. There goes the ramp-door—"

"*Amerikaner-jin!*" screeched a voice from beside the dais. Knight whirled, stood paralyzed for a second. A figure in American Navy uniform stood in the doorway to the castle. His fear-stamped face was that of a white man but the glaring black eyes back of his goggles were those of a Japanese. Behind the man was a second similar figure.

"Sons of Death!" screamed Karika. "Kill these foreign devils!"

The first man's hand flashed to his side. Knight fired, and a moulage mask split open as his bullet drilled the imposter between the eyes. The second masked figure leaped back and blazed two shots before Doyle dropped him with a slug through the



heart. Brett and General Wu threw themselves against the door, but three more of the Sons of Death charged through before they could close it and shoot the bolt.

Knight had kicked the hangar door shut at the first sign of trouble. With his back against it he fired swiftly at the nearest masquerader. The man spun around, fell at full length. Karika dived madly for the pilot's gun. General Brett sprang across the dying man, drove a wicked left to the Japanese colonel's jaw.

Karika toppled over and with a blood-curdling shriek pitched headlong into the pit. His frenzied voice changed to a cry of agony as his body thudded against a protruding spike. For an instant longer that frightful cry was audible, diminishing with a swift and awful significance, then the furore in the room drowned it out.

A gun roared close to Knight, and he saw the skinny captain fall. Then suddenly there was no more shooting. He bent over and snatched one of the moulage masks from a dead Japanese.

"Put this on, General Wu! Hank, you and Doyle take the other two good ones and pretend to be escorting—"

"Look out!" shouted Dawson. "Christian's got a gun!"

There was a loud report, and the light went out. Knight jumped to the door, was sent sprawling as a figure leaped from the darkness. The door flew open, and Christian raced through, dispatch case in one hand, two moulage-masked figures behind him. Knight scrambled up and dashed into the dimly-lit hangar, with the rest of the group now hot on his heels.

The Condor was directly in line with the ramp, half a dozen men scurrying around it. Knight whirled, saw a masked figure gripping General Brett by the arm and another man holding a split mask over his face running beside them. Suddenly a pistol flamed, at one side of the hangar, and the mechanics by the Condor dashed across the base. Brett and his two companions ran to the door of the big ship. Knight ducked back of an idling Grumman as he saw Christian emerge between two ships. The two other masked men, whose figures he now recognized as those of Hank and Doyle, both fired at the spy-master, and Christian plunged under the fuselage of a nearby Nakajima fighter.

Dazed mechanics were milling wildly around the underground base, with here and there an officer shouting frantic commands which went unheard. Doyle and Hank raced around a Grumman and ran to the

Condor. All but the man with the split mask had entered the cabin. A gun flamed from under the Nakajima where Christian had dropped, and the split mask fell from suddenly nerveless fingers. Knight saw Dawson tumble to the ground, saw Hank lift him aboard as Doyle ran to the cockpit.

The Condor lurched forward, started up the ramp. Christian dashed out, unhurt, from the Nakajima and shouted an order. A Japanese non-com sprinted to a switch-board and gripped a rheostat. Knight had waited purposely to make sure the Condor escaped. He took swift aim, squeezed the trigger, and the non-com fell before the huge door had moved an inch.

Knight vaulted into the pit of the white Grumman which had shielded him and shoved the throttle open. He saw Christian's face blacken with fury as the fighter rolled toward the ramp. The spy-master thrust his dispatch case under his arm, and dashed to the switchboard. Bright lights went on, and the heavy door started downward just as the Grumman hit the incline. Knight shoved the throttle wide open and the fighter roared up the slope. The descending surface was within three feet of the whirling prop as the Grumman shot past the top of the ramp.

The ship bounced into the air, settled, then took off swiftly. Tracers stabbed after as Knight lifted it into the graying sky. He looked back, saw another white Grumman which had been disgorged from the maw of the hidden base. As the ship zoomed after the Condor he saw the silvered hair of John Christian gleam in the light that came up the ramp. With his plans falling in ruins, the spy-master was making one last desperate attempt to save the scheme by killing the men who knew his scheme. It was his only chance.

Engine blasting, Knight chandelled after the other Grumman. Christian's ship whipped into a tight bank, and his guns raked the transport's tail. Knight clamped both trips, poured a red torrent into the flashing wings before him. With a furious renversement, Christian shot back at him. Engines wide open, the two ships charged at each other, tracers crisscrossing like flaming rapiers. Then in a mad instant when collision seemed inevitable, Christian frantically kicked aside.

Knight whirled his Grumman and the white wings of the spy-master's ship came suddenly under his guns. Crouching, he squeezed the trips. The spouting tracers shot forward to the tail of Christian's plane—and in that

instant three parachute flares set the sky ablaze.

For one weirdly dramatic second, the two fighters flew in an ocean of brilliant light. John Christian's handsome face went rigid with fear, as Knight's tracers smoked forward to his cockpit. Then an invisible hand seemed to hurl that rigid figure down upon his controls. Like a flashing arrow, the white Grumman carried the spy-master crashing down to disintegration.

In the blaze that shot up, a dozen white ships were revealed as the Sons of Death raced up to engage a hated foe. Like avengers from Heaven, a score of U. S. Navy fighters pitched down under the flares and dived at the zooming impostors.

Knight flung off toward the sea, lost himself in darkness. That battle was no place for an American in a white Grumman!

A squadron of Navy bombers swept into sight, and then off to one side he saw the Condor circling. He waited until he saw it straighten out for Shanghai, then followed, hidden in the gloom. Once, he looked back to where John Christian had crashed. Navy planes were circling over the bomb-gutted ground. There was no sign of the Sons of Death.

\* \* \* \*

A MOMENTARY silence had fallen in the living-room of the suite which served as General Brett's Shanghai headquarters. Then Doyle shifted his bandaged arm and grinned across at Knight.

"Dick, you sure gave me a scare when you dropped that Grumman alongside us as we were landing at Chenju. I thought old John Christian had come to settle things for certain."

Knight chuckled.

"It was the only way I could think of saving my skin. At that, General Wu had to talk fast to the crowd at the field."

"And elsewhere," said General Brett. "But I think he's squared everything now. And that State Department condemnation of Japan came at the psychological moment. By the way, I just heard that Dawson will pull through. We were miraculously lucky not to have any casualties—except Doyle's arm, and Hank's black eye."

"And thith tooth," lisped Hank mournfully. "I think I'll make thomebody pay for that."

"Maybe G-2 can help out," laughed Brett. "What do you think would square it?"

"General," said Hank, "jutht give me the key to the 'Thmiling Buddha' night club. Thereth a little matter of a Camelth Githard to be taken care of."



## Presenting the Puddle Jumper

(Continued from page 44)

them at the correct angle into the motor stick. Now add the spreader bar so that the distance between the inner sides of the pontoons will be  $3\frac{1}{8}$ ". Don't forget the small landing gear fillet beneath the motor stick.

If your machined props are all "busy" you can easily carve one from a medium block  $4\frac{1}{2}$ " by  $7\frac{1}{16}$ " by  $\frac{3}{4}$ ".

Use two small washers for your bearing.

### FLYING

**T**HE original model proved itself a real seaworthy crate by taking off on its first flight from a tub of bath-water!

Use two strands of  $5/64$ " rubber

without much slack. Lubricate the motor slightly and use a winder if you have one. If you have trouble in getting the model to take off, check the angles of the floats. And if she won't take off then the trouble is probably in the bathtub, so send the model and bathtub complete to us and we'll see our plumber about it.

## What Do You Say?

(Continued from page 52)

prop with collapsible blades so that when the tyre-elastic motor had run out the prop would fold back on the ship's nose, offering no resistance in the glide and cutting down the chances of our having to make a new airscrew after every flight.

But now, most of these things seem like dreams! For we can buy supplies to build with, kits already prepared, and even swell magazines like *FLYING ACES* to tell us just what to build and how and why. It's surely great—and I thank you and all your associates for your interest in our work.

Right now, my fleet of machines is pretty dilapidated. But in my last home I had thirty ships altogether ranging in size from  $2\frac{1}{4}$ " wing-spans to 8". Most of them were of my own design—and they were decided improvements I must admit, over some of those crude crates we called model aeroplanes two decades ago.

Well, folks, I've been writing for an hour. But I haven't read that Phineas story in the magazine yet, so—Tailwinds!

N. H. PENMAN-THOMSON,  
Natal, South Africa

## Modelers' News

(Continued from page 53)

flights many of the ships flew out over the Straits of Georgia and failed to report back in time for the contest. Worse, they haven't reported at all, since!

### SUDBURY HAPPENINGS

**A**T Sudbury, Ontario, the "remnants of the Sudbury Model Club"—Joe Leberge, Jack Kinch and Ken Brown—recently re-organized under the new name of the Three Model Musketeers. And immediately after their resurrection they walked away with first places in several nearby contests, just to show they weren't as dead as folks had thought they might be.

One of these meets was held at

Copper City, where Kinch came in first, John Kerr second, Brown third and LeBerge fourth. At a "monster model meet" sponsored by a Sudbury civic group, Brown took first place, Kinch second and Leberge third.

### "IMAC NEWS"

**G**REETINGS to the *Imac News*, a lively little publication of the Illinois Model Aero Club of Chicago, and the first copy of which recently reached our desk. Frank J. Porybaza is its editor.

Mimeographed and freely illustrated with sketches and cartoons, the new entry in the field of model airplane journalism covers local news and general modeling hints in a most satisfactory manner.

### POLICE SPONSOR MEET

**O**RGANIZED and sponsored by the Police Athletic League of the New York City Police Department, a city-wide model meet was recently held at the Marine Park in Brooklyn.

More than three hundred contestants participated in the events. Winner of the hand-launched glider flight was Ted Kaiser, of Elmhurst, N.Y. Kaiser also won the stick model event and was awarded a handsome airplane trophy donated by *FLYING ACES Magazine*.

Several hundred people were present, and the grand stand was thronged when prizes were distributed.

Among the many other prizes given, *FLYING ACES* subscriptions and Positive Identification Bracelets were awarded to Eugene Wagner, Gustave Jung, Fitzroy Newman, and Henry Struck, all of the New York area.

Many models showing decided originality on the part of their respective designers were in the meet, which was one of the most interesting and eventful ever held in this vicinity.

Captain Frank Campbell, N.Y. P.D., was in charge. He was assisted by Patrolman John McMahon.

## Workbench Tips

(Continued from page 53)

are building. Soak it in warm water for about ten minutes.

In the meantime, stick pins in the solid former along the center line. This is done in order to keep the seam in line. Take the wet blank and slowly bend it around the former. Then wrap the sheet balsa with  $\frac{1}{2}$ " gauze. Do this lightly so as not to mar the wood.

When you have the seam straight let the whole contraption remain overnight to dry. After all the water has evaporated remove the gauze, slide the blank from the stick, and with very little glue, cement the seam about an inch at a time. Take your time in this operation.

When the stick is glued, cut one end at an angle and cap both ends with  $1/32$ " sheet balsa. There you have a corking motor stick.

—CARL SCHLEGEL

### PUSHER PROTECTION

**W**HEN winding a twin pusher, it is safer to put both S-hooks over the yoke at the same time. For if one is put in place before the other, the one-sided pull of a fully wound motor is apt to buckle the ship's whole frame.

ROBERT FRASER-LEE

## Griffon's Nemesis

(Continued from page 26)

"Why did you come here?" Keen asked.

The man looked up at him, a glassy stare already creeping into his eyes. "I phoned you . . . this morning.

Guess the wires got twisted . . . twisted somewhere. I heard your conversation . . . with that Keen guy. Figured you were . . . double-crossing me, Letch. So I came, too.



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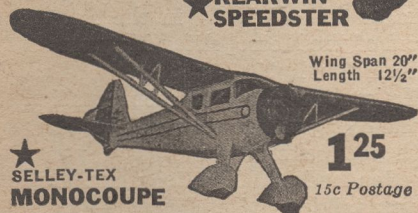
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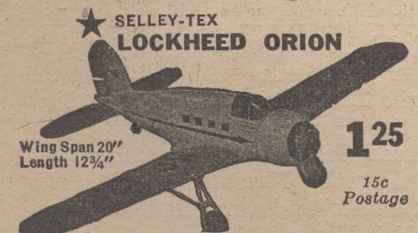
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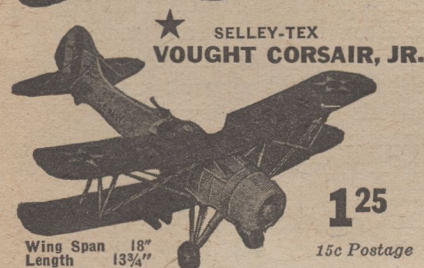
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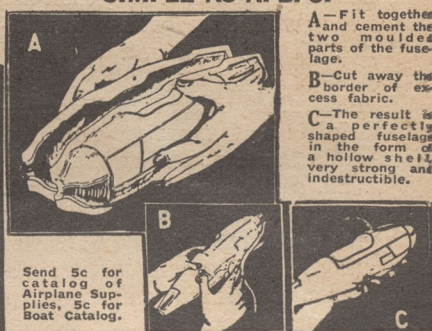
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Must have been . . . . Keen that . . . . got me, Letch."

"Why did you distrust me?" the ballistics expert asked realizing now that this might be Glendon, the Navy man.

"I figured you . . . . would duck out on me . . . . and contact Zorros," the man said, rolling back.

"But the book was no good without the key," probed Keen, his mind working fast now.

The dying man wagged his head: "No good . . . . without the key . . . . but I wanted to make sure. I didn't like . . . . that business with Keen. Too many chances . . . . chances I took, eh, Letch? Now you got it all . . . . to yourself if you can contact Zorros."

"But the key?" Keen said quickly.

"Sorry, Letch, I must confess that I double-crossed *you*. Zorros has the key. I got it to him . . . . to him, last night . . . . and got my money. You'll get yours when you get . . . . get . . . ."

"When I deliver the book?" Keen whispered.

The man nodded his head, then his whole body was racked with spasmodic jerks. He stiffened out.

The man was dead.

Keen hurriedly ransacked his pockets, took his wallet, a time table, an oiled-silk tobacco pouch, and, strangest of all, a motor distributor head. The wallet contained a roll of bills amounting to well over \$1,500, also a celluloid calendar put out for advertising purposes by an insurance firm. For some strange reason, Keen took the calendar but returned the money. He also left a small white card.

Then he darted away, dashed down the aisle between the exhibition cases, and made his way around the room to the stairway door.

The old caretaker on the stairs gave him a puzzled look as he passed. "Back again?" he said. "Forget something?"

"Yes, I wanted a sketch of that Flemish breastplate scroll for a design. I just took a pencil rubbing. Very interesting, that scroll."

