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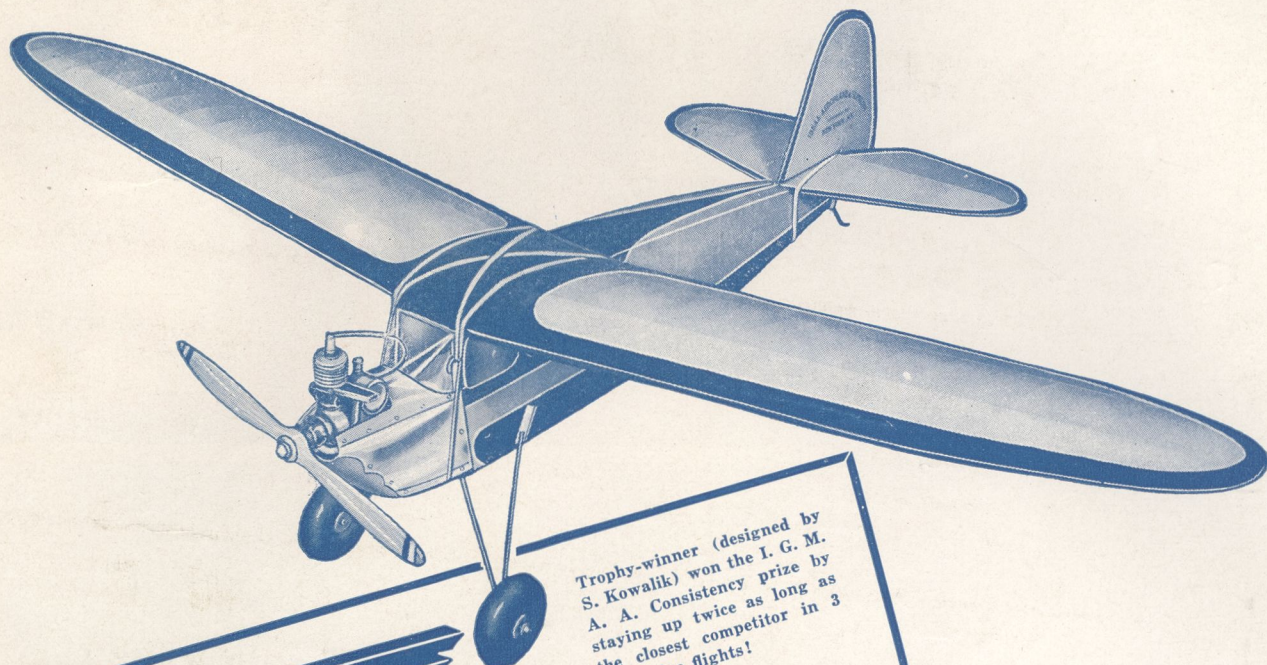


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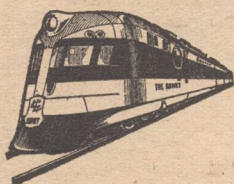
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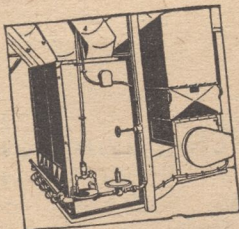
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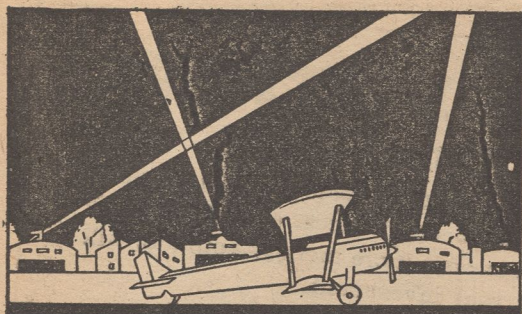
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VOLUME XXVII

NOVEMBER, 1937

NUMBER 4

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Published monthly by Magazine Publishers, Inc.; office of publication, 29 Worthington St., Springfield, Mass. A. A. Wyn, President. Editorial and executive offices, 67 W. 44th St., New York. Entered as second-class matter, Nov. 14, 1928, at Springfield, Mass., under Act of March 3, 1879. Title registered in U. S. Patent Office. Copyright, 1937, by Magazine Publishers, Inc. Nothing may be reprinted without permission of the publishers. Manuscripts will be handled with care, but this magazine assumes no responsibility for their safety. For advertising rates address FLYING ACES Magazine, 67 W. 44th St., New York City.

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WITHIN THAT EERIE RAY AGENT "Q" FACED MUTED DEATH

CHAPTER I

WHISPERING WINGS

FIVE HUNDRED FEET above the Lunghai Railway, the dark-blue Northrop roared westward into the dusk of China. As the lights of Suchow appeared ahead, Dick Knight peered out through the transparent cockpit enclosure, scanned the narrow streets of the Chinese town below. There was a troop-train just pulling out of the station, and he could see supply and artillery trucks on a road nearby.

And now a somber look came into the face of Secret Agent "Q" as he gazed ahead into the deepening shadows. He wondered about the mysterious mission on which Larry Doyle and he had been ordered after their recent escapade in war-torn Spain. But he hid that look of uneasiness when he turned to glance back at the chunky ex-Leatherneck who was his partner in espionage—and in other brands of trouble.

Doyle's crooked nose was pressed hard against the curved enclosure. Suddenly a broad grin overspread his homely countenance. He jerked at the enclosure lock, shoved the top open, and thrust out a tousled head. The sudden sweep of air sent Knight's map and scratch pad whirling. Knight snatched at the map, Doyle meanwhile gesticulating fervently down at a group of staring Oriental girls.

"Close that panel, you crazy Mick!" shouted the secret agent. "We didn't come up here to play with Chinese gals!"

"Aw, I was just wavin' to th' mayor," growled Doyle, as he shut the enclosure. "Just to let 'em know the Marines are about to land—and anyway I've seen some pretty good-looking Chinese dames, if you want to make something of it."

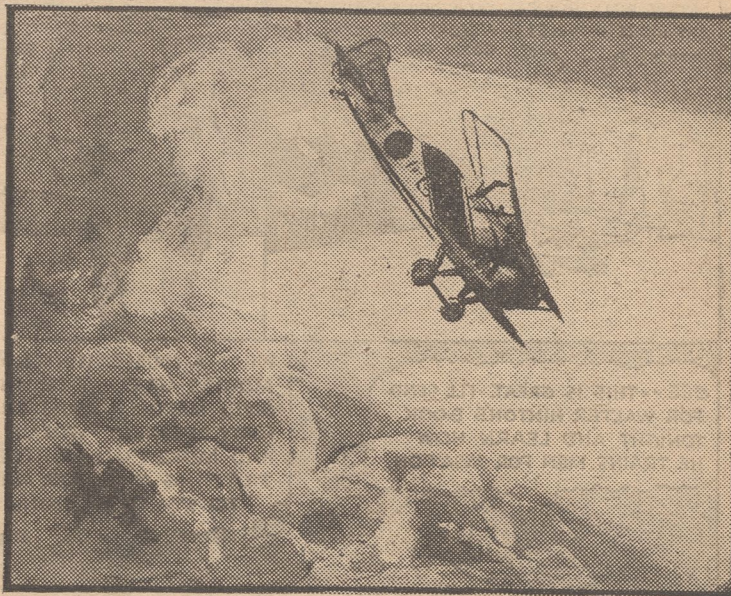
Knight grinned over his shoulder.

"Still sore about being dragged away from Paris, Lothario?"

"Huh? Naw, I got over that—but I still think it was a dirty trick not even stoppin' at Singapore after I met that—"

"I know—after you met that blonde," said Knight. "Too bad, but there seems to be a war on, or something—and it looks as though we've been invited."

"I don't mind wars," grunted Doyle. "But I like to grab my breath in between 'em—and grab a little fun, too. I ain't got over that run-out we took out of Spain. I'm still out o' breath!"



KNIGHT turned back to the controls, watched the faintly shining rails flash toward the ship and vanish under its wings. Another Chinese town, this one little more than a village, swept by, with a brief twinkling of lights.

"And I still think somebody at Washington has gone nuts," Doyle said aggrievedly from the rear cockpit. "That first code message from Brett—the one we got at Paris—said that 'Q' should contact that Army attache at Shanghai. And when we get there what happens? He's been dead ten days—since before the message was sent!"

"I think they were covering up something," muttered Knight.

"And another thing," persisted Doyle. "How'd they get this Northrop over here from the States in the five days it took us to fly from London to Shanghai on the airline?"

"They didn't," said Knight. "Evidently this affair was planned well ahead. But I can't figure why it had to be this special Northrop, when we could have picked up one of several ships already in China."

"Well, I only hope you know where you're heading," grunted the ex-Marine. "Maybe you've forgotten a little tilt you and I had with the Japs some years ago? Maybe you think they'd pat us on the back if we happened to drop in on 'em by accident?"

"Any patting would more likely be with a spade—and in the face," Knight said with a chuckle. "But don't worry, my Irish friend, we're not anywhere near the Japanese lines. In about twelve minutes we'll be putting down at one of the new air-fields the Chinese have built along this railway—and that's where we learn the answer to all this business."

"How come?" demanded Doyle, quickly leaning forward.

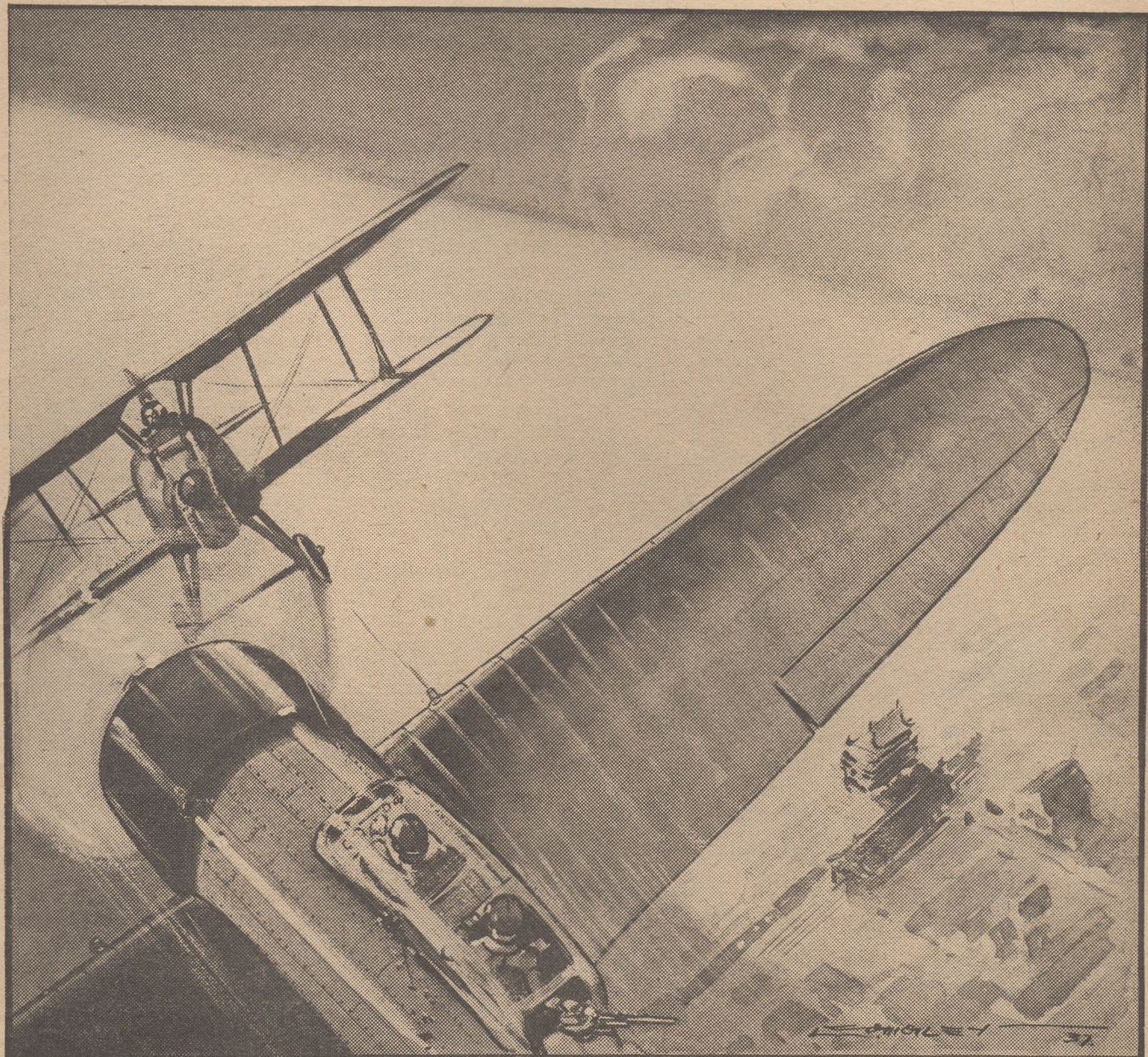
On the twisted body of that ruthless killer they had gunned from the skies, Richard Knight found an ominous message. "I will call again," those brush-written characters announced, and appended was the dread symbol of Mo-Gwei—the sign of "The Devil"! Then "muted death" whipped across those gloomy heavens to fulfill that satanic threat. And as the shattered bodies of wretched airmen plunged to the earth, there came an infernal laugh. The cone of silence had found new victims!

DICK KNIGHT IN A DRAMATIC ORIENTAL SKY MYSTERY

By Donald E. Keyhoe

Author of "The Mad Squadron," "Wings of the Emerald," etc.

Illustrated by Leo Morey



Hardly had that strange, stark silence gripped the sky, when from the clouds five hundred feet above there suddenly flashed a huge cone of ghastly, misty light. Out of that cone, dead upon them, hurtled a Kawasaki 92, its guns streaming phantom lines of fuzzy tracer.

"We're going to meet Hank Larson there," said Knight. "He's organized a bunch of American pilots to fly for the Chinese, and the last thing Pertwell—the Army air attache—did before he supposedly died was to get hold of Hank and send him on a rush errand up to this place."

"What makes you think Pertwell isn't dead?" Doyle said bluntly.

"His secretary practically admitted it. I asked to see his grave, or at least papers covering disposition of the body. Not knowing that I'm 'Q,' he stalled me, and when I accused him of covering up Pertwell's disappearance he just gulped and said he was under orders not to tell me anything but this thing about Hank Larson."

"Well, if Hank's mixed up in it I know it's screwy," grunted Doyle. "That bird couldn't keep out of trouble tied up in a padded cell."

Knight tossed a grin over his shoulder.

"Then if he'd been a Leatherneck, you two would be just about on a par."

"Say, any time I couldn't fly rings around a Navy peelot!" snorted Doyle.

Knight turned back to the stick. They were, according to his map, within seven miles of their destination—Air-Field 32, one of a score of emergency stations between Suchow and Kaifeng. He throttled the twin-Wasp to half speed and set the prop at low pitch preparatory to landing. The Northrop roared on above the rails, and in a few moments he saw several twinkling lights. He switched on the powerful landing-lights recessed in the ship's wing, levered them so that the twin beams pointed down at a sharp angle.

A small village became visible, and he noted a pagoda a trifle apart from the cluster of Chinese houses. On

the other side of the railway a sizable landing-field had been cleared. A large canvas hangar, a few tents and small buildings showed in the Northrop's lights, and he glimpsed several ships in front of the hangar. As he circled, looking for the wind-sock, a searchlight flashed up at the plane. Its radiance was blinding, and he pulled into a swift climbing turn.

The stick suddenly trembled in his hand, and he flung a hasty look backward at the tail. He could see nothing wrong, but as he swung around to the controls he noticed that the right-hand landing light was out. A second later the left-hand light went out, and simultaneously the searchlight beam vanished, leaving the sky almost inky black.

"What the devil happened?" Doyle bellowed from the rear cockpit.

"Don't know," Knight shouted back. "I'm going to climb up and drop a flare."

He shoved the prop into high pitch, opened up the twin-radial. Below, not a light showed from the village or the field, and above them a solid blanket of clouds hid the stars. As the Northrop stormed up into the night he felt a strange tension come over him. The altimeter showed almost three thousand feet—then suddenly the roar of the Wasp broke off into utter silence!

He pushed the stick forward, thinking the engine had gone dead, then in amazement he realized that it was still revving up. Hastily, he pulled out of the dive, sat for a moment in amazement as the Northrop plunged on in stark silence. For not only had the roar of the engine been hushed, but with it the howl of the ship's wings.

Fear that he had been stricken deaf knifed through him, but as he jerked around he saw that Doyle also was staring around in astonishment. Doyle's lips were moving, but not a sound was audible. An instant longer, the Northrop raced through that eerie silence, and then suddenly Knight saw a faint luminance in the sky. He looked up swiftly through the cockpit enclosure, went rigid in consternation.

A huge cone of misty light was shining from the clouds five hundred feet above, and diving headlong inside that cone was a Kawasaki 92 fighter!

IN his first dazed glimpse, Knight thought his senses had tricked him, that the ship inside that cone of ghostly light was unreal. But in the next instant, faint tracer lines shot from the cowl of the Japanese plane, swelling to fuzzy thickness as they pierced the outer edge of the cone and probed toward the blue two-seater. Knight whipped the Northrop into a vertical bank and the first burst lanced off into space. His hurried turn took the ship into the edge of the cone, and now the stark silence was broken by a weird whispering sound.

The Kawasaki twisted sharply inside the cone of light, and the queer whisper rose to a ghostly moan. Another burst smoked from the Nippon ship's guns, and bullets ripped through the enclosure above Knight's head. He reversed, clamped the first of the row of buttons on his stick, just as Doyle whirled the rear 50-caliber twin-mount up from its special niche.

Sliding-flaps opened in the leading-edge of the wing, and two high-speed Browning 30's went into action at Knight's touch. He could feel their throb, could see the glow of their tracers as they blazed at the diving Japanese plane. But he could not hear a sound. Even the whisper of the Kawasaki's wings had died out as the Northrop whirled away from the luminous cone.

Doyle's guns flamed up and around in an arc as the Nipponese fighter plunged through the cone. Another

fusillade smoked through the silent sky, and two panels of the transparent enclosure tore to bits between Knight's cockpit and Doyle's. The tall secret agent yanked the Northrop into a zoom, kicked around in a tight split-S. And as the Kawasaki darted back into the cone, Knight's bullets grazed its wings.

Knight was about to follow up his advantage when a frantic thump on his back made him jump around in his seat. Doyle jabbed his hand upward, and in dismay Knight saw another Kawasaki diving at them. It had just come through the clouds at the point where the luminous cone was truncated. The American's lips formed a silent curse as he realized that the first Japanese had tried to draw him under the second man's guns.

Knight snapped the two-seater around in a fast chandelle. The first Kawasaki pilot whipped back instantly, but skidded to one side as Doyle met him with a murderous blast. The other ship veered to miss the one below, and Knight charged in with all gun trips pressed tight. The wing-root fifties joined the wing 30's and the Brownings under the cowl, and the Northrop shook under the fierce but silent vibration of the guns. The lower Kawasaki reeled under that furious hail of lead, but miraculously the pilot escaped death and pulled back under the diving plane. The second Nipponese struck with all the ferocity of a tiger. A silent, smashing torrent of lead gouged into the Northrop's cowl, tore through the enclosure above Knight's head, and battered the instruments before him.

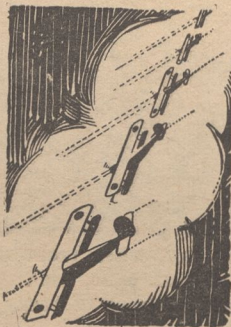
WITH a savage kick at the rudder, Knight hurled the two-seater sidewise, and the diving Kawasaki shot by with its guns still blazing. The other fighter slid in on bullet-scarred wings, as Knight briefly nosed down to regain full speed. Doyle tripped out a swift burst, and the silent tracers glowed across the intervening space. The Japanese pilot pulled up, ruddered hard to come under the Northrop's tail before Doyle could whip his fifties down to fire through the tunnel in the floor.

Knight's only choice was a hasty turn to the right, and it sent the Northrop straight into the cone. As the misty luminance swept over his wings, he heard again that weird whispering, but this time it seemed to come from his own ship. He had no time to make sure, for with amazing speed the second Kawasaki zoomed up on the opposite side of the cone and then pitched down for a raking broadside.

The queer light, with its strange mistiness, was an obstacle rather than an aid, and Knight barely saw the Japanese plane in time. Gun buttons clamped hard, he threw the Northrop into a furious roll. The blazing guns, the flashing prop of the Kawasaki spun before his eyes. As the two-seater whipped aside, he saw the dark face of the man in the other ship. It was only a blur, a blur swiftly hidden by a cloud of flame which burst from the Nippon craft's cowl.

The flaming Kawasaki shot up on its tail, fell off, and went into a spin. In a horrible silence, the doomed plane plunged earthward with its ill-fated pilot writhing in the inferno. In that stark stillness, it was like a fantastic nightmare, and for a second Knight forgot the other ship as his fascinated eyes watched the gruesome scene.

A sharp sting on his wrist brought him back to his peril. Glass was splintering from the tachometer dial, and a jagged fragment had cut his arm. He crouched as a soundless barrage from the remaining Kawasaki ripped into the top of his cockpit. The Northrop had lost speed in that fast, tight roll, and the crippled Japanese plane was closing in to take a hasty advantage.



With lightning decision, Knight slammed the stick forward to throw the belly of the Northrop toward the Kawasaki. Doyle threw the fifties down to fire through the tunnel, as he had intended, and for a moment two silent, murderous streams flashed between the two planes. The Northrop gave a jerk, lost speed again, and Knight flung a quick look at the riddled instrument board. The tachometer was ruined, but he could see the manifold pressure dropping, and he knew the engine had been hit.

The two-seater was already hurtling down at the village near the air-field, and over the slug-gashed cowl he could see the flamer. It was dropping near the railway, close to the edge of a dim-lit circle where the weird cone of light touched the ground. Casting a look backward, he saw Doyle trying to haul himself up to fire over the rail. The Kawasaki was pitching down after them, one of its guns still blazing. The deadly tracers struck the Northrop's dural flippers, and Knight felt the pound of solid slugs as they set the stick to trembling. The tracers lifted, smoked past his head—then a fierce throbbing shook the two-seater as Doyle flung his guns into range. The whirling disk of the Kawasaki's prop instantly broke and was gone. Knight pulled up with a silent gasp of relief as the Japanese fighter drilled by.

The misty light of the eerie cone suddenly brightened, like an electric bulb flaring up. It rose to a ghastly color—then abruptly went out. And as it did, the uncanny silence was instantly ended, and a cacophony of sound crashed into Knight's ears.



CHAPTER II

THE SIGN OF MO-GWEI

UPON his senses, the screech of the Northrop's wings and the pound of the crippled engine struck with stunning force. He cringed at the impact on his ear-drums, then gritted his teeth and fought the ship out of its dive. Another crash of sound broke through the lessening howl of the wings, and he saw the second Kawasaki tumbling earthward, a burning mass of wreckage.

The glow of the mysterious cone having completely faded, the glare of the burning ship lit the sky and the ground. On a road near the village, Knight saw pigmy-like figures fleeing southward—a few of them scurrying for the pagoda-shrine nearby. The flamer had struck along the border of the field opposite the railway, and as the Northrop came closer Knight saw the wind-sock atop the hangar. He landed, braked the ship to a halt near one end of the line of planes, which he saw included two Curtiss Shrikes, four Boeing fighters, and a Boeing twin-motored transport which had been converted into a bomber. He turned off the fuel cock, switched off the engine, and turned to stare at Doyle. The ex-Marine shook his head dazedly.

"Don't question me, fellow! I'm not sure yet it really happened."

They both gazed up into the night, but there was no longer any trace of the eerie light-cone, and no sound to give any hint of what had caused it.

Doyle drew a long breath. "I'd give five bucks for a drink right now. Maybe if we look around we could find one."

Knight followed him from the ship, wiping the blood from his wrist.

"The place looks deserted," he muttered. "Everyone must have run for it when that silence hit."

"I don't blame 'em," said Doyle grimly. "If I'd have

had my feet on terra firma, I'd have lammed out, too."

He started toward one of the small buildings, but Knight stopped him.

"Never mind about that drink. There's just a tiny chance that the pilot of that other ship isn't dead. We might get something out of him."

"If he's alive he must be two-thirds cat," snorted Doyle, but he turned toward the shattered Kawasaki. But Knight and he had not gone fifty feet when the drone of motors sounded from up in the blackness.

"Whoever they are, they're coming from the north," exclaimed Knight. "Get back in the shadow of the hangar till we find out what's what."

"And maybe get a Jap bomb dropped on our necks," said Doyle. "Why not grab one of those Shrikes and get in the clear till we're sure?"

"We won't have time, unless the motor's been warmed recently," returned Knight.

But Doyle was already half-way to the nearest Curtiss. "Come on," he howled "Take the switch while I wind up the starter."

Knight ran to the plane as Doyle seized the inertia-wheel crank and fitted it into the socket. The wheel was beginning to whine when a sudden movement at the other end of the hangar caught Knight's eye. He jerked around and saw a rakish gray car skid past the Boeing bomber and race toward them. There were two Chinese soldiers on the running-board dressed in the uniform of the Peace Preservation Committee for Hopei

Province. As the car squealed to a stop, they jumped down and ran forward with bayonets held at a significant angle.

"Hold everything!" shouted Doyle. "*Amigo—ami—friends! We're Americans—Yanks!*"

Knight had jumped up in the front cockpit, one hand inside his leather coat.

"*Lih ding! Halt!*" he snapped out, and the two Chinese stopped short, staring from him to Doyle.

"Don't let him trick you!" came a sharp command in Chinese. "He is a *tan-dz!*"

The two soldiers stiffened, but Knight's automatic had appeared, magically, as they hesitated, and he swerved the muzzle toward the man in the car.

"I am no spy," he said curtly. "We're Americans—on a friendly mission. Order your men to put down their guns and I'll identify my friend and myself."

The man at the wheel stared at him for a second, then slowly climbed out. He was tall for an Oriental, and Knight surmised that Manchurian blood flowed in his veins. He came forward, one long, thin hand twitching at the stringy black mustache on his upper lip. His black eyes never left the gun in the secret agent's hand.

"If you are not a spy," he said with a grim calm, "then why were you stealing that airplane?"

THE increased rumble of the approaching ships prevented Knight's answer. He saw the other man look apprehensively into the sky. Then one of the soldiers broke into an excited jabbering.

"*Ni kan!* Look, my captain—there is no danger! It is the mad American and his men."

The tall officer stared up as five Shrikes dived into the light from the burning ship. Then a look of relief came into his black eyes.

"It is well," he said. "We shall soon know whether these two are spies or not."

The leading Shrike rolled up and stopped, and the motor had hardly gone silent when a roly-poly figure scrambled from the pilot's seat and bounced from the wing to the ground. His round blue eyes—mild-looking as a baby's—went wider than ever as he saw the tableau.

"Hello, Hank," said Knight. "You're just in time for the party."

"Dick Knight, by all that's holy!" erupted the plump little man. "Say, what's going on here?"

Knight lowered his pistol, and the Chinese captain stepped forward. "These two men were about to steal this airplane, Mr. Larson," said the Oriental in English.

Hank Larson burst into a fit of laughter which threatened to burst his tight-buttoned blouse. "Better lock 'em up, Li Sin! They're the two most desperate characters this side of Chicago."

The Chinese drew himself up stiffly as Hank went into another fit of mirth. "From your manner, Mr. Larson, I take it that you then vouch for these two persons?"

"Afraid I've got to," said Hank, subsiding. "This handsome duke is Dick Knight, and the tough-looking bozo is Larry Doyle."

"You're no beauty prize yourself, you fat lummox," growled Doyle.

Li Sin's saffron face cleared. "Ah, I understand now. These are the two secret agents from your country, Mr. Larson."

Knight looked sharply from the Chinese to Hank. "It doesn't seem to be much of a secret," he said dryly. "Who told you that, Hank?"

"Pertwell," replied the little man. "But don't worry. This is Captain Li Sin, of the Chinese Air Service. He's in their Intelligence, and he knows how to keep his trap shut."

Li Sin bowed. "As your honorable countryman has intimated, my lips shall be sealed. I apologize for my most regrettable error."

"It's okay by me," grunted Doyle, "as long as you tell your boy scouts to put away those frog-stickers."

Li Sin gave a sharp command, and the two soldiers stepped back several paces. By this time two more Shrikes had landed and the others were leveling off. Hank pulled off his helmet, revealing a prematurely bald head which made him look more than ever like a cherub. He looked at the wrecked Nipponese ship and the flamer.

"Dick, if this is just a sample of your work, we should have had you here before," he said, chuckling.

"If it's of any interest, I was in the ship, too," snapped Doyle.

"That's what I meant," grinned Hank. "He'd have to be good, with a dumb Leatherneck sandbagging behind him. How'd you come to tangle with those Japanese, Dick?"

Knight hesitated a moment. "Let's go over to that Kawasaki," he said. "If the pilot's alive we may learn something important."

The next Shrike had stopped rolling, and as the pilot and the gunner jumped out Knight recognized Ben McCloud and Art Summers, former Navy men who had been with Hank during his duty as a special test pilot for the Navy. The pilot of the third plane was an Oriental, shorter in stature than Li Sin and with an olive pallor which Knight recognized as the mixed blood of an Eurasian.

"You know Ben and Art," said Hank Larson, as the two pilots hurriedly approached. "And this is Wu Kang—our liaison man with the air force office in Nanking."

WU KANG silently inclined his head. Knight saw the look which came into the man's eyes as they rested on Li Sin. It was gone in a flash, but he knew that no love was lost between the two.

"Looks like you had a little fuss here," said Ben

McCloud, gazing around at the battered Northrop and the wreckage of the Kawasaki.

"More than that," Knight answered grimly. He described briefly the blacking-out of the lights, the uncanny silence, and the mysterious cone of light from which the Japanese ships had emerged. Hank and the others stared at him in amazement.

"Now if it was Doyle, I'd know that was a crazy lie," said Hank. "But from you—"

"It's no joke, and I'm cold sober," Knight cut in. "From the way this place is deserted, you ought to be able to tell that something queer happened."

The roly-poly flight leader looked around at the tents and sheds.

"Your men fled," said Captain Li Sin. "I saw them running away as I came along the Suchow road."

"You must have seen the scrap!" exclaimed Doyle.

"I heard gunfire and the motors roaring," replied Li Sin. "But I could see very little of the battle until one of the planes caught fire. I saw what followed and hurried here at once."

"Could you hear during that time?" asked Knight.

"Yes," said Li Sin. "I noticed nothing unusual with my hearing. But I did see all the lights go out. I thought the men at the field were afraid of a Japanese raid, and that you had turned out your wing lights to keep from being a target."

"And you didn't see the cone at all?" Knight said. Li Sin shook his head.

"No, it must have been directly above and hidden by the top of my automobile."

Knight nodded. "Yes, it was pretty faint, and your headlights would have been bright enough to blot it out along the road."

"By golly!" said Hank. "That call we got must've been crooked. Somebody worked it so we'd be away while those Japs pulled this stunt."

"A call? What call?" Knight asked quickly.

"From Tamingfu. Listening post said they picked up Jap planes headed south. We took off and followed

radio code signals supposed to be from Tamingfu, but the rangers finally said the sound had faded out. We circled around a while and came on back."

"I don't think it was a fake report," said Knight. "The sound fading fits in with what happened here."

Li Sin looked puzzled. "It is most peculiar. What could cause such a phenomenon?"

"I don't know," answered Knight. "But let's see what we can find here."



THEY had now reached the broken fuselage of the Kawasaki. The glow from the blazing ship had begun to fade, but one of Li Sin's men produced a flashlight and spotted the crumpled cockpit. A mangled arm was revealed, sticking through a mass of wreckage. By now, all the pilots and gunners from the Shrikes had gathered around, and in a few moments the Japanese pilot was lifted from the ship. As Knight had feared, the man was dead. While Doyle peeled off the dead man's flying-coat, he peered in at the battered remnant of the instrument board.

A torn section of a map hung there, spattered with blood. The section showed the area from just north of Peiping, extending to the coast and southward toward Shanghai. Evidently the map had covered the entire region of Sino-Japanese hostilities. No courses had been laid out on it. He searched for the rest of the map but could not find it.

(Continued on page 60)

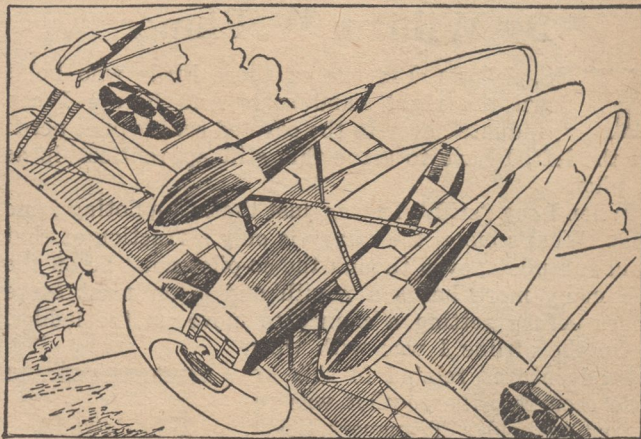
They Had What It Takes

X—MAJOR AL WILLIAMS—AEROBATIC GENIUS

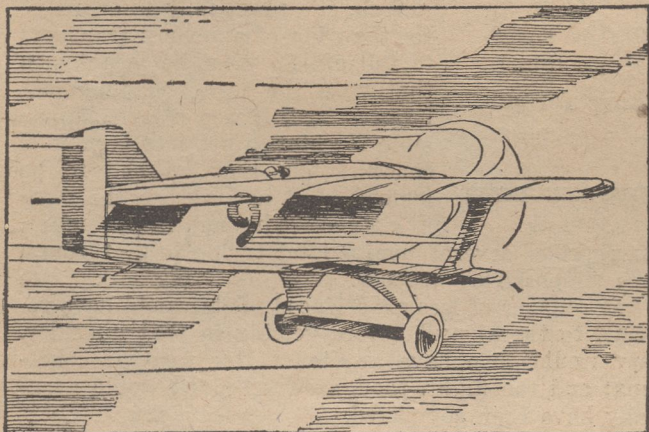
By ALDEN McWILLIAMS



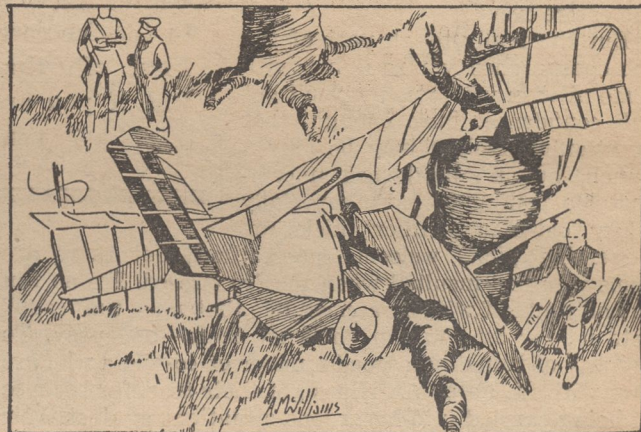
1—Alford Joseph Williams, Jr.—yep, that's his full name—was born in New York City on July 26, 1896. A well-built young fellow, he was athletically inclined from the first. In fact, after graduation from Fordham University, he joined the New York Giants ball club of the National League and held down the job of pitcher for two years.



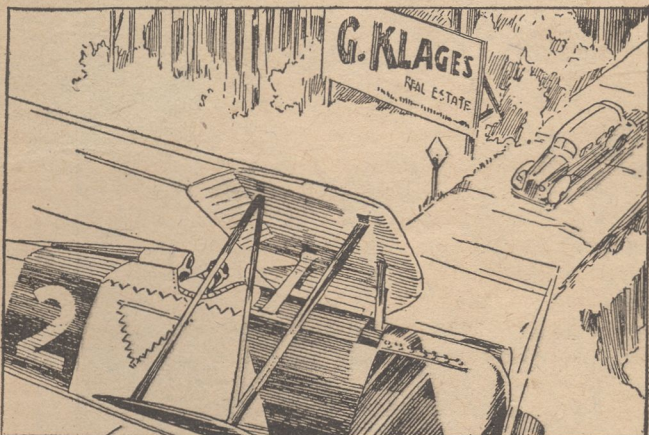
2—But Al Williams had always had a hankering for the sky. So when the United States entered the World War, he signed up with the Navy Air Service—and quickly proved himself to be an exceptionally good flyer. He first tested planes. Then the development of the science of aerobatics (aerial acrobatics) became his specialty.



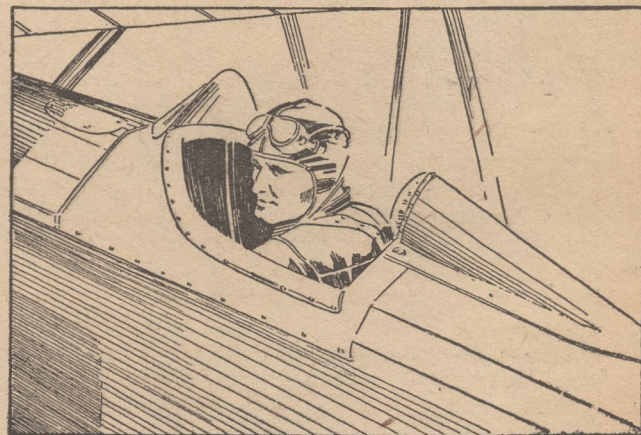
3—In 1922, Williams tried to win the Pulitzer Prize Race, but three other flyers flashed in ahead of him. Undaunted, he again went after this prize in 1923—and this time he won it with a 243-m.p.h. speed. Later that year, he chalked up a world mark of 258 m.p.h. This record stood until 1931.



4—Meanwhile, a new training plane had the experts worried. Five pilots had crashed in these jobs, so trouble-shooter Williams coaxed one into an experimental spin. It turned out to be a flat spin, and unable to pull out, Al suffered a bruising crack-up. But his test data served to correct the ship's faults.



5—Williams finally resigned from the Navy Air Service in 1926 in order to devote his full time to high-speed research and advanced aerobatics. His expert, painstaking work during these past ten years have won him renown as a leading aero consultant, and meanwhile he continues in top listing as one of our best and most active airmen.



6—Through the untiring efforts of Major Al Williams, American aviation has achieved new and more brilliant heights. Our most outstanding aerobatic genius, Williams, has been awarded the Distinguished Flying Cross—and Al is no doubt hurtling his 300-m.p.h. Cyclone-powered Grumman to new honors as you read these lines.

"I Am a Co-Pilot"

By William W. Ehmer

YES, fellows, I'm one of those birds who holds down the right hand seat. And before I can "graduate" over to the coveted senior-pilot perch on the left, I have to serve this stiff apprenticeship as co-pilot.

When I say "stiff," I mean just that. Co-piloting is no snap. What's more, the salary is only a fraction of that paid full pilots, even though the co-pilot must be on the job many more hours a month and often must serve years before getting a chance to move up the ladder.

On the airline I was with when the adventures related in this article occurred, the co-pilot was required to hold a Transport ticket, an Airplane and Engine Mechanic's license, and a First-Class Radio Operator's license. Yep, all three! And there's plenty of hard work to that three-way job on flying boats, brother. Usually friend co-pilot is the entire crew.

But the really tough part of the job comes when you're flying with some pilot in whom you haven't got full confidence. Sure enough, that questioning feeling may be only a hunch, but it's a darned uncomfortable feeling to have, especially when "old man weather" kicks up.

Generally, pilots welcome suggestions, but there are some who feel insulted when they're offered. It's no fun to find yourself with an airman like that when the "soup" sets in, for all you can do is sit there—and pray. To my way of thinking, a good number of co-pilots who are now with St. Peter's Airlines got their transfer because of being carried into hazardous situations against their own better judgment.

Manufacturers build excellent ships; and good me-

chanics keep 'em in perfect condition. But even so, "old man weather" still has plenty to say—or haven't you been reading the newspapers? Anyhow, when your flying proposition is "visibility zero," it's what the *pilot* does that counts.

I'd say that there are two kind of pilots who aren't 100 per cent. On the one hand, there's the fellow whose long, unmarred flying record has made him over-confident; and on the other, we have the bird who's extremely over-cautious to the point of being absurd. The trouble with Mr. Over-Confidence is that he forgets that his fine record may have been helped along by an element of luck; instead, he gets to thinking it was all his superior

judgment. If he's licked flying for years, he can continue to lick it. The tragic part is that by the time this flyer learns that Fate can hit below the belt, he's generally out of the picture forever.

I knew a sky-man like that. "The only way I figure I'll ever be killed in a plane," he cockily told me, "will be when the wing falls off."

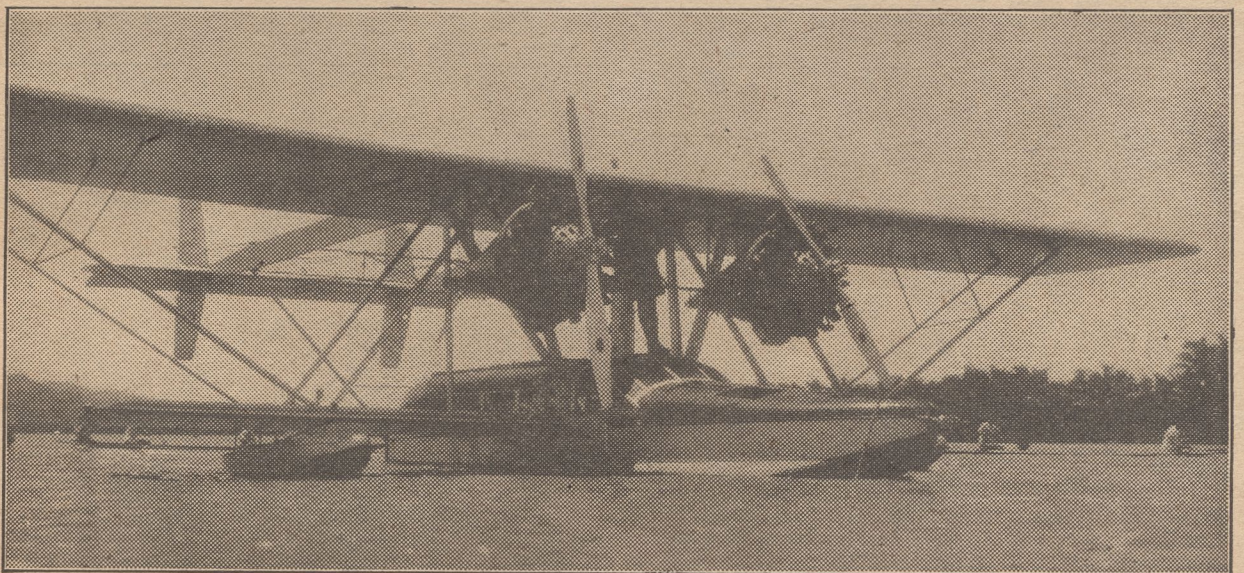
Well, it's practically unheard of for the wing of a modern transport to fall off. So what he meant was that with the care and judgment he exercised, it was utterly impossible for him to get into trouble. I concede, too, that he had to be blamed good to build up the swell flying record he had. Nevertheless,

he was killed several months later trying to fly through some "impossible" weather.

Any number of less experienced pilots would have returned to the airport before getting in that difficulty. They would then have awaited better weather conditions; and the flight, though off schedule, would eventually have been completed.

As for Mr. Over-Caution, he's got so fidgety that another name for him would be Mr. Under-Confident. And

What's it like to be "first mate" on a sky transport? Well, there's no one better fitted to tell you than Bill Ehmer; for he's filled a whole stack of log-books "right seating" it on airlines stretching to the far corners of the globe. First off, the job's no cinch. But if you are looking for adventure—



"In five more minutes those two motors would have gone dead—and we'd have crashed in the 'green hell'!" says Co-Pilot Ehmer in relating his story of the Brazilian survey flight. But luckily the gas-less Sikorsky was maneuvered into a safe landing on the river. Note the natives who finally became bold enough to approach the "big bird."

I don't have to tell you that a man who lacks confidence doesn't belong in the air.

But let's get into some of these experiences of mine in the far-corners of the globe—

FATE SPARES NINE

DURING a dreary November several years ago my alarm clock awakened me on a cold, damp morning, to face one of those dirty whip-cream fogs. My schedule called for a trip of 1200 miles that day. It was even difficult to get to the airport by taxicab. But I got there. And having no orders to the contrary, I went through my normal routine on our ship, consisting of checking the gas, oil, and controls, starting-up both engines, warming them to 40 degrees centigrade, and then running each one full throttle for the final check. Everything being Okay, the ship was rolled to the line ready for loading.

Our meteorological service was crude, consisting merely of observations taken at the various stations along the line. The first station, 260 miles south, reported favorable conditions, with ceiling and visibility unlimited. So, on the strength of this report, the officials decided to dispatch our S-38 when we had sufficient visibility for a safe take-off.

After about thirty minutes delay we loaded seven passengers, baggage and mail, and took-off. And due to the very low ceiling, we were soon hedgehopping houses and windmills in approved movie-thriller fashion. This type of flying never did appeal to me, and in this case it was a real pain in the neck, because the terrain over which we were flying did not permit any sort of a landing in event of a motor failure. Also, I wondered what sort of a "fix" we'd be in if the fog closed in behind us, as well as ahead. So yours truly, the co-pilot, advised the airport radio to stand by, as weather conditions were not improving. We would probably return.

Sure enough, after about fifteen minutes of hedge-dodging, the pilot nudged me, shook his head, and turned the ship around. Immediately, I notified the airport, reporting a fifty foot ceiling and half mile visibility, a condition I prayed would last for fifteen more minutes. It did, and we landed safely—to await better weather before making another attempt.

While the ship was being refueled, the passengers huddled around the office stove. All this was decidedly disconcerting to them, for this trip was our inauguration passenger flight. We'd been flying the route with mail for over a month—but this was the first "shot" the public was having at it. Well, after waiting thirty-five minutes, by stretching one's imagination the weather seemed a trifle brighter. Anyhow the pilot decided to try it again, so off we went.

This time we hedgehopped until we reached a large bay which entailed a cross-water



"I glanced ahead, let out a yell. Looming up out of the fog was the side of a steep hill. And at the same instant I hollered, we hit!" A few minutes later a cameraman snapped this photo of the smash-up. The real mystery is how the author ever lived through it.

hop of forty-six miles. The chart indicated numerous small rocky islands in the immediate vicinity of our course, and on previous trips I had noted their height ranged from fifty to five hundred feet. Then on the south side of the bay there were mountains averaging two thousand feet.

We followed our course out over the bay for about ten minutes, keeping under the ceiling at an altitude of about forty feet. Then directly ahead of us the fog closed right in on the bay!

I looked at the pilot and the pilot looked at me. He indicated the soup ahead. "I think we'll go in and take a look at it; it may not be much," he said, with somewhat of a strained smile.

"Hmm," I muttered to myself. You see, I'm one of those birds who don't believe a mountain will budge—even when hit by an airplane weighing 10,480 pounds and doing 110 miles per hour. But here was the rub: *A co-pilot can only suggest.* Yes, and suggestions are not always appreciated.

Well, knowing the fogs in that part of the world seldom were over 1,000 feet thick, I *suggested* climbing over it all. However, Mr. Pilot climbed up to no more than 300 feet—and sailed ahead blind!

I tightened up on my safety belt, at the same time



When it comes to flying Central American airways, Co-Pilot Ekmer is a great believer in altitude. And here's one excellent reason why—Momobombo Volcano. Ekmer got this fine photo of the perfect cone beside Lake Managua during one of his trans-Nicaraguan runs. Nope, that neck of the woods is no place to be buzzing around when the report reads "ceiling zero."

radioing back to the airport: "Flying blind . . . altitude 300 feet . . . on course." In fog the air is usually smooth and the instruments steady, but in my supposedly inexperienced opinion we were just about 5,700 feet too low. I had the feeling of riding in a high powered automobile down a city street full speed—with a blanket covering the windshield.

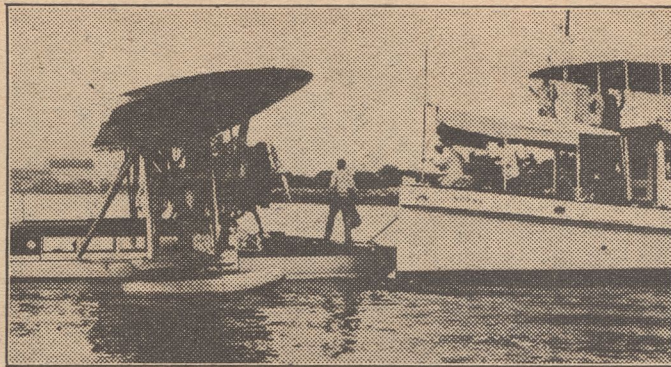
Then, after something over ten minutes of this, the pilot turned to me, said he was going back. And he made a wide, flat bank while I thankfully radioed the airport that we were returning.

MINUTES—several minutes—passed. But we were not yet back by any means! We were still on instruments and flying low. The airport radioed that conditions were as bad as when we had left. As the ceiling had been very low—less than a hundred feet at the spot where we entered the fog—we nosed down slightly in order to come out in the clear when we came to the break.

Well, sir, I was looking ahead for any opening and also straight down in an effort to see the water of the bay in case our altimeter was off. Considering the fact that an airplane altimeter works on the same principle as an aneroid barometer and is affected by weather changes in atmospheric pressure, when flying low through soup it's best not to trust the altimeter too much.

But suddenly, while looking straight down, I saw something besides fog! It was coming up to meet us—it was land! I glanced ahead, let out a yell. Looming up out of the fog was the side of a steep hill. And at the same instant I hollered, we hit!

All this occurred within a fraction of a second. How long I was unconscious, I will never know, as my wrist watch stopped at 8:33 with every jewel broken. When I did come to, almost smothering with my face buried in damp earth and with severe pains all over my body, I rather expected to pass on within the next few minutes. Somehow I managed to get the dirt out of my



The author saw history made when he helped open a China coast airline. He prizes this photo showing the first Sikorsky survey plane on its arrival at Manila on the initial hop from Shanghai. September 4, 1933 was the date.

the wreck had slightly better than 250 gallons poured around it. I tried to get up—and almost passed out from pain. Even crawling was impossible.

Some time elapsed. Then some natives from the village at the foot of the hill came up and commenced pulling the passengers out of the wreckage.

Someone gave me a cigarette—and it began to dawn upon me that I might live!

We had hit one of those rocky islands—one which we'd missed going south, but which our wide turn had lined right up for hitting purposes when we headed back north.

With the beating I took, I had plenty of time to think it all over before I did any flying again. And I will always believe that our accident was avoidable. True, all nine occupants survived—but that was just a quirk of Fate.

The next time I flew was five months later when we went out to search for a plane on the same route. In almost the same spot, this ship had radioed that she was turning around, and weather conditions were identical with ours.

We never found the ship—but pieces of wreckage and two bodies were picked up later by native fishermen.

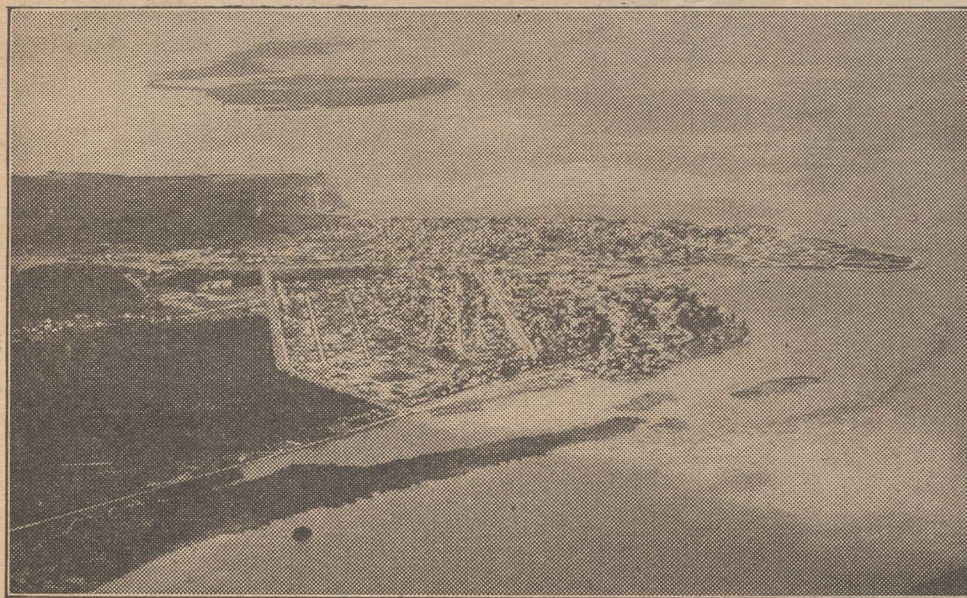
WE DO SOME DITCH-BOUNCING

AT one time I was running on a scheduled line in a twin engine S-38 amphibian through several tropical countries. My co-pilot's duties included giving the ship its final check before flight. On the day in question, this was done and everything was jake. Passengers were loaded, the ship was rolled into the water; the landing gear was pumped up, and the plane took-off from our large lake.

Our next stop was on a field that was not overly large and for this reason the pilot particularly disliked the field. Due to the heavy rain during the wet season, the field had a drainage ditch dug around its four sides. As airports in the United States are rated, this would be called a very poor field; however, it was possible, with care, to use it.

Well, we sighted the field, lowered our landing gear, and reeled in our radio antenna. The pressure gauges for the hydraulic landing gear indi-

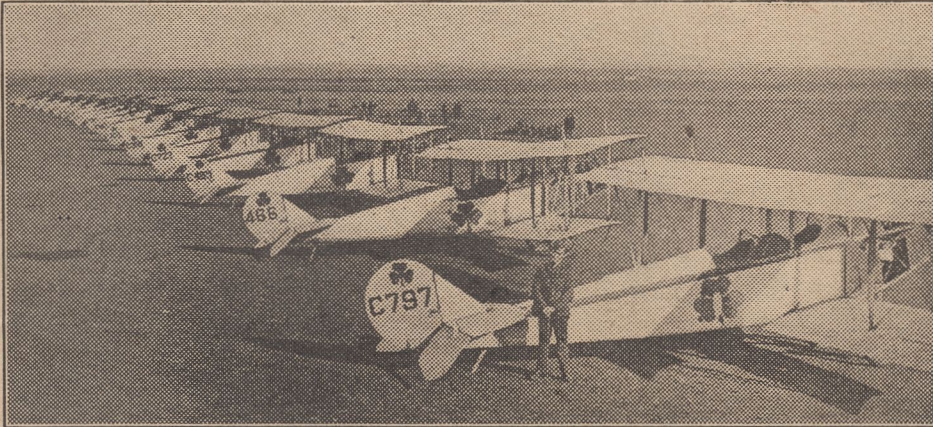
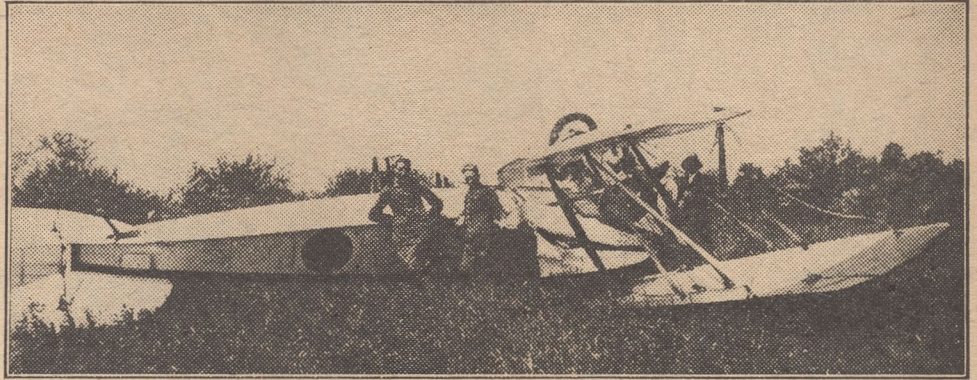
(Continued on page 87)



Here's another glorious "shot" caught by Ehmer on his Central American run. It's a sky view of Belize, the attractive garden-like capital of British Honduras. Built on a commanding "pen-point" of land, the city boasts a fine natural harbor upon which seaplanes may land.

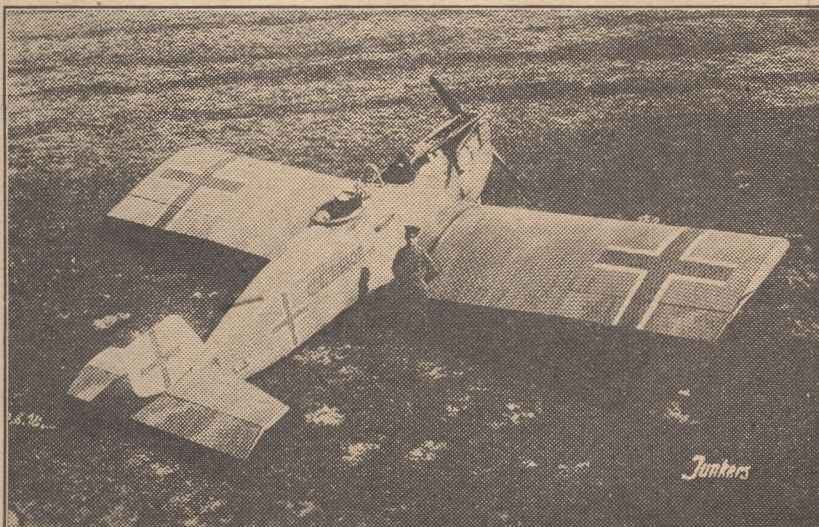
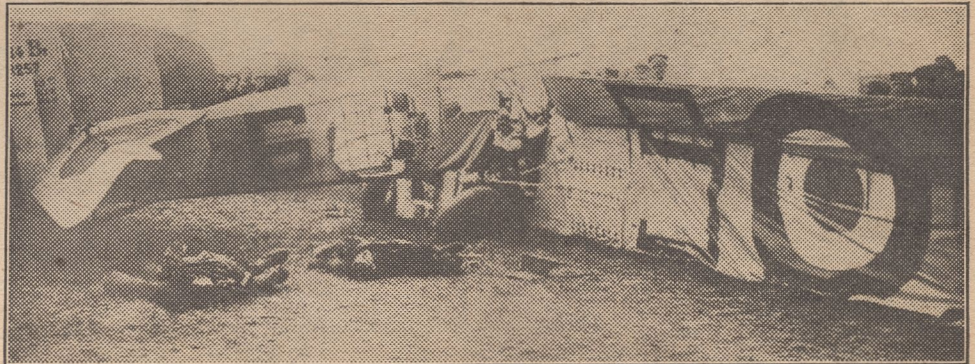
Snapshots of the War

Right: Sometimes they came back Okay—and then again they slid in on their backs just to shove the cost of the good old air war up another notch. The bird who piloted this one went H.H.W.O.—hedge-hopping without orders—and unfortunately he selected a day when his motor was in bad humor. Result: He took the last hedge wrong side up. Nevertheless he “came out of it walking” and still in good enough shape to snap a picture to show the folks back home how it’s done.