"Ah, yes. A beautiful piece of work that."

Keen went on down to the street, walked around the corner, and jumped in a cab.

He gave the driver his address, then added: "Take a jaunt through the park for about fifteen minutes, first. I'm in no particular hurry. So take it easy."

**R**EACHING his apartment, Keen removed his Letchworth disguise and slipped into other clothes. Then with a glance at the clock, he went to work on the things he had

taken from the man who had been murdered in the Armor room. The wallet, just as Keen had expected, indicated that the dead man was Walter Glendon, a Captain in the U. S. Navy. But there was really nothing of interest in the leather case outside of the general identification.

The time-table, however, was for the New Haven line and seemed to have been lightly pencilled for trains running between New Haven and New York.

As for the Bosch distributor head, that unit seemed to have no particular significance at first. But Keen pondered on the fact that a man dressed so neatly should be carrying such an unusual item in his pockets. Obviously a used part, it was well cleaned; but it still bore certain scratches and marks indicating it had been used on a radial aircraft motor of some kind.

He inspected it carefully, saw that it was bored to take the central high tension lead and had nine openings around the side. It was made of black bakelite and the inside had been carefully cleaned of all oil and grease. He poked about with it for some time, still wondering why the Navy man had carried it about with him.

Then becoming interested in the inner plate of the device, Keen decided to investigate with a small screw-driver. But just then his telephone rang. He picked up the receiver, heard the voice of the man who had called before.

"Well, where were you?" the fellow asked at once.

Keen had to think quickly.

"I came up there a few minutes late. You see, I had a special call on a matter of ballistics; and when I got up to the Museum, it was closed off by the police. I was told that someone had been murdered in one of the exhibition rooms. Were you there?"

"Of course. But when I found that you were not about, I left at once. You say a man was killed in the Museum?"

"No. I didn't say a man had been killed. I just said that *someone* had been killed. I don't know whether it was a man or a woman," Keen continued, smiling to himself.

"Looks like your friend the Grifphon has been getting in some soft shooting, eh? Well, what about a meeting later in the day?"

"You seem very anxious to see me now," Keen taunted. "But you were in quite a hurry this morning. I was only a few minutes late."

"I didn't like the smell of the arrangements. We'll try it again tonight about 6:30—say at the Police information booth on Times Square. That is, outside the booth."

"That suits me," Keen replied.

"We're not likely to be murdered there," he added cryptically.

"You can't tell where you're going to get murdered, these days. Okay, then—6:30. And you'd better be there, or your friend Lang will get a very interesting letter."

**K**EEN hung up and went back to the motor distributor head, pondered on the man who kept phoning him as he worked over the unit. He was certain now that it was Professor Neville Letchworth. Letchworth had murdered Captain Walter Glendon in cold blood in the Armor Room of the Metropolitan Museum of Art! But why?

He kept recalling the conversation of the dying man, as he sat fumbling with the bakelite distributor piece. Glendon had told his story believing he was talking to Letchworth—but it must have been Letchworth who had killed him. Letchworth was the only other man who would have come to the 16th Century Armorer's Shop at the Museum.

Keen knew he had enough on Letchworth. Nevertheless, he also knew that Letchworth had *him*. Both could hold something over the other. But Keen knew that any man cold-blooded enough to shoot a man in the back would stop at nothing to gain his ends. As long as Neville Letchworth was still alive, Keen's own freedom wasn't worth a thin dime.

He sat staring at the bakelite block, suddenly realized that it was particularly heavy for such a device. He inadvertently poked inside one of the cable stems, pressed down on the small brass disc plate at the bottom. As he did so, he sensed that he had actuated some kind of geared mechanism.

For a moment his hackles stood up on the back of his neck. This was eerie. Fascinated, he tried it again in the same stem marked "1". Again, there was that whirling sensation inside.

"What the deuce?" he muttered, inspecting the block more closely. Then he looked into the larger high tension cable orifice. There, glinting against a white background, was the letter "J".

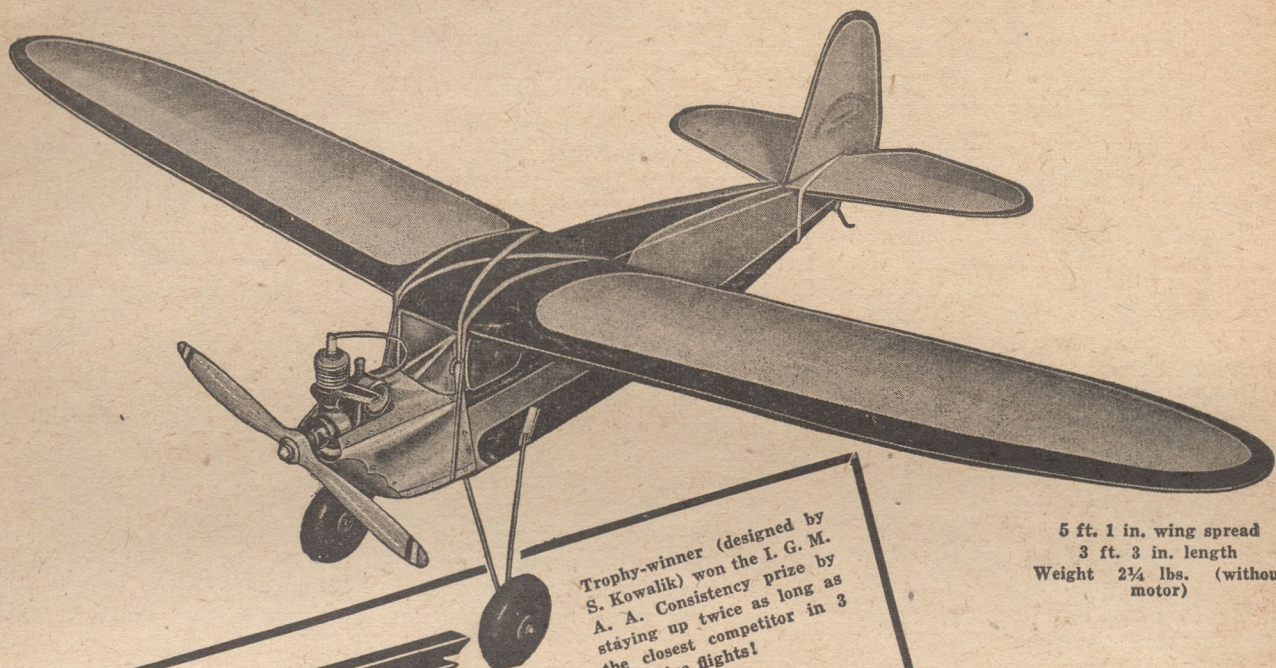
He pressed the base of the No. 1 plug cable a third time—and the disc behind the large orifice whirled, stopped, and showed the letter "S".

Something began to dawn on Kerry Keen. He laughed to himself and said: "Here I decided to have nothing to do with codes—but I've certainly got myself in for one now."

He counted the number of stems, saw that there were nine. Mentally he divided nine into twenty-six and found that each stem must provide



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three letters in some way. Three times nine was twenty-seven, that is, one more than the regular alphabet. Perhaps that last stem, if pressed three times, cleared the dial.

"I'll try that," he mused, jabbing a pencil into the No. 9 plug hole. The first push disclosed the letter "I" in the high tension hole. He pressed again and said, "This should bring out 'R', the eighteenth letter of the alphabet."

He peered in. Yes, there was the letter "R". And when he pressed the third time, he drew a blank. He had been right—that cleared the dial.

Now he took out a sheet of paper and jotted down the letters of the alphabet, ending with the word "clear". Then opposite each of these characters he listed the corresponding numbers, 1 to 26 and with 27 after the word "clear".

"Now," he argued, "if I push No. 1 once, it should bring the letter 'A'."

He did—and the first letter of the alphabet appeared. He cleared the face with three jabs in the No. 9 hole, then trying his theory further, he pressed No. 7 twice and got the letter "P", the sixteenth letter in the alphabet. Now if only the third sequence of the nine holes worked, all would be Okay. So he pressed No. 6 three times, and to his joy the letter "X" appeared.

He had solved the mystery of the distributor block!

"A very smart system," he grinned. "Now all we need is something to work with it."

But instead of pondering further, he put on his hat, grabbed a buck-thorn cane, and sauntered out. A taxi quickly took him to the local Secret Service office.

**B**OTH Drury Lang and John Scott were there, poring over several newspapers which they had spread out on a large table.

"Is this the way to look for missing Navy code books?" demanded Keen gayly. "Or are you catching up on your comic strips?"

"This ain't funny," Lang barked pointing to a headline. "How do you like this?"

Keen peered down, saw the first reports of the murder in the *Armor Room*.

"This sure is a pip!" Lang snarled. "A guy killed in the Metropolitan Museum. No one knows who he is. But twenty people see the guy we think did it leave in as many different ways. There was only two guys who went into that room this morning, outside of the caretaker; and the one who came out is the bird we want. But some say he was wearing a *brown tweed* suit, and others are

equally certain he was wearing a *gray* suit. Then the caretaker thinks he went out and walked across to the park. But others swear he leaped into a cab right outside, and we've found a taxi-man who says he took him to Grand Central station. If this isn't one for your whiskers!"

"But have you got anything on the code book?" asked Keen, apparently disinterested in the murder case.

"Code book? Don't mention that to us," moaned John Scott. "That one has us dizzy—for that Captain guy, Glendon, is missing now."

"Say," broke in Lang. "Where were you about—about 10:30 this morning, Mister Keen?"

"In my apartment. Why?"

"Nothing much. But we found another Griffon card—on the body."

"How interesting," grinned Keen. "Well, I *have* got a brown suit and a gray suit—but I didn't go to Grand Central station. Too many funny people get into Grand Central station. But you say you've got nothing on the code book yet?"

"Nothing. And how those Navy guys are squawking about it! Got any ideas?"

"Well, if they're upset, it's quite obvious that they've not only lost the code book but the code key, too," Keen said, pacing up and down the room.

"What makes you say *that*?" Lang sputtered.

"Figure it out yourself. The key book might have been photographed right in the Navy Intelligence Department's office without ever leaving the building."

"I thought you didn't know anything about codes," Lang said with a strange gleam in his eye. "Frankly, none of us thought of that possibility."

"Perhaps it's because I know nothing about them that the most obvious point should strike my untrained mind first," Keen said flipping his cigarette into an ash tray.

"You got *all* the answers, ain't you?" Lang said. "In fact, you got too many good answers, Keen."

Scott looked from one to the other, and Keen knew trouble was brewing.

"But," continued Lang, "I'll bet you ain't got no answer to *this* one: There was a large crate shipped from the Aldis Motor & Engineering Company plant two weeks ago and addressed to a party over in Jersey. The crate arrived at Jersey City and was placed on board a truck to be drayed to a small air field outside Westfield. Know anything about it, Keen?"

"My line's ballistics. I've told you that over and over," Keen parried.

"Well this sure has a touch of ballistics about it. That crate carried a

1,500-h.p. aero motor specially designed to carry a 37 m.m. air cannon. Now do you know anything about it?"

"Two weeks ago? Why I was up in Canada then with Barney."

But Lang kept on: "Yeah, and that truck carrying that motor disappeared for several days, then was traced to a spot outside Montreal—was found in a ditch and no crate aboard!"

"The Griffon again?" asked Keen in all seriousness.

"Yeah—The Griffon again!"

"How odd!"

"Of course, *you* wouldn't have no use for a 1,500-h.p. aircraft engine, Keen. But I figured your pal—"

"My pal?" broke in Keen.

"Well, that Griffon guy might want to use one . . . in some way."

"So what?"

"I'll tell you what. We gotta get that code book back—and we thought, John and I, here—that if you could help us out, we might forget that Aldis motor thing. It was hijacked—a serious offense, you know—and Canada don't like it a bit. Still, we can overlook some things—if you need money bad enough to give us just a little help on this code book business."

"I still don't get what you are driving at," Keen cracked back.

"Okay! We'll trace that motor if it's the last thing we do! That way, we'll get the Griffon. And when we get him, his pals, such as you—"

"Wait a minute," smiled Keen. "What did you say about money?"

"Look here, Keen. We're not dumb. Either the Griffon swiped that crate to use himself or to sell it. It's worth about \$80,000."

"Why don't you let me try to find the motor?" Keen asked blandly.

Lang was disgusted "We don't *want* the motor, we want the code book. And you'd better do something about it. You're not so dumb. As for that business of photographing the key inside the Intelligence Department office, where did you get that one?"

"I guess I read too many detective stories when I was young," Keen replied dumbly.

Lang was ready to explode again, but Scott checked him: "You have helped us in the past, Keen," he said quietly. "And we've always seen that you got a good break on the rewards. I think you can help us. You've got a good mind. And being on the outside, you are not hindered by the routine that often interferes with us. We're simply asking a favor of you—"

"Favor, hell!" Lang burst out. "I'm *ordering* him to go to work on it. He knows more about this thing

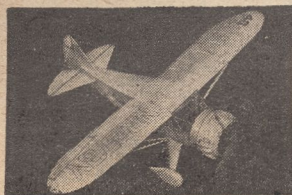


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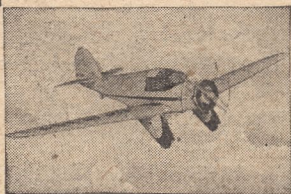


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than he'll admit, and I'll bet ten bucks he had something to do with that Aldis engine. Get going, Keen!"

Keen smiled and lit a fresh cigarette. He had won a valuable point, and he was satisfied.

"See you sometime tomorrow," he said with a jaunty air as he strode toward the door. "And by the way, you say that this Captain Glendon is missing. Well, I'm just dumb enough to have an idea that the man found murdered up at the Metropolitan Museum might be Glendon." And with that Keen opened the door and went out.

Drury Lang let out a gasp—and sat down hard.

FOR the rest of the afternoon, Keen did a lot of telephoning. He called Barney, gave him orders for the evening, then turned his attention to a drawing board. For three hours he fussed and fumed over a sheet of white paper, fumbling the while with a slide rule, calculating instruments, and some rough sketches he had made.

Then at 6 o'clock he went out, stopped for a bite to eat at the Astor Hotel grill, then quietly sauntered across the street to the safety island in the center of Times Square. There he stood looking up at the news-flashes on the electrical sign board running around the Times Building. The New York Police information booth was only a few feet away.

One news flash caught his eye. It read:

*Man Murdered In Metropolitan Museum Identified as Captain Walter Glendon, Navy Intelligence Man. Secret Service Men Throw Out Dragnet For Foreign Spy Syndicate.*

"But have they ever caught anyone in one of those dragnets?" a voice whispered behind him.

"I wouldn't know," answered Keen. "I never read the papers."