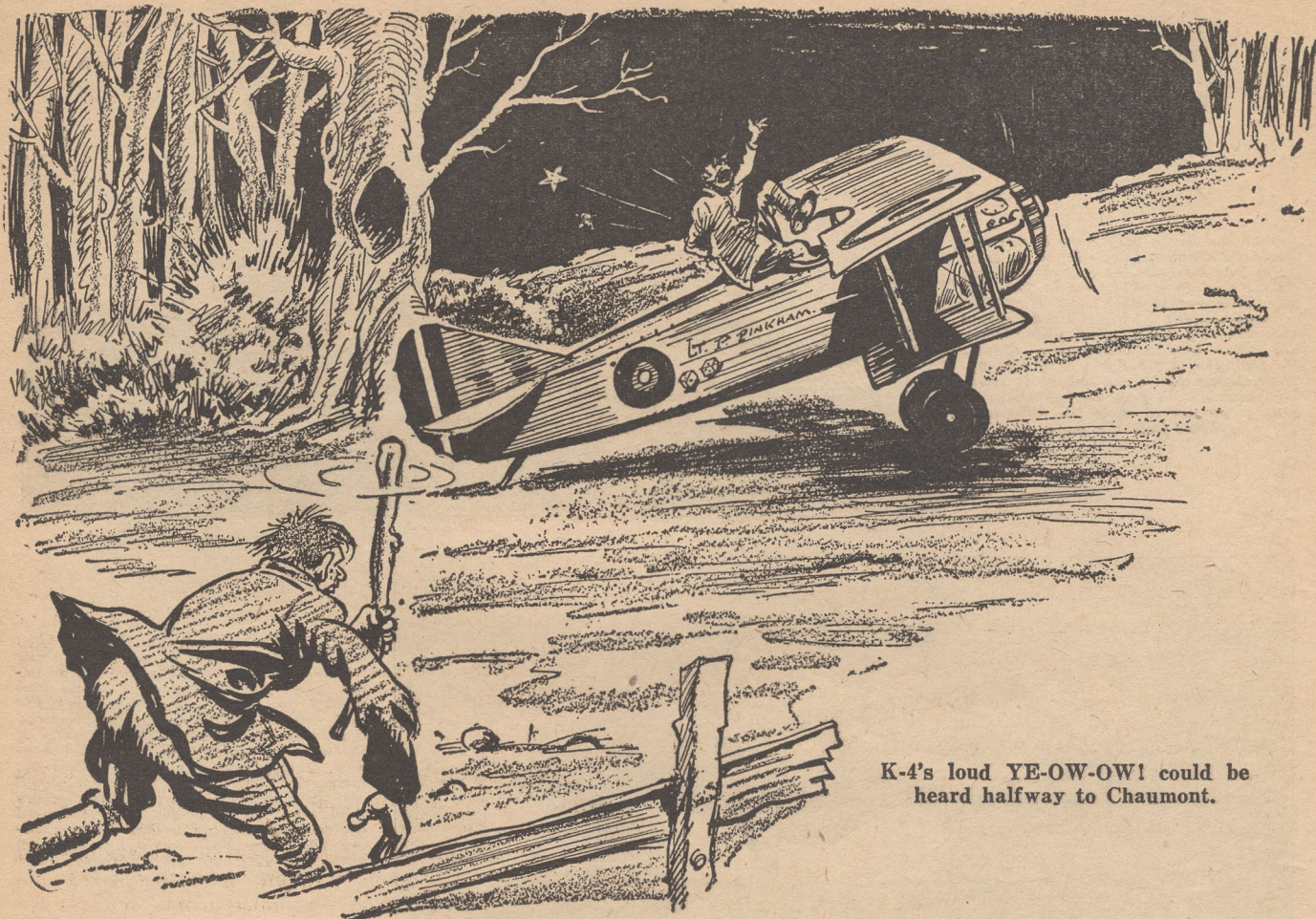


Left: Here's what a Canadian war-time training field looked like on a sunny day “way back when.” Lined up for morning inspection, those Jennies surely look mighty spic and span, don't they? It's such “shots” as these that gave rise to that famous crack about “wings made by the mile and cut off by the yard.” Anyhow, if this were a movie, we'd see the instruction begin. The new men would get their first look at the ships, others would continue their dual, and advanced cadets would hop off on their first exciting solo hops. But such a fine life was much too short and sweet, for—well, cast your eyes on the next picture.

Right: Yes, all too often this is the way the story ended. On arrival in France, the sporting days of the training drome were over and the young flyers faced the horrible realities of war. We publish this photo to impress upon you fellows what that meant. A Breguet observation crate lies smashed behind the enemy lines, both pilot and observer having been killed by gunfire. Kindly German soldiers have carefully lifted out the bodies and placed them on the ground for burial. Note that the terrific impact of the crash has shoved the undercarriage all the way back to the rear cockpit.



Left: Who said that present low-wing designs are new? Take a look at this German military machine of twenty years ago—it boasted plenty of modern features. It's a 1913 all-metal Junkers that broke all conventions of the times and set a new standard of design that wasn't appreciated until years later. Originally, it was built as an attack plane for trench strafing, but it did not see much real service. Note the neat, flush-fit ailerons, the full width elevator, and the advanced fin and rudder. Though this is an open cockpit job, many of the lines and structure of the famed trans-Atlantic “Bremen” will be recognized in this ship. Indeed, certain modern Junkers are not much different from this war-time plane.



K-4's loud YE-OW-OW! could be heard halfway to Chaumont.

Crash On Delivery

THIS is a story of high finance as well as high flying. It never would have been written if a couple of Yankee doughs had not found a cache of Jerry marks in a deserted *abri* near Vaubecourt.

You see, a year before Uncle Sam peeled off his coat and spat on his hands to take a poke at Kaiser Bill, the Frog poilus had chased the Heinies out of the aforementioned Frog hamlet. And the Jerry brass hats, evidently very hard pressed, were satisfied to escape with even their skivvies. They left behind them a Boche paymaster and payroll buried in a mass of debris.

The doughs who stumbled over this treasure left the Heinie paymaster where they found him—because he was no longer fit for circulation—but the marks, having escaped the blast of shells, soon began to circulate throughout France; and thereupon reports hit Chaumont to the effect that a flock of Yanks, the majority of whom had failed to pass an intelligence test, had purchased the Kraut legal tender at various places and had paid for it with honest-to-goodness French and American currency.

Outside Bar-le-Duc, in the Frog farmhouse which served as headquarters for the Ninth Pursuit Squadron, Major Rufus Garrity was hearing the lowdown on these Yankee financial geniuses from a colonel who was

By Joe Archibald
Author of "Scott Free-For-All,"
"Peck's Spad Boy," etc.

With Illustrations by the Author

tarrying over business so that both he and his official automobile could take on liquid refreshments.

"Yes sir, Garrity," the brass hat prated, "these doughs have been sell-

ing the marks at prices that are outrageous. They tell the dumb guys they pick out for customers that they will be in Germany before long and that they will need marks and plenty of 'em. So they give 'em about twenty marks for ten francs. That's robbery!

"What's more, they will also be charged with confiscating Allied property and the sticking up of Boche prisoners. They'll get the jug for it—those doughs. But we'll grab 'em all right. The Intelligence Corps is on their tails right now and expects to round 'em up in no time. Damndest thing I ever heard, Garrity."

"Why the dirty crooks!" Lieutenant Phineas Pinkham horned in indignantly. "Why them doughs will be lousy with Frog dough before they know it. How do guys get so lucky, huh?"

"They won't be so lucky when they get thrown into a klink for twenty years," Garrity clipped. "How much do you think they got out of that old dugout, Colonel?"

"Well, it's a safe bet that they found at least eighty thousand marks," the brass hat came back. "They sell 'em forty thousand francs and—that's some profit!"

"Ain't that just my luck?" Phineas complained. "I

THIS TIME WE FIND PHINEAS FUSSING WITH FINANCE

have pancaked in about three different trenches since I've been over here and I never hit that one where the marks were. I never was lucky. I took a dozen chances on an egg beater at a ladies' aid supper once back in Boonetown and my Aunt Isora only took one—and she won it! And all them dumb doughs ready to pay two francs for—haw-w-w-w-w! It is awful what they don't know about foreign exchanges, ain't it, Colonel?"

"Ah—er—Garrity," the braided, bay-windowed high officer said testily, "I came in to have a quiet chat with you. This Pinkham fellow—hasn't he any idea of discipline or respect for his superior officers? Do they all walk over you like this, Major? I want the man out of here! I have other matters to discuss that are none of his affair. Hmph! Hmm!" he blustered.

The Old Man turned on Phineas. "Get out of here," he exploded. "Who do you think you are? Coming in like this and—"

"Napoleon," Phineas said promptly. "But nobody will believe me, haw-w-w-w-w!" Then shaking his head, the Boonetown nuisance went out. "Huh, I would like to meet up with them doughs. Boys!"

EVEN so, the brass hat had been somewhat careless with the truth, though it would not be polite to call him a liar. In the presence of Phineas Pinkham he had told Garrity that what he had to say was not a pilot's business. But after he was gone, the Spad flyers of the Ninth found out that every last one of them fitted into the word picture that the Colonel had painted.

"Why the big bum!" Phineas snorted when the C. O. enlightened them as to the orders that had come from the Wing. "Bat flyin' he wants, huh? Awright, see if it bothers me. You heard what he said—that it wasn't none of my affair. That lets me out. I got a witness, haw! It's you, Major! The brass hats sure are a panic. They are like the managers of the pugs who say 'Go out an' slug, kid. He can't hurt us!'"

"Are you all through?" Garrity inquired with a pent-in restraint that sent his blood pressure up to the explosion point. "Well, in just twenty minutes you take the first hop over the lines, Mr. Pinkham. How do you like *that* for apples, you freckled-faced baboon?"

"I always do my duty," Phineas retorted loftily. "A Pinkham never questions orders. No sir! I will find out why the Heinies are tryin' to land a crate behind the lines near Souilly—as well as knock any of them knock-kneed who try it. If a very young Jerry spy is waiting to get picked up, he will have hardenin' of the arteries and no teeth by the time it happens. I

"Gimme this an' gimme that!" Yes, it seemed that everybody in the sector had the "gimme's." Jacques le Bouillon wanted marks, a slew of tough doughs wanted francs, Hauptmann von Katzenjammer wanted his pay, and Colonel McWhinney wanted satisfaction. Outside of that, everything was peaceful—except that the M.P.'s wanted Phineas!

will solve the mystery, Major. Watson, my violin! I feel like a bar or two of Choppin before I get in the mood."

"Yes," Garrity cracked, ignoring Phineas, "a Hun ship was seen in the vicinity of Souilly three nights ago. It was flying low, heading for Germany, and it may have dropped a spy for some reason or another. If they did drop one, they'll have to pick him up. That's logic."

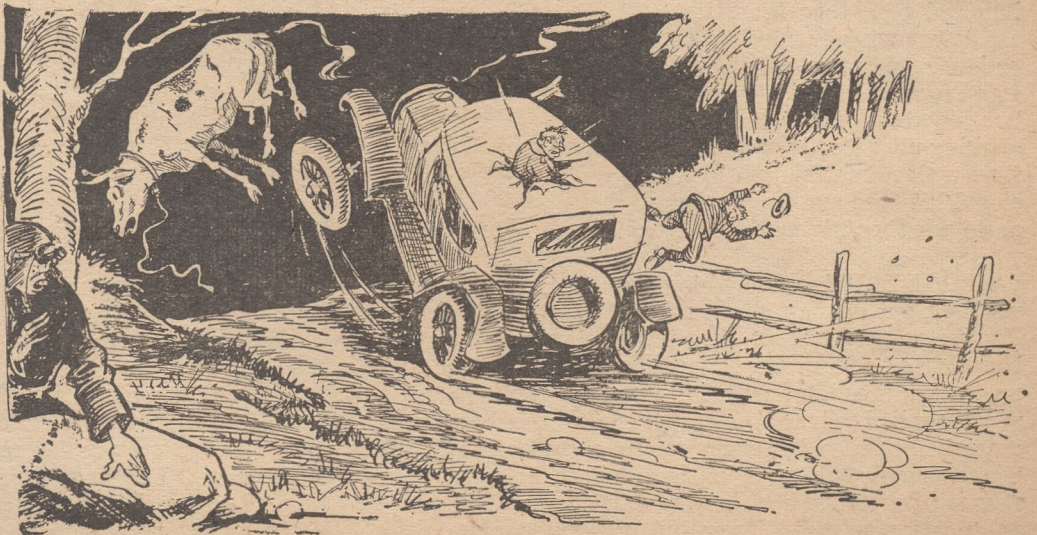
"Haw-w-w-w-w! I dropped a dame once," Phineas chortled. "She is still where I tossed her, for all of me. It is not sense. Well, adoo, bums. I go—but I will be back, cur-r-r-rses! The next time I

will git the mortgage, haw-w-w-w!"

"I will do it yet," the Old Man kept yelling even after Phineas had taken a Spad off the tarmac and was flying toward the muttering lines. "I will kill him! I will take the consequences with pleasure. I can stand just so much! I can—I'll—Cr-r-ripes!"

NOW over in Alsace-Lorraine, in a Heinie stronghold, a monocled *Herr Oberst* was pawing the dew of concern from a brow that was as wide as a garden gate. "Ach, mein Herrs," he guttured wearily, "der Marks ve moost *haben*. Already yedt der Marks dey ben lower by der Cherman Banken. Der troops by der groundt vill lizzen vhen der promise cooms, but der flying *Offiziers*, ach, smardter yedt dey ist, *hein? Ein, drei Staffels* dey say dey moost get der back pay—oddiverse dey dondt fly! Und *Staffel Noomber Sieben* ist der besser by der front. Ach, der *Dumkopfs* know der Marks ve moost haff zo ve buy der bullets mit shells to shooldt, und yedt der Marks dey vant alzo! *Donnervetter*, first der Marks und den der *Vaterland*. Idt vas like dis nefer by 1870!"

"*Nein, nein*," a bespectacled Junker shook his head mournfully. "But don't haff der vorry, *Herr Oberst*. I haff der Marks in *zwei, drei Tags*, you see. Ofer der lines ist vun Frenchman—zo agent K-4 he giffs me der vord—und der Frenchman he helps der Kaiser efen if he does nodt vant to. Enough Marks he has, *mein Freunds*, to pay idt der Fokker und Albatros flyers, ja



HONK! . . . HO-O-ON-NK! . . . KERWHAM! The Yank boiler's radiator merged with the bovine empenage and the moo cow took a brief trip through the air.

I look for *der vord* from K-4 any minute, *Herr Oberst*."

"*Gut!* You gedt idt *der Marks*, *Kapitan Schlushtwig*, und it giffs some of dem to you alzo, *ja*."

NIGHT flying was not considered good for the health in the days of the Big Fuss. That was before we had radio beams and robot pilots. All a man like Phineas Pinkham had were a stick, two Vickers guns, and a prayer.

And now the flyer from Iowa was cruising high over the heads of both armies, his eyes trying to spot the telltale fiery phlegm of a snooping Hun's exhaust.

"They are very stingy with the moonlight, *ce soir*," Phineas muttered. "If the Heinies hadn't tried to kiss me twice with archie, I would swear it was Scotland I was flyin' over. Huh," he mused, "all that Kraut dough and me not gettin' a smell. I could get even a better price for them marks, I bet, if they was mine. I could make enough to buy that pool room up over the Greek restaurant back home in Boonetown. I could even buy a flivver an'—oh yeah? Sneak over, will ya, ya square-headed Boche!" He kicked right rudder, described a semicircle in the murk, and booted his Spad toward a higher sky shelf. The drone of a Mercedes power plant had trickled through his leather helmet and had seeped into his big sound detectors than which there were none larger in all France.

Phineas had picked himself a tartar. He found that out after he banked, dropped down on the nocturnal Kraut, and missed with a couple of bursts. The Boche crate seemed capable of doing as many tricks as a wasp when it finally got down to business.

"It's a lie," the lone Yank gulped. "Nothin' can fly like that. I am asleep in my hut, or somethin'. Bump, wake me up, you bum, before I get killed. Ow-w-w-w-w!" A tracer bullet streaked the length of the Spad's top wing and the smell of burning dope stung Phineas Pinkham's nostrils. Spandau slugs took bites out of the Spad's shortribs, singed its scalp, and played havoc with it in general from prop boss to tail skid. Phineas managed to get down to five hundred feet, then the Hisso sat down and demanded shorter hours and more gas. There was no way out of the mess but straight down, so the quaking pilot let his Spad pick its own landing field while he closed his eyes and speculated as to whether his next C. O. would wear horns or big white wings.

BLOOEY! Phineas had his safety strap unhooked and was half out of the pit when the fifteen thousand dollar Yank investment went into the red amidst the green branches of a Frog tree. The Boonetown bat flyer woke up ten minutes later with his face in a bird's nest. His prop boss had ruined the careers of four feathered creatures before they had even gotten a good start in life. The aroma-de-egg brought the Yank back to consciousness whereupon he got his legs and arms untangled carefully and started to lower his bruised fuselage down through the branches.

"Ugh!" he sniffled. "I am sure glad it was not an

ostrich's domicile that I broke up."

Once on terra firma, Phineas looked around him. Not fifty yards away he made out the outlines of a big Frog chateau. A single light was burning in a window and toward that haven Lieutenant Pinkham limped, hoping that somebody had left a snack or two in the ice box. When he walked up the big stone steps he saw that part of the place had been bitten out by a hungry shell and he wondered what manner of Frog citizen dared hold his ground so near the palpitating lines.

In response to Phineas' loud pounding accompanied by his loud yip—"Who is in *chez maison*? Annybodee *dans ze chateau, oui*?"—the door finally opened. A nondescript individual with a long white beard that brushed off his shoes as he walked, peered out at the Yankee pilot. Phineas thought that by comparison to this old Frog, Rip Van Winkle should have worn rompers.

"Bong sour," he chirped to the hermit. "It is succor I want." To himself he muttered, "I hope he is one, haw-w-w-w!"

"*Entrez*," squeaked the bewhiskered Frog. "*Vous avez ze marks, hein*?" He rubbed his bony hands together like a miser who has found a stray nickel.

"Marks?" Phineas gulped. "Why—er—*oui oui*! I have eet some. Brand new ones that—er—Heinie treasury just issued. Bet you never saw 'em before. Uh—er—you read it ze Engleesh, mawn amy?"

"*Mais non*. I only speek a bit of *Anglais, oui*. But ze marks. I geeve ze francs for zem. Come, *mon ami*."

Phineas followed the aged Frenchman into a big room that was half smothered with cobwebs. The windows had been boarded up and only a single candle burned on a large table. Where the light was none too good, Phineas dug down into his pockets for a small bunch of greenish certificates and tossed them out.

"*Sacre!*" exclaimed his host. "*Mes yeux*—my eyes, zey are not *tres bon*," he went on, "*mais thees eez ze argent*, I know. By ze feel of ze papair—"

"*Oui*, sure," Phineas hastened to say. "It took me a year of smokes to save—er—I mean I had to stop smokin' so's I could save the dough—*argent*—up, haw-w-w-w! For ten francs it's *votre* sugar, mawn amy. Listen, monsoor, why ees you save ze Kraut money, non?"

"*Pourquoi?*" the ancient Frog wheezed. "*Jacques le*

Bouillon, he do not mak' eet ze same mistake *deux temps, non*." He shook his head from side to side as he went on. "In 1870 I theenk ees ze French who win ze *guerre* an' I buy zem all ze francs. But ze Germans zey win! Now I theenk ze Germans win ze *guerre aussi*—so eet ees ze marks I buy."

"Battier than a belfry," Phineas muttered to himself. Then to Le Bouillon: "That's smart, monsoor, haw-w-w-w! *Vous avez ze beaucoup* francs, huh?"

"*Mais oui*, I have ze barrel fill' up, *oui*. I buy heem all marks I can. Hark, *mon ami*! Ze guns, ze Boche guns zey geet moch near all ze time, *oui*? *Sacre*, I go'n be *tres rich homme*."

(Continued on page 80)



Phineas gave Babette a big bunny hug. "That is all I wanted to know," he yipped.

If Russia Attacked From the Arctic

THE GRIPPING STORY BEHIND OUR COVER PAINTING

★ ★ ★

MILITARY aviation is now progressing at such a tremendous pace that it is almost impossible to keep up with the revolutionary changes. A short time ago we had a flood of high speed single-seaters, these, in turn, being followed by a frantic production of two-seat attack planes. Then came the high speed long-range bomber, and the super-bomber.

As this is written, the spotlight is on the new Bell fighter, a multi-engined plane built expressly to defeat the super-bombers. And no doubt next month we'll hear of a plane designed to destroy this bomber-destroyer. And so the mad fighting plane chain is being welded link by link.

In the meantime, a decidedly interesting Polar and trans-Polar program has been instituted by the Soviets—a program which bears the stamp of international friendship. But friendly though it be, it has attracted military minds to its possibilities. Hence, the question arises: "What if Russia—or any other European air power—attacked us from the Arctic?"

FIRST off there was the establishment of a meteorological station by the Soviet government at the North Pole. Then shortly after this world-top base was established, there were several over-the-Pole flights by daring Russian airmen—record 6,000-mile jaunts from Moscow to California. Two of the planes made the striking trip with very little trouble; a third came to grief and at this writing is still being sought in Alaska.

All these flights were made over the North Pole through radio guidance, first from the Soviet Arctic camp, and later from friendly Canadian and United States stations. The feasibility of the route has been demonstrated.

So keen military observers point out that we now have a new border to defend—the Canadian border. In past years our northern-boundary defense has been in the hands of a few Customs officers and one or two Coast Guard cutters in the Great Lakes. Canada, of course, has always been a friendly nation, hence there has been no need of further measures.

But with the proof of the pudding being offered—that is to say, now that the Russians have shown us what can be done via the Pole—the Canadian border has suddenly become a new line to worry about. If giant planes can fly from Moscow to California, they *could* bring explosives with them and raid points along the Canadian-U. S. boundary. What's more, if they left from a less distant point in Russia, say Archangel, or from the North Pole base itself, then it would be a simple matter for them to fly back north after the bombing—perhaps to re-fuel and return for another attack.

And if Russia can cross the Pole, so can several other European powers. Japan could take a more modified route and attack from her most northern islands.

Of course, we are not saying that such an attack *will* be made, but it is quite evident that the authorities in Washington have been considering such probabilities. We repeat: The Soviet flights have shown us that such an attack could be made.

And now to get back to our planes. For weeks the public had been regaled with stories about the new Boeing "Flying Fortress" bombers. These monster air battleships are far better than anything that has ever been built before. They out-range, out-gun, and out-speed any form of defense ship known, and so it became plainly evident that some plane would have to be designed to provide a means of defense against this type of military craft in case any other air power adopted the "Flying Fortress" type. There are a few fighter-bombers in the European services which boast high speed, heavy armament, and wide range of action.

Well, the first reply to the super-bomber comes in the form of the new Bell XMF-1 twin-engined fighter. Reports on this plane were given out a short time ago by Lawrence D. Bell, of the Bell Aircraft Co., of Buffalo, and artist-conception pictures of the plane have been published in a few newspapers and magazines. Mr. Bell told us at press time, however, that the actual plane had not been completely assembled, and so no real performance figures

on the ship are available. But he has promised FLYING ACES a photograph as soon as they get the ship together.

THE XMF-1 is a twin-engined, low-wing monoplane with two 1,000 h.p. Allison engines set in pusher arrangement (see our cover painting). Each nacelle, mounted a short

distance from the fuselage, carries a motor as well as a streamlined cockpit for a gunner who will be armed with a new type of high-caliber air weapon. In addition, another turret—with weapons for use against a tail attack from either above or below is set in the aft section of the main fuselage.

The Bell will carry a pilot, an avigation officer (who will also act as bomber officer when the ship carries bombs for ground attack), and three skilled gunners.

With the new chemically-cooled Allison engines pounding out a total of 2,000 h.p., the Bell authorities believe this job will boast a top speed of something close to 300 m.p.h. It will have a range of well over 3,000 miles and a service ceiling of about 8 miles.

In comparison with any plane now in actual service, the Bell is far ahead in all-around performance. It is

(Continued on page 87)

How our sleek new bomber-destroyers—the Bell monoplanes—would repulse enemy raiders assailing our Canadian border.



Jammed Controls!

A PILOT who says he has never worried over the possibility of frozen controls is a liar—either that or he has never given any dual instruction.

Cases in which it has been *definitely* established that a fear-crazed student froze the controls are rare. But so is bubonic plague! However, if you knew there was a possibility of contracting it (no matter how remote) you'd do some worrying!

Ditto for this business of herding students around in a dual controlled airplane. Yet, that morning when I crawled into the front cockpit ahead of Johnny Robb, nothing was further from my mind.

You see, Johnny was my star pupil. He had shown a cooler head, better reflexes, and a finer feel for a ship than any student I had ever worked with. He had already soloed—and it was such a beautiful exhibition that I was a bit hepped on him. And now I was taking him up for his spins.

The company I was working for, in addition to their flying school, was operating a sales agency for a particular make of plane, and naturally they insisted upon my using that type of ship in all my student work. This, in spite of the fact that it was not well adapted for the purpose. To be precise, it had bad spin characteristics.

"Johnny," I told my student, "we're going to try some spins. We've gone into the *theory* of spins and recovery and I know you understand the procedure. But, kid, it's one thing to sit on the ground and talk about it—and quite another to do it cleanly and easily when you're up in the sky and the plane is boring down like a mad dervish.

"Now most planes will snap out of it when the controls are neutralized." I paused and shook my head for emphasis. "But this one won't. Not that it's particularly dangerous, but when this baby starts winding up it sort of takes the bit in its teeth and goes places on its own. So you've got to treat it kinda rough—full opposite rudder and shove that stick ahead *hard*! She'll come out then. And come out with a jerk. When she does, let her pick up flying speed, then level out gradually. Got it, Johnny?"

He grinned at me. "Full outside rudder—stick hard ahead," he repeated.

I slapped him on the back. That "outside rudder" tickled me. Talked like a veteran instead of a kid going up for his first spins.

"Right!" I approved. "Now listen: Take off, pick up about four thousand, then shake the stick. I'll take her from there, but you stay on the controls lightly and follow me through. *Lightly*, you understand. Then I'll spin her to the right and make the recovery. But if you think you've got the idea, shake the stick and I'll give 'er to you. Then you spin it and you come out of it. That clear?"

By George Lyle
Transport Pilot and Flying Instructor

"You bet!" He started to fasten the chin strap of his helmet.

"One thing more," I said. "On your first attempt don't let her go too long. Throttle back, hold her nose up until she's on the verge of a stall, then kick her off to the right. She'll start to spin instantly. After she does, don't let her go. Get hold of her on the first turn. It's easier then. Later we can try some longer ones."

"You aren't nervous, are you?" he grinned at me with a twinkle in his eye.

"No," I grumbled, "but spins are spins. When you're in 'em, you're not flying the plane—you're just riding. Old Man Gravity and something they call auto-rotation are running the show. And I don't trust either of 'em very far."

JOHNNY made a nice take-off. We were not wearing 'chutes. You see, at that time the Department of Commerce had not yet stepped into the picture to make it obligatory, and my employers did not furnish them. (As a matter of fact, parachutes were a rarity among commercial pilots prior to 1928.) Another thing: On that day, for some reason which I can't recall, we were not using the Gosport helmet system of inter-cockpit communication.

Anyway, when we reached four thousand, Johnny shook the stick and I took over. I throttled back immediately and pointed the plane up. As the ship lost speed, I worked the stick back to offset the increasing nose heaviness.

"See?" I shouted back at Johnny, wagging the stick and nodding at the ailerons which flapped ineffectually. "See, it's stalling. No control." Then I kicked on right rudder, and swerving, the plane fell off into a spin. One . . . two . . . three turns I counted. Then I gave her full left rudder and shoved the stick ahead. The spin stopped abruptly. Then I followed through with a dive, eased the stick back, and again we were level.

Twisting around, I looked at the kid. He was a little pale. But most of them are after a first spin and I thought nothing of it. Just then,

however, he shook the stick, so I relinquished the controls and pointed up. "Go back to four thousand," I shouted.

A few minutes later he again shook the stick and I knew he was ready to try a spin. I nodded. "But bring her out quick," I called, repeating my warning not to let her "wind up" the first time.

The kid didn't hesitate. Up came the nose abruptly. Too abruptly, in fact. But over-controlling is the commonest fault of inexperienced flyers, so I made no correction. She'd whip fast from that angle, though.

The ship yawed sharply to the right. Too soon, for we still had flying speed. But I decided, let Johnny fight it out for himself. That's the way he'd get the most

**A fouled stick . . .
a plunging plane
. . . death only a
matter of seconds!**

**That was the
spine-chilling spot
George Lyle was in. The angels, in
fact, were already dusting off a
harp for him. But George Lyle did
a right-about-face just short of the
Pearly Gates. And herein he re-
counts his sensational experience
for all you F.A. readers—pictures it
so graphically that you will cringe
as you read it!**



AMAZING TRUE STORY OF A FLYER WHO DODGED DEATH

benefit from it. As it was, the plane still had enough speed to follow her nose, but we started off with a sloppy wing-over. I chuckled. I sure would razz the kid about doing a wing-over when he was trying to spin.

BUT suddenly the ship straightened and with sickening speed the nose whipped down. Taken unawares, I was flung violently against my safety belt. A miniature sand storm, caused by dirt and grit *falling upward* from the floor and being whipped about by air currents within the cockpit, raged around me. He'd kicked the ship past the vertical position! *We were hurtling earthward in an inverted dive!*

Startled as I was, there was no question in my mind as to what had happened. Johnny, having misjudged his speed, had shoved on rudder, had mistaken the plane's wallowing response for the start of a spin. Then, as per my instructions, he had attempted to stop the imagined rotation by straightening out the rudder and jamming the stick ahead. But since we were *not* in a spin, the result was a spine racking, heart-in-the-throat plunge.

Still, the situation was not serious. We had worlds of room to straighten out. But that was something I figured I'd better do. Johnny might yank her out too sharply, thus putting an unnecessary strain on the wings. For with those commercial planes of the pre-D. of C. days, you wanted to come out of a dive easy and gentle like.

"Let me take her!" I screamed into the wailing rush of the wind, patting the top of my helmet to indicate that I was taking over.

Then I reached for the stick which was still pushed far forward. My fingers quickly closed around the rubber grip and I pulled gently. The stick didn't budge! I jerked. Still no result!

That stick was as immovable as though it had been welded to the fuselage!

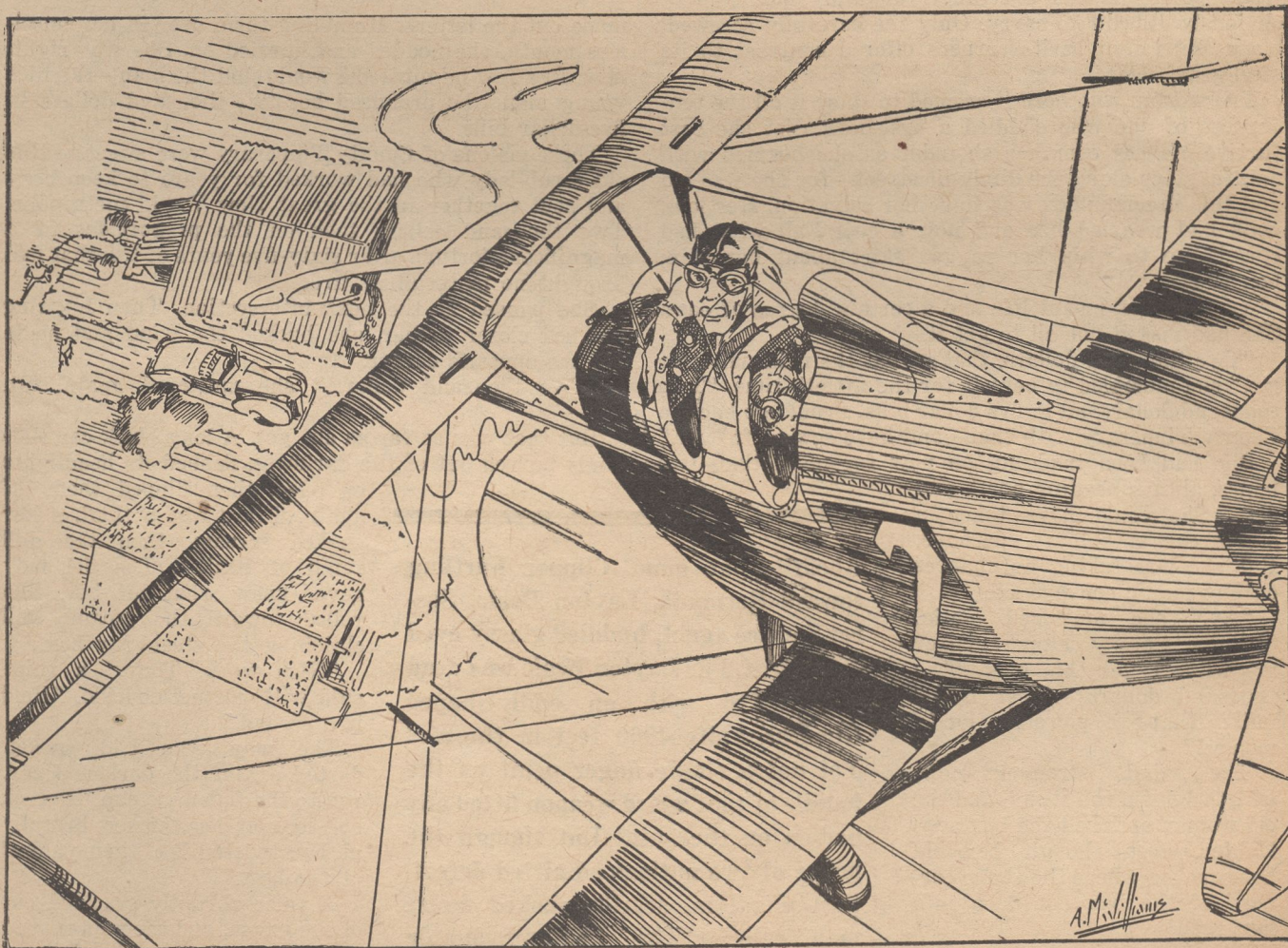
A tight, aching tautness gripped the pit of my stomach. Johnny had lost his head! He'd frozen the controls! I was certain—deadly certain of it.

The interplane wires were shrieking a spine-chilling protest. I was hanging, jack-knifed across the belt. And now, directly under the nose of the plane, I saw a red spot on the ground. It was the tiled roof of a house. And at an incredible speed that red splotch was growing in size. It fascinated me—but I tore my eyes from it, I must somehow lift myself up and look back and up at Johnny. Maybe by a look—by some reassuring sign—I could break his hysteria . . . get him to ease off . . . get him, somehow, to unfreeze that stick and let me coax her out of that screaming dive!

The abnormal attitude of the plane and the velocity we had already attained made my head feel as if it weighed a ton. A few more seconds and we would plunge into the ground! Frantically, I forced my body up, twisted my head in the terrific slipstream, and looked back. Then a new horror! The rear seat was empty! Johnny was gone!

The first explanation that flashed through my mind was that Johnny had been thrown out—that when the

(Continued on page 86)



In a few more moments we would plunge into the ground! Frantically, I forced my body up, twisted my head in the terrific slipstream, and looked back. Then a new horror! Johnny was gone!

Scourge of the Spy Brood

ANOTHER ACTION-PACKED KERRY KEEN SKY YARN

By Arch Whitehouse

Author of "Vultures' Vortex," "The Carrier Coup," etc.

THE box was about two feet long and about nine inches across at its widest point. It was a strange, ungainly box, obviously difficult to carry. Only the carefully screwed, black angle iron at its corners offered contrast to its steel-gray color.

The woman who bore it seemed to show it all the tenderness of one who cuddled a first-born. Yet she cast furtive glances over her shoulder as she hurried with painful steps along the dimly lit street—for she was old and this precious box was to be her salvation. Her long walk had wearied her and now a cool Fall wind had sprung up to whip her ragged skirt about her thin, bony knees.

Yes, the box meant life and a certain degree of ease. She had risked her all to get it.

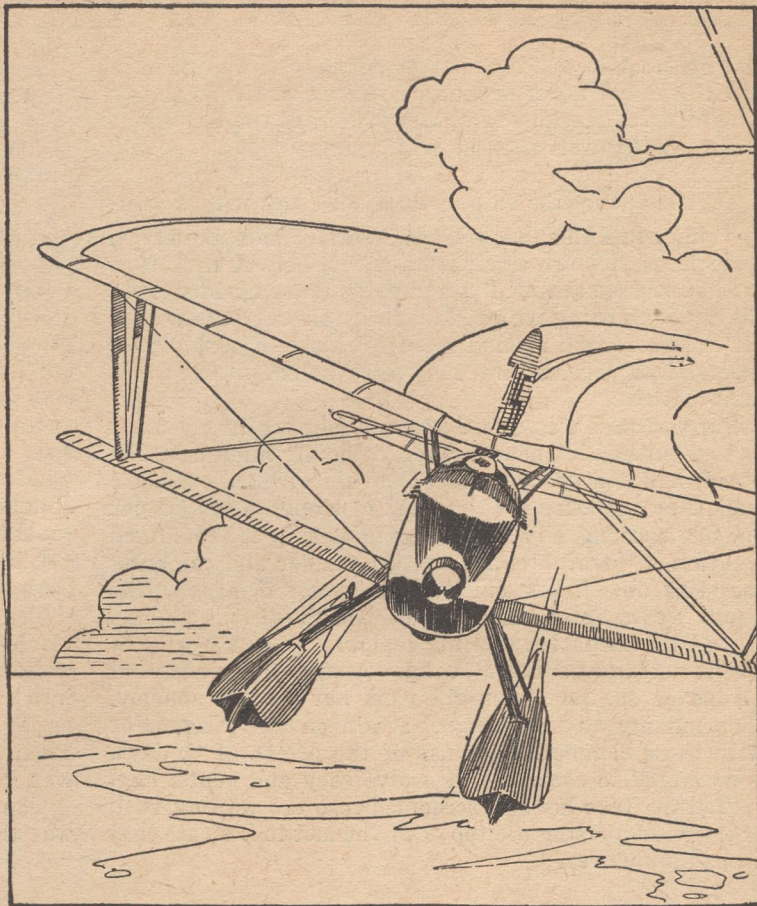
"Two thousand dollars, that's what the man will give me," she mumbled to herself for the fiftieth time. "Two thousand dollars, all in five dollar bills. I could go back to County Tipperary with that—and have some left over."

She had been trudging on now for more than two hours, always heading north and east. She could have taken a street car, a subway, perhaps. But she was taking no chances on any public conveyance.

"Ay," she muttered again. "It'll be County Tipperary for me when I get this over. Two thousand dollars in five dollar bills! That's a powerful lot o' money!"

The wind, stronger now, whistled down the street, and the old woman clutched the box even tighter, even though her old bones ached where the sharp corners of the box cut deep into her flesh.

She stopped at a corner, peered up at the blue and white street sign under the light. Finally she



made out the letters. Mumbling them over in her toothless mouth, she nodded and hurried on. She was right, now. In a few minutes she would find the man—the nice young man who promised her two thousand dollars in five-dollar bills.

Those visions of County Tipperary were sweet to this old scrub-lady who had worked for years to keep body and soul together in the great New World metropolis. Two thousand dollars took on the proportions of a magnificent fortune after sixty-five years of toil that had brought no material reward.

She paused at the next intersection. Then hugging the box closer to her, she bucked the wind and made for the opposite corner.

"Two thousand dollars," she muttered again. "In five—"

But that was as far as she got. A long black car suddenly purred out of the darkness, flashed its headlights

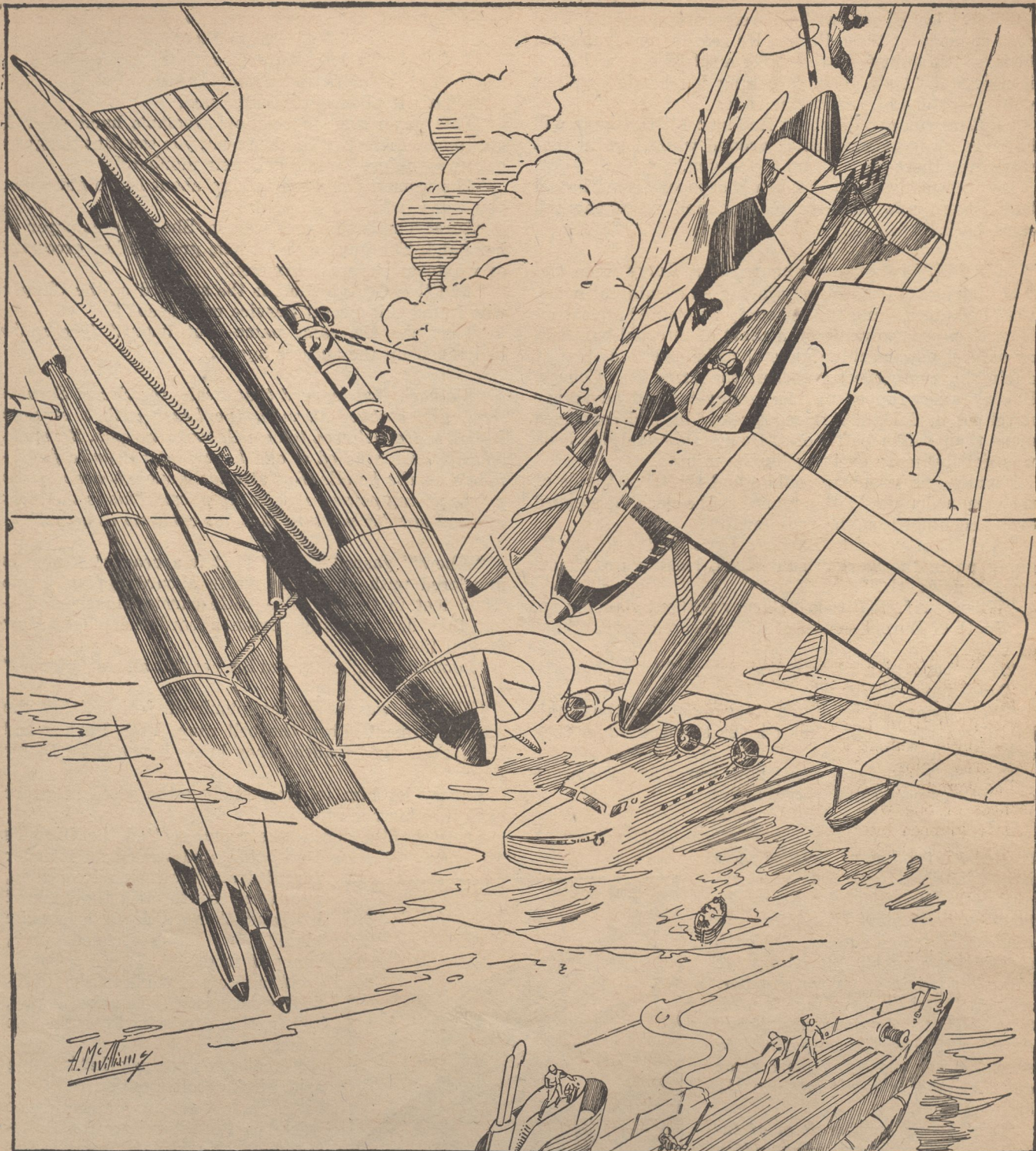
on once, then flipped them off again. There was a thud, a low choked scream, then the dull retch of brakes. The old lady never knew what hit her. She rolled toward the gutter, still clutching the steel-gray box.

"Nice work, Tony," a voice said with a cruel chuckle. "Hold it a second."

The man who had spoken darted out of the darkened car, ran to the fallen woman. He took one look at her, kicked brutally at her twisted leg, then yanked at the box.

A voice abruptly crackled out of the gloom, and the man turned sharply, drew a blue-black automatic, and fired three times. Then with the box in his arms he

Aboard that giant Clipper hurtling toward Bermuda, Layton Beale, Secret Service agent, huddled glassy-eyed in his seat. For Layton Beale was dead—murdered with an oddly-shaped Ghorka knife 4000 feet in the air! Yet not a single finger print on the handle of that weird weapon fitted any person on the ship! But though the police of two nations admitted defeat, that phantom, scarlet-masked figure men called "The Griffon" simply smiled—and centered his attentions upon a strange, grayish box.



Barney poured a double stream of lead into the Arado's vitals—and that was the death blow, for she plunged downward in a tight spiral, her right wing crumpled. It was at this instant that Keen pulled his bomb toggles.

leaped for the black car again and the door slammed behind him as the gear went in with a clash of metal teeth.

Into the dull night the car crashed and lunged. It was impossible to get the license numbers.

“**A**V ALL the filthy jobs,” the man who now hurried up said. “To kill an auld lady like that just to steal her groceries. That’s what it looked like, anyway. An’ thin, begorra, he tries to kill me, too!”

He crouched at her side. Doors were opening now and windows creaked upward. Faces and heavy bare arms appeared.

“How are ye? Are ye much hurt, mother?” the man said, lifting her head around with crude tenderness.

“ . . . thousand dollars in five-dollar bills,” she said between gulps. “He said he’d . . . give me . . . two thousand dollars. And then I could go to County Tipperary.”

“You from County Tipperary, m’am?” the man asked. He knew she’d never get back there. “The devils hit ye—and ran off.”

A crowd gathered around. The man tried to make her comfortable. He dragged her to the sidewalk, then noticed that she held one fist clenched. He fumbled with her shawl, carefully opened the fingers, and drew out a small slip of paper. He quickly stuffed it in his pocket as a bluecoat shoved his way through the crowd.

“She’s done,” he told the policeman. “A big black car—a Lincoln, I believe—hit her and cleared off.”

The cop leaned over with a bored professional air. He'd seen so many of these things. He reached out, yanked a tattered bed quilt from the top of a refuse can, and drew it across the body. Then brushing his hands together with a gesture of finality, he said:

"Nut'in' you can do about it. Them hit-run guys will be miles away by now. Stick around while I go in that store over there and call up the wagon."

But the man who had taken the paper from the old lady's hand was nowhere to be found when the cop came back.

EXACTLY twenty-four hours later, Kerry Keen and Barney O'Dare were enjoying an evening at home. Both had pipes going and the study was tinted a pleasant blue. Keen was working on a chart of internal ballistics on several new machine guns; he planned to display it during his coming lecture before the Army War College. Barney was wrapped up in a gaudy-covered adventure novel set in darkest Africa. Already he had consumed more than half a bottle of O'Doul's Dew and the book was getting more exciting by the minute.

Finally, the Irishman could stand the tense thrills of the yarn no longer. With a glance at the clock, he stepped over and flipped on the radio switch.

"Ah! That's right, Barney. Let's find out what's going on in the world," said Keen, looking up. "Time for the news, eh?"

"Where's Africa?" asked Barney without glancing up. "South of Europe—most of it," answered Keen. "What of it?"

"Ever been to a place called Angola?"

"No, I haven't. But why?"

"Well, I was just reading a story about how the cannibals down there light fires on yer stomach when they catch you, and—"

But the radio tubes were now warm and the voice of the announcer came in gradually:

"... most amazing crime story of the year. A United States Secret Service man named Layton Beale was mysteriously murdered aboard a Bermuda-bound Clipper plane this afternoon. Beale was found stabbed to death in his seat a short time before the plane landed in Hamilton Harbor. He was found by the plane steward, George Blott. Government officials in Bermuda are investigating the case. We hope to bring more news of this amazing affair later in the broadcast."

"And here's another item of interest: The mystery surrounding the death of Mrs. Margaret Kennedy, who was knocked down and killed by a hit-run driver last night, is still attracting the attention of police and government officials. Mrs. Kennedy was a cleaner in the Brooklyn Navy Yard office buildings and no one seems to be able to account for her being in the Maspeth section of Long Island at that time of night. She lives in a small furnished room in central Manhattan."

"Wait a minute," Barney suddenly growled. "That name—that George Blott guy."

The radio continued on with less interesting news while Barney fumbled about in his pockets. Keen watched with mild interest, unable to figure out what Barney was getting at.

"Yes, that's the same name," Barney suddenly said, peering at a crumpled piece of paper he had extracted from his coat. "Look, 'George Blott.'"

He handed the paper over to Keen, who read:

*Mr. George Blott
The Waterford Cafe
64th and Grand Avenue*

"What's it all about?" Keen said.

"This paper was in that old woman's hand when I got to her. I saw her knocked over, you see. But the guys got away before I could get their number."

"The woman you were talking about last night when you came in?"

"Sure! That's the same woman. She had this paper in her hand. The guys who hit her, grabbed her groceries or whatever she was carrying."

"And this George Blott is the steward on the Clipper who found this Secret Service man dead?"

"That was the same name—but listen!" The radio had taken up the subject again:

"We have just learned that Beale, the Secret Service man, was stabbed through the heart with a strange Indian knife, believed to be a Ghoorka weapon. Bermuda officials have studied it and have found definite fingerprints on the handle. But strangely enough none of the prints fit any person aboard the plane! This is the most unusual murder mystery that has come up in years."

"Whew!" gasped Keen. "That is a beauty! A man is murdered with an Indian knife aboard a plane some 4,000 feet in the air. The knife carries fingerprints—but they don't fit any person aboard the plane! How do you like that?"

"I don't like it," muttered Barney. "It all adds up to—"

THERE was a sudden plunk of feet outside the apartment. Then the bell rang. Both Barney and Keen exchanged smiles. They knew it would be Drury Lang.

Barney let him in, first stuffing the piece of paper back into his pocket.

Lang shuffled across the room, spotted the O'Doul's Dew bottle, and headed for it under forced draft. He took a long swig, wiped his mouth with the back of his hand, then sat down. The radio blared on. Lang leaned over, snapped it off.

"What do you think of that Kennedy woman case?" he asked finally.

"Anything missing?" spoke up Keen.

"What made you ask that?" Lang said, sitting bolt upright.

"A perfect set-up. Old lady who works in the Administration Building of the Navy Yard goes tramping across Brooklyn late at night

—to be knocked down by a car."

"Go on," said Lang. "You're getting warm."

"I read the story in this morning's paper. She was knocked down on a fairly quiet street and they took a package she was carrying, according to an eyewitness. There was some shooting, too."

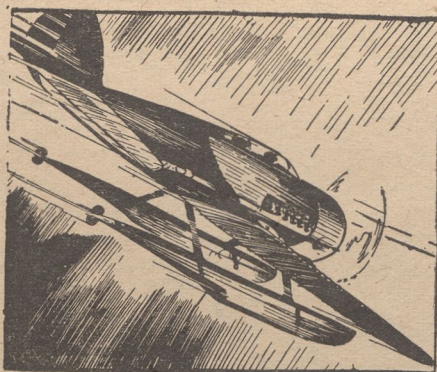
"Well, there is something missing," Lang said, peering about. "But we're not broadcasting it. No, it ain't the design of a new battleship, or anything like that."

"No? What is it?"

"A model of the U.S.S. *Saratoga*, incorporating a working model of a new flight-deck arrester gear. Only a few men in the Navy know how it works, and every other naval power in the world would like to get the dope on it."

"What's it do?" asked Barney.

"Arrests planes coming in for a landing on the



flight decks of the Navy aircraft carriers," answered Lang with a sniff.

"What do they want to arrest them for? They ain't done nothin', have they?"

"My gosh, how do you live with a guy like this?" Lang exploded. "How could you arrest a plane, you dumb Mick? They don't arrest—"

"But you said they did," argued the irrepressible Barney, with a twinkle in his eye.

"I mean arrest the ships," spluttered Lang.

"Oh, the battleships."

"No—the *planes*!" came the screeching reply. "They arrest them . . ."

"You just said they didn't. That you can't arrest planes."

"It's an arresting gear, that—"

"Oh, a mechanical police system. Ain't the cops smart enough any more? Do they have to invent machines to—"

"Will you shut up while I explain? It's a . . . a thing . . . a something to stop the Navy planes from running off the deck when they are landing—that sort of an arrester. Cripes! I used to think you knew *something*. But I give up," Lang moaned, shaking his head.

Keen broke in at this point to get Lang started again. "I know what you mean, Lang. Go on with the story."

"I'm glad some one knows something about something. To think that I came up to this funny factory to get some help."

"We don't know nothin'," scowled Barney.

"*You* don't know nothin'," agreed Lang. "But this mug over here knows plenty," he added, indicating Keen.

"Here comes the 'Griffon' gag again," laughed Keen. "I suppose it was the Griffon who killed the Secret Service man on that Clipper ship. Find any cards yet?"

"Shut up! I might be the next one," Lang said. "I got to go down next trip and get him."

"What are you talking about? Get who?"

"Beale was on his way down to bring back a former Navy guy—a Commander Hugh Stanwick, who was wanted by the government for selling Navy secrets. Now I got to go and get him."

K EEN'S mind was working fast now. Things were beginning to jell—the old lady from the Navy Yard . . . the man named George Blott, who was a steward aboard the Clipper ship . . . the missing model of the aircraft carrier arrester gear . . . and the murdered Secret Service man.

"The British," Lang continued, "nabbed Stanwick down there and we got extradition papers on him. Beale was to go down and bring him back."

"But what about that model?" Keen suddenly asked. "Does that case hook up with this Clipper business?"

"I never thought of that," said Lang, pensively. "You know, Keen, you got a good mind. You ought to be in this racket."

"But where is the model now?"

"I thought *you* might have an idea. There's some real dough in it if we can get it back."

"You're going down on the Saturday Clipper to bring this man, Stanwick, back?"

"Yeh, but I don't like it."

"Um, and you'll be going down on the same plane and with the same crew that took Beale?"

"Hey, take it easy, will you?" pleaded Lang.

"You could go by boat, you know."

"Sure. But it would take too long. Besides, they need me on the arrester-gear model business."

"I see," said Keen. "But don't forget what I said before. This man Stanwick may be connected in some way with the stealing of the arrester gear. He might even have it in Bermuda."

Lang sat and studied the design in the Chinese rug for some time. Finally, he wagged his head solemnly and agreed.

"That's right! Stanwick is reasonably free. He's out on some sort of parole, being a U.S. Naval officer and all that sort of thing."

"You'd better be sure he is clamped up somewhere. If the man who was going down to pick him up was killed—murdered—it should be pretty obvious that this guy Stanwick is a pretty important character. Desperate, too, by the looks of things."

"How about you, Keen?" Lang asked after another period of solemn contemplation of the rug. "I mean, what are you doing for the next few days?"

"I'm extremely busy. I've got a lecture to reel off before the War College and I'm working on a lot of research stuff. Why?" Keen asked. He knew what Lang was after.

"We've got to get that model back," Lang said through his browned teeth. "I wish I knew

where to get hold of that Griffon guy. I can't figure him out yet, Keen. I'd like to contact him, somehow, and make a dicker with him."

"Maybe the Griffon was in this thing at that. It sounds like the sort of mess he cooks up," said Keen with a serious grimace.

Lang looked at his host, unable to make out just what he meant.

"Come clean for once in your life, Keen. You know who the Griffon is, don't you?" he queried, lighting a cigarette and looking around for the bottle.

"But how would all this business interest the Griffon?" Keen asked, avoiding Lang's question.

"There's plenty in it—for the guy who can get that model back. More than you'll get for spouting about ballistics before a War College crowd," Lang replied, equally as evasive, but pointed in his inference.

"So you still think I'm the Griffon," Keen said with a low chuckle.

"No, I don't. But—"

"Well," interrupted Keen hurriedly. "Regardless of all that I think I'll let you get bumped off on the Clipper trip. You're becoming a nuisance, Lang. You bother me with your trifles. Yes," he added slowly, "I think I'll let you go and get yourself bumped off."

"Tripe!" Lang blurted out, jumping up. "You can't scare me that way. I'll go to Bermuda and I'll bring Stanwick back. And then I'll come back and go to work on you—and the Griffon!"

"No, you mustn't forget the Griffon," grinned Keen. "And don't forget the model of the aircraft carrier arrester-gear. That's very important."

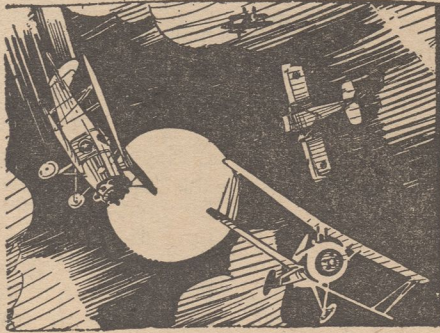
"I won't forget," Lang continued to storm. "I won't forget you, either, when I get back."

He barged out of the door, clucking like an insulted hen.

"If you *do* get back," Keen hurled at the closed door.

W HAT did you mean by that?" queried Barney after they heard the elevator doors clang.

"That man's in real danger, Barney," Keen said as he gathered his papers together. "He'll get into trouble



as sure as shooting—or knifing—if he goes after that egg Stanwick."

"You worrying about him?"

"In a way. I'd hate to see the old guy shoved off. He keeps us prime. I don't know what we'd do without him sticking his beak into everything. No, we can't let old Lang go like that. He's too valuable. He's ready money any time we get down on our uppers."

"I can see that we're in for something hot tonight, eh?" Barney grunted. "Who gets hit this time? Me, I suppose."

Keen did not answer. He was scotched on the corner of his big desk, fingering a yellow pencil. "The old lady had the box last night," he mumbled, talking to no one in particular, "and they got it before midnight."

"So this guy Blott, who she was looking for, probably took it to Bermuda on the same Clipper carrying that G-man Beale," offered Barney.

"Maybe," Keen said frowning. "And yet Blott would be taking an awful chance doing it that way. No, the box was not on board that trip, or they wouldn't have bumped off Beale. They got rid of Beale to keep Stanwick free a little longer. Because, you see, they want to hand Stanwick the box so he, in turn, can deliver it over to some one in Bermuda and get the dough he needs to get out of this mess."

"But suppose Blott *did* take the box down," argued Barney.

"He couldn't have," persisted Keen. "He knew that if Beale was to be killed, there would be a thorough check of the ship, and then the box would be found. It's going down on the next trip."

"That lets us out, then," Barney mooned. "They do a daylight show all the time."

Keen nodded at that, then took a new tack: "It is evident that the box is somewhere here—or out on Long Island near Port Washington, the Clipper base. But there's no use in trying to get it here. We must wait until we are certain of its position, and we can't be sure of that until Blott's plane leaves on Saturday. Then we'll know for certain that it is aboard, and we can work from that point on."

"Wow! Then old Lang *will* be on board with it all the time!"