"You're likely to know if your friend Lang ever sees one of those photographs I snapped last night. You were a little careless that time, Keen. You should have worn your mask. My black light camera brought out your features very clearly."

"Okay, what's the gag? You're trying to contact a man named Zorros, eh? Or do I have to contact him?"

"No, you did enough contacting with Glendon in the Museum this morning. And what was the idea of that Griffon card gag, anyway?"

"So now you're worried?"

"Well, it doesn't make any sense."

"Neither does your game of trying to sell a code book that is useless without the key."

"I suppose it does sound foolish. But we all work in our own way, you

know. And now let's go where we can sit down."

They sauntered over to the Astor, went into the bar room, and sat down. Keen ordered the drinks, then they sat studying each other for several moments.

"You've got a fine background, Letchworth," Keen finally said. "What got you into this mess?"

"What got you into yours? You're smart, too, Keen."

"The drabness of ordinary life, maybe the Robin Hood in me."

"We're kindred souls, then. Only I'm Robin Hooding for myself. I need money."

"So you're selling the country out to a gang of international spies. That's not my idea of playing the game," Keen said.

"You've had money and still have plenty, I presume—but I have been struggling along for years on the paltry salary of a professor, giving out my knowledge virtually for nothing. But it's my turn now—my turn to do something for myself."

Keen frowned. "But how did you find out about me?"

"That's a long story. Glendon had the idea first. He heard one of your lectures before the Ordnance Department and figured you would be a good man to contact for some of these jobs. Then he got wind of all this 'Griffon' business. We worked on that together, soon figured you out. As a matter of fact, I followed you all through that Aldis motor business. I was the man who drove the truck."

"You are a member of the University Flying Club," Keen said with a glance at the small badge in Letchworth's lapel. "I have been looking you up, too. You'd make a smart partner—if we could get that warped mind of yours straightened out."

Letchworth bristled. "But why did you look me up?" he almost hissed.

"Lang phoned me and explained about the Navy code book business, so naturally I checked both you and Glendon. I found a photograph of you, spotted that flying club button, and thus got you definitely identified with that yellow monoplane."

LETCWORTH was silent for some time. "You're a strange man, Keen. You pinch everything you can lay your hands on, then salve the police off with a few interesting assists on some of their dumb plays. Yes, I've got to hand it to you. But what did you want that new motor for? I'll confess that you licked me when you grabbed it."

"I wanted it just in case," Keen replied enigmatically. "Just in case you don't come back tonight with my Black Bullet. Yes, I've guessed your

little game. Loss of my Black Bullet would mean I'd need a new plane—to put that engine in."

"But you didn't know about me when you swiped that motor."

"That's right. But I knew I'd have to be getting something faster in a short time. Now what's the rest of your story?"

"Well, you've doped it right. I'm contacting someone tonight—at midnight. And I need your bus, since it's an amphibian. I have a plan to pick you up at a certain spot, say about 10:45. I'll take your ship and go about my business, while you wait on the island with mine. And when I get back, we just switch over again—you go your way, and I go mine. Simple, eh?"

"Simple for you. But what do I get out of it?"

"Just a package of pictures and—the negatives. You can do with them what you wish. It's all on the up-and-up, and no one else knows that Mr. Kerry Keen is the Griffon."

"Well, I grant you've got me cold," Keen said. "All I can do is to say Okay and hope for the best. Now where do we meet?"

"I'm flying a Navy Seversky X-BT. Glendon got that for me. I'll pick you up here," Letchworth said indicating a spot on a small map he now shoved forward. The point he'd chosen was on Nantucket Island's southern shore about two miles east of the road that ran south from the town of Nantucket.

"That's a strip of beach that will be above water after 10 o'clock. You can come in and land from the south, and I'll be high and dry on the sand-strip with my Seversky. You'll come alone—and there'll be no funny business, remember."

Keen studied the map for several seconds, then nodded. "We'd better get moving if you expect me there by 10:45."

They rose from their chairs still scrutinizing each other.

"Don't think too harshly of me," Letchworth said, with bitterness. "I never had the chances you've had."

"You mean, you've never taken the chances I have," corrected Keen.

"I've given my whole life to study. There aren't ten men in the whole world with my knowledge—but what has it brought me? Less than four thousand dollars a year! I've always been a seedy university professor wondering where my next pouch of tobacco is coming from."

"There should be a certain amount of satisfaction in your success, your standing in the university world, and the respect the Navy Intelligence Corps holds for you. Money isn't everything."

Letchworth sneered. "No, money



isn't everything. But it begins to become mighty important at my age. It's pretty important in yours, too, Keen."

"Let's go," the young ballistics expert said. "This time I'll play the game as you have laid down the rules. But when it's marked 'Paid', I'm going to get you—if that code book has gone out of this country. Is that understood?"

"Let's not go into heroics, Keen. We meet at 10:45 at Nantucket." And with that, Letchworth hurried across the sidewalk and leaped into a cab.

Keen frowned, then sought a phone booth. A few moments later he was giving Barney a long string of orders and stating with emphasis that they must be carried out at once. What Barney said in return would have curled the corners of an asbestos curtain.

"Don't be silly," bantered Keen, "you'll have a lovely night."

**R**USHING back to his 55th Street apartment, Keen gathered up whatever things he thought he would need. He also took all the items he had taken from the murdered Glendon, particularly making certain he had the distributor block device, the time-table, and the celluloid callendar.

Then he dashed downstairs again, climbed into his Dusenbergs, and shot out for Long Island. It was well on toward 9 o'clock when he finally crunched up the driveway and put the car away at Graylands.

He dressed carefully, selecting clothing that bore no markings or identification of any kind. Finally he pulled on a new suit of coveralls, a kapok-lined life-jacket, and a brand new parachute. Lastly, he stuffed his scarlet "Griffon" mask into his thigh pocket.

"If I only knew where he was going to contact this guy Zorros," he muttered as he checked the Black Bullet five minutes later. "I might get away with something." But as he climbed in and started the big Avia engine, he realized that Letchworth held all the trump cards. The professor had planned well. Keen could only hope he had made some mistake.

The Avia caught, hummed into a low thunderous boom of power. Keen snapped in the Skoda mufflers, then toned the engine down to a low rhythmic beating that threw eerie vibrations from the black walls of the secret hangar.

Keen now grew morose. "I wonder if I shall ever get back to run a ship out of here again," he said to himself. "We've had some grand times here, Barney and I. It would

be too bad to have a louse like Letchworth break it all up now."

With a last look back at Graylands, Keen let the Black Bullet roll down the padded turf, and into the water. Then the Black Bullet streaked away in comparative silence. Keen had plenty of time, so he let the Black Bullet climb steadily to about 4,000 feet before he opened up the mufflers. Then he continued on for about a quarter of an hour, pondering over the situation as he flew. None of it offered him an opening, because he did not know where the mysterious Zorros was to be contacted.

At 10:15 he turned the Black Bullet north-east and headed for Nantucket. "He'll take my bus," Keen went on to himself. "And maybe he'll come back and maybe he won't. But by that time, it will be too late to save the code, even if I do get those incriminating pictures. Yes, I was certainly a bonehead not to have been wearing my mask when he leveled that camera."

He sat back and reflected that this time the Griffon was in a real spot. He could knock Letchworth off the minute he landed at Nantucket—but that would be dangerous. He could not be certain that the cryptologist had the pictures with him. He might have left them somewhere to be mailed to Drury Lang in case he failed to turn up within a stated time. Letchworth was not the type of man who would take any chances now. There were too many points involved.

By 10:35 he was within sight of the island. Letchworth had indeed selected a God-forsaken point for their contact.

**W**ITH a last careful investigation of the ground below, Keen snapped in his Skoda mufflers and let the Black Bullet glide down to within 500 feet. He inspected the strip of sand which was now high and dry above the water. It lay there like a long brown sea monster of some kind. Smooth and well packed, it provided a reasonable stretch for a landing.

The Black Bullet soon rumbled over the sand. And Keen shut off the engine. How long he sat there, anxious and on tenterhooks, he never knew. The time was spent staring out to sea, wondering where the man known as Zorros hid. He stared down at his small map, reading it by the light of the instrument board. Then suddenly he caught the sound of a powerful motor. Keen sensed that it was the Seversky.

And now Letchworth had landed, letting the plane run well clear of the Black Bullet by pulling her up on



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the wheel brakes about seventy-five yards away. Keen waited, and Letchworth also sat in his cockpit several minutes before he got out.

But finally he came forward with a sub-machine gun under his arm. He was dressed in field boots, riding breeches, and a heavy leather wind-breaker.

"All right, Keen," he said in a domineering tone. "How is she?"

"She's ready. There's plenty of fuel for several hours. I'll show you how to set the landing gear, if you wish."

"You just tell me—and keep your distance, I'm taking no chances on you."

Keen then went into detail explaining the mechanism of the retracting gear. Letchworth listened carefully, nodded.

"And now what about the pictures?" Keen asked.

"I have the pictures here with me," Letchworth said, tapping his jacket pocket. "You'll get them when I get back. All you have to do is sit tight here for about an hour or so. No one will bother you, I'm sure of that."

"What about my taking your ship if I *have* to beat it?"

"You're here until I return, Keen. I've taken care of that. I just emptied the tanks."

"Swell! And how are you going to get off here after you get back?"

"We'll split up what fuel you have left in yours. That's simple enough, isn't it?"

"Okay! Here's hoping."

"Fine! Now you just walk off about twenty or thirty yards—and don't try anything funny, or I shall be tempted to spray a few slugs into you. Understand?"

Keen walked away and watched Letchworth climb up into the Black Bullet. He let his hands drop into his pockets and his fingers came in contact with the time-table, the calendar, and the bakelite distributor block. His fingers were twitching as he fumbled nervously with the paper and strip of celluloid.

He heard the Avia motor catch and saw Letchworth wave to him from under the covered hatch. Then without knowing why he snatched the calendar out of his pocket and ran his fingertips over the glossy surface. He had discovered a number of pin-prick spots marked on the calendar!

The Black Bullet was now taking to the air, but Keen took no notice of her. He rubbed the surface of the calendar again, then hurried down the sand, climbed into the Seversky cockpit, and switched on the dash lights. There he studied the calendar for several seconds, then noticed that by marking down the various num-

bers underlined by the pin-pricks in month-by-month sequences, he had a set of figures that looked suspiciously like a code.

He smiled as he caught the idea of the pin-pricks. They'd been jabbed in the calendar sometimes singly, sometimes in twos, and sometimes in threes. That system, he decided, corresponded with the number of pushes called for in the distributor head holes.

Just then, he heard the chug-chug of a motor boat. He snapped on the landing lights of the Seversky, then went back to his list of figures. Taking out his pencil, he now went to work on the distributor block device and worked out the following:

BLAZERIGHTMIDNIGHTFRIDAYZORROS

Those letters, correctly spaced out, gave him:

"Blaze Rip Light, Midnight Friday—Zorros."

That was it! The contact was to be made at Blaze Rip Light at midnight—tonight!

He leaped out of the cockpit, raced toward the shore line. A glinting hooded motor boat was nosing toward him.

"Barney! Barney!" Keen yelled. "Come on, we've got to move fast."

They lugged out large five gallon cans of fuel from the stern of the boat and hurried up the sands to the Seversky. While Barney unscrewed the tank caps in the wings and set in a funnel, Keen dived underneath and tightened up the dump valve. Then for five minutes they worked like beavers, Barney transporting the cans up the sand spit from the boat while Keen poured the fluid in.

"You're a marvel, Boss," said Barney. "How did you know he'd dump his fuel to hold you?"

"I don't know, really. I tried to figure all the angles and I guess it was a lucky hunch."

"There's the last ten gallons. You got plenty now. When do we leave?"

"We both leave, now — but you leave in the motor boat," said Keen, fumbling with some smooth projectiles he was fitting under the wings.

"You mean I don't go with you?" asked Barney incredulously.

"Exactly. You head straight back for Graylands. I may pick you up somewhere between here and home—and then again, I may not."

**B**ARNEY did not answer. He simply walked down the sand, sloshed through the water, and climbed into the boat. Keen followed him, shoved the boat clear, and waved as the craft backed into the easy rollers.

"I'll be seein' you," he grinned. Then he hurried back to the Seversky

X-BT and started the 775 Wright Cyclone engine. He drew a line on his map running due east from his position on Nantucket Island, then figured the position of Blaze Rip Light. The distance was approximately 110 miles, which gave Letchworth plenty of time to make his midnight contact.

Keen climbed the Seversky fast, turned inland for a short time, then headed out to sea. He wanted height, and he wanted to make certain that his take-off had not been detected.

He needed plenty of time, too; for he had to work out several plans. What did Letchworth expect to contact at Blaze Rip Light? Had his gang taken over the lightship—or was that position simply a general marker for something else?

Once he had reached 6,000 feet, he set his course for Blaze Rip Light. He knew he could soon overtake Letchworth in the Black Bullet if he headed the fast X-BT direct for Blaze Rip. That much would be easy—but the rest would be harder.

"Harder?" he almost yelled. "It'll be impossible!" he snapped to himself, suddenly realizing that he was flying a land plane. What a fool he had been! This scare that Letchworth had handed him had completely disrupted his ability to think clearly. He was licked. Zorros had the code key; Letchworth had the amphibian . . . and the Navy Code book. If he shot Letchworth down now, he could not get the code book. With a land plane, it was impossible to get down and take it; thus all his work, effort, and planning had been for naught.

The Griffon was helpless!

He squirmed in his seat, mentally scourging himself for being trapped like this. He had gloried in his trick of having Barney bring him fuel. He had triumphed in solving the riddle of the distributor block and decoding the pin-pricked message. But he had been just a buffoon in the matter of greatest importance. He had been tricked out of his amphibian and given a land plane which was about as much use to him now as a bank vault door.

He flew on, scanned the skies above and the sea below as though expecting to find an answer written there. The sky was black, the water blacker, and the outlook blacker still.

Then he got an idea. He peered about the cockpit of the Seversky, found its radio set. He did not touch the wave-length lever but switched on the set and clamped the headphones down over his ears. He sat there waiting, listening intently.