"Yes. But he won't know it. He'll be so scared waiting for some one to stab him, he won't be fit to figure out anything."

"Neither would I," said Barney.

THAT was Wednesday night, and Keen and Barney went to bed and slept on it. By noon next day, however, they were out at Graylands, Keen's small estate out on Long Island. There they checked maps, charts, and the tanks of the Black Bullet.

At 6 o'clock Barney took his dilapidated flivver and headed back toward the City, but when he was certain no one was following him, he turned north at Mineola and headed for Port Washington.

He was back again before ten o'clock. Keen listened to his story, made a quick decision. "Okay," he said quietly. "Get something to eat. After that we're heading out"

Barney lunched on a cold leg of lamb, a dish of cold spuds and a bottle of beer, while Keen muffled himself up in his black coverall, helmet, and parachute harness. When the Mick had his fill he pulled on his flying gear slowly and went downstairs with half a bottle of beer in his hand, flicking out lights as he went.

Below, in their underground hangar, Keen was swinging the Black Bullet around on her turn-table so that her nose was pointing out. He climbed up into the covered cockpit, kicked over the Avia starter, and the big 1,000-h.p. engine roared into life. He set the Skoda mufflers, then nodded down to Barney. The latter snapped off the lights, moved up to a master switch box, and drew a red handle down.

"Make it snappy," Keen called over the side. "We've got to make it fast before daybreak."

The great doors of the sunken hangar silently swung outward and Keen ran the amphibian into the velvety darkness outside. Barney flicked the switch again, darted outside before the doors closed.

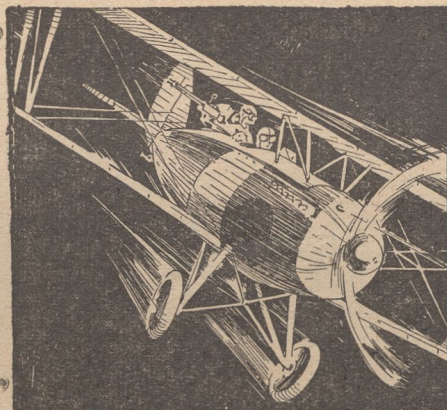
"Those suitcases were put aboard, weren't they?" Keen husked over the side.

"Sure. Everything's aboard—enough to start a circus," Barney grunted, more to himself than in an answer. Then he drew out the folding wings and Keen pressed the king-pins down with his feet. At last they were ready, so Barney climbed aboard and took his position in the rear cockpit.

Keen let the Black Bullet roll down the hard turf, past the thick foliated grape arbor, and into the shadow of his boat-house. The engine was throttled back to a low purr as she rolled across the hard wet sand and settled on the water. Keen drew back the levers which set the pontoons for a water take-off, then ran the plane out away from the shore. Once in the clear, he opened the Avia, whereupon the Black Bullet leaped up on her step and fought herself free of the light rollers.

Now she was away, climbing like a hawk. Keen settled back and waited until he was at 4,000 feet before he cut off the mufflers and let her roar. He finally shot her out toward the sea after turning to take a point on the Montauk Point light.

"Bermuda, next stop," he grinned.



HARDLY had he spoken the words, however, when Barney turned sharply in his seat and reached under the cowl for his gun.

"What's up?" Keen queried. They were in communication through their helmet phones now and could talk with little trouble.

"I don't know. I just . . . I just felt something is screwy."

Keen hunched his shoulders, turned back to his job. But in a moment, Barney jerked again and peered about. This time Keen took no notice but went to work checking his chart.

"I don't like it," Barney finally said.

"Get out and walk," was all the satisfaction he got from Keen.

"But there's something going on, somewhere. How's she flying?"

"Beautiful! What's eating you, anyway?"

"I don't know . . . but something's screwy on this show."

"Sure—no one has shot at us yet," cracked Keen, getting on with the business.

"No, not—"

But before Barney could finish his remark they were both deafened by a series of sharp explosions that crashed all about them. The Bullet staggered as she plunged through the concussion. Chunks of screaming metal wailed all about them.

(Continued on page 72)



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**.

★ ★ ★

POOR POP

Pilot's son: Mama, what happens to airplanes when they can't fly anymore?

Pilot's wife: They sell them to your father.

RESISTANCE

Hoosey: Yes sir, I flew backwards all morning.

Woosey: How was that?

Hoosey: I was bucking a 5-m.p.h. head wind in my Flying Flea.

DUMB DORA doesn't think Pterodactyl planes are so good. "For," she says, "how can a flyer take advantage of tail winds when his ship hasn't got a tail?"

A HOT ONE

Airport manager: Just how did that student crack up?

Instructor: Oh, it was just one of those things. He was making a blind flight, got confused, and mistook his engine temperature gauge for his altimeter.

AND NO DETOURS!

Just missing the hangar by an inch, the student roared the training plane in at full throttle, did a loop 50 feet from the ground, side-slipped downwind, and finally bounced to a tail-shaking stop. Then out of the cockpit he stepped—to face his scowling instructor.

"Have you," barked the irate instructor, "seen that movie, 'The Road Back'?"

"No, sir," answered the stude. "Why?"
"Well," came the crisp reply, "just one more crazy stunt like that—and you'll be on it!"



A Rebel meets a Loyalist over Madrid.

CRACK-UP

First boy: Gosh, it was horrible; I saw it all. She dived down, crashed on her nose, smashed her prop and cowl-ing, and her cockpit was stove in. Whata wreck!

Second boy: Yeah? It musta been awful!

First boy: I'll say! You see I had it hung up in my room with string instead of wire—and the string let go.

WORST JOKE OF THE MONTH

Flub: You say you've figured out a way to make skinny babies fat?

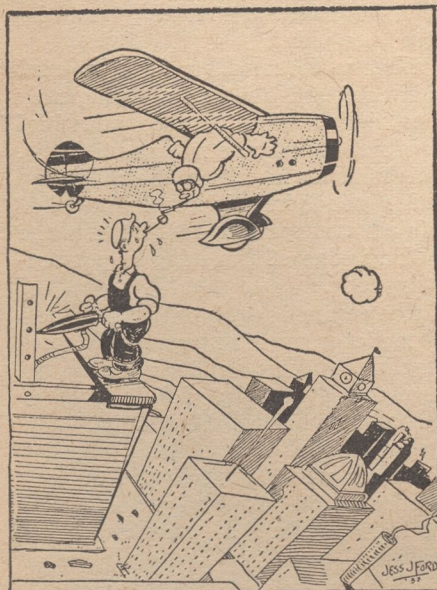
Dub: Yeah. Just take 'em up in an airplane, drop 'em out at 5,000 feet—and they come down plump!

POWER PROBLEM

Sport flyer: I've just bought a Flying Flea. What kind of an engine should I put in it?

Transport pilot: A Cyclone.
Sport flyer (astonished): Wright?

Transport pilot: No, Baby.



"Thanks, my good man!"

COGENT COME-BACK

A visiting flying instructor was giving a long and extremely boring lecture to a group of students.

"Is there," he finally concluded, "anything else you'd like to know about planes?"

"Yes, sir," cracked a stude in the back row. "What time is yours leaving?"

PHYSICAL IMPOSSIBILITY

Bump (indicating forward cockpit): You sit down in front.

Phineas: I can't—I'm not made that way. Haw-w-w-w!

IN THE 25TH CENTURY

Passenger (in speeding rocket ship): I say, steward—my little son just dropped his rubber ball out the window. Look! I see it down there now!

Steward: Beg pardon, sir, but that's the earth.

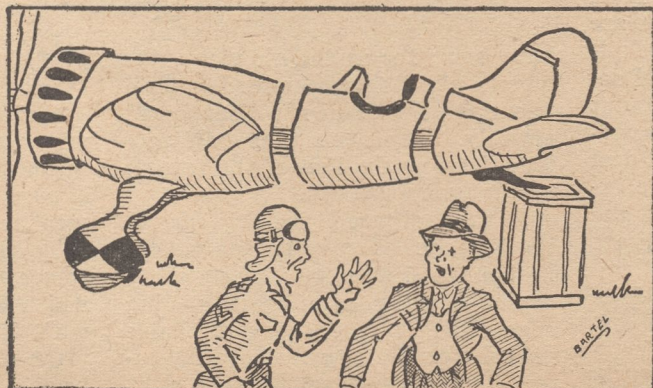
DIRGE

Intone a prayer
For Squadron-Chief Mott;
He was tight,
And his wings were not

NOT SO GOOD

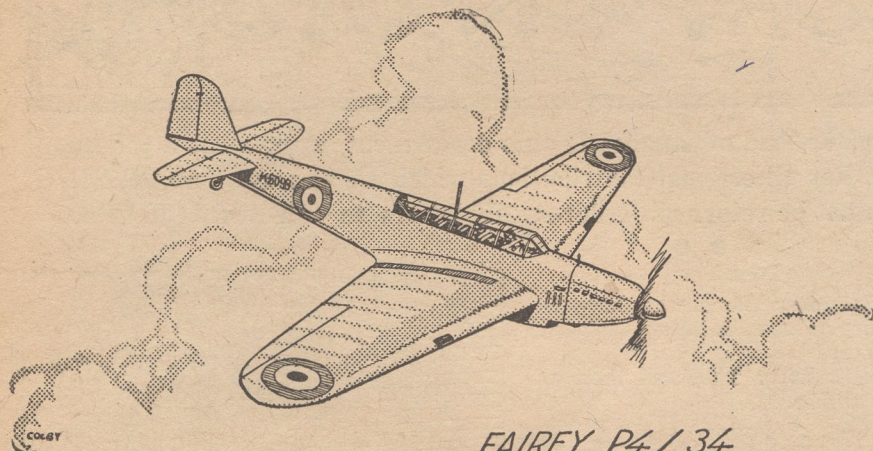
Pilot: And did you test that oil?

Dumb greaseball (wiping off his mouth): Yeah, an' it sure tested awful!



"This stationary cockpit is my own invention. You see, I'm slated for my barrel roll tests—and I got a weak stomach."

Modern Planes Album



FAIREY P4/34

FAIREY P4/34

THIS new Fairey type is another low-wing, high-speed light bomber. However, it must not be confused with the Fairey Battle or the Battle Junior, both of which have been offered in this feature before. This is an entirely new ship.

The plane has not as yet been accepted by the R. A. F., but there is every reason to believe that it will become the basic type in its class. It

carries a crew of two with a high bomb load and sufficient defensive armament to protect itself during raids.

The new Rolls-Royce Merlin engine, rated at 1,050 h.p., is employed. And while the performance figures have not been given out, it is generally agreed that this craft does well over 250 top. Some British writers have stated that its speed is nearer 300.

In general lines the P4/34 is a far better looking ship than the Battle, and the manner in which the fuselage is faired directly into the top of the cockpit covering adds considerable to its looks. We must presume that the usual all-metal cantilever wing structure is used. That this is the first low-wing all-metal monoplane built in Britain using flush riveting, is an interesting point.

The undercarriage legs retract sidewise and disappear completely into the wings, but the tail wheel does not retract, as far as we know. The manner in which the avigation and night-flying lights are installed behind transparent fairings in the leading edge of the wing is particularly clean.

The engine is equipped with a ducted radiator, which means, in plainer English, that it is fitted under the nose and retracts into the body under cooling conditions. This Fairey also uses the De Havilland variable-pitch airscrew, which is really the American Hamilton-Standard prop made in Britain under a manufacturing license.

GLOSTER F.5/34 FIGHTER

ANOTHER new single-seat fighter which awaits the nod of the R. A. F. officials is the Gloster F.5/34 low-wing built by the Gloster company of Hucclecote, Gloucestershire. This firm is now a part of the Hawker outfit, which in turn grew out of the old Sopwith firm.

The Gloster Gauntlet and Gladiator, incidentally, are still first-line fighters in many British squadrons. But with the trend toward monoplanes, it can be seen that the Gloster firm is not going to be left in the lurch.

The F.5, as they dub her for short, is listed as a multi-gun craft, which means that it carries at least four, and probably more, guns. There are two in the troughs low in the cockpit and one in each wing. In general design the ship is not greatly different from the run of the mill fighters today; to be frank it looks a great deal like the Seversky P-35, with the exception of the arrangement of the stationary fin and rudder, which are mounted well forward of the tail plane. This should give the machine high-speed turning qualities in certain maneuvers.

The undercarriage does not retract all the way, judging by the photos we

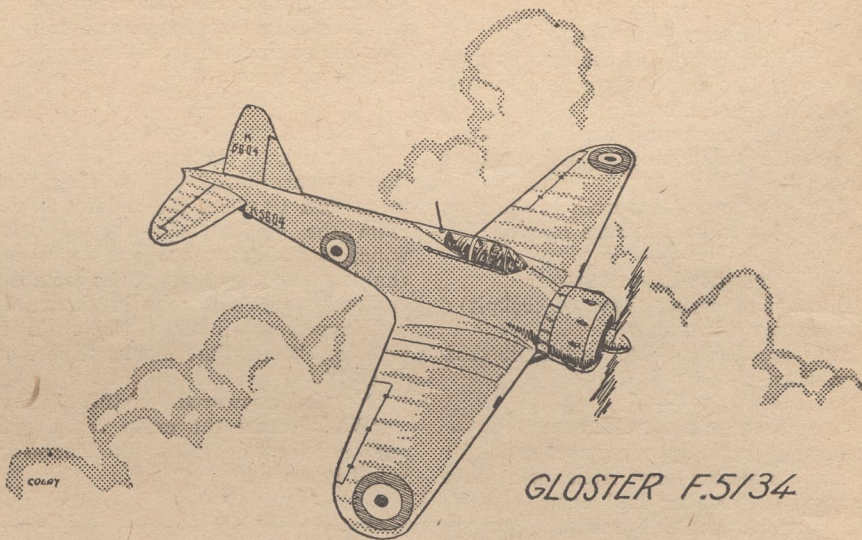
have seen; for in the air views, the wheels, which fold backward on oleopneumatic legs, had not disappeared entirely. They more than half protruded below the line of the fairing which covers the legs.

In the first model, the ship carried the 840-h.p. Mercury engine with a De Havilland prop, plus a long-chord engine cowlings carrying a leading edge collector ring and controllable gills. Later, the new Bristol fully-supercharged sleeve-valve power plant may be used. They say this motor will

give the ship a speed of something over 300 m.p.h.

An all-metal job with cantilever wings, the F.5 carries all modern refinements, such as flaps, cockpit enclosure, and complete military equipment.

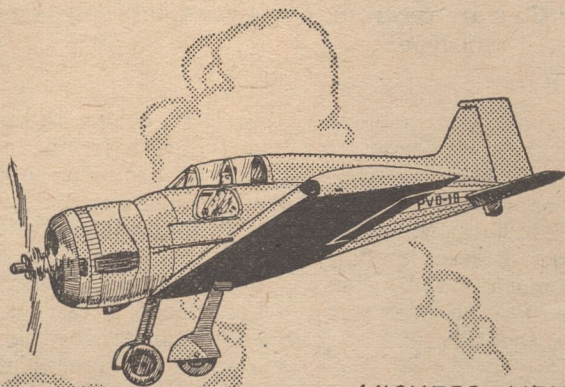
To show the trend, the F.5 may be compared with the old Gauntlet, which has a top speed of 230 m.p.h. with the Mercury V.I.S. engine, a plant of 645 h.p. But will the new F.5 be able to match the Gauntlet's striking service ceiling of 33,500 feet?



GLOSTER F.5/34

BRITAIN'S LATEST GUN-BRISTLING SKY FIGHTERS

This trip we cast our eyes over the dashing military craft that they're now rolling down the line for the Royal Air Force. With more than forty additional squadrons being outfitted, the R.A.F. is enjoying a wide expansion program, and the eyes of the world are on their sleek new fighting planes.



VICKERS VENOM

VICKERS VENOM

HERE is a machine the like of which has never been produced in this country—for the simple reason that so far the United States has not had to figure on interceptor planes. Britain has had the surprise-attack threat hanging over her shores since the days of the war-time Zeppelins and the problem is as great today, if not greater, than it ever was. Thus their insistent demands for the wasp-like interceptor planes.

The Vickers Venom—what a swell name—has been in the process of improvement for some months now. It was shown publicly for the first time at the recent R. A. F. display.

Listed as a day and night fighter, this interceptor has been built light to give A-1 climbing performance, nevertheless, it carries a wealth of armament and night-flying equipment. No performance figures are available, but it is believed that this ship is the most efficient machine of

its type in the world. This means that it is able to get off in a short run, climb to at least 20,000 feet in about eight minutes, and show a level flight speed of well over 200 m.p.h. Since its main function is to intercept, it is designed to fight a quick defensive battle, get back to its base with as little trouble as possible—and be ready for another take-off.

Mounting the 550 h.p. Bristol Aquila engine the Venom is the first British fighter to be fitted with a sleeve-valve motor. And from all reports, this new Bristol power plant is fast becoming one of the finest engines in Europe.

The Venom is a low-wing cantilever monoplane with metal-structure, fabric-covered wings. Split trailing edge flaps are provided. The fuselage is oval in shape with the aft portion faired monocoque style, which gives a high torsional strength in relation to weight. The undercarriage, which retracts into the wing, employs Vickers Oleo-pneumatic shock-absorber legs. The motor is fitted with a new three-bladed De Havilland variable-pitch prop. Details of the armament are not available.

FAIREY SEA FOX

AND now for a new service machine that has already been ordered for the Fleet Air Arm of the Royal Air Force. Another product of the Fairey Aviation Co. of Hayes, Middlesex, England, it is listed as a light reconnaissance seaplane.

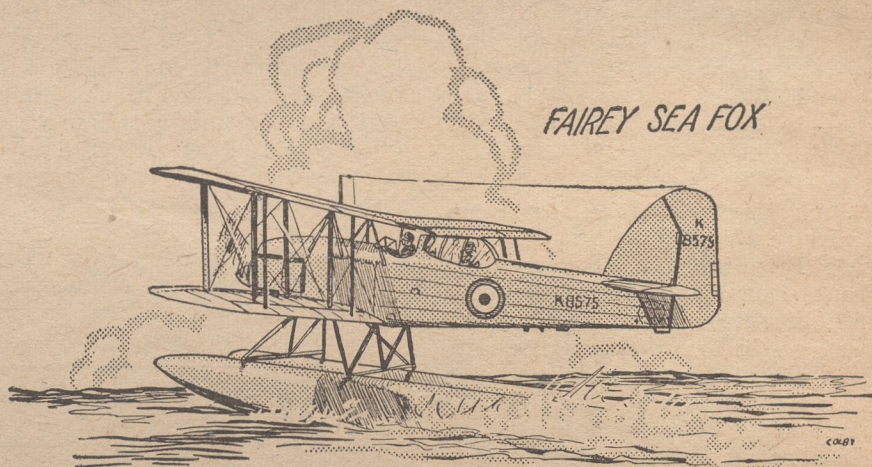
The interesting feature of this ship is its use of the new Napier Rapier engine which has for some time undergone trial and error tests in England. Apparently, they've finally "got the bugs ironed out," because it has been used in some of the Hawker two-seat models and now it is mounted in this Fairey Sea Fox.

The Napier Rapier is an H-type, sixteen-cylinder plant that turns out 370 h.p. It affords a particularly small frontal area. Several companies in this country are experimenting with the type, and there may be a great future for it. We might add that the 24-cylinder Napier Dagger engine, a larger model, produces 800 h.p.

In the Sea Fox design, the company had to produce a ship that would stand the thud of continual catapulting—a craft with folding wings for stowage and a cockpit that would car-

ry complete equipment required in naval reconnaissance work. True, this job is not particularly fast, but it is said to be very efficient for the work required. Light and strong, it handles well in all sorts of seas.

The pilot sits high, as is usual in British Naval aircraft; the observer is well protected under a streamlined cowl where he can work with his radio, camera, or other reconnaissance equipment. Both pilot and observer are equipped with machine guns. The pilot's is synchronized to



FAIREY SEA FOX

fire through the blades of the prop.

The fuselage is of stressed-skin construction, while the wings, of standard biplane form, are covered with fabric. Ailerons are carried on all four wing-tips, and trailing edge flaps are provided. The all-metal pontoons, which have but one step, are fitted with small water-rudders. The air rudder is balanced, but the elevator and ailerons are not.

In general, the Sea Fox appears to be a good, sturdy ship suitable for a particularly demanding job.

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.

Stanley D. Jordan, Dayton, Ohio:—So the invisible plane story will not die, eh? I hardly believe that modern planes if kept very clean would be "practically invisible" under certain sunlight. Unfortunately, planes in war have to fly in all weathers and all lights so that this kind of "invisibility" would not be worth much. Still, your letter is very interesting and I certainly would like to contact that friend of yours who makes those goggles. Send me his address, please.

Bob Utman, Hermosa Beach, Calif.:—There was a commercial model of the Gee Bee planes out some time ago, but the firm seems to have given up manufacturing and has gone in for designing and consultation. There is no way of knowing how many Americans were in the Allied Air Services before America went into the war—but there were plenty.

Wayne Haggard, Bakersfield, Calif.:—Thanks for your story ideas. That business of a flight of planes dropping out of the sky to capture a city would take considerable explanation. But there are several other points worth considering, and who knows, maybe you'll see some of them in one of our yarns soon.

John Harvey Becque, American Embassy, Rio de Janeiro:—You tell your Brazilian friends that while Santos-Dumont was an early pioneer in lighter-than-air, he did not fly an airplane before the Wrights. His first recorded airplane flight was made in 1906 and was the first airplane flight to be made in Europe. The Wrights first flew on December 17, 1903.

Alfred Goldfarb, Brooklyn:—There have been several published plans for model dirigibles. We'll have a "solid" of the *Hindenburg* in our December issue. Also if you can get a copy of *Complete Model Aircraft Manual* by Hamilton, it will tell you how to make a flying airship.

W. E. Fouts, Fort Worth:—No, I'm afraid I can't send you a list of all aeronautical magazines. But you

should be able to get a list at your library or from your newsdealer. It is impossible to get photographs of all the planes we use in Modern Planes Album. Anyhow, we think our drawings are clearer in that they bring out much detail often missing in photos. FLYING ACES was first published in October 1928.

DeLucia, Floral Park, N. Y.:—I believe the Bird Aircraft Corporation is now out of business.

Richard Davis, Drexel Hill, Pa.:—I did not see that movie, *The Woman I Love*. But I do know that the air scenes were made in France.

Ed Le Clare, Minneapolis:—Sorry we didn't suit you on that list of aeronautical universities. Nevertheless, we took the complete list from a government publication. You'd better get after Uncle Sam, not us.

Junior Thompson, Lynwood, Calif.:—No, I do not know where you could buy a 1919 edition of *All the World's Aircraft*. I'm afraid it's out of print.

Everett Brown, Arvada, Colo.:—Yes, there is still a French Foreign Legion in existence, but there are no flying squadrons, in which Legionnaires act as pilots and observers, attached to it.

Miss Billie Wexler, New York City:—Your problem sounds very complicated. I suggest that you get

directly in touch with someone in the Board of Education in New York City and get your brother's case straightened out. I do not know of any free advanced training school.

George Hecht, Bronx, New York:—I'm afraid I can't answer your question concerning the resemblance and speed differences of the SOC-1 and the Seagull. The Seagull type is heavier at certain points—probably to give added strength for catapult work and deck landings. No, foreign powers do not give out their contract figures on military types purchased, so it is impossible to make true comparisons on prices. The Curtiss C-12 mentioned in that Spanish war story is a Russian-built ship copied from a recent Hawk model. It's no doubt built under license from Curtiss.

Charles V. Hamilton, Miami, Okla.:—The armament on the Vought SBU-1 biplane changes with demand. Some carry two fixed 30 cal. guns, others a special 50 cal. gun and one 30 cal. The armament for the observer changes, too. The SBU-1 uses the 700 h.p. Pratt and Whitney Twin-Wasp, but the performance has not been given out.

Harry Williams, Hillsboro, Texas:—We are running plans and details on a model airport in this very issue. See our model section.

Bob Thompson, Santa Barbara, Calif.:—The wreckage of the airship *Hindenburg* has been dismantled at Lakehurst and important sections have been shipped to Germany for further inspection. I doubt if you could get pieces for souvenirs. You might write to the North German Lloyd line in New York, however, and see if pieces could be so obtained. I do not know why the Army still uses light single-seaters when the big four-engined bombers are so much faster. There is, of course, plenty of use for the single-seaters in certain work, and to throw them all out in one fell swoop would be absurd.

James T. Jackson, Petersburg, Va.:—Sorry, but we do not know of any openings for a lad who wants to become a parachute jumper. You

And Now We'll Ask You a Few

- 1—For what is the Oerlikon Company noted?
- 2—What is a Curtiss Y1A-18?
- 3—What new plane is the Ryan firm bringing out?
- 4—Who was the war-time commander of the U.S. First Pursuit Group?
- 5—Who was the first man to fly an airplane in Europe?
- 6—How much does the average private flying course cost?
- 7—Why do manufacturers put steps in the floats of seaplanes and pontoons?
- 8—What is a full-feathering propeller?
- 9—Who is Vance Breese?
- 10—What war-time plane was known as the "Harry Tate"?

(Answers on page 96)

might try some of the firms that make parachutes and see if you can get training as a tester. I certainly would not advise you to go into it along any other line.

James Stamos, Brooklyn, N. Y.:—I have no idea of the extent of your lameness, and so I cannot tell whether you would be barred from taking a pilot's license. I have known several cases of men with artificial limbs who became fine pilots, but that was in the World War days before there was any strict physical requirements. I would suggest that you first consult a Bureau of Air Commerce physician in your area. You could locate one through Floyd Bennett Field.

Merle Wood, Ironton, Minn.:—Ailerons may be placed on two or four wingtips of a biplane. It makes very little difference as long as the area of the aileron used is sufficient for the amount of control desired. Modern variable-pitch props are controlled from the pilot's cockpit. Some are automatic, however, and require no manual control of any sort.

Melvin Honick, Los Angeles:—Inspectors of the Department of Commerce, must first of all hold transport tickets. Many of them hold engineering degrees in addition. I suggest that you write to the Bureau of Air Transport to get complete details.

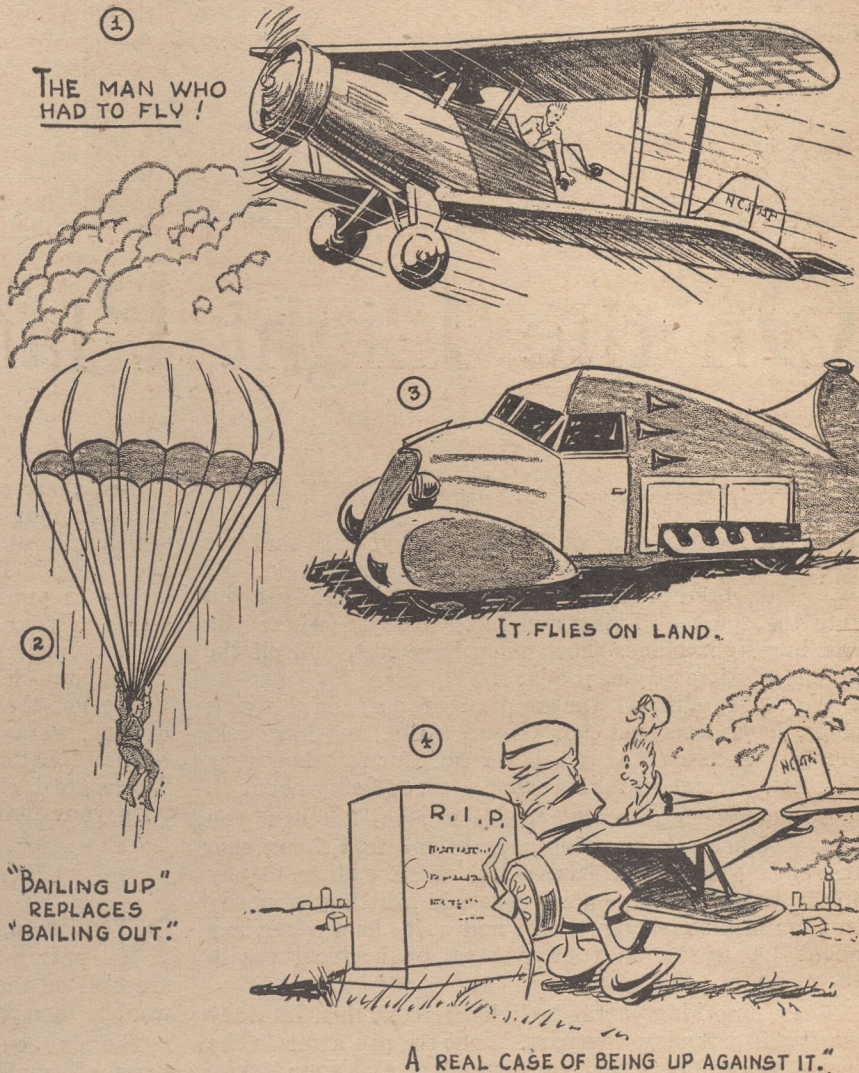
Dick Potter, Hamilton, Ohio:—Thanks for the clippings. We had, however, already seen them. I do not believe that small racing plane has been test-flown as yet—at least at this writing. But it may be entered in the National Air Races and flown by the time you read this. Yes, the new pusher fighter is being made by the Bell Aircraft Corporation of Buffalo. It has not as yet been flown. I do not know anything about the other plane, a picture of which you enclosed. But I think the caption describing it was wrong.