As he pondered, he found himself gradually increasing the speed of the Seversky. And now he finally caught the gleam of Blaze Rip Light. But



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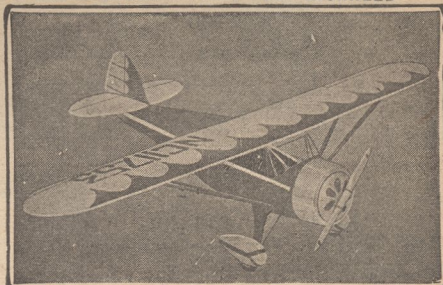
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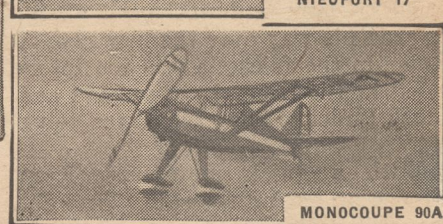
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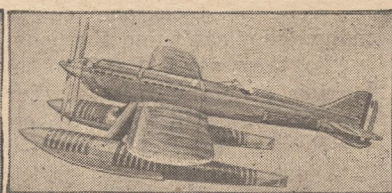
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so far there was no trace of the Black Bullet.

"I've got to take a chance," he muttered grimly. "It's neck or nothing now." He flipped the radio switch over to "Transmitting," then spoke into the mike in a low voice:

"Calling Zorros . . . Letchworth Calling Zorros!"

At first there was no answer. But in a few minutes he called again. This time there was a reply—a cryptic reply.

"Two miles south-east." The phrase was repeated, then silence.

"I hope Letchworth didn't hear me," Keen mumbled. "My one chance is that he'll have so much trouble worrying about the gadgets aboard the Black Bullet that he won't have time to fiddle with the radio."

Keen now changed his course slightly and carried on for a few more minutes. Presently he saw a small vessel apparently at anchor a few miles ahead. It was at the position indicated in the message—two miles south-east of Blaze Rip light.

He worked fast now, for a plan had formulated in his mind. He slipped out of his parachute harness, made certain his automatic was safe, then calmly cut his motor.

From that altitude Keen would be able to approach the ship with ease. He studied the craft as his glide brought him lower and lower. It was a trim steam power yacht with a white bridge, a red and black funnel, and an air of luxury about it. Finally, he shoved back his coupe top, released his belt, then spoke into

the hand mike: "Letchworth coming in. Pick me up, Zorros."

ALMOST instantly a loud explosion echoed above his head. A gun had been unshipped from a position aft of the yacht's funnel. Another streak of light flashed out—and he knew his trick had been nipped in the bud.

BR-R-RONG! CR-RASH!

Through it all he could hear the raging voice of Letchworth coming through over the radio.

Nevertheless, Keen held the X-BT in her glide. And when two more shells burst over his head, he shoved the stick forward a trifle more.

SMA-A-AASH! The Seversky hit the water, then bounced!

Keen quickly rammed the stick for-



ward and gave the rudder a last kick which sent the nose around and covered his next move from view of those on the yacht, which now lay not forty yards away.

The Seversky again hit hard. Then when her tail snapped up, Keen threw himself forward and hit the sea in a perfect dive. He went down deep into the icy water.

He swam under the water for what seemed minutes. Then he cautiously came to the surface sucked in his breath, he went down again, and swam toward the stern of the yacht. This time he stayed below until he thought his lungs would burst.

When he came up again, sailors on the vessel were playing a blinding light on the wreckage of the Seversky. Keen smiled. They had not seen him, and he was now under the cover of the yacht's overhanging stern. And when a couple of men clambered into a dinghy on the port side, Keen made his way around to starboard.

Aboard there was plenty of action. Two seamen were running wildly along the decks, another was booming orders through a megaphone. Keen moved cautiously, made his way to the anchor chain in the bow.

Just when he had recovered his breath, he heard the roar of an aircraft engine. He recognized that roar—it was the Black Bullet bringing Letchworth! With a quick glance upward he clambered up the cold chain, worked his way over the bow rail. A sailor in the fo'castle was too interested in the Seversky wreckage and Black Bullet to know what was going on.

With a quick movement, Keen slipped up behind the sailor, brought his automatic down on the fellow's head. The man dropped like a pole-axed steer. Keen caught him, dragged him to a shelter forward of a winch. There he quickly slipped into the sailor's clothes, then calmly sauntered along the starboard deck.

The Black Bullet now screamed low over the yacht, and Keen slipped through a companionway door and disappeared.

**S**OON the Black Bullet slithered in for a bumpy landing, but Letchworth steadied her in time and finally nosed her around near the wreckage of the Seversky. The man in the dinghy bellowed to him, and he eased over to them so that they could pass a line through a pontoon ring. Carefully they rowed back to the yacht and tied the Black Bullet up on the lee side.

Letchworth was non-plussed as he stared back at the wreckage of the Seversky which was now sinking lower and lower in the water. "What

happened?" he asked as he climbed out.

"We put a couple of shots into him and he—well, he just nosed down into the water. We can't find the guy at all."

"That's funny. That whole cockpit is armored. The engine cowling is armored. I don't believe he was shot down. Did you see him get out?"

"No, the plane hit pretty hard and went straight over on its back. We think he was thrown out unconscious and then drowned."

"I don't trust that guy," said Letchworth as he climbed up the side. "Go back and have another look. And two of you stand by here with this ship."

Once aboard, the professor made his way to a group of men standing near the bridge.

"How did that fool get away like that?" a big brawny man in evening clothes demanded of Letchworth. "I thought we ordered you to take no chances of any sort."

"I left him with my plane—but there was no gas in it. How the hell he got away is more than I can figure. The dump valve must have closed and left enough fuel in one of the center-section tanks for him to chance it. But what I really can't fathom is how he knew enough to come here."

"Well, he took one chance too many. They can't find the body, eh?"

"So they say," Letchworth said, looking over the rail to where the searchlight still played on the wreckage. "But I still don't—"

"Come on in and let's get it over," the big man in evening clothes broke in.

They went along the deck, passed down a dark companionway, and entered a spotless cabin. A table had been cleared, and they drew up their chairs.

"You got it?" the man in evening clothes asked Letchworth.

In reply Letchworth drew out two packages from his windbreaker and slid one across the table. The other he kept in his right hand. The man in evening clothes nodded to a young narrow-faced man at the other end of the table, then he began to untie the cord that bound the package.

The narrow-faced man went to a safe, twisted the knob a few times, and opened the door. He brought out a long black book, fitted with loose-leaf binder clasps. This he carried to his superior who was still busy untying the string on the package Letchworth had brought.

"What happened to Glendon?" asked the latter, suddenly looking up at Letchworth.

"I had to finish him because I was afraid he was going to double cross

me," answered the professor. Then he told of the incident in the Metropolitan Museum of Art.

The man in the evening clothes nodded as he opened the package. "I didn't like the way he was working," he said. "I had to take the key book at his price, and I still think he would have double-crossed the lot of us."

"Well, what about *my* money, Zorros?" Letchworth demanded. "I've taken plenty of chances getting that book."

"Give him his money, Pierre," the man called Zorros said, nodding to the thin-faced man. Thereupon, a package was thrown across the table to Letchworth with a disdainful gesture.

"Yes, this looks all right," said Zorros, taking the Code book and checking it with one of the photographic pages of the key. "You've done a good job, Letchworth. A good—"

But before he could finish the sentence a door opened behind Letchworth. Zorros went white as he stared up and faced a man in a scarlet mask—a man who brandished a blue-black automatic.

"A pretty fair job, Zorros—but it's all over now," said the Griffon. "I'll take those two books—and also your wad of dough, Letchworth."

Letchworth turned, tried to stop the Griffon from taking the two packages. But the Griffon brought his gun down hard on the man's hand, and he drew back.

"Now the code and the key book, Zorros," the Griffon demanded.

"How the devil—?" Letchworth started to say.

Zorros was crouching over the table, his hand shoving the books forward slowly.

"Make it fast. I haven't all night," the Griffon barked.

"He fooled you, too, Zorros," Letchworth started to say.

"Yes, he fooled us, too," hissed Zorros, bending forward to shove the books nearer to Letchworth. "He certainly *did*!"

The Griffon, suspecting a counter attack, suddenly jumped to a position behind Letchworth. Zorros made a quick move, and a gun blazed out from somewhere near his hip.

But the man in the scarlet mask was ready. He pulled his trigger once, a sharp crack sounded, and Letchworth fell forward over the table, blood spurting out of a great gash in the top of his head. Then a second report rent the air, and Zorros jerked up, dropped his gun, and grabbed his massive stomach. And when the thin-faced Pierre made a quick move, the Griffon slammed him back against the wall with a bullet



that drilled his shoulder.

Finally, the masked man snatched up the books and packages, stuffed the lot into his shirt, and backed away.

Zorros was still standing, hunched against the heavy teakwood table, an insane mask of hatred distorting his face. He choked on an oath as he clutched his stomach.

"That's all, Zorros," the Griffon snapped. "You had your run and you've played out your hand. It was great while you were winning, but this time you tackled the wrong outfit. The United States Navy puts up with just so much—and no more!"

That was all Zorros heard. His legs twisted under him like a pair of corkscrews, and he went to the floor in a heap. Then the body of Professor Letchworth gave a last convulsive jerk and rolled off the table.

**T**HERE were still two men alive in that room. The Griffon quickly backed them against the wall. One raised both hands high above his head, the other could raise only his left arm, since his right hung helplessly and bloody at his side.

"I'm leaving here," the Griffon said. "And I'll give you birds twelve hours to get away somewhere and ditch this tub. That's my proposition, and you'll like it."

The two men gave grunts of assent, and the masked man backed out of the door with a final admonition: "If you birds show your heads out of this door before ten minutes are up, I'll blow them off for you."

Now he slipped quietly up the companionway and went out into the shadows of the deck. Then skirting the wall fast, he quietly worked his way up to the section of rail where the two sailors stood at the boarding ladder.

"Zorros must have given that guy, Letchworth the works," one was saying.

The Griffon caught them flat-footed. When he displayed his gun, the two men gasped, raised their hands. One tried to let out a yell, but a short hook to the jaw brought him to his knees, and he only gurgled.

"Fast!" snapped the Griffon. "Over the side, both of you!"

"What's the idea?" the second fellow started to say.

"Over, I said—and dive deep," the Griffon snarled through his mask.

They both climbed up on the rail, whereupon the masked man gave them both a shove. They dropped over with a stomach-slapping splash. The Griffon then grasped the line to the Black Bullet and dropped down onto the port pontoon. He quickly untied the rope in the pontoon ring, then shoving the Black Bullet clear

of the yacht, he clambered up over the wing, dropped into the cockpit, kicked the starter, and rammed the rudder over.

The left wing-tip scraped against the hull of the yacht, but the Griffon finally got her clear and slammed the power to her.

Abruptly, a crackle of gunfire spat from the deck, and he ducked as a burst pounded into the fuselage somewhere behind him. But he got the Black Bullet off and was soon circling tightly over the yacht.

He went down once and gave the deck a terrible hosing of fire that scattered men in all directions. He could see the two seamen in the rowboat working madly to get back to the yacht. With a last salute that spattered sparks off the deck and the funnel, the Griffon zoomed up through a trickle of tracer and headed west.

\* \* \* \*

**I**T was afternoon the next day when Barney wandered into Kerry Keen's bedroom with a comforting tray of piping hot breakfast. He had a doleful expression as Keen climbed slowly from the pillows and blankets.

"Have a nice ride home?" Keen asked, slipping into a bathrobe.

Barney did not answer. Plainly peeved, he simply went about pouring the coffee and dishing out the gridle cakes.

"I couldn't help it, Barney. I didn't know I'd get the old boiler back the way I did," Keen tried to explain. "I had to change my plans at the last minute when I suddenly realized that the Seversky was a land job."

"Ye needn't make any excuses to me," Barney growled. "A foine night that turned out to be. I do a long distance patrol in a motor boat—while you have all the fun. I'm just a galloping gas station attendant now."

"Oh, go and put your head in soak," laughed Keen.

"In what?" came back Barney.

"Well, here's a few bucks I lifted last night. Go buy yourself a couple of cases of O'Doul's Dew and soak your obstinate noggin in that!"

Barney took the package, flipped open the end, and ran his thumb across the crisp edges of a stack of one hundred dollar bills. Slowly his face lit up. He beamed and smacked his lips.

"Why didn't you say so before?" he said. "I'll see you later."

"And don't forget you have a crate to pick up somewhere before the week is out," reminded Keen sinking his aristocratic beak in a steaming cup of coffee.

Barney went off and Keen heard him spinning the knob of a safe in the other room. He smiled, then took another package from his pile of

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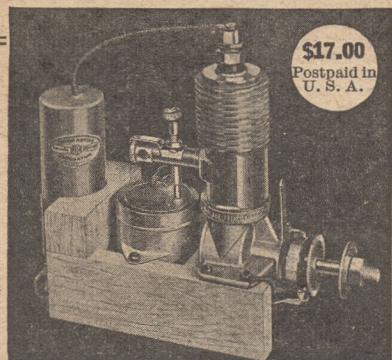
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damp clothing on a chair. He opened it, studied the photographic prints inside, then fingered the fine grain negatives he found in another envelope. Without a second glance at the prints he walked across the room and dropped the lot in the crackling fire Barney had just lighted to warm the room.

THE telephone bell rang. "I'll take it in here," Keen called to Barney, and he picked up the receiver with a bland smile and said: "Hello!"

"Hello, my eye!" the voice of Drury Lang snapped from the other end. "How did you do it this time?"

"Whatever are you talking about?" Keen said in mock surprise.

"You know what I'm talking about. That code book and the photographed pages of the key book. You left them in that table drawer yesterday. You must have had them all the time!"

"I think you're mad, Lang. What are you trying to say?"

"Well, whatever your story is, the story at this end is that we have just found the code and key in the drawer of the table where you were standing when we were looking over those newspapers."

"You think I put them there? How the devil could I?"

"I don't know. I'm just asking. Oh, I know there was a Griffon card in the package. But this time, I don't think the Griffon did it. I think you did it by faking that card."

"I'm telling you Lang. I did not have the code or key yesterday, I did not put anything in your drawer yesterday, and frankly I have no idea what you are talking about!"

"Where were you last night?"

"We took my boat up toward Nan-

tucket—just for a ride. You can check that with Barney. As a matter of fact, we were stuck on a sand bar for some time."

"You're a clever guy, Keen," Lang finally spluttered. "And if your story is Okay, you certainly could not have planted the code last night."

"I certainly didn't plant anything yesterday afternoon. I give you my word of honor. But are you sure you've got what you want?"

"Sure? Why, it's the biggest thing we have pulled off in this division. They had a photographed key, too. We didn't know that."

"All right, then. Everything is swell. What do you care how you got it, as—"

"... As long as we forget about that Aldis engine business, eh, Keen?"

"Oh, I wouldn't worry about that, Lang. As a matter of fact, it's all taken care of."

"What the deuce are you talking about?" stormed Lang.

"Well you see, Lang, I really wanted that engine to put in a motor-boat cruiser. But we were so dumb, we didn't know that the Aldis engine was an inverted Vee job. When we really went into it, we found out that it could not be put into a motor boat, so we had to give up the idea entirely."

"Good Lord! You were dumb," said Lang, "and there was me figuring that you really had some idea of using it for flying. Ha! Ha! What a fine pair of cookoos, you and that Mick guy are!"

"Yeah, just a couple of cookoos," agreed Keen. "Still, I'm glad—"

But Lang had hung up with a derisive chuckle.

## Flight Team Flight!

(Continued from page 16)

Phineas gulped, then guffawed. "Haw-w-w! Now I ain't sorry."

And so, with their morale a bit shot, the Ninth Pursuit took to the ozone and winged toward the Boche backyard where Heinies were chuckling over a shell that would make Gibraltar groggy if it nudged the big rock. In a Boche pow-wow den near Metz, Herr Oberst, Kapitans, and better, decided upon the time and place to test out their new hell lozenge. At the same time, word trickled to them from Intelligence at Wilhelmstrasse that the Limey and Yankee squadrons near Bar-le-Duc were to spend an afternoon carrying and kicking around an inflated piece of pig's epidermis.

"Feetsball, hein? Vunce I see idt der verdamm't Yangkees blay mit idt by Amerika. Der Yales und der

Brincetons was ist. Der Dumkopf's game ist das. Einen blayer he shtardt's runnink und der rest fight mit him, und der whistle blows, und den zomebody giffs idt der wasser wagon by der field und once again al-ready yet they run mit der ball or kick der ball odder t'row der ball away. Ach, sooch ein bizziness! Ho! ho!

"Und now der vord idt gets sent by der Baron von Schnoutz's Staffel, ja? He strafes der verdamm't Yangkee mit der beefeaters while they kick idt der ball. Ach, Gott, das ist der Dumkopf bizziness, hein? Alzo much komical. Now, mein Herrs, in fife minoots der gun fires der shell offer der Meuse. Vhen der Allies see idt der hole und add oop vun t'ousand times, dey ask idt der Kaiser shouldt sendt der agent mit der demands he



hass und ve all go home. Ach, ve Chermans!" His chest swelled with pride of his race.

THE Ninth Pursuit pigskin outfit almost lost a halfback on their early sky tiff. A Boche observation post buzzed a Heinie outfit when Garrity's flies were spotted against the ceiling. A circus of Potsdam aerial marvels dusted off their Albs and pushed them upstairs to hit a certain sky shelf at approximately the same time as Captain Howell, Lieutenant Pinkham, *et al*, were perched upon it.

A fight had to ensue, and it was a whale of a battle while it lasted. Phineas Pinkham tried an end sweep when he saw that the Heinie roving center was too much for him, and he rocketed down the sidelines, his Spad zigzagging like a snake-hipped broken field runner. He reversed his field and was stopped cold by Boche blockers over the Meuse. Time was out for Lieutenant Pinkham. His Spad limped off the sky grid, ready for the showers, but no cheers came from anywhere.

"That's all for today," the corn-belt pilot finally gulped, wondering how long his Hisso would hold together. "It looks like Garrity will have to do all the ball carryin' against the Limeys, as Howell wasn't doin' so good when I saw him last."

The Pinkham Spad then went into a fit over Allied trenches close to the Meuse and the Boonetown pilot almost melted in his seat when he heard the terrific screech that nearly split his eardrums. It sounded as if every demon out of Satan's stable were riding his tail. Then he saw it heading for a spot on the carpet below.

BLA-A-A-AM!! BR-R-R-RO-O-O-OM!!

The addled Yank had seen Kraut ordnance break up before. He had once seen a "Jack Johnson" wipe out a Frog supply dump with a single wallop—but compared to this baby which had just torn a chunk out of *la belle France*, that "J. J." had only been a peanut shell. Sweat globules as big as hail rattled down into the Spad's pit as Phineas fought his crate down to terra firma.

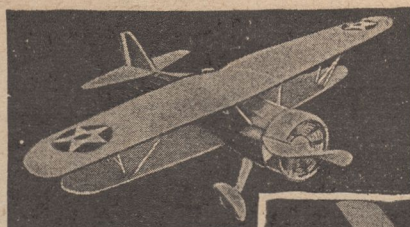
Yankee doughs took one look and howled: "Here comes a Spad, too. It must've got knocked cock-eyed by that shell's slipstream. What else will they toss at us? Lo-o-o-ok o-o-out!"

Cr-rash! Ker-splat!

Phineas arrived in a tangle of barbed-wire, a shower of mud, and a rapidly disintegrating Spad. The whole works slid into a trench, and it took doughs an hour to get things untangled.

Lieutenant Pinkham opened his

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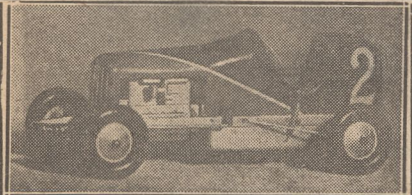
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a Y.M.C.A. hut?"

Chaumont got bad news and a dozen worry trenches appeared on the brows of the brainy brass hats. One took pencil and paper and began to figure out the cost of such a shell as the Heinie had tossed, and he gleefully announced that the taxpayers across the Rhine could not possibly give backing to more than two hundred such loads of hell whoopee.

"Smart boy," snorted a brigadier. "If two hundred of those shells busted up around the lines, there wouldn't be anythin' left of the A.E.F. but their dogtags. The U.S. Treasury will go bankrupt payin' insurance an'—oh-h-h-h, think of something bright for a change!"

"The airplanes have got to spot that supply, somehow. Bomb every ammo dump across the lines," declared another worried war lord. "We've got to stop 'em from droppin' any more of those shells. That was only a test to see if the gun would stand it and—well, don't just stand there! Think of something."

"I'm thinking of a nice rock garden in Ashtabula, Ohio," one promptly announced. "I bet I never see those Sweet Williams reach their full growth. Of course, I could resign—"

**T**HE Ninth Pursuit had crossed Phineas off the roster by dawn. A sub halfback was being groomed for his position—Glad Tidings Groomer. The mess attendant proved a drawback. It took him three steps to get both big dogs off the ground. Glad Tidings could run the century in two minutes flat but his bellows were such that he generally finished that way. Garrity stormed around the Operations Shack heaping insults on the head of the absent Boonetown Spad pusher.

"Yeah, he would get killed at a time like this. He'd do it to spite us, the flap-eared baboon. I know him! He's got that football hid somewheres so we couldn't steal it and—"

"Bawn matting, bums!" chortled a familiar voice outside the door. "Boonetown's all-American football team is back again. I been lookin' at how the other half of the A.E.F. lives. I had to leave the Spad, as I couldn't get to a 'phone to call a garage for a wrecker. Well, it's too bad for the Limeys now, huh?"

The Old Man was about-to insult Phineas as usual when the telephone bell rang. He grabbed at it, listened for awhile, his ears wiggling and his jaw hardening until it could have withstood the punch of a pile driver.

"The shell hit, huh? Made a big hole, huh? Well, what's the Air Force supposed to do—fill it up? Sure we're tryin' to locate the source of supply. Did you think we just came over

here to help the Frogs stamp juice out of grapes to make *vin blanc*? What? I'm impertinent, am I? Y-You will? Ha! Ha! I'm laughing, sir. If you've got a brother-in-law who wants this job—"

The Wing hung up on Garrity. The Major slammed down the receiver and then sat down to work out a trick off-tackle sneak that he wanted to spring on the Limeys.

"That shell, huh?" Phineas Pinkham began. "Boys, it kissed me on the way over. It hit just ahead of me an' it was no peach pit, haw-w-w-w! I wish we had inventors on our side."

**A**ND then the day of the big game arrived with Chaumont half scared to death and all the Intelligence officers of the Allied cause and all the crews of observation crates trying to get a gander at the Kraut shell supply. The Ninth Pursuit squad went to the Limey drome near Marlincourt in a camion and Major Garrity left five Spad pushers back at the drome on the *alerte* just in case a couple of Boche should sneak over the lines.

Phineas Pinkham was a sight for sore eyes. He had on a flying helmet reinforced by heavy strips of leather. His football pants were contrived out of an old pair of dungarees padded with the insides of fleece-lined flying boots. On the front of his sleeveless knitted sweater he had stitched a flaming red "P," and his shoes, cleated with bits of leather, had been flying boots at one time. They had been cut down to the laces at the insteps. As for stockings, Phineas had slyly appropriated a pair of female-silk hose from Babette. These he had daubed up with painted white stripes.

On the way over, the football marvel from Boonetown, Iowa, whispered to his hutmate, Bump Gillis: "Did you git what I told ya to, Bump? It was wrapped up in a newspaper—that old flatiron, ya know. Boys, we'll have fun when a Limey kicks off. Just leave it in the buggy here until I git time to sneak over after it. I'll leave the laces in the football loose. Haw-w-w-w!"

**T**HE Britishers looked like a formidable aggregation when play got under way. A leading Limey ace, Captain Hardleigh-Bryte, was in at fullback. He weighed two hundred pounds.

Major Rufus Garrity won the toss and said that he would kick off. "I'm for it," Phineas chirped. "I been waitin' for ya to do that ever since—"

"Righto! Let's get on with it," broke in the Limey C. O. who was playing center for the Lions. "Pip!



Pip! On your jolly toes, ol' chappies."

Groundhogs and noncombatants sent up a deafening cry when Garrity kicked the football down the field. Not three hundred yards away was the Limey tarmac with four Bristols waiting on the line—just in case. The Limey quarterback missed the ball and chased it far back of his goalposts. Phineas Pinkham chased him into an adjoining Frog sheep pasture and finally dumped him into a brook.

"I say, ol' boy, a bit rough, what?"

"It's not a quiltin' bee we're havin'," Phineas sniffed. "And you're only supposed to use *one* field to play in. We will have to get a taxi back to the twenty-yard line, ha. w-w-w!"

After a conference, the Ninth let the Limeys put the ball on their goal line for first down. Hardleigh-Bryte took the pigskin and tried to run the Ninth's end. Rufus Garrity nailed him at the line of scrimmage and the other ten Yanks piled on top of them. When the heap was untangled, first aid had to be given both ball carrier and tackler.

"You fatheads!" Garrity howled. "Whose side are you on? Pinkham, I saw you jump on me with both feet. I'll knock—"

"Stop him!" yipped Phineas. "A Limey is runnin' with the ball. Oh, the crackpot! He's over for a touchdown. It wasn't fair. Time was out an'—"

"Bit of a poor sport, eh what?" a Limey Bristol flyer remarked. "I jolly well heard no blarsted time-out signal. Six to nothing, ol' chappies. Pip! Pip! American game, eh what? Rippin' an' all that, Haw! Haw! Haw!"

"Awright," clipped Phineas, "jus' kick off to us now, you weak-chinned spot of tea. Jus' kick off to us!"

The Limeys then proceeded to do just that, and Major Rufus Garrity, his dander up, took the ball and went through the Limeys like water through a sieve. Phineas and Bump each scored four touchdowns before the half was over. The Major added three and the Limey footballers were staggering around in circles with their tongues dragging on the tarmac.

"Seventy to six," yipped Lieutenant Pinkham. "Haw-w-w-w!"

The Limeys came back after a rest and limped over to where the ball was resting in the middle of the field.

"Are you ready, ol' chaps?" Hardleigh-Bryte tossed out to his battered eleven.

"Ready, blarst it!" hollered a Limey quarter. "I fancy we have to carry on. I know jolly well I have lost a kidney."

"Pip! Pip!" yipped a Limey ace

and he took a healthy kick at the scuffed pigskin.

"OW-W-W-W-W-W! YE-E-O-OW-W-W-W!"

Captain Hardleigh-Bryte sat down, picked up his singing right foot. "Haw-w-w-w-w!" guffawed the scion of the Pinkhams.

And just then a flock of Mercedes power plants drowned out the cheering sections!

"Boche!" yipped Garrity. "Run for the crates! Oh-h-h-h, I bet they're over at Barley Duck, too—run!"

"Yeah," Phineas yipped, "Flight, team, Flight! Haw-w!"

Phineas Pinkham instinctively picked up the pigskin and legged it toward the Bristol tarmac. Machine guns began to spit and sputter. Bristols were already rolling across the field. An Archie battery began to spray the oncoming Krauts with a shower of white pompoms saturated with chunks of old iron. Phineas followed a Limey pilot to a Bristol and hopped into the observer's pit. He suddenly saw that he still had the weighted football and dropped it into the bottom of the Bristol's business office.

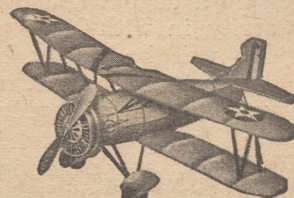
The Limey pilot now looked around, yelling for his observer, as ackemmas ripped the chocks away from the wheels.

"Ya got an observer, ya fathead!" his Yankee companion ripped out. "Hurry up, Limey, or do you want to git some tea before— Hey, hurry up! Those Heinies—oh-h-h, you cheerio bum, will you goose that Bristol or do I—? Well, it's about time. We'll get one of them bums, Alfie ol'

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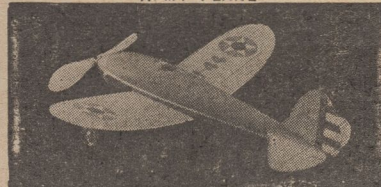
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thing. Just git Phineas upstairs!"

The Bristols were in a spot. The Krauts had the jump on them as completely as a rabbit has the jump on a rheumatic turtle. Spandaus played merry hell with the two-seaters of Johnny Bull as they crawled upstairs. On the ground, the Limey C. O. was crawling into a dugout and pulling Rufus Garrity in with him.

"I'll jolly well have that buck-toothed lefenant of yours put under arrest, Garrity," Major Cheddersby threatened the Yankee squadron commander. "He put somethin' in that ball and grounded my best ace! The King will jolly well hear of this!" he grunted, as he wriggled into the shelter.

"Oh, shut up!" Garrity exploded. "Half the Heinie air force is overhead peltin' hell out of us—an' you talk football. But we showed you beefeaters who invented that game, all right, all right. See that forty-yard run I made, ol' windsock?"

FIVE MINUTES later the prop chant died to a whisper. The C. O.'s crawled out of the dugout and took an inventory of the Bristol tarmac. It was filled with as many holes as a hobo's shirt and the wings of two Bristol fighters looked like so many practically punched-out meal tickets. An ambulance, looking for casualties, was weaving around like a drunk going through a dark neighborhood.

"Well, we beat you birds," chuckled Garrity. "Ha! Ha! But I'll bet you three pounds we'll get our pants dusted for this."

"Raw-w-ther! Bit of a mess, eh what? The blinkin' Boche kicked us for a lot of goals, too. What, ol' tomato?"