Earle L. Hoare, Halifax, N. S.:—Mr. Mulligan is a four-seat cabin monoplane with a wing-span of 32 feet. Its top speed at sea-level is 270 m.p.h. I do not know of a gas-model kit of the ship as yet, but keep your eye on our advertisers. They'll soon have one. Mulligan was a new experimental type and not designed from any other plane. I have no idea where you can get a photograph of the Post and Rogers plane, unless you contact one of the big news photo agencies.

—BY ARCH WHITEHOUSE

PILOTOPICS

By ROY HUMPHRIES



Stories Back of the Above Pictures

1—TALK about a spine-tingling experience! Just listen to what happened to young Grady Catledge, of Sumner, Mississippi, the other day: To aid a grounded pilot, Grady climbed in a cockpit—it was his very first time in a plane—and worked the throttle while the flyer swung the prop. But suddenly the machine took off! And there was Grady, who didn't know a tail-skid from a tachometer, alone in the air. Nevertheless, this Mississippian quickly showed his mettle. He "fooled" with the controls until he knew what they did—and he finally made a fairly creditable landing in a nearby field.

It was "fly—or else"! And he flew!

2—SOVIET parachute men have now licked Old Man Gravity himself—for their latest stunt is jumping *up* instead of down! They first stand upon a special grate. Then huge fans underneath the device generate a tremendous upward surge of air which sends the student 'chuters high into space.

Those Russkys will be shooting 'em out of cannons next!

3—THE "Aerocoupe" is the latest automotive contraption of Richard Crossley, young East Haven, Connecticut, inventor. Highly streamlined, this "plane-car" follows aeronautical design throughout, has a top speed of 75 m.p.h., and boasts a real airplane undercarriage.

"Kiwi-Kar" would be a better name for it.

4—SMACK up against a tombstone! That's the way Pilot Nicholas Selden landed when he was forced down by a dead motor in a recent flight near Hamilton, Ontario. Selden was shaken but unhurt. After making repairs he flew away from the "marble orchard" with his fingers crossed.

Nearly a case of "Rest In Pieces."

Here's a good ship that's coming back—the Alexander D-2. The firm broke up during the depress, but old employees have now banded together to put the name of Alexander back in the field. This particular model mounted the 36-h.p. Szekeley motor.



Sport Flyers—Tell Us Your Experiences!

Have YOU Got What It Takes?

On the Light Plane Tarmac

SPORT FLYERS—TELL US YOUR EXPERIENCES!

FOR months now we have been trying to find out what *you* are doing in the light plane field. We have been plugging in this department to get you into the sport of flying and have told you where you can buy light planes, how much they cost, and all the details of time payment plans.

We have outlined the routine of successful flying clubs, have described how they are run, and have told you how successful they are abroad. But somehow very few letters come in telling what *you* are doing about it.

So now we're resorting to a new plan. We want you men who actually fly or actually belong to a flying club to relate your experiences—and we're willing to pay for it, too. If, then, you'd like to add a little gas money to your income, sit down now and write us a letter, say about 300 words, on your own personal adventures in the private flying game.

There's nothing particularly hard about this. Literary merit will not play any part. What we are after is the inside story of how you got your plane and your ticket, for there are hundreds of FLYING ACES readers who want to know how you did it. We'll pay two dollars each month for the best letter published, and the field is wide open.

If you have taken lessons, gone solo, or have just experienced the thrill of a Bureau of Air Commerce physical examination, why not write and tell us about it? If you have started a sport-flying club, we want to know how you went about it. If you have recently joined a club, hundreds upon hundreds of our readers want to hear the details—and to be perfectly frank, the light plane manufacturers want to know about it, too. For they might have some plane-buying propositions to put before your outfit.

Tell us about your first solo, your first real cross-country hop, your first attempt at a loop or a roll. Tell us about the time you got lost in the air and what you did about it.

Yes, there are dozens of good stories in every light plane hangar and clubhouse. Yours may be the yarn which will rate the first two bucks. Sit down now, while the story is fresh in your memory, and give us 300 words in your own way, writing on one side of the paper in your plainest hand, or better still peck it out on a typewriter.

You owe it to yourself and to the aviation sport. We've got the space if you've got the story—the kind of stuff we and the FLYING ACES readers want. Come on now! Let's do some real hangar flying—on paper. The contest starts next month, so chip in right away with your how-I-did-it letter.

HAVE YOU GOT WHAT IT TAKES?

NOW then, here's where we get into a real heart-to-heart talk about light planing. You fellows who are still on the sidelines are very determined that you want to fly a sport job. Well, what are you waiting for?

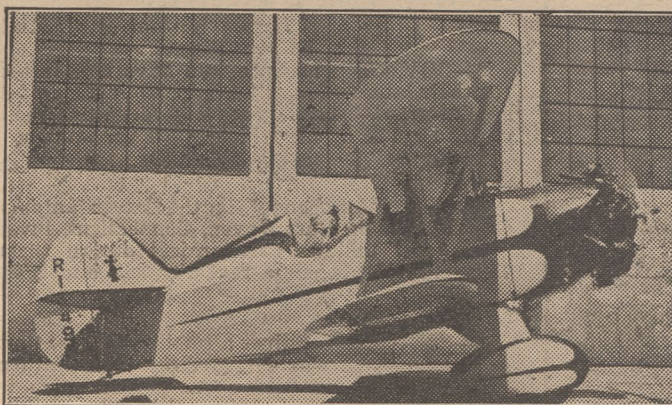
There's enough good equipment on the market, enough types of small aircraft within a reasonable figure, to satisfy anyone. We have told you all about these planes and have shown you photographs of 'em. You've had plenty of time to make your own selection.

We'll bet you've known what sort of plane you've wanted for months, whether a biplane or a monoplane, a side-by-side two-seater or a tandem. You know whether you want an inverted in-line air-cooled engine or a light radial, a closed cabin job or an open cockpit affair. You may even have decided on your own particular insignia, which seems to be one of the big "personal" features of modern amateur flying.

But now we're going to ask you a question: What about *yourself*? The plane you've selected is Okay and the motor is up to the standards demanded by the Bureau of Air Commerce. But what about you?

Yes, the most important thing about all this business is YOU!

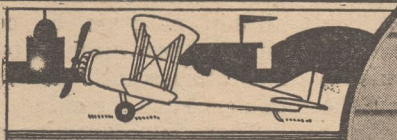
(Continued on page 90)



This is little "Snuffy"—16-ft. span sport biplane made by Greenmeier, Melberg, and Ward. The 90-h.p. Lambert engine is used by the tiny ship, providing a cruising speed of 150 m.p.h. Winthrop Gardiner, Jr., is the pilot who flits around in this trim sky hopper. Swell job, eh?

HAPPY LANDINGS

BY ARCH WHITEHOUSE



A Flaw in Our Naval Armor

THERE was a time, a number of years ago, when I got highly enthusiastic and let myself go on a subject that had long worried me—aircraft carriers. You see, I was bothered about the amount of money that was being spent on them. To be truthful, I did not know a great deal about them. But I had read plenty of copy about the carriers which had been written by experts, and so I soon developed some pretty convincing arguments in my own mind. For one thing, I came to believe that the carriers were much overrated and that they were not as efficient as we were led to believe.

Men who were supposed to know, told me that they were all right in normal maneuvers and peace time action. But, they argued, if these ships ever went into an actual engagement, they would run into entirely different and somewhat disconcerting conditions.

With this statement as a basis, I went on to ask what would happen if a light bomb hit the flight deck or damaged the elevator which brought the planes up from below. And I got all worked up about the ability of the carriers to "keep station" during fast-moving war action and still head into the wind for take-offs or landings at high speed.

Well, sir, it seems that these *are* problems and that Navy authorities all over the world still worry about them.

But in my enthusiasm for talking about these matters, I was much misunderstood. One or two readers were under the impression that I wanted the Navy to fill these carriers with concrete and sink them for breakwaters at the mouth of the Mississippi. Another bird decided I was an aerial radical and said so in terse phraseology. It seems I was spoiling a beautiful dream.

One or two Naval officers, however, were more tolerant. They explained one or two points on which I had been a little off, but they generally agreed that many of my points were correct. They were swell guys and more than patient with me. I got a lot out of a lengthy correspondence with them.

Of late, though, I have been reading again, and I've now discovered that several of my earlier findings were correct. At any rate, it seems that during the recent activity of the Navy in the Pacific during the search for Amelia Earhart and Captain Noonan, several points cropped up concerning carriers that have made the big boys sit up and take notice.

To begin with, the aircraft carrier *Lexington* was at

Santa Barbara, Calif., when the news of Miss Earhart's plight was broadcast. The *Lexington* immediately received orders to go to the area and make a systematic search.

Now this is what happened—and we assume that the same situation might arise in the case of a war in the Pacific: The *Lexington* officers first had to collect various members of her crew who were ashore. Then the ship had to go back to San Pedro to take on a fuel supply for the 4,000 mile trip to the vicinity of Howland Island.

With full tanks and everything ship-shape, the *Lexington* started off. And don't forget that the *Lexington*, though she is a converted cruiser, is one of the finest carriers in the world and her skipper, Captain John Towers, has a crew worthy of her.

First, the *Lexington* went to Honolulu. And she did this leg of her somewhat off-line journey in almost record time—in time far better than the *Queen Mary* or the *Normandie* could have done it. But, you ask, why didn't she go direct to Howland? Well, it turns out that this \$50,000,000 weapon does not have the range necessary to permit her to operate bee-line fashion to all points in the Pacific. She had to go to Honolulu first in order to

replace the fuel expended on the first-leg Hawaii trip before she could head off toward Howland Island to look for Miss Earhart and Captain Noonan.

REMEMBER that we must view this problem in terms of war, not in terms of an errand of mercy. Had a military problem arisen at Guam, Wake Island, or Midway Island, the same routine would have had to have been run through. The *Lexington* and the *Saratoga* are supposed to be long-range scouting ships carrying the Eyes of the Navy—yet they could not make the

trip from the U.S. mainland to such a focal point in the Pacific without fuelling *twice*!

This last is a point that never was publicized before. It has just been brought home with startling emphasis—and a popular woman flyer and her avigator had to "go west" to put it over.

On the other hand, we can flip the pages of Jane's *Fighting Ships* and find that there are, in foreign navies, dozens of submarines with cruising radii of from 3,000 miles to 16,000 miles—which is something to think about when American aircraft carriers cannot do a 4,000 mile show without refuelling twice.

I grant that I am not an experienced Naval technician

but it still seems to me that this is an important problem which should be attacked and overcome. I believe that the *Lexington* and *Saratoga* have longer ranges *under cruising speeds*, but unfortunately cruising speed is not fast enough when the guns begin to boom.

The Earhart case also served to bring up the airship question again; for several persons pointed out that a dirigible would have been able to reach the scene of the Pacific tragedy in comparatively short time. And if it carried a few heavier-than-air machines to aid in the search, all the better. So now we again face that puzzler: Would a properly built and efficiently handled airship be of any value in event of a Pacific war?

The Durand Committee, appointed some time ago to investigate the air-

ship question after the crashes of the *Macon* and the *Akron*, returned a report which recommended that the airship program be continued by building new airships to be flown as laboratories until the problem is settled once and for all.

There is no question as to American technical skill, nor of the ability and courage of the crews, but one wonders if we Americans have really yet grasped the "secret" of airship building—as it is known by the Germans. An airship as well built as the *Graf Zeppelin* or the *Hindenburg* would, if it used helium, be a worthy addition to the Navy scouting forces, provided suitable aerial defense was included in the way of fighting planes carried inside her.

Personally, we do not believe in the airship as a military weapon, though

as a commercial agent this form of craft still offers great possibilities. But there are still plenty of brave men in the Navy who are willing to attempt to carry on—and they have all the right in the world to do so if the finances are available. We feel that if the airship men are still not satisfied, they should be allowed to carry on, though perhaps only volunteers should be ordered aboard until the question is settled.

But to get back to the carriers and their apparent shortcomings with relationship to the Pacific, let us hope that something will be done about carrier tankage or a new system of power that will allow our brave commanders to take them on at least 5,000-mile trips without relying on time-wasting refuelling stops. Our defense in the Pacific demands it

The Airmail Pals

ANOTHER month has rolled around, scribblers, and with it another torrent of friendly mail from all over the world. Yep, and it takes an atlas to keep up with it!

For instance, a quick glance through the overseas mail reveals such place names as Onehunga, New Zealand; Toowoomba, Australia; Wangaratta, Australia; Bundaberg, Australia; Dunedin, New Zealand; Amersfoort, Holland; Ipswich, England; Hooey-dooey (that's what it sounds like in English) China, and other names seemingly as outlandish.

But before you American readers chortle too much about the sound of these overseas names, let's look over the postmarks on some of *your* envelopes! Here they are—Kokomo, Indiana; Tallahassee, Florida; Shamokin, Pennsylvania; Hohokus, New Jersey; Gilboa, New York; Tuscaloosa, Alabama; Santa Claus (!) Indiana; Nacogdoches, Texas; Oshkosh, Wisconsin; Mud Camp, Kentucky, and—but there you are; that's enough for a sample.

Now for the letters. Here's one from Cadet Stan

Reay, P. O. Box 142, Darwin NT, Australia. Stan says "Broadcast in your section an SOS for me, please. I want lots of pen pals; and the first one to write will receive from me a nice group of photos of the ships that land at our big Darwin Aerodrome."

Whew! Stan doesn't know what he's letting himself in for, does he?

Dick Stubbings, of Claremont 2, at 1 Grosvenor Road, Newcastle-under-Lyme, Staffordshire, England, wants to hear from American lads and lassies around 17 years of age. Dick has worked with England's General Aircraft company, and has helped put together no less than 90 Hawker Furies. (Special whisper to Phyllis Stevens, of Sussex, England—Dick wants you to get in touch with him, Phyllis.)

Photo fans, attention! Larry Sellers, General Delivery, Tucson, Arizona, wants to trade airplane pictures with as many fans as possible. So if you want to pick up some good shots in exchange for equally good ones of your own—here's your chance.

Calling Bruce Davis this time—Bruce Davis, of New Zealand. Colonel Bert Soutar, D.S.M., F.A.C., has been trying to radio-contact you for some time, Bruce, and hasn't had any success. So will you drop him a note at 58 Delaware Avenue, Hamilton, Ontario, Canada.

Still another SOS comes from Stan Jordan, of Dayton, Ohio, who for some time has been corresponding with Jack Amies, of Harlesden, England. Jack suddenly dropped out of sight, it seems, and Stan's wondering what has happened. So shoot him a letter, Jack.

THAT PHINEAS CONTEST

PECULIARLY enough, we haven't had much response to the calls we made in the September issue for pen pal experiences. We know that many chaps have spent pleasant vacations or have made other interesting contacts through our Airmail Pals' section. So let's hear about them.

To the pen pals who send in the best letters on this subject, we are awarding originals of Joe Archibald's funny Phineas cartoons—hence the contest's name. Mail your contest letter direct to the Phineas Contest, c/o R.H.P.D., FLYING ACES Magazine, 67 West 44th St., New York, N. Y. And best of luck to you!

—THE RIGHT HONORABLE PAL DISTRIBUTOR.

HOW TO GET AN AIRMAIL PAL

FIRST, 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

IN 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.

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. Scaroni	Major G. A. Vaughn, Jr.
Major von Schleich	Willy Coppens
Lieut.-Col. Pinsard	General Balbo
G. M. Bellanca	Amelia Earheart Putnam
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). [117]

Do Your Full Share to Advance Aviation

No Dues—No Red Tape

TO 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. Reply Coupon 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 his record checks with our files and he is approved for membership in the Escadrille, his assignments will be mailed.

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.

November 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[117]

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

Once each month, your National Adjutant, Clint Randall, brushes the trash off his desk, smacks a sheaf of paper into his type-mill, and pounds out a chat with the thousands of Club members all over the world. Usually he takes all his talk topics direct from your numerous letters. But this time he starts off by re-introducing an old friend, then he moralizes for a while, and finally he tops it all off with a Scottish joke! Hope you like it!

SINCE it's just a matter of routine for a pilot to come down to earth once in awhile, it's hardly considered news any more when one does drop in on you from the skies. But when certain *particular* flyers drop in, you betcher bank-an'-turn indicator that *that* is news!

It was this way. I was at the desk here working on some Escadrille applications when the editor's phone rang. Promptly, Ye Ed propped the receiver on his shoulder so's he could keep on working while he talked. But it dropped suddenly and in tones of the greatest surprise I heard the editor say:

"What's that? *WHO?* No!" And he looked over at me with bewilderment in his face. Back into the phone he exclaimed:

"But we thought you'd be flying in China by now!"

Well, wingsters, guess who it was? Right the first time! None other than our old pal Major Fred Lord, who's now known to every one of you by reason of those swell true adventure articles he shot over to FLYING ACES from the flying fronts in Spain! Most of you will remember, too, how he gave you the inside dope on his close escapes while flying in Russia.

Yes sir! Just a few days before, we'd been reading newspaper stories about the sky fighting in China, and we'd agreed that Freddie Lord, flyer-of-fortune, must be headed for the Far East—if he hadn't already got there.

And then in he drops, right square into our laps in New York City! Well, Fred came up into the home hangar here and we quickly forgot our work — even forgot that it was long past quitting time—while listening to his startling stories of the war in Spain.

And let me tell you right here, that war is more gory than glorious. Fred's description of the brutalities over in Spain made even some of the things we learned about the World War seem like bedtime stories. Your National Adjutant has seen a lot of action throughout the world himself, and prides himself on being able to "take" most anything. But he'll admit right now, that when Fred was through, he was feeling just a little bit sick around the stomach.

No, fellows, war—as told straight from the shoulder by a chap who's just come back from the thick of it—isn't any fun!

And maybe you'll have a chance to hear Fred tell you so himself some day soon, since he is now on a speaking tour, telling his experiences in most of the larger cities throughout the United States.

WELL, let's change the subject to something more pleasant. Once in awhile in these news pages I've logged the name of Steve Sanchez, an F.A.C. member down in Shreveport, La. Had a swell letter from Steve just this morning, and it was just the kind of a letter I like to get. And I happened to have some newspaper clippings about Steve, too, with his picture, life history 'neverthing.

Steve just won a swell air trip from his home to Dallas on one of Delta Airlines' Lockheed Electras. He won a contest, you see, with a solid scale model Boeing P-26A which he built. The contest was in connection with a model airplane show, staged with the showing of the movie, *China Clipper*, at Shreveport's Centenary Theatre.

He also rated a two-day stay in Dallas, with the Pan-American Exposition there thrown wide open to him! Pretty swell stuff, eh?

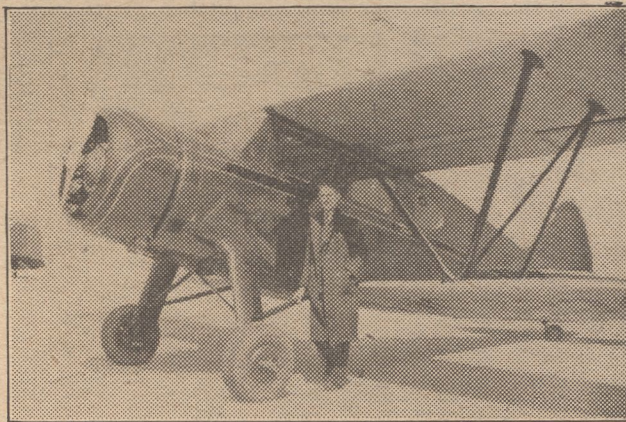
It took Steve three weeks to design and build his model, and the part that I'm especially pleased about is that he didn't just make it from whatever plans might have been available. Instead, he haunted the "world's largest airport" — Uncle Sam's Barksdale Field at Shreveport, where about fifty P-26's are quartered—and took his pictures, plans, and notes direct from the ships themselves.

His model, perfect in every little detail even to a miniature control board and carved radio equipment, has a wing-span of 12 inches and a fuselage length of about 10. Good going, Steve. And congratulations!

Now we hear from one of our newer members, and she knows her flying, too. She's Jane Plant, of Forest Park, Baltimore, Md., who wants to get in touch with other air-minded girls in her vicinity. Jane's fourteen, and already has many hours of work to her credit as grease-monkey to none other than our honorary member, Clarence Chamberlain, who flew the *Bellanca Columbia* non-stop to Germany in 1927.

We've suggested that Jane contact Howard Randolph Lilly, skipper of those smart Baltimore F.A.C. outfits—the Lord Baltimore Squadron No. 2 and the Baltimore Clipper Flight A. Man! How these units have been doing things. Regular meetings every week without a miss through several seasons in a special club room in the Clifton Avenue M.E. Church, visits to airports, cycling trips, hikes, picnics and boat rides!

Not so long ago a Navy man from the U. S. Naval Air Station at Washington gave them a snappy talk on air station work and naval aviation in general. He's



Mike Molnar, of the Bronx, N. Y., is another F.A.C. member who believes that the best way to learn flying is to fly. Mike's buddy, another Bronx F.A.C. named George Hecht, snapped this shot just before taking up the ship to show Mike how it's done. And what ship is this? Yep, it's a Waco cabin job.

planning another visit, too. And when a summer model exhibition was held at the Pratt Free Library in Baltimore, twenty models made by Lilly's units were on display. Two members served as guides and information dispensers during the show.

Here's a special note for Bostonites who are 16 or more. Eddie Munzing, skipper of the Dorchester "Cloud Buster" Squadron No. 2, F.A.C., is recruiting more members, both male and female. So if you chaps in his vicinity want to get in touch with an active F.A.C. squadron, contact Eddie right away. His address is 188A Blue Hill Avenue, Dorchester, Mass.

Incidentally, if any of you have plans for an American dirigible, or the Pan American Clipper ships, write Eddie about them, for he's been trying to locate them. (Incidentally, there'll be a solid model of the *Hindenburg* in our next issue of F.A.—Editor.)

Another Massachusetts member is Warren Vreeland, of Pittsfield. Remember Warren's verbal chastisement of that Anzac, Guy Palliser, back in our July issue? And remember how Clint put his foot in it by surmising that Warren must be red-headed? Well, he isn't! "Not even a *tinge* of red in my top-thatch," says Warren. So that's that—Warren Vreeland is not a red-head. Sorry, Warny, that I got you into all that razzing. Lay off him, gang!

NOT so long ago I heard about one of our readers who's had a mighty interesting time. He's an Akron, Ohio, lad—Gail Mishler. Gail's twenty right now, and has been flying for about five years. He started in the flying game as a model maker when he was just a little chap. Quite a number of his favorite models were made from F.A. plans.

Then he got the parachute bug—but not the caterpillar, so far as we know—and made quite a number of exhibition jumps. Soon afterward he took the stick himself and has been flying ever since. On one occasion he purposely cracked up a crate near a small landing field in the mountains of Virginia, to keep from injuring any of the people who were massed on the landing area. Mighty brave!

And then the travel bug bit him, so he went to China for service with the Nationalist Air Corps. He had many close calls while there—was even in military prison for a time—and at the end of it all was awarded a Chinese medal for saving the life of a little girl who had fallen into a river.

Gail holds transport pilot license No. 32046. So we say *Hao shih, peng-yu!* Or if you've forgotten your Chinese—"Good work, pal!"

From Toronto, Canada, comes another Ross Smyth message. Ross is planning to organize an F.A.C. unit—either a flight or a squadron—in his city, and he wants all local F.A.C.'s, or others interested in the Club, to contact him without delay. His home address is 31 Wilfrid Avenue.

Plans for operation of the new unit include, according to Ross, visits to local airports, occasional trips to the Taylor factory in Hamilton, model meets, contests for the best aviation scrapbooks, aviation tests, Club theatre parties for aviation movies and the like. At the regular meetings, discussions of aeronautical interest



An F.A.C. member who's been places and seen things is young Gail Mishler, of Akron, Ohio. Just twenty, Gail has logged many hours in his transport pilot's book while gunning Chinese battle crates through the sky. You'll read all about him in these pages.

will deal with "Trans-Canadian Airways," "Ocean Flying," "National Air Races," and other topics of the type.

"And for a break," says Ross Smyth, "we have a swell basement game room in the house, with a regulation type ping-pong table. So come on and let's get going, Torontoans!" Contact him by mail, fellows, since he may still be on vacation on our publication date. But don't pass up this chance to line up with a real FLYING ACES outfit.

Incidentally, Ross passes on to you chaps a great idea for keeping up with aeronautical progress. He doesn't clip his copies of FLYING ACES, he says, because there's always something valuable on the other side of the page that you lose when you cut it up. But he has a big scrapbook into which he pastes every aviation news clipping or story from other magazines and newspapers.

And he's particularly careful about his index. Everything that goes into

the book is indexed and cross-indexed under every single subject that's mentioned in the article. So whether he wants dope on ocean flying, respective air power of the various nations, instruments, airway routes, or what kind of ships famed pilots fly, he can find the information in an instant.

Strangely enough, several of our members seem to be struck with the international squadron idea all at the same time. First "The Hawk" applied for an international squadron approval for South Africa. Then came queries on the same subject from three or four American F.A.C.'s. And now rolls in a request from Bill Holroyd, of Oakwood, Norwood Road, Sheffield, England, that he be contacted by American F.A.C.'s for still another international unit of our Club.

Bill already has a British Empire Flight and a flight spread through Sweden, France and Germany. Now he wants a Texan lad and five others from various parts of the United States to complete his assortment. So write him, fellows, and let Bill himself select from your letters the ones that sound the best to him.

Ever been up in a man-carrying glider? Here's a British F.A.C. who recently had his first experience with one. It's Denis W. Hope, of Dunstable, England, who's talking. And this is what he says:

"Well, Clint, we were towed off by a motor winch, and soon found a rising current that took us up to about 250 feet. And gradually we climbed until our



Has anybody seen this trim gas job? Its smiling owner, Frank Metcalf, would like to know. He last saw this Brown-powered ship when it headed away through the skies from the Nationals. The motor number is B-1714. Frank, who is a veteran F.A.C., is studying aviation sales and air traffic methods at a Chicago school. He lives in the Windy City's suburb, Oak Park—which your editor thinks is a swell place, since that's his home town, too.

altimeter said 1,500. By then, though, it was nearly lunch time, and we'd been up almost ninety minutes. So down we came—and landed right in front of the clubhouse. It was swell—almost like riding on air."

As a matter of fact, Denis, isn't that just what you *were* doing, riding on air?

LAST month, clubsters, the model editor asked me to squeeze in a little news from this letter of F.A.C. member Joe Ackland, of Victoria, Australia. One of Joe's model pictures was printed on the model builder's page, but we didn't have space then for any of his letter. But

here's a part of it now:

"I'm 31 years old, Clint, and I've been building airplane models for about three years. And the fact that my right hand was ripped off six years ago by a circular saw doesn't prevent me from getting a lot of fun out of the game. As a matter of fact, I've built 159 models to date!

"Ever since I started on this hobby, I have kept a full log of all my flight activities. This I believe to be most important in model building, since it gives a sure check on one's progress. And while I won't bother you with details as to times, etc., you'll be interested in knowing that here's an Anzac club member who has made—

or rather whose models have made—363 single pusher flights, 345 sailplane flights, 730 fuselage endurance flights, 342 with semi-scales, and 66 with flying scales. That's a total of 1,807 flights, with an average time on each of about 40 seconds."

Why not follow Joe's suggestion, modelers, and keep a log of your successes?

And while we're on these overseas letters we'll hop up toward old Glasgow on the banks of Scotland's River Clyde. We have an active member there with the good old Scottish name of John Douglas. John was a close friend of our late National Adjutant,

(Continued on page 87)

Merrill and Lambie Star in "Atlantic Flight"

THOSE two famous Atlantic round-trippers—Dick Merrill and Jack Lambie—have done it again! This time the Hollywood cameras caught 'em doing it, and the result is that current pep-packed movie, *Atlantic Flight*.

With these top-notch flyers featured, it's easy to understand why the aviation crowd is getting such a kick out of the film. Most real air-minded guys, you see, are fed up with those run-of-the-mill sky movies in which the manly screen stars don helmets, pin a pair of wings on their chests, then pose as pilots—when we all know darn well that they don't know a strut from a stabilizer.

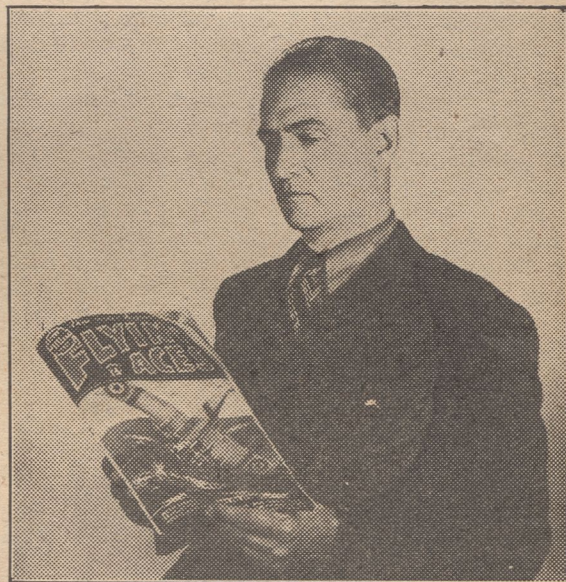
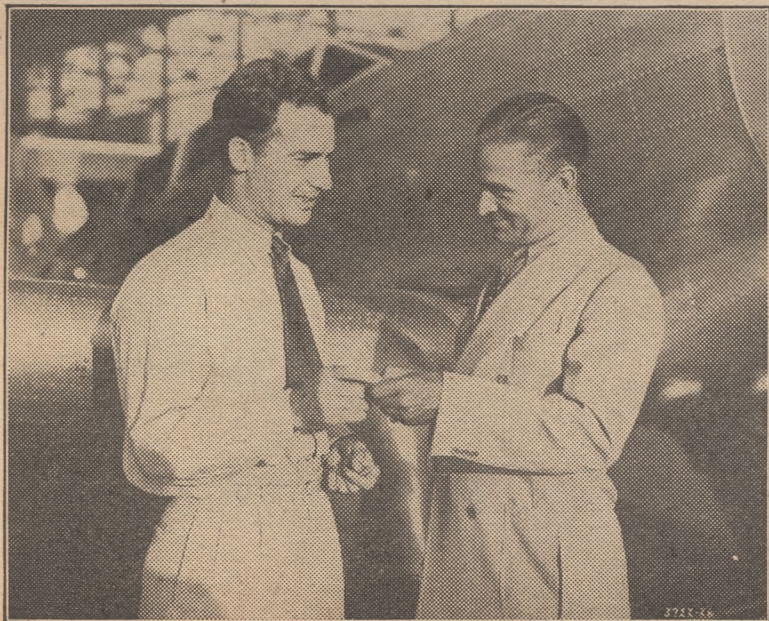
So Monogram Pictures rates lots of credit for giving us some relief from that sort of thing. When their production men started revving up *Atlantic Flight*, they kept 'er revving until they got Dick and Jack signed up—the very men who turned in the original trans-oceanic round trip. What's more, Merrill and Lambie prove they can act as well as fly.