Now twelve miles from the scene of the epic pigskin battle Phineas Pinkham was fighting like a cornered leopard, trying to hold off three Heinie Fokkers while the Bristol pilot strove to keep the crate up with

only part of an empennage. When three other Boche sky buggies moved in and began to warm up, the Limey said to hell with it and signalled for a fair catch. The Bristol hit on the bias near a hamlet fairly crawling with Teuton brass hats and a good-sized chunk of replacements for von Hindenburg's forward wall.

"Well, we're tackled behind the line of scrimmage," observed Phineas philosophically, climbing out of the pit. "Wee gates, you Boche bums!"

"Ho! Ho!" chuckled an Herr Oberst, "a footballer, ja? Herr Leutnant Pingham, ach Himmel! Das ist der pat by der back vhat giffs us yedt from der Kaiser. Coom oudt—und mach schnell! You I mean idt, Beefeater!"

"Keep your bally shirts on, you filthy swine," the Limey snapped promptly, getting a bat in the ear for his tone of voice.

The Krauts were hustling the captives away when Phineas Pinkham balked. "I got to get me the football, as it has to go to the trophy room at Chaumont," the Boonetown trickster said. "Haw-w-w-w, when that Limey kicked off the last time—what a panic, huh?"

The Boche, gleefully triumphant, allowed Leutnant Pinkham to take his football with him to the emergency hoosegow near Boche headquarters. It was a senile stable reminiscent of the rather recent tenancy of cows and pigs. The Boche tossed the captives inside and barred the door. Just as Phineas and the Limey settled down to contemplate their stalemate position in the scheme of things, the rumble of heavy trucks began to make the territory quake.

"Blarst it!" wailed the Limey pilot. "A jolly ol' kettle of fish an' chips, eh what, Pinkham?"

"Oh, I been in places like this before," said the Boonetown pilot airily. "It's one thing to catch an eel an' another to hold it." Absently he unfastened the laces of the football and plunged a big hand inside. Out came the ballast he and Bump Gillis had buried in its depths. The Bristol jockey jumped a foot when the Yank let out a scared yip. He saw that the miracle man had a hand grenade in his fist. Its wrappings—an old piece of yellowed newspaper—were settling to the floor at Phineas' makeshift gridiron puppies.

"Uh—er—I'll kill Bump Gillis for this. It's that grenade I took from a Yankee dugout. He picked up the wrong—it was a flatiron I had wrapped up in the other. An' your big ace kicked this—ohh-h-h-h, I am sick! Have you an aspirin, ol' bean, ol' halibut?"

"It is attempted murder, Leftenant

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Pinkham!" the Limey said severely. "I will report it to Brigade. The red tabs will hear of this. I'll blarsted well—"

"Just go out an' send them a telegram," the intrepid Yank snorted, wiping the dew of fright from his freckled pan. "The Boche will take you to a Western Union office an—oh, shut up, Alfie. It is a mistake as—er—now is it? Look out that window, *Beefeater*, an' what is it you see? A dozen trucks with commissary signs on the sides—right over by them railroad tracks. Haw-w-w-w!"

"I jolly well do not see anything to laugh at, Leftenant."

"Limeys are dumb," Phineas sighed. "Look at the big Heinie boiler over there. It's our out, ol' cabbage! The Krauts are cheats, as they are no more chow wagons than I am a shiek of Arabia. It is something they are carryin' that they have got to camouflage and it may be—say, you saw me toss a forward pass in the second period, didn' ya? Well, I will lay this right in the back of that truck there from here an' see what happens."

Aw-w-w-wk!" gulped the British-er. "Leftenant, you are balmy. It'll blow us—"

Phineas took aim, pulled the pin out of the grenade with his enormous teeth, counted three, then flung it into the open maw of a big Boche truck. Then he yelled: "Duck!" and dragged his fellow prisoner to the floor with him.

BOO-O-ONG! KER—WHA-A-A-AM! SCRE-E-E-E WHA-A-A-A-AM!

Pieces of a Heinie truck went sky high. Another one in the line did an adagio dance and followed the first toward the ceiling. High explosive shells that bade fair to beggar Kraut taxpayers went up in a mighty detonation of fire and smoke.

Phineas Pinkham felt the stable spin off its moorings and ventured to look up once to see the roof sail away like Sinbad's rug. Heinie coal scuttles rolled over the terra firma and the Yank saw a Boche flying through the air with the greatest of ease. A *Herr Oberst* sailed into what was left of the stable and lapsed into a coma on top of the prisoners.

BOO-O-O-OM! KERWHA-A-A-AM! BLOO-O-OEY!

Phineas thought it would never stop. His fan-like ears were collecting dried mud like a steam shovel. Finally the last truck split wide open like an over-inflated balloon and six high explosive shells arched out over the Boche landscape.

WHA-A-AM! BLAMITY BLA-A-A-AM! BO-O-O-O-O-O-M.

"Fawney!" breathed the pop-eyed Limey as he wiggled a foot.

"As for them bein' commissary wagons, I would say it was a hell of a mess," muttered Phineas, heaving the *Herr Oberst* off his angel bones. "And now I am gittin' into this Heinie's hat an' coat an' boots while the other Hair Obusts are pickin' up their marbles, if any. We have got to find a Kraut boiler that still runs. Hurry up an' help me skin this beer-guzzler down to his panties. Don't just sit there!" He coughed as burning cordite fumes together with other terrible smells began to creep into his air hose.

BY now, those Boche who still had a brain left had forgotten all about the Yank and Limey prisoners. Those who could navigate were getting as far from the place as they could while their bellows were in working order.

"We sure tagged them shells, huh?" grinned the Yank. "Here, help me git his boots off, Alfie. Uh—er—look, Krauts are comin'. Git a rock—find a gun—never mind, haw-w-w! Look at their glimmers. They're gazin' into the next world. What a panic!"

The Heinies stumbled on through the ruins of the stable like a regiment of Draculas looking for an anemia cure. Phineas, now dressed in an *Herr Oberst's* regalia, picked up a Luger and prodded it into the Bristol pilot's ribs. "*Mach Schnell! Raus mit, verdammt schwein.*" I will march you right to a Kraut jolopi. Comprenny, Leftenant?"

"Ah—er—haw! Jolly well do, ol' chap!" said the Limey, picking a splinter out of his seat. "Carry on an' God Save the King!"

"An' how about Uncle Sam, huh?" growled the Yank. "That's like you Limeys. *En avant, mon ami*, as it is too sweet we will have to *allez* out of *ici*. Haw-w-w-w! We will go right through the lines an' make a touchdown. Rah! Rah! Quite a game, football, huh? Ah—er—wait! There's an Hair Obust comin' an he don't look gaga. Er—*Excellenz, der brizoner Ich haben yedt*," Phineas said and saluted. "*Ach du lieber, sooch ein mess, ya?*"

"Ja, *Herr Oberst. Donnervetter! Und das Pingham?*"

"Kaput!" replied Phineas, prodding the Luger into the Limey's ribs. "*Raus mit! Vowart marsh Schwein!*"

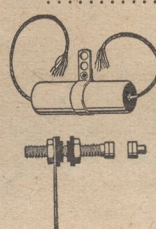
The resourceful Yank now came to a Heinie limousine with a big black eagle painted on the door. All around the shellacked area Boche were either brushing cobwebs out of their brain cells or were wrapped in slumber either permanent or temporary. One suddenly set up a terrific howl. "Pingham!" he roared. "See, here

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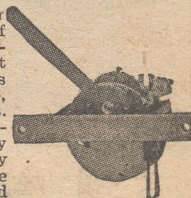
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1/16x3/16 35 for 5c	Silver ea. 5c	PAUL-O-WINA
1/16x1/2 15 for 5c	Superfine, wh. 5c	5 in. 10c add 5c
1/16x1/2 5 for 5c	WHEELS per pr.	per in. up to 10
3/32x3/32 30 5c	Breh Blsa Celu	in.
1/8x1/8 30 for 5c	1/2 .01 .03 .05	Machine Props
1/8x3/16 12 for 5c	3/4 .02 .04 .05	5" .....4c
1/8x1/4 10 for 5c	1 .03 .05 .07	(Add 1c per
3/16x3/16 8 5c	1 1/2 .04 .08 .10	inch up to 16")
1/4x1/4 6 for 5c	1 3/4 .07 .10 .16	THRUST
1/4x1/2 3 for 5c	1 1/2 .15 .30	BEARINGS 1c
1/2x1/2 2 for 5c	1 1/2 Balsa Planks	BUSHINGS
18" Balsa Sheets	1x1 .....1 for 4c	Doz. ....3c
1/32x2 .....5 for 5c	2x2 .....1 for 15c	ALUMINUM
1/16x2 .....5 for 5c	3x3 .....1 for 25c	WHEELS
3/32x2 .....4 for 5c	2x6 .....1 for 35c	1" pr. ....6c
1/2x2 .....4 for 5c	PROPELLER	1 1/2" pr. ....11c
3/16x2 .....2 for 5c	BLOCKS	1 3/4" pr. ....14c
1/2x2 .....2 for 5c	1/2x 3/4 x 5 8-5c	NOSE PLUGS,
1/2x2 .....1 for 5c	1/2x 3/4 x 6 6-5c	large .10c doz.
3" sheets or 36"	1/2x 3/4 x 8 3-5c	small .5c doz.
lengths, double	3/4x1 x 8 3-5c	CEMENT
above prices; add	3/4x1 1/2 x 10 2-5c	1 oz. ....5c
10c packing	1 1/2x1 1/2 x 12 3c ea.	1/2 pt. ....25c
charge for 36"	1 1/2x1 1/2 x 12 6c ea.	Model Pins
lengths.	DOPE Clear	Brushes No. 6 5c
NOSE BLOCKS	1 oz. 5c 1/2 pt. 25c	INSIGNIAS
1x2x1 .....1c	2 oz. ....10c	French, American,
2x2x1 .....2c	Colored	English, German
2x2 1/2x1 .....3c	1 oz. 5c 1/2 pt. 30c	1 1/2" .....4 for 3c
3x3x1 .....5c	2 oz. ....10c	2" .....1c
3x3x2 .....8c	1 1/2" BAMBOO	1 sheet of 24, 5c
3x3x3 .....10c	1/16x1/4 6 for 5c	Dummy Radial
Alum. Tubing	Shredded 40-5c	Engines
1/16", 3/16",	ALUM. LEAF,	1 1/2" Diam. ....14c
1/4" .....10c ft.	2 sheets for 1c	3" Diam. ....18c
Rubber Motors	6 ft WIRE	3 1/2" Diam. ....25c
1/16 sq. 20 ft. 5c	THINNER	Sheet Celluloid
1/8 flat 20 ft. 5c	Best, 1 oz. 5c	2x6 .2c 6x8 .4c
Sheet Aluminum	REED	12x16 .....15c
.003 sq. ft. 10c	1/32, 1/16"	Wood Veneer
.003 sq. ft. 10c	3 ft. 1c	20x30" .....1 for 9c
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—eferbody ha-a-a-alp! Das Ping-  
ham!"

"Git in there," said Phineas, "we can't wait for no tea to boil, Limey. If it don't start, we will be remembered every Memorial Day back home, haw-w-w-w! Pip! Pip! an' all that, what ol' radish?" The Boonetown trickster, covered with goose pimples and his heart battering his teeth, stepped on the starter. Whir-r-r! The spark caught the gas and valves and pistons sang a sweet aria. "Adoo—I hope!" Phineas flung out to the Boche who were legging it across the disheveled yard. The Heinie buggy leaped away, hitting on all eight cylinders, and washed out three of the Kaiser's easy marks who were staggering along the road dotting I's in the ozone before their eyes. Straight ahead toward the Hindenburg Line sped the fugitives with Krupp slugs hitting the ground just an inch or so behind the hot Teuton tire treads.

"Are you ther-r-r-aw-w-w?" Phineas tossed at his companion. "Haw-w-w-w! We'll go through the right side of the line if we don't get any interference, huh? I hope the Kraut tackle has got paralysis. As for the Prussian guard, haw-w-w-w! Hang on, Alfie, as it is no cricket match we are playin'!"

IN Chaumont an hour after a Span-  
dau gun had ended the football  
match, the brass hats were boiling  
like a vat of soap fat. In Brigade,  
British red tabs were hovering on  
the verge of apoplexy.

"Gad!" raved a Brigadier. "Football! The Bristol squadron plays football while the blarsted Boche put on a raid—and our best ace laid up! I jolly well cawn't believe it. Strike me bloomin' pink! Cheddersby will find himself in mufti, Mr. Whistlebrooke! Playin' football! A bit of all right, I don't think, what ol' thing?"

Meanwhile, Major Rufus Garrity walked the floor of the Operations Shack back at the Ninth chewing the ends of his mustache and rubbing a sore spot on his undercarriage where Hardleigh-Bryte had viciously tackled him. The Adjutant, the C. O., and six brass hats from the Wing were grouped about gnawing at their knuckles. Lieutenant Gillis and Captain Howell were in their huts getting things in order in case they had to pack their trunks in a hurry.

"Well, Carbuncle took the best way out," Captain Howell remarked. "He got into a Bristol with the football under his arm. I bet he's down some place on the Heinie goal line, don't you? It was his idea, the crackpot! Kept tormenting the Limeys until they challenged us to a game. Well,

I—what was that? Did you feel the floor shake? Listen to that rumble of guns an'—there's a big push on! The Heinies have started tossin' those shells!"

Everybody on the airdrome of the Ninth ran out into the open. Garrity and the brass hats froze on the tarmac and looked at one another.

"Hold that line!" the Major muttered. "Hold that li—er—ha! ha! It looks like a Heinie offense, eh? Got the ball and are hitting outside—er—I mean it looks like a big push, eh, gentlemen?"

"We heard you, Major," sniffed a brigadier. "We didn't think it was a strike at the Krupp Works. Football on the brain, have you? Well, you'll get a chance to alibi to the head coach—er—I mean Pershing. You mention football again and I'll—"

Suddenly the to-do of noise abated. Brass hats opened their eyes wide and let their jaws sag.

"Stopped 'em cold," yipped Garrity. "They can't gain an inch against—er—they're held up somewhere. Ha! Ha! Well, let's go in and have a drink until the next half opens—er—until we get the score—er—blast it! I'll kill that Pinkham when—"

"The Boche have saved you the trouble, I imagine, Major," a brass hat tossed out. "One less flyer we have to bust. All right, you said drink. Where is it? I'll get boiled to the ears."