What's the story all about? Well, Dick Merrill plays the part of a crack commercial pilot who's planning to fly a special speed job in the Stanley Cup Races. Then just before the sky grind is slated to begin, a sleek-

haired foreign pilot lands at the field prepared to cart off all the prizes in good old Detroyat style. Baron Haygard is his name and the part is played by that swell villain, Ivan Lebedeff. He's flying the trim international contender for its owner, Gail Strong (played by Paula Stone).

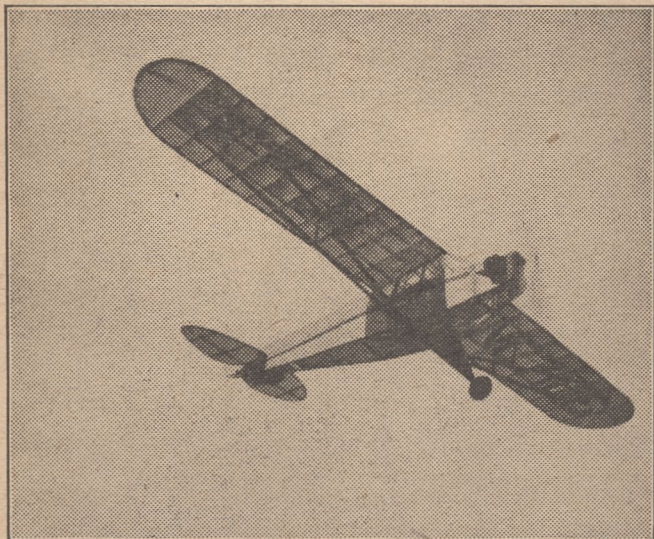
BUT we don't want to give the rest of the story away, so we'll simply emphasize that there's plenty of action on tap in that set-up, especially in the climax when Carter, the airline owner—that's Jack Lambie—hops off with Dick Merrill for London on a life-and-death mission.

And we'll bet that those two F.A.C. members, Bob Schnell, of Irvington, N. J., and Leroy Scott, of Shreveport, La., won't be satisfied with anything less than front-row seats when *Atlantic Flight* comes their way. For Bob and Leroy were the fellows who signed up Dick Merrill and Jack Lambie as Honorary Members of our Flying Aces Club.

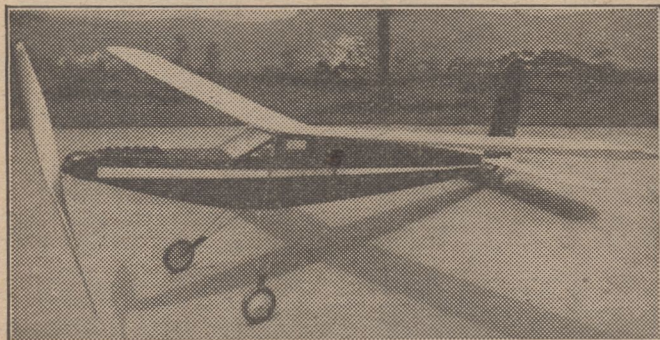


Above: One of those candid camera toters caught this interesting "shot" of Dick Merrill during a between-scenes lull in the filming of *"Atlantic Flight."* Yes, Dick is deeply engrossed in the August number of good old FLYING ACES. As a matter of fact, he was reading the Club News when the shutter clicked. Left: And here's a photo direct from the moving picture. It shows Jack Lambie, who plays the part of an airline owner, pausing for a chat with his leading flyer, Dick Merrill. Three guesses what kind of a ship that is. Right you are—it's a Northrop.

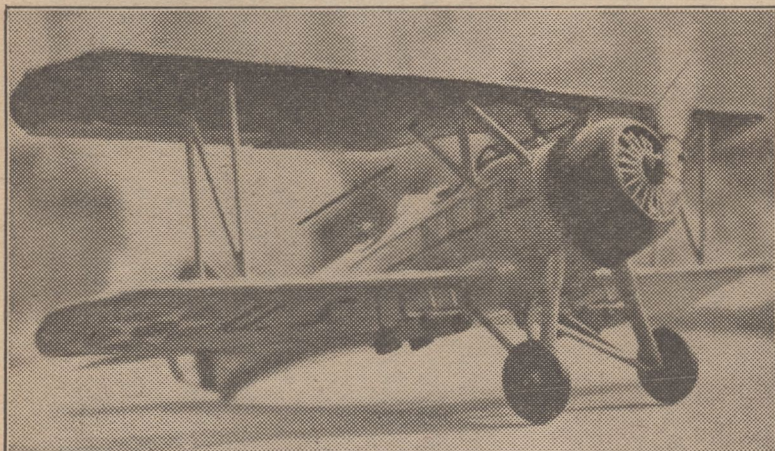
With the Model Builders



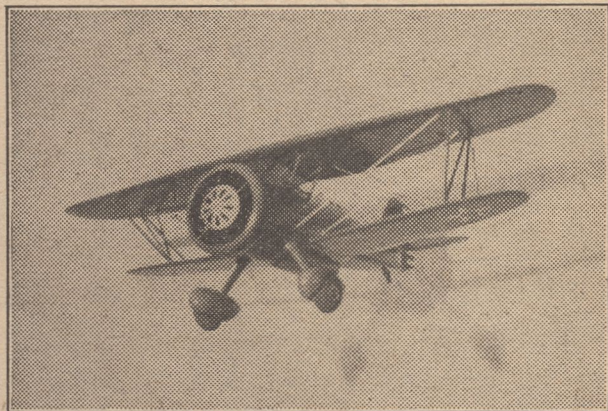
Here's our idea, photo-phans, of a swell air shot. You can tell by the whirring prop that this trim Taylor Cub is stepping along at full gun. But with fast film, perfect lighting, careful aiming, and quick exposure, young Carlyle Eisenberg, of Humboldt, S.D., caught every important detail of his rapidly-moving ship in full focus. And note what a neat neutral background the sky makes for it.



Well, just look who's here! None other than our old friend the Flying Schnozzle! Gil Minnigh, of South Cumberland, Md., produced this fine masterpiece from those old F.A. plans (sorry we can't supply you with copies of the issue in which they appeared). We'd say that Gil made a mighty nice job of his ship, wouldn't you? It's a swell flyer, this snouted scouter of the skies. And you'd have a tough time beating Gil's neat paint job!



Ma! That model-building man's back again! Yes, we mean Gordon Sullivan, ace airplane arterafter from Lyndonville, N. Y. This month we're featuring Gordon's latest—a kit model of the Vought Corsair. Young Sullivan purchased the original kit from an F.A. advertiser; then, to the normal completeness of the outfit, he added seventy-five hours of concentrated work, putting in a number of notions of his own. The final result is this life-like replica, perfect and complete even to the light bombs in the racks beneath the wings.



From Kennebunk, Me., Ham Dyer shoots us this excellent "flying" shot of his solid Curtiss F-11-C2 scale model. This ship has a 24" wing-span, with lathe-turned cylinders and cowling. "It sports such a keen finish," says Ham, "that you could nearly cut balsa wood with it!" Incidentally, Ham made some kind remarks about Nick Limber's article on "Solid Models from 3-Views" in the September issue. His words were especially appreciated, since Ham himself is a well-experienced "solidesigner."

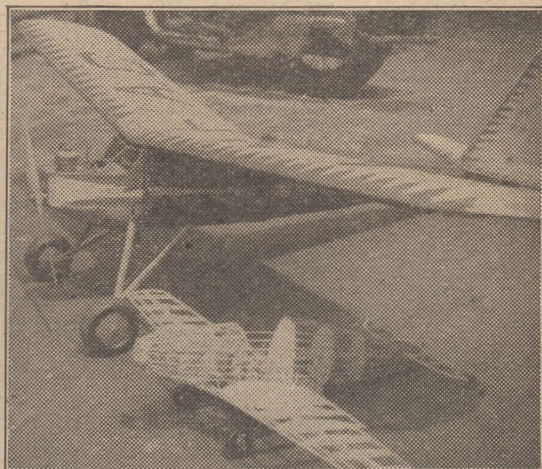
THIS IS

your page, modelers. Wouldn't you like to see a snap of your best ship printed on it? Send it in—we'll be glad to use it.

Pictures should be on glossy paper, clear, with lots of contrast, and should show the craft as large as possible. Don't send negatives. Tell us briefly about the model's best points.

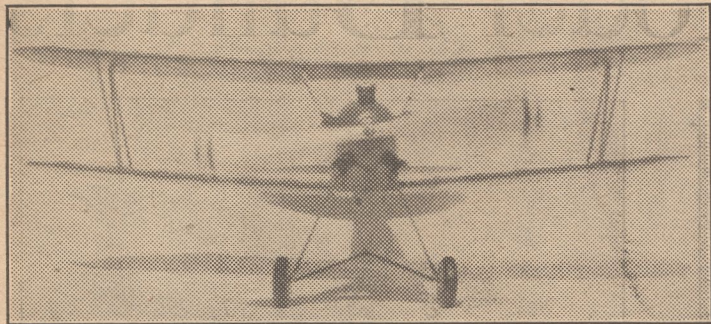
Submitted pictures cannot be returned. Address, WITH THE MODEL BUILDERS, FLYING ACES, 67 West 44th St., New York, N. Y.

Right: Young Billy Ellis, of Vivian, La., has made more than thirty solid scale models and a whole host of flying crates. Here he is with his new Monocoupe, the 50" wing-span of which is 'bout as broad as Billy is tall. A few of his other models are in the shadows beside him.



An airplane in disguise! This big ship (top) started out to be the F.A. stick gas job (Sept. '36 issue) but when its builder—W. Randle, of Leicester, England—got that far he decided to add the cabin just for fun. So here it is, complete with F.A.C. initials and all. Young Randle says that this petrol plane flies better and more consistently than any other ship he has built. The skeleton frame in the foreground is the start of a Hawker Hurricane.

Lucky thing the motor's dead, or this PT-11 might be leaving the page and heading right for you. With that motionless prop, though, you have a chance to stand safely in front of it and study the details of a swell modeling job. We'd suggest that you refer regularly to this picture and the others while you work, to insure your model being trim.



Consolidated's Army Trainer

Ability to "take it!" That's what primary trainers must have, for inexperienced, embryo pilots certainly give the PT's a beating during the rough-and-ready cadet days. But in the Consolidated PT-11, the Army has just such a sturdy job—and here we have a model of it for you. You'll find it just as dependable for your purposes as the rookie flyer finds the big ship is for his.

Construct The PT-11

THE PT-11, primary trainer built for the Army by the Consolidated Aircraft Corporation, has received plenty of rough treatment at the hands of tyro pilots and of National Guard and Army reserve flyers busy piling up hours in the air. But the ship has held up very well in spite of all this.

And our model of the PT-11 has proven fully as tough in its own way as its prototype, so the authors feel that they can recommend the ship as a worthwhile addition to your model fleet. Also, if you haven't already enjoyed the thrill of building a flying scale model, the PT-11 isn't too difficult a ship to build and to fly for a starter.

Two test models were built before our plans were drawn up. The first one, now two years old, weighs 2.15 oz. complete, and gives flights frequently as high as $2\frac{1}{4}$ min. The second, now one year old, incorporates more detail, is color-doped, and weighs 2.85 oz. It has a proportionately less spectacular performance.

So take your choice: top performance with a fine appearance, or, top appearance with a fine performance. But regardless, we are sure your model will prove exceptional in its class whether you choose the heavier or the lighter of the two. So let's get under way on this sturdy little primary trainer right now!

First, study the drawings and article until the structure is clear in your mind. This may eliminate many costly errors. Sand the "whiskers" from the balsa to save weight at no loss in strength. Use only the best material, and make good, careful cement joints. This practice will increase the life of your model.

By Kenneth W. Hamilton
and Henry Stiglmeier

FUSELAGE

JOIN plates 1 and 3 as indicated, place wax paper over them, and make two fuselage side frames, putting pins on either side of the strips to jig them up. Note the $\frac{1}{8}$ " sq. upright at the rear hook station. Add gussets and incidence blocks at L.E. on the lower wing. Omit gussets for cabane struts until later.

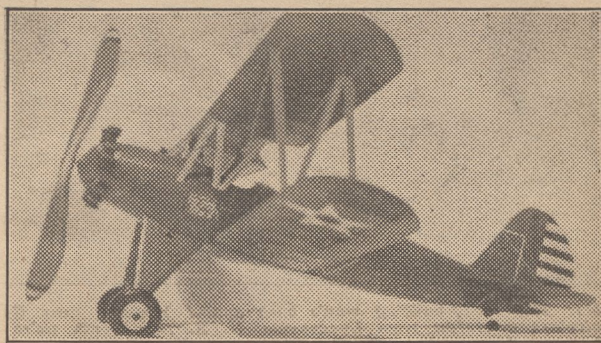
While the sides are drying, cut Formers 1 to 5 and lay them aside. Now, cutting cross-pieces of correct length, join the fuselage sides at the widest part of the fuselage and block them up to hold true until dry. When dry, join the sides at the sternpost with aid of rubber bands, and insert cross-pieces at intermediate stations.

Draw sides together at the nose, and cement fuselage formers in place. All $\frac{1}{16}$ " sq. stringers may now be put in place as well as the rear hook on its $\frac{1}{8}$ " by $\frac{1}{4}$ " hard balsa cross member. Place cabane strut gussets of $\frac{1}{16}$ " balsa so their surfaces will be flush with paper covering.

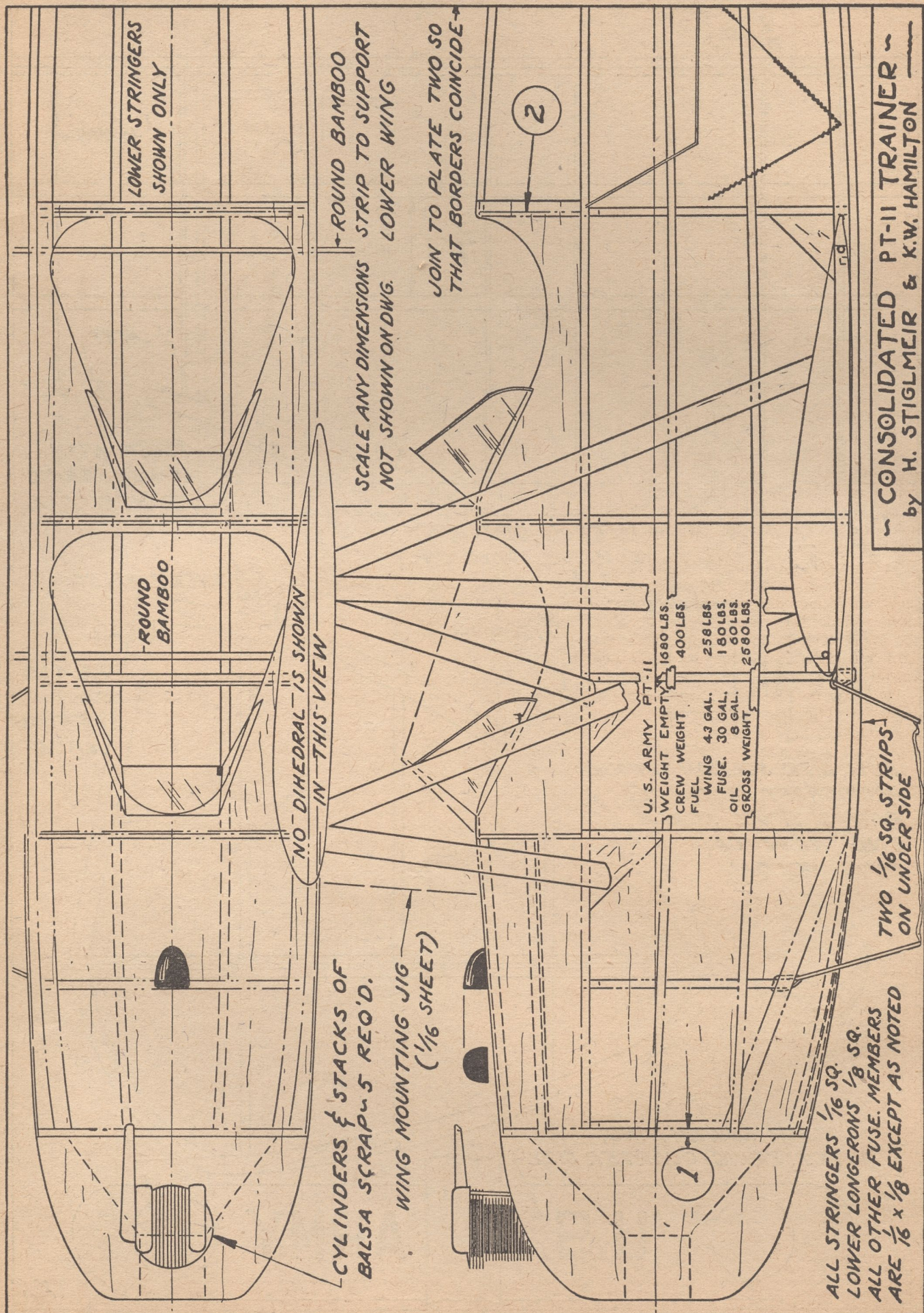
Bend up all wire parts of landing gear shown on Plate 5. Bind front and rear struts to fuselage with white silk thread and cement. Wrap with silk thread, and cement the front and rear struts together at the bottom on either side. The center V-strut must also be cemented to fuselage at this time.

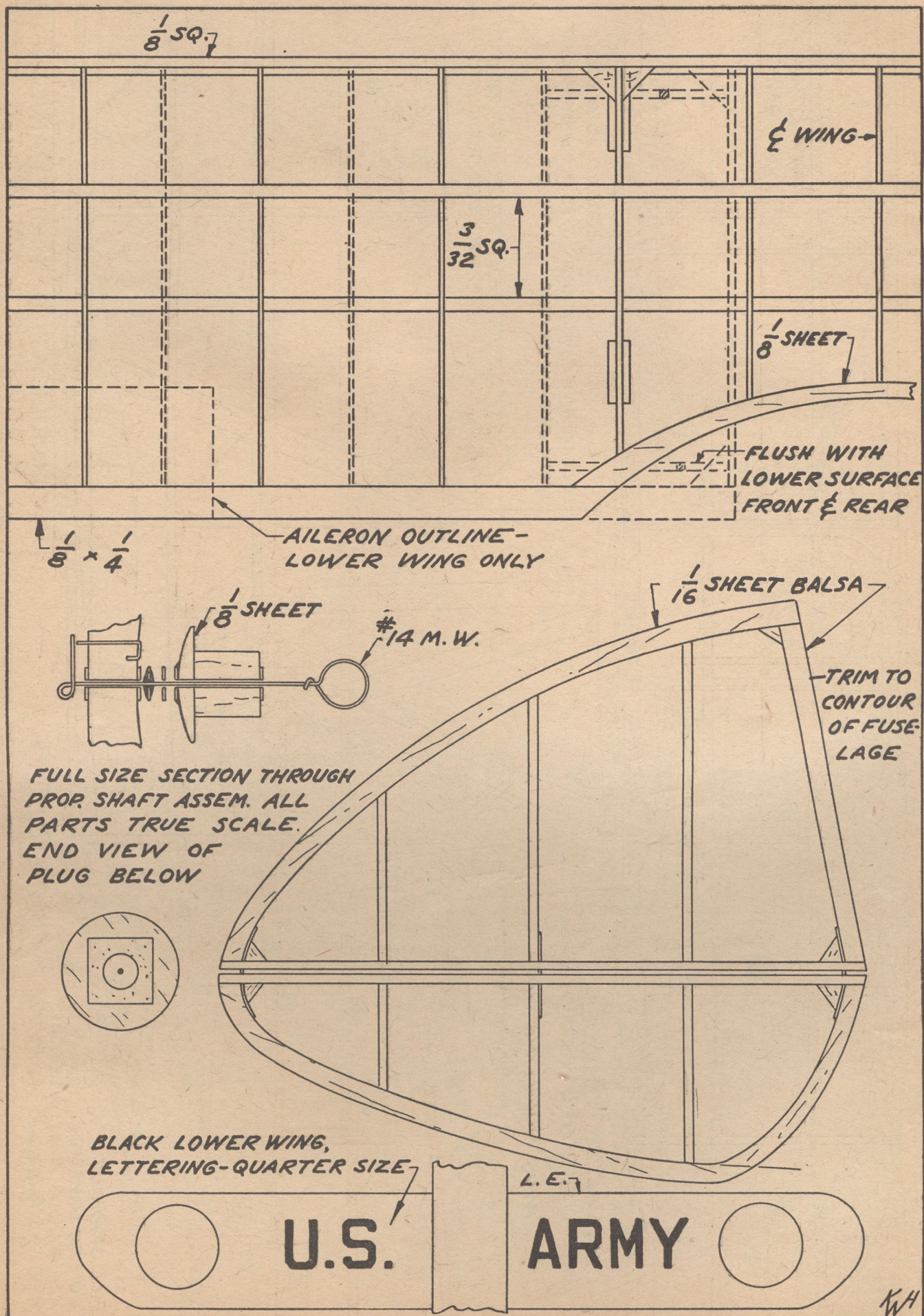
From $\frac{1}{16}$ " sheet, cut two V-shaped fairings to go between front and rear landing gear struts. Cement these in place, and trim at top to allow $\frac{3}{32}$ " clearance to fuselage. Cement the wire shock absorbers in place and pass the wire axle through the loops on the lower ends. Bind and cement the axle to the center V-strut.

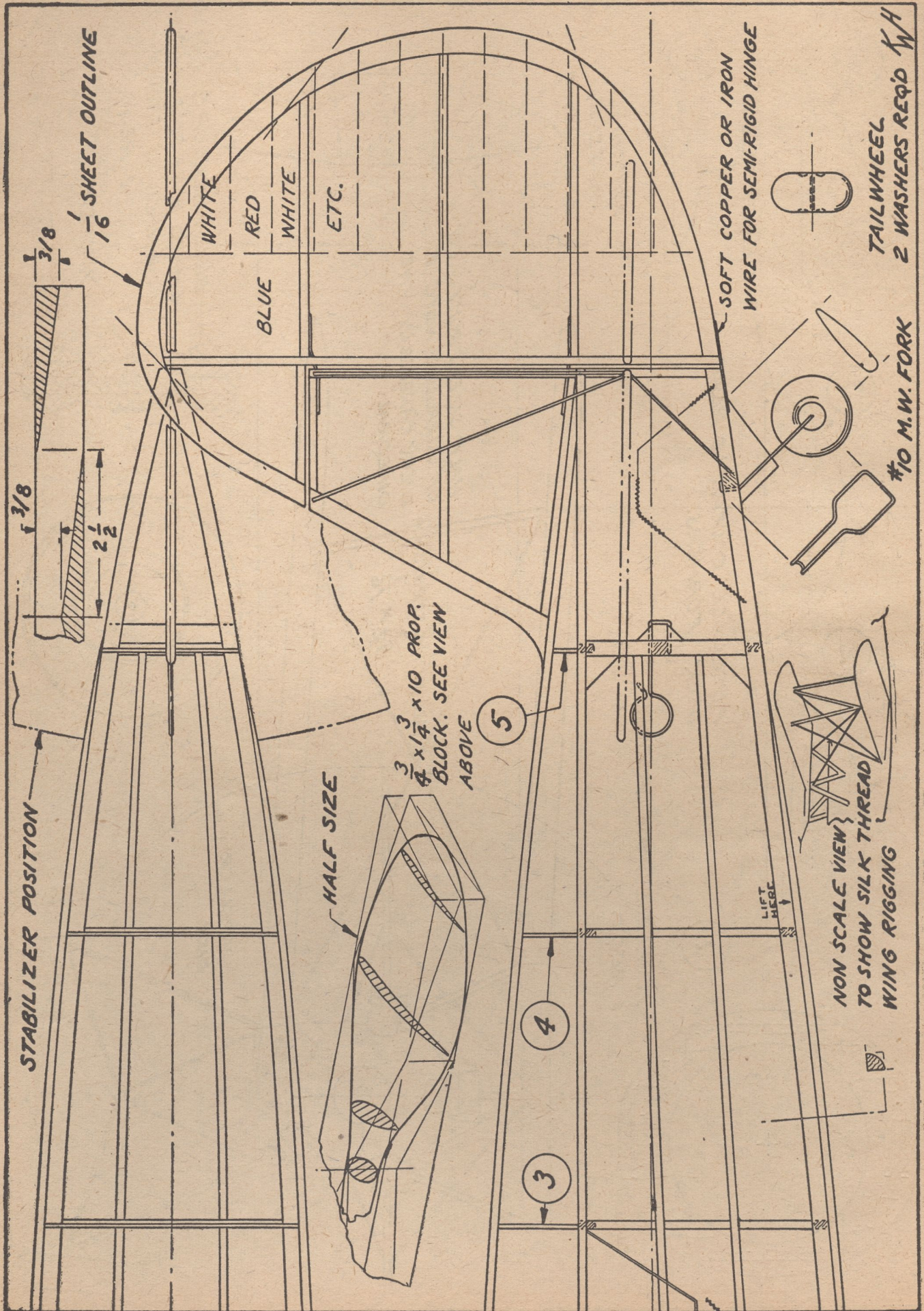
Add axle fairing of balsa. The weighted wheels should
(Continued on page 95)

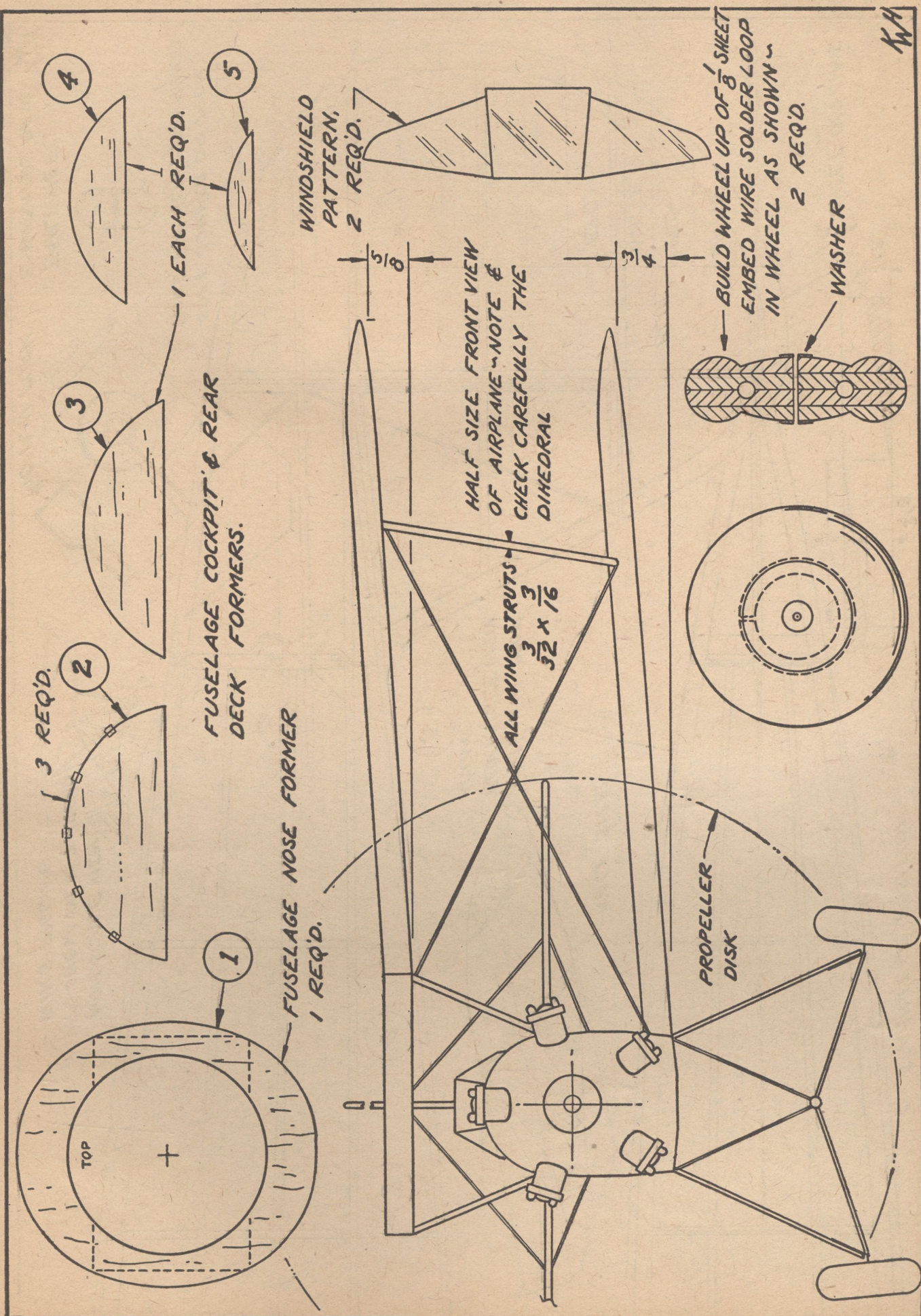


One reason we liked this feature on the Consolidated PT-11 was the quality of the photographs that came with it. Here's a couple—well focused and posed against contrasting backgrounds to emphasize every detail. Swell pictures to work from in building your model! In the one at the left, note the well-built center section and in the neat profile shot at the right notice the dashing stagger of the wings.