THREE HOURS later the big  
news hits the Allied brain centers. A Kraut limousine, spattered with enough Boche lead to sink a mud scow, was captured near Fleury by Yankee doughs and there was an Herr Oberst in it that turned out to be Lieutenant Phineas Pinkham. The other passenger was a Limey Bristol pilot who had to be slapped back to sanity in a base hospital. Pinkham, the report had it, was still in the pink. The Boonetown pilot gave out the word that after a single wingback play he had tossed a pass that had wrecked the Hindenburg six-three-two defense. He had blown up every new high explosive shell between Potsdam and the Meuse. He now was asking for a rest—wanted Major Garrity, the coach of the Ninth Pursuit, to send in a substitute.

"Now what do you think he blew that ammo up with, huh?" Bump Gillis wondered. "All he had was a football with him. He tossed it—er—I just thought of somethin'. Ow-w-w!" The Scot ran to the Pinkham hut, grabbed up something wrapped in newspaper and saw that it was a rusty old flatiron. Bump thereupon passed out. Ten minutes later he came to after being soused with a pail of water.



"I got the wrong thing to load that football with," he gasped. "I bet I know what that Limey kicked his foot against. If that thing had—er—aw-w-w-wk!"

"He's out ag'in," Howell roared. "Get a medico!"

**MAJOR RUFUS GARRITY** and the members of the Ninth waited until the wee small hours for the return of their halfback who had made one of the longest runs with a football in pigskin history. When dawn was beginning to crack, a Yankee limousine rolled onto the drome. Ackemmas, pilots, grease monkeys, and brass hats tumbled out to send up a cheer for the returning hero. Over near "A" Flight's hangar, Casey was leading a cheering section: "Crashity crack, crashity crack! Wash 'em down with coneyac! Biffity biff—!"

Phineas, wearing a Kraut's long coat, stepped out of the U. S. jaepi and strode into the Frog farmhouse. "Hello, bums!" he grinned. "I have washed up the Heinie triple threat and they'll not make no passes at us with them Krupp pigskins. That Limey run interference for me an' I went through 'em like I used to against Boonetown's deadly rival, Waterloo Seminary. Do I git my letter? Haw-w-w-w! Hello, Bump, you blind bum! Er—I'll talk to you later,

you crackpot. It was a grenade I had in the football, haw-w-w-w!"

"Football, huh?" gulped Garrity. "What'll those wise Alecks at Chaumont say now? Nice work, Lieutenant. Ha! Ha! What has the Hindenburg line got now, eh? The Yankee forward wall ought to wash 'em out when the big game comes around. Ever play football, sir?" the C. O. yipped at the brigadier.

"Me? Listen, Rufus, they called me Typhoon Twombly at Rutgers. One day we were playin' Michigan an—"

"Huh!" Garrity cut in. "I remember you now. You took off your nose-guard and hopped me over the dome with it when I tried to tackle you. I always swore I'd get hunk, you big piece of cheese!" And there came a resounding BOP! as the Major let one go.

"Well, they always said they would die for dear ol' Rutgers," chortled Phineas. "Le's see if they mean it. Boys, what a day!"

From outside came the cheers of "Crashity-crack! Crashity-crack! Sergeant Casey's rooters:

*Knock 'em down,  
Mow 'em down,*

*Wash 'em down with Coneyac!  
Sink 'em, sink 'em—with Phineas  
Pinkham!*

*Raw—raw-w-w-w-w!  
Raw-w-w-w-w!"*

## Happy Landings

(Continued from page 32)

sance ship, the Avro Anson, is only a converted Avro 652 six-passenger monoplane.

Bristol also puts out a transport—the Bristol 130—which even has a gun-pit in the rear of the fuselage aft of the elevators and rudders. So what do they mean, "transport?" What's more, the Bristol 143 high-performance commercial monoplane is undoubtedly the prototype of the much-lauded Bristol Blenheim bomber. Finally, the British have even turned the D. H. Dragon airliner into a general-purpose military biplane

and several of the smaller European nations have already purchased a number of them.

We could go on for hours adding evidence to the contention that all commercial planes, no matter what their size or speed, must be considered potential military planes. So when they tell you that the Republic of Bungovia has a new single-seater that does 350 and carries eight pom-poms, don't let it worry you. Just show your informant the daily schedule of the American air lines—and the types of ships they fly.

## Shereshaw's "Pioneer"

(Continued from page 47)

shown on the drawings, and cut  $\frac{1}{8}$ " by  $\frac{3}{16}$ " notches accordingly. This will cause the stringer to protrude  $\frac{1}{16}$ " above the surface of the bulkheads. Cut the notches on the basic bulkheads only, then cement the bulkheads in place. From the basic bulkhead position run some chalked string along the unmarked bulkheads, thus locating the stringers on other bulkheads.

Before affixing the stringers, the center-section struts and V-strut fittings (eyelets) must be attached. The center-section struts (Plate 1 and 2) should be made of extremely hard balsa, shaped and notched as shown in our isometric sketch. The streamlining of the struts should begin above the level of the bulkheads. After they are notched and streamlined, the struts are slid into place over the

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internal bulkheads. Check their alignment, and then cement them permanently in place.

Note carefully how the struts dovetail against the longerons. After the dovetailing process, a small binding of silk is applied. The V-brace can then be secured into place. The cross-section of the V-brace is elliptical.

Using the upper longeron as a guide, trim the top of the struts to form the necessary angle of incidence in the center-section. Then notch the struts to accommodate the center-section spars.

The stringers can then be inserted and the hatch cut in the top of the fuselage for the ignition unit and batteries. The ignition unit should be located three bays from the nose. To increase the strength around the nose, fill the fuselage between the stringers and bulkheads with 3/32" very soft sheet balsa. This should be continued back to the neighborhood of the leading edge. The rectangular

fill-in pieces should protrude slightly above the surface of the bulkheads and stringers, and then be sanded flush.

#### CENTER-SECTION

**S**CALE the center-section drawings (Plate 4) up to full size in the same manner as the fuselage. You will note that the two end ribs are laminated of two pieces of 3/32" hard sheet balsa. The other ribs are traced from the full sized layout of the Clark Y airfoil (Plate 3) and are cut and notched ready for assembly. In assembling the center-section, the lower spars should be laid in their proper places and the ribs cemented at right angles to the spars. The two butt ribs are cemented in place at 53° from the horizontal, thus allowing 8° for dihedral. Insert the upper spars in their respective places on the ribs and apply several coats of cement.

Where the aluminum tubing

(Plate 1) is fastened in the center-section for wing joining, the bays between the ribs are filled in with balsa blocks to afford a sound glue joint for the aluminum members. Be sure that the aluminum tubes have their proper angles throughout.

Our next step is to box the center-section spars with 1/16" sheet balsa, the grain running parallel to the spar. Next, the center-section is mounted on the center-section struts and bound and cemented in place. Be sure to check the proper rigging and alignment of the center-section.

Cement the leading and trailing edges in place and apply 1/16" sheet balsa over both the top and bottom of center-section at the leading edge.

The tail airfoil as illustrated (Plate 3) is used on both the horizontal tail and rudder (Plate 2). The airfoil shown is only the basic section at the maximum chord of the horizontal tail.

In scaling the sections down, keep in mind the idea that their depth must be proportionate to their chord. That is, if the fineness ratio of a given section is ten to one, then regardless of the actual dimension of the chord at the root or tip the fineness ratio still remains ten to one.

Assemble the tail sections on the same general order as the center-section. Be sure that the tail has neither positive nor negative incidence when attached permanently to the fuselage.

#### WING

**O**UR first step in the construction of *The Pioneer's* wing is to scale the panels (Plate 3) up to full size. A flat work board should be selected, and the full size plans tacked to it. The next step is to cut a metal template of 1/32" sheet brass for the Clark Y rib (Plate 3).

The tip ribs are drawn to their proper proportions by drawing rectangular layouts to their respective chord dimensions. Each tip rib should have its own separate layout as shown for the full size rib section. You will note that the full size rib is divided along its chord into sixteen component parts, and the depth is divided into twelve divisions. The distance between the chord and depth divisions is governed by the chordal dimensions of each tip rib.

After the tip ribs have been made and all of the ribs notched for spar insertions, the panels can be assembled. The same procedure in the assembly of the center-section is used in building the wing panels. Be sure to keep in mind the lamination of the butt ribs and correct wing alignment.

After the spars have been fitted into the ribs, the aluminum tube joiners can be secured against the balsa block previously inserted be-



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tween the spars. The tubes are securely bound into place with No. 8 silk thread. Be absolutely certain that the tubes in both the wing panels and center-section result in the proper dihedral angle.

The leading and trailing edges and wing tips are then cemented in place. You can next insert the spar truss between each rib. The sheet balsa should then be applied to the leading edges, but first indent each rib to a depth of 1/16" so the balsa will lay flush with the wing surface. The eyelet fittings (Plate 2) should then be formed from .0625 wire and bound and cemented to the lower spar of the wing.

The V-wing strut is our next and final structure. A very hard, straight-grained balsa should be selected for the struts. The struts are chamfered, joined, and then streamlined. The strut hooks (Plate 2) are next formed and are bound and cemented to the struts.

In forming the fittings be sure to bend the eyelets so that the intern-

al diameter of the eyelets is not more than .0625". The tail skid is also formed of .0625 wire, and is bound and cemented securely to the stern post.

The entire ship can now be covered with bamboo paper or silk and three coats of nitrate dope applied. The model lends itself ideally to 1/6 h.p. motors. For maximum performance a 13" prop with a 6 1/2" nominal pitch should be used.

In test hopping the model, glide the model several times from shoulder height. If correctly balanced and trimmed the model should land in a slightly tail high position. The model's glide path should not vary in the glide test.

When flying with power on, the motor should never be revved over full without first compensating for higher torque reactions. A small aluminum trim flap can be secured through the trailing edge of the right wing to balance out torque.

So there's *The Pioneer*! And here's wishing you lots of luck with her!

## On the Light Plane Tarmac

(Continued from page 27)

**A READER'S FIRST SOLO**  
**T**ED JUNSCH, of 346 Forty-Seventh Street, Brooklyn, is the second reader to collect two dollars for a letter on experiences in light plane flying. Ted, who is 20 years old, tells us he's going to use the two bucks to get a fifteen minutes flight check.

Anyhow, we got a great kick out of his story of his first solo. If this is a sample of what is to come, we believe our modest Light Plane Tarmac is due for a re-rating as a Class "A" Airport.

But let's take off with Ted and see what happens:

Light Plane Editor:

I enrolled in a flying school at Floyd Bennett Airport in October, 1936, after taking one hour of instruction. That hour "sold" me on flying. So I hot-footed it to the doc, took my physical examination, passed, and joined up.

After I received my permit, I continued to fly fifteen minutes a week on Cubs at a cost of \$8 an hour. Then just when I was up to my fifth hour and ripe for soloing, I lost my job!

But I wasn't stopped yet—for six months later I found another job and commenced flying all over again.

The first week back on the field I took take-offs and landings. Then came the red letter day! It was a swell Monday morning. I walked out to the line and picked the Cub I wanted. I climbed in and waited for Jim,

my instructor, to get ready. We taxied out into the wind and he turned the ship around, held his hands up, and said: "Okay, let's go."

I opened the throttle, took off, circled the field and made a fair landing. We rolled to a stop and he said, "Okay" again. So I took off once more and was soon gliding in for another landing. This time I landed fair. But Pshaw! Before we rolled to a stop, we hit a big puddle in the middle and got drenched. We both jumped out with me apologizing for wetting Jim's nice gabardine uniform. But being a swell fellow, he took it good naturedly.

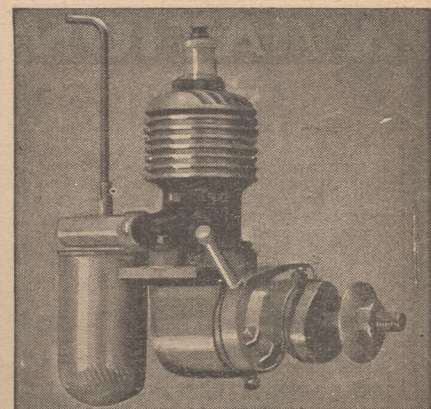
Finally he said: "Okay, get in," which I did in great haste. Then the sight which met my eyes sent a chill up and down my neck—for lo and behold, Jim wasn't getting in with me! The big day had arrived!

Jim then said: "I'm going to let you take it around once, and I want you to land in the triangle as close to me as possible. But remember, no side-slips! Then he walked out to the wing-tip and said: "All right, go ahead!"

As I opened the throttle, I kept saying to myself: "Just do as you've always done." And before I knew it, I was off the ground!

I had no sooner taken off, when I couldn't wait to get down again—to tell my mother the good news. But all the time I was thinking, I kept climbing, and soon I was up to 800 feet. Then I throttled down and started a slight glide toward the spot I

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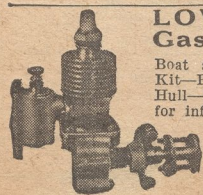
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had selected from which to make my approach for the landing. I reached the spot, made my turn, shut off the motor—and waited to get down. Boy, it seemed like ages! Old Man Gravity sure was taking his time.

But eventually I reached my critical position. When I was down to about thirty feet, I leveled off, kept the wings straight, and paused to get the feel of the stall. Then I backed the stick all the way. I felt the tall grass touch the wheels. Bump! went one wheel. And Bump! went the other. But finally the tail-skid touched.

I was rolling along, all the time

kicking the rudder to keep her on a straight course. Well, at last I stopped—and then Jim came puffing over and simply said: "Nice work!"

I'd done it! I'd soloed within six hours of instruction taken, from week to week, in fifteen and thirty minute "helpings"!

TED JUNSCH  
Brooklyn, N. Y.

Well, if any of you readers are interested in getting a private license, Ted's just let you in on one way to do it. Yep, we're shooting him those two bucks with thanks!

## Try Our Sphinx Moth

(Continued from page 39)

with much success, are launching "side-arm" fashion with the hand under the fuselage, or a forward launch from a tail-assembly hand-hold.

For contest flights, the speed model should of course be adjusted to travel in as near a straight line as possible; that is, without turning, banking, diving or climbing. If care has been taken in setting the wing,

stabilizer, and line of thrust at zero incidence, it shouldn't be difficult to correct any flight faults that might at first prevent this straight flight. Simple warping adjustments of wing, "stab," and rudder should do the job.

If your *Sphinx Moth* is flown under proper conditions of weather and space, the model should enjoy a long life and its owner will certainly enjoy plenty of speed thrills.

## Here's "Ol' Reliable"

(Continued from page 54)

pressure.

The tail plug is built up from two 1/16" sheet balsa bulkheads, as shown on Plate 3. Cement these pieces together under pressure, and when thoroughly dry, pass the tail hook through and bend a retaining hook in the back. Then cement the entire bulkhead in its correct position.

The rounded cowl in front of the windshield is built next. See Plate 2. Cut the bulkheads from 1/32" sheet balsa and cement them in place. Fit the top stringer in place and cement the sheet balsa center of the cowl to this stringer. The next step is to fold the sheet balsa down and cement it to the bulkheads and the upper longeron, holding it in place with pins.

The fuselage is then covered with a good grade of colored jap tissue. The cowl should also be covered with tissue. Do not cover that portion of the fuselage where the wing sits, and leave one panel in the rear of the fuselage uncovered to permit access to the rubber.

The celluloid windshield and windows—and the striping—are added at the last.

#### WING AND TAIL

**T**HE wing is of ordinary construction except for the rear spacer spar. As indicated on Plate 1,

this spar is not the usual one-piece type, but consists instead of short pieces of 1/32" by 1/4" sheet balsa fitted between the ribs. Each piece is about 1-7/32" long.

The wing is built by a slightly different method than usual, to accommodate this rear spar. The center spar is first held to the plans with pins and the ribs added at the proper intervals. Then the spacer spar is cemented in, followed by the leading and trailing edges, and the tips. The tips can be made of bamboo if desired.

At this point the dihedral angle of the wing is built in. Cut the spars slightly at the dihedral joints and crack them by a small, steady pressure. Prop the wing tips up with 1" blocks, weight the center of the wing down, and coat the cracked spars well with cement. To strengthen the breaks at the main spars, cement little slivers of bamboo to both faces of the spar while the wing is drying.

The center section of the wing has no airfoil section, and the level of the top surface of the wing is brought down to the top of the center spar. To prevent wrinkling of the tissue, four 1/16" sq. strips are cemented into the center section as shown on the plans. The space between these strips—behind the center spar—is covered with celluloid,



the rest of the center section being covered with tissue. This looks harder than it really is but just take your time. Spray it a few times with water. Cover the rest of the wing, taking care not to warp it when it is water-sprayed.

As an extra measure of safety, when cementing the wing to the fuselage, fix two short, streamlined, 1/32" bamboo struts between the lower longeron of the fuselage and the main spar at a point about 3-3/4" out from the fuselage.

The tail assembly is the Lockheed Electra type, which is becoming increasingly popular with model designers. Use fairly light balsa for all members. And watch out for the lineup of the rudders with the flight path. For if the rudders are out of line—or worse, if they oppose each other—too much drag will result. No tail-skid is needed.

#### PROP AND MOTORS

**I**f you're going to be careful and painstaking about *any* part of the model, for thermal's sake, make it the props! Select a nice block of tough balsa, and rough it out to the blank shown on Plate 2. Then, starting with the concave side of the blade, *slowly*, and *carefully* "chop and slice" until you have a fairly deep "cup" in both blades. Finish off this side first with rough, then with

smooth sandpaper, before working on the convex—or front side—of the prop.

As before, work slowly and carefully until you get the approximate upper airfoil. Then trace out the blade template on each blade and cut around it. Finish the upper camber with more cutting and sanding, until the blade is fairly thin and tapering into a hub measuring 1/2" by 3/16".

At this stage of the game, it is well to start thinking about the balance of the prop, which should be perfect for best results. When the prop is balanced, apply your favorite finish. Ours was a good rub-down with fine sandpaper, a coat of wood filler, followed by two coats of dope and another sanding. After the finish has been applied, it will be necessary to balance the prop again.

When you have a perfectly balanced, smoothly finished prop, don't think your work is over. You still have to install a workable freewheeling device that will enable the model to be wound from the front. And you still have to insert aluminum tubing in the prop hub and the nose block—and you still have to check up on the smoothness and ease of the prop run. This last is helped considerably by using a ball-bearing washer on the nose block, and by oiling the prop shaft, the washer and the tubing.

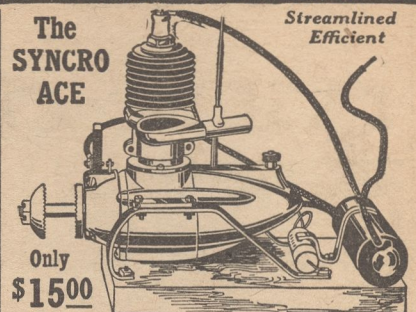
To find out if your prop assembly is at least *mechanically* good, hook two strands of 1/8" flat rubber to the prop shaft and put a few turns into them. This power should have no difficulty in turning the prop slowly and steadily.

For flying *Ol' Reliable* we used from 6 to 8 strands of Brown, lubricated, 1/8" flat rubber. The exact number depended upon the weather conditions. Eight strands gave the ship a truly spectacular climb!

Try to get fairly tight circles in both your climb and glide. Do this by observing the natural turn of the model when flying under power and when gliding, and increase or decrease each as needed. For adjusting the turn of the model in its climb, move the thrustline towards the side where the turn is desired. And for turn in the glide, use the rudders.

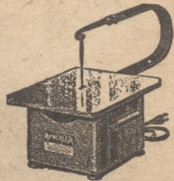
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## Answers

### TO QUESTIONS ON PAGE 30

- 1—The Barkley-Grow is an 8-place low-wing monoplane designed for the feeder line trade.
- 2—The Chinese government recently bought twenty Bellanca 28-90 *Flash* types that were originally intended for Air France for mail carrying.
- 3—Sir Hubert Wilkins will have Dick Merrill's Lockheed Electra fixed up for polar work to continue his hunt for the Russians.
- 4—The new Wright Cyclone GR-2600A-2 will have a take-off output of 1,500 h.p.
- 5—The Blenheim *Bolingbroke* is an improved type Blenheim bomber which is to be manufactured by Canadian Fairchild for the Royal Canadian Air Force.
- 6—The Gwinn Aircar has no rudder controls, uses a four-bladed prop, and is fitted with a tricycle landing gear.
- 7—Not groomed in time for the races, Detroyat's Caudron was on exhibition at the Paris Aviation Exhibition.
- 8—P. G. Johnson, a former American air firm official, was made head of Canada's transcontinental airways.
- 9—The Russian contract with Consolidated was for special tools and manufacturing jigs which are to be used in the manufacture of flying boats similar to the U. S. Navy PBV-1 patrol planes.
- 10—When an air pilot says he has "1,700 on the Kollsman" he means his Kollsman tachometer is registering 1,700 r.p.m. (the speed of his engine).



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—THEY ADVERTISE—LET'S PATRONIZE—



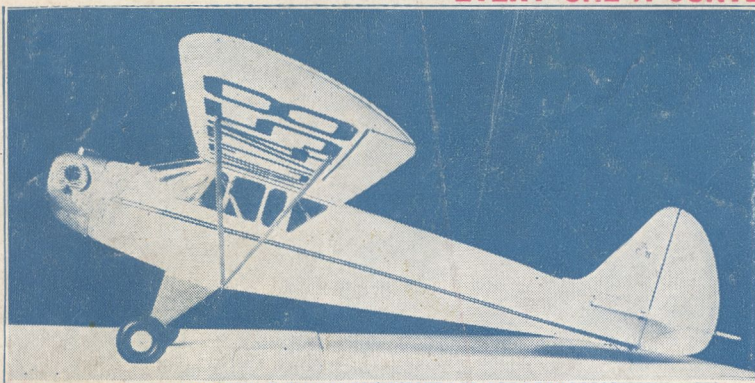




# AIRCRAFT CHRISTMAS SPECIALS

"THE PRODUCT OF SKILLED CRAFTSMEN"

EVERY ONE A CONTEST WINNER



COMPLETE WEIGHT READY TO FLY 2 3/4 POUNDS

## "AIRCRAFT SPOTWELD"

Clear, Quick Drying Cement

Our own special preparation, known the world over for quality and recommended for Gas Model work where the strain is very severe. Pint.....60c  
Half Pint.....35c

## WE CARRY THE FOLLOWING MOTORS IN STOCK

Gwinn Mighty Midget Motor Kit.....\$ 9.85  
Gwinn Aero Finished Motor.....\$17.50

## COLORS LACQUER

High gloss, quick drying, Red, Yellow, Blue, White, Black, Olive drab, Green, Cream and Silver. Pint.....75c  
Half Pint.....40c

## CLEAR DOPE

For sticking tissue to frame, doping surfaces, etc. Pint 50c  
Half Pint 30c

Ohlson.....\$18.50  
Brown Jr.....\$21.50

## TAYLOR CUB GAS MODEL FLIGHT TESTED

### EACH KIT CONTAINS

Completely formed shock absorber, landing gear struts. Cut out wing ribs. Formed Dural metal motor mount. 3 1/4" M & M air wheels. Detachable wings for convenient carrying. Adjustable dihedral finished cut to shape celluloid windshield. Aluminum for cowlings. Selected straight grain balsa. Spring steel tail skid. Die cut cabin windows, and many other exclusive features too numerous to mention. Six-foot wing span.

**PRICE \$5.50**

plus 50c for packing and mailing. This is a dry kit. Motors, Cement and Dopes are not included. These articles are fully described below.

### SEE YOUR DEALER FIRST

And if he cannot supply you, write us direct.

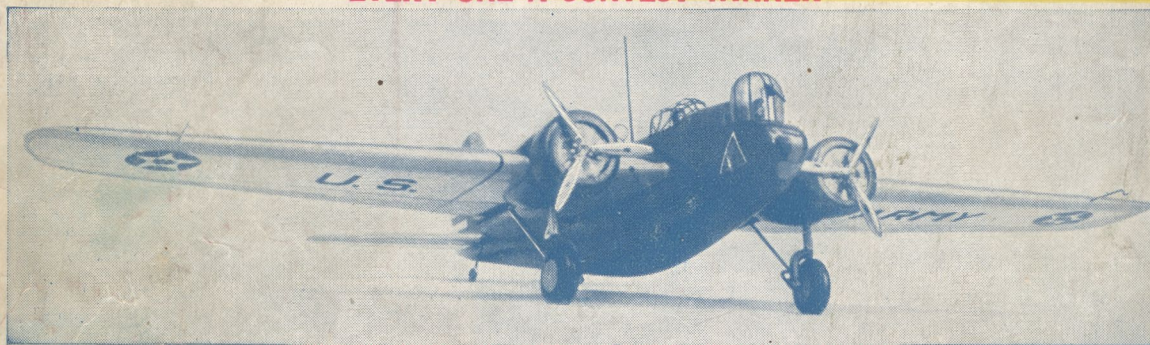
### "AIRCRAFT SPECIALS"

The most perfect and fastest selling 10c line of solids ever put out.

On separate orders for Lacquer, Dope and Cement, add 15c for delivery

## Authentic One-Quarter Inch to the Foot Solid Scale Models EVERY ONE A CONTEST WINNER

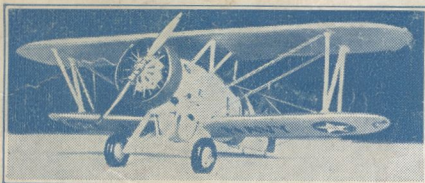
MARTIN



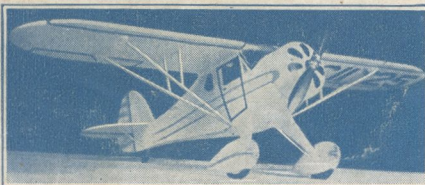
BOMBER

### A PERFECT MODEL OF AMERICA'S MOST BEAUTIFUL BOMBER

The Kit To Build The Model Of This Modern Giant Contains: selected balsa parts cut to outline shape, turned hardwood cowl and wheels, 3 super-detailed pilot busts, 2 three-bladed Hamilton propellers, a replica aircraft machine gun, a finished transparent gunner's turret, formed to shape, drilled Aluminum landing gear struts, liberal portions of authentic army colored lacquers, wood filler and fillet making material, colored insignia, full-size detailed drawings, etc. \$1.00. Plus 20c packing and postage.



BOEING F4B4 Colored white and yellow \$ .35



NEW MONOCOUPÉ Colored all yellow, red trim \$ .25

### EACH AIRCRAFT KIT CONTAINS

Liberal portions of colored lacquers and cement, finished pine wheels, colored insignias, rigging wires, most difficult parts cut to outline shape, detailed drawings, die cast Propellers and Pilots and many other fine features too numerous to mention.

All Wartime kits contain super-detailed Machine guns. The following Kits contain detailed Radial Engines and spun metal Cowlings: Boeing P26A, Boeing F4B4, Boeing F4B3, Boeing P12E, Boeing P12F and Curtiss Goshawk.

In addition to the large Kits illustrated at the top of the page, we carry in stock the following kits, ready for immediate shipment:

	25 Cents Each	35 Cents Each
Spad 13		Boeing F4B3
Fokker D 7		Boeing F4B4
Fokker D 8		Boeing P26A
Fokker Tripe		Curtiss Goshawk
S. E. 5 Pursuit		Curtiss BF2C1
Waco Model "A"		Boeing P12E
Nieuport 17 C1		Boeing P12F
Sopwith Camel		Northrup XF2T-1
New Monocoupe		Grumman F2F-1
Albatross D5		Consolidated P30
Curtiss Hawk P6E		
Howard Mulligan		

DE HAVILLAND COMET 50c



SPAD 13 All yellow, black detail \$ .25

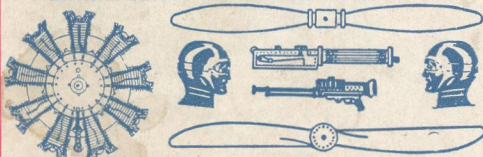


SOPWITH CAMEL Blue wings, olive body \$ .25

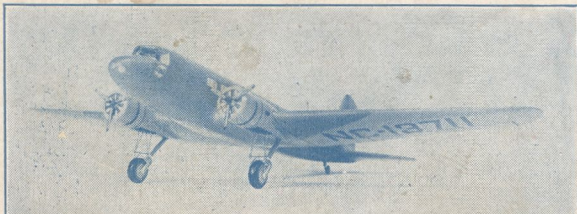


DeH "Comet." Winner of London to Melbourne Race. 50 Cents.

### EXCLUSIVE AIRCRAFT SUPER DETAILED DIE CAST PARTS



For single kits add 10c for packing and postage. For two or more kits add 5c for each kit. Personal checks add 10c. No C.O.D.



DOUGLAS TRANSPORT. 22 1/4" span. Color, all silver with black detail or blue and yellow as shown. \$1.50 plus 25 cents postage. Also furnished in 16" size at \$1.00 plus 20 cents postage.

Add 20% to these prices for shipments to Foreign Countries.



MARTIN "CHINA CLIPPER." 1/4" TO THE FOOT SCALE. SPAN 16". \$1.00 plus 20 cents postage.

NOTE: These are actual photographs of models built from AIRCRAFT kits.

AIRCRAFT, 4348 NORTH PULASKI ROAD, DEPT. F. 1, CHICAGO, ILL.