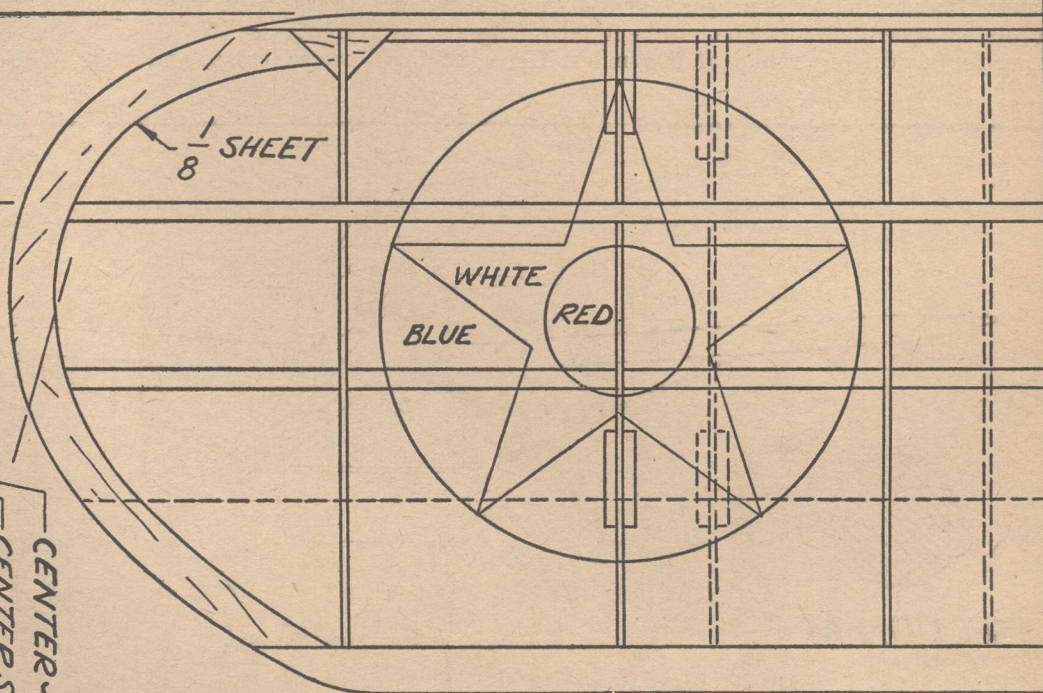






MAKE SIX STANDARD
RIBS WITHOUT HOLES

STANDARD RIB ~ 26 REQ'D
CENTER SECT. ~ 2 REQ'D.
(NO HOLES)
CENTER ~ 1 REQ'D.
CENTER SECT. ~ 2 REQ'D.



$\frac{1}{16} \times \frac{3}{8}$ BALSA
AXLE FAIRING

ALL WIRE PARTS ARE
#14 M.W. AND ARE SHOWN
IN TRUE SHAPE. PERSPEC-
TIVE ASSEMBLY NON SCALE.
FAIRING WITH $\frac{1}{16}$ SHEET BALSA
AS SHOWN.

NOTE SHOCK ABSORBERS



REAR

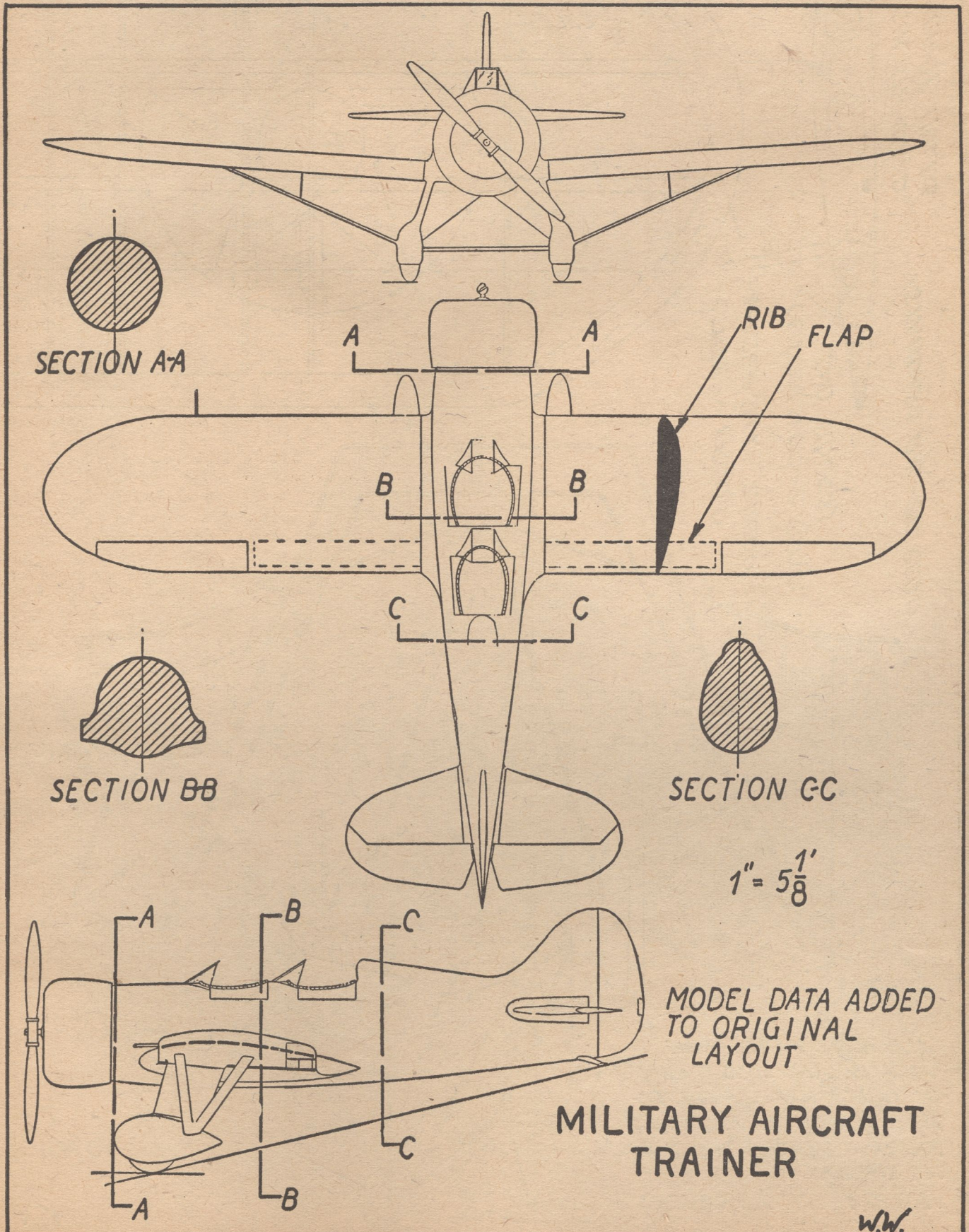
#10 M.W.

KW

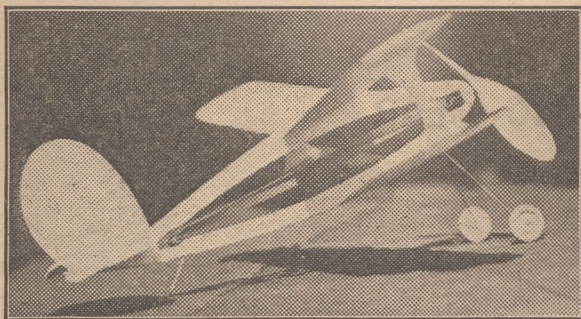
Try A "Solid" of the Military Aircraft Trainer

DESIGNED by De Lackner, the original Military Aircraft Trainer, has a top speed of 170 m.p.h., and a cruising speed of 148 m.p.h. She'll hold 60 gals. of fuel for a cruising range of 500 miles. Her climbing

speed is 1025 ft. per min., and her service ceiling is 18,000 feet. The Trainer's wing-span is 33 ft., weight empty is 1967 lbs. So now—out with your drafting board, balsa, and tools. She's all yours!



We'll admit that Garami's novel stick-type biplane looks somewhat like a skeletonized bird, but just the same she flies like a full-feathered songster loaded only with the joys of life. Note in this picture, by the way, how the landing gear is put forward as a guard against those nose-over landings that often follow an overly exuberant flight.



AN EASY-TO-BUILD BIPLANE

Have you been steering clear of biplanes because of that extra wing? Well, you don't need to skip them any longer, for herein Louis Garami offers an extremely simple two-winger that you'll like. It couples the stability of the model biplane with the ease of construction of the monoplane. And to make it still easier, the "I-Strutter" is basically a stick job.

Fly This "I-Strutter"

AMONG certain modelers, biplanes haven't been overly popular because of the extra set of wings required and the extra effort involved in making them. And as a result, many an *intended* model biplane is roaming the skyways as a mono, ever looking for its lower wing. But the deficiency is explained when the owner says:

"When the upper wing was finished, so was my ambition!"

So it seems that for many of us to finish a biplane, we should either start out to build a tripe or should put the wings together first. Even in the case of the particular stick model biplane described herein, the author will admit that he experienced a certain degree of difficulty (*he means laziness—Editor*) in pushing the job through to the two-winged finish.

However, the swell flights turned in by this neat skyster have already more than made up for the additional work and the hot weather strain. And you fellows who in the past have stuck mostly to monoplanes will find this ship quite nicely stall-proof under power, because of the low center of drag created by the lower wing. As for the rest of the job, we've tried to simplify its construction and at the same time add to its looks, by building a profile body with negative staggered wings.

In accordance with the above suggestion, we'll make the wings—even for this simple ship—first. Here goes—

WINGS AND FUSELAGE

THE wings are made in halves—two rights and two lefts. Trace the drawing of the wing and reverse it for the left, since it only shows the construction of the right. Cut out the 20 ribs and assemble the four halves, making sure that the first rib of each section is tilted the right way.

For wing tips, bend a length of $\frac{1}{4}$ " wide bamboo by heating it above a gas flame or steam, then slice four even tips out of it with a sharp knife. Next notch the leading and trailing edges to receive the tips and cement the

By Louis Garami

latter into place. Finish the framework by sanding the trailing edges to streamlined shape.

The covering is done in the usual way. The strips of Japanese tissue are made to stick by first applying dope or banana oil to the framework. The finished surfaces should be sprayed with water and doped after drying.

LANDING GEAR

FOR the profile body a sheet of medium hard balsa is used. Cut it to shape, inside and outside, with a sharp razor blade and sandpaper the corners lightly. Make a hole and insert the aluminum tubing in the nose along with the $\frac{1}{4}$ " washer. Use plenty of cement at this point, spreading it with your finger on both sides of the nose to strengthen the wood also. Now the tailskid and rear hook can be added and the body put aside to dry.

The landing gear is bent from a piece of .034 piano wire to fit the inside part of the body. After the 1" hardwood wheels are slipped on, the wire should be bent up to prevent them from coming off. In attaching the landing gear to the body care should be exercised in lining up the same. Use plenty of glue.

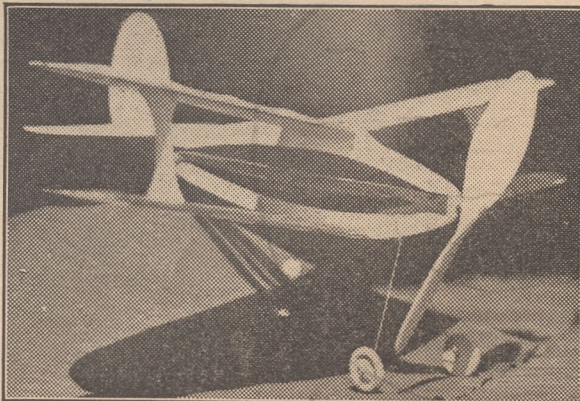
PROP AND TAIL

THE propeller is carved out of a soft piece of balsa 7" by $1\frac{1}{8}$ " by $\frac{5}{8}$ ". Smooth out the surface with fine sandpaper, then cement the washers and bushings into the hub.

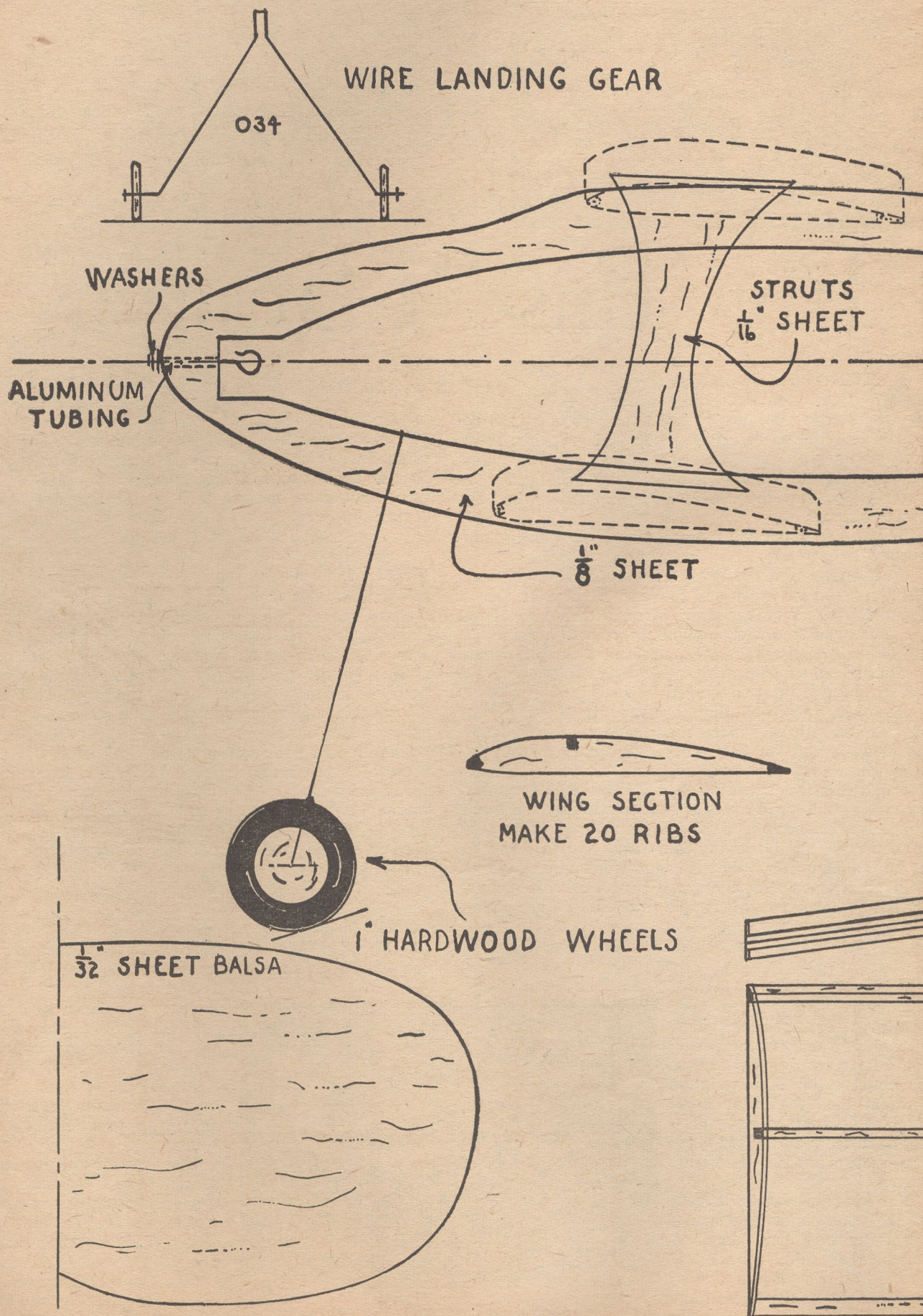
If you have used free-wheeling before, make a habit of using it on every model you construct. If you have not—here is the chance to get started on it, for a free-wheeling prop produces a better glide.

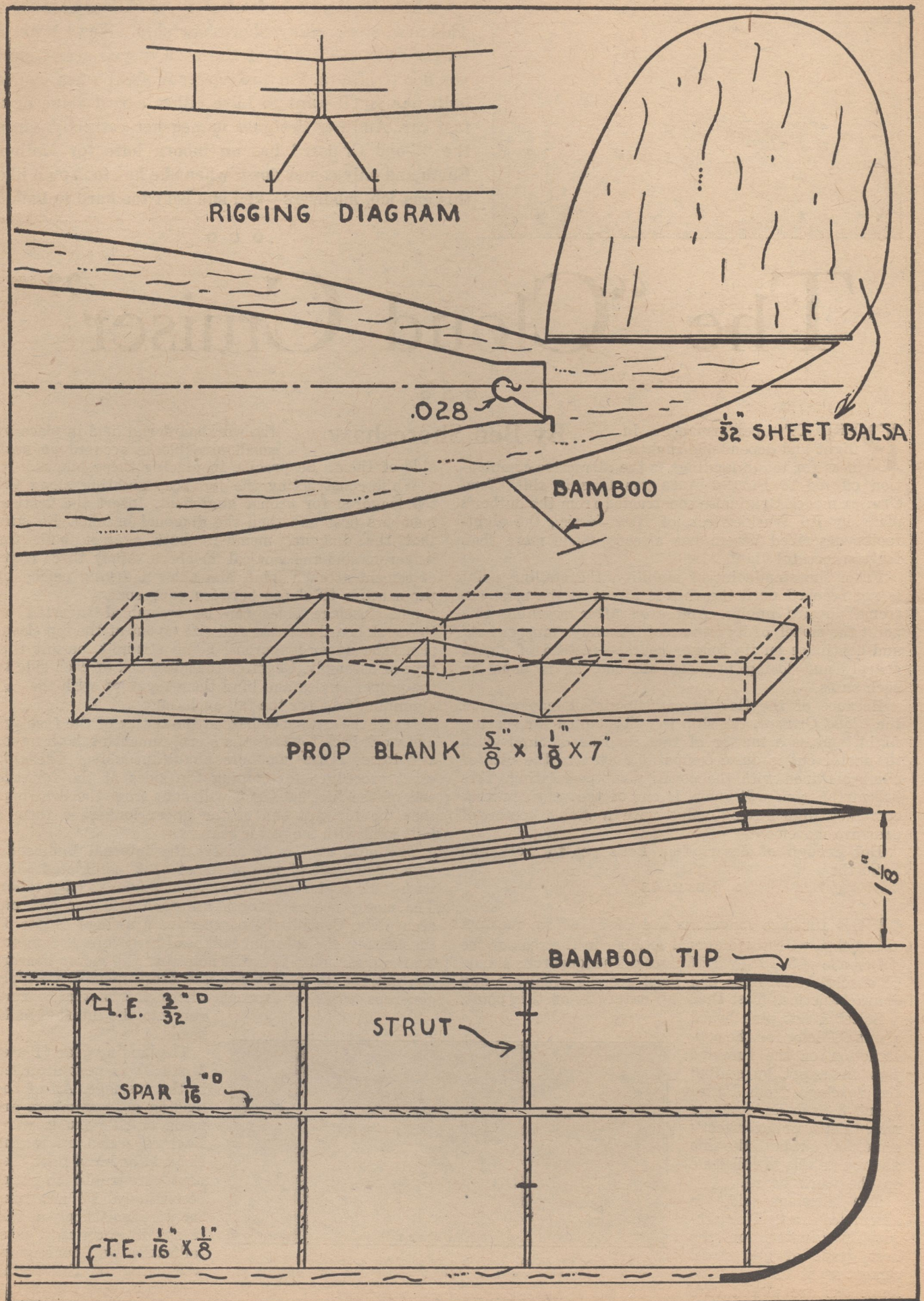
The elevator and rudder are traced on to $\frac{1}{32}$ " sheet balsa and cut out with a razor blade. Cement them to the body, using pins to secure them in the proper position.

The two struts are of $\frac{1}{16}$ " sheet balsa of the cross-grained variety. They are
(Continued on page 94)

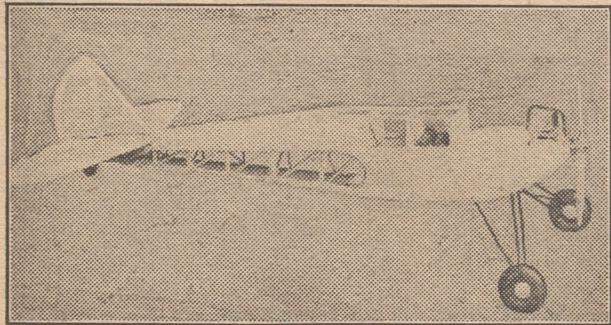


With such a detailed picture as this to follow in building your model of the "I-Strutter," you hardly need the drawings that appear with this article. However, by using the pictures, plans, and instructions together, you should have no trouble at all in assembling this swell, high-flying "biplane."





We'll admit that this shot of the "Cloud Cruiser" without her wings looks somewhat ghostly. But why not? For from the way she scoots through the sky she's certainly a speeding phantom! Incidentally, take a squint in this picture at the placing of those diagonals in the fuselage.



AN EIGHT-FOOT GAS JOB!

This new, sleek, shiny Shereshaw ship—Wow! What a tongue-twister—is one of those "now you see it, now you don't" affairs. For to keep 'er in sight when you've built her you'll want to have either a real plane or a fast car. And her designer named her correctly, since the "Cloud Cruiser" has an inborn hate for Mother Earth and only comes down when she has to. You'll like this gas job, modelers—and she isn't too hard to build!

The "Cloud Cruiser"

PERFECT performance in flight and dependable ruggedness for tough landings is the attractive combination offered to FLYING ACES gas fans in this *Cloud Cruiser* model. Originally constructed from the author's plans by Ed Waskiewicz, of New Jersey, the eight-footer described herein has already made more than forty successful flights.

From the standpoint of stability, the stalling point is not reached until the ship is aimed at the most extreme upward angles. And even after reaching this point the model, of its own accord, usually "mushes out" and continues on its former course—instead of diving sharply and losing precious altitude, as is usual in such cases.

Because of the Goettingen 549 airfoil employed on the *Cloud Cruiser*, the ship is well adapted for soaring flight, and as a matter of fact its rate of climb with the motor cut is quite comparable even to the rate of climb obtained with the power plant percolating. This 549 airfoil, you will know, is one of the very few that combines high lifting value with a stable center of pressure movement.

But enough of description. Let's get to work and build the

FUSELAGE

THE fuselage longerons are of 5/16" sq. medium balsa, with the diagonal bracing in the rear of the ship made of 3/16" by 5/16" stock. The longerons should be absolutely straight and must possess equal bending characteristics. Test them all carefully on this point.

Select a flat pine board about 60" long for the construction of the fuselage jigs and start by scaling the fuselage from Plates 1 and 3 with an accurate machinist's or architect's scale. Lay out both the side and top details in full scale on the work board.

The fuselage side is assembled first. Throughout its construction the best grade of gas model cement must be used. The longerons are placed onto

By Ben Shereshaw

the workboard and held in place by small pine blocks secured on each side of them. Be precise in placing these blocks.

While constructing the jig, keep sighting along the top longeron for proper alignment. Insert the vertical members first and then the diagonal bracing. Be sure that the diagonal members butt against both the longerons and the vertical members. Apply three coats of cement at each joint, and allow a drying period of three hours to elapse between each coat.

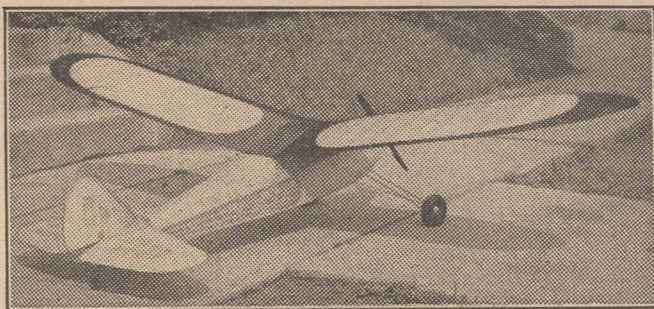
The fuselage sides can be assembled inverted on the work board over the full size layout of the top elevation. The upper longerons, being straight, permit this type of assembly. Chamfer the stern end of each side to the proper angles and bind them together with the 1/4" aluminum tube for the tail anchorage.

Insert the cross members at the center of the fuselage and work back towards the stern, cementing both upper and lower cross members simultaneously. Use this exact procedure for joining the sides at the forward end of the fuselage. You will note from the drawings that the forward end of the upper longerons form a butt joint with the motor bearers.

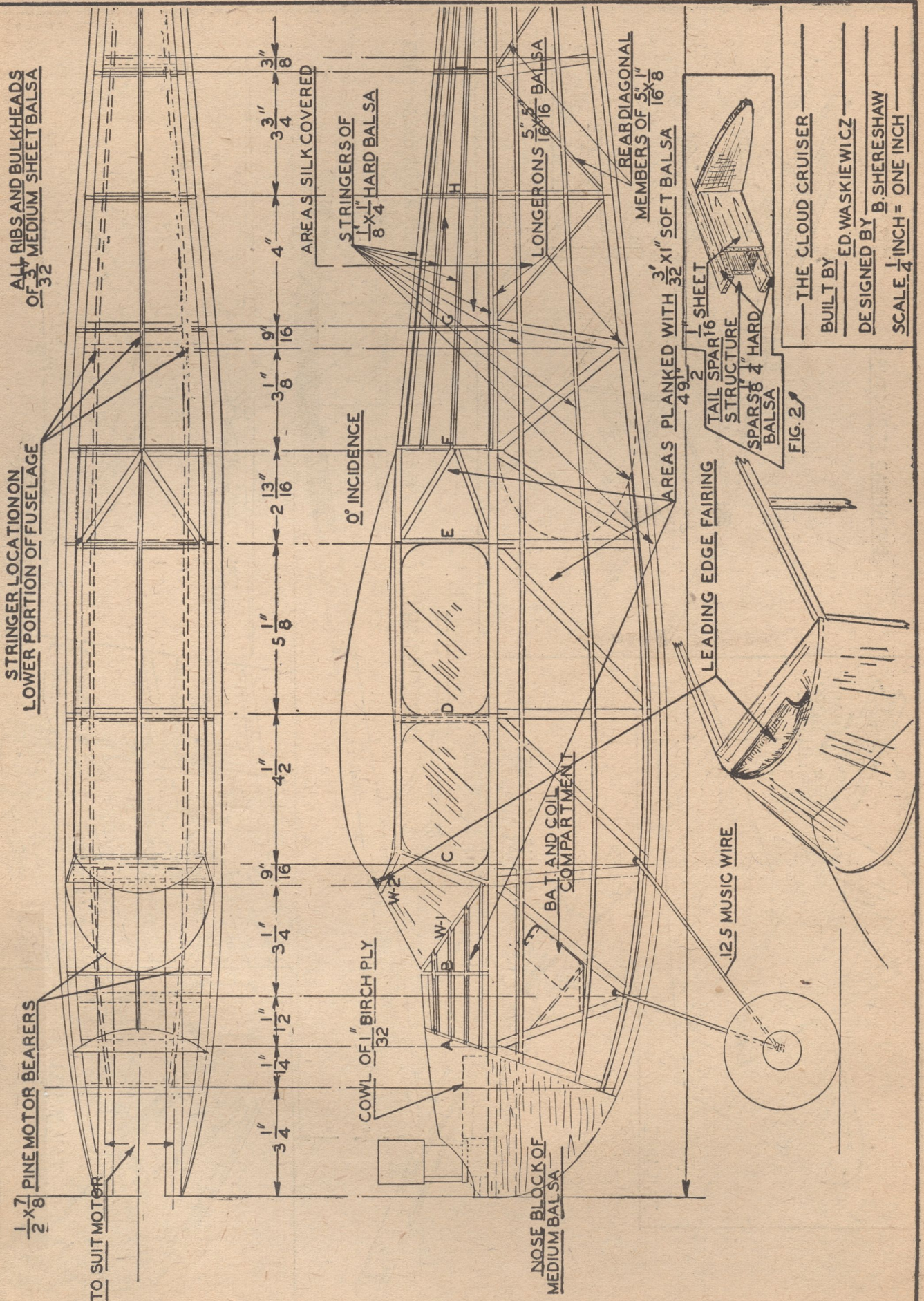
The next step is to insert the internal bulkheads, which are made of two pieces of 3/32" laminated balsa with their grains running at right angles to each other. The motor bearer notches are then laid out and cut accurately. Consult the perspective drawings (Plate 3) illustrating the internal bulkhead structure and motor bearer insertions. You will note that the motor bearers are notched to fit beneath the cross members. Apply generous coats of cement where the motor bearers run into the internal bulkheads.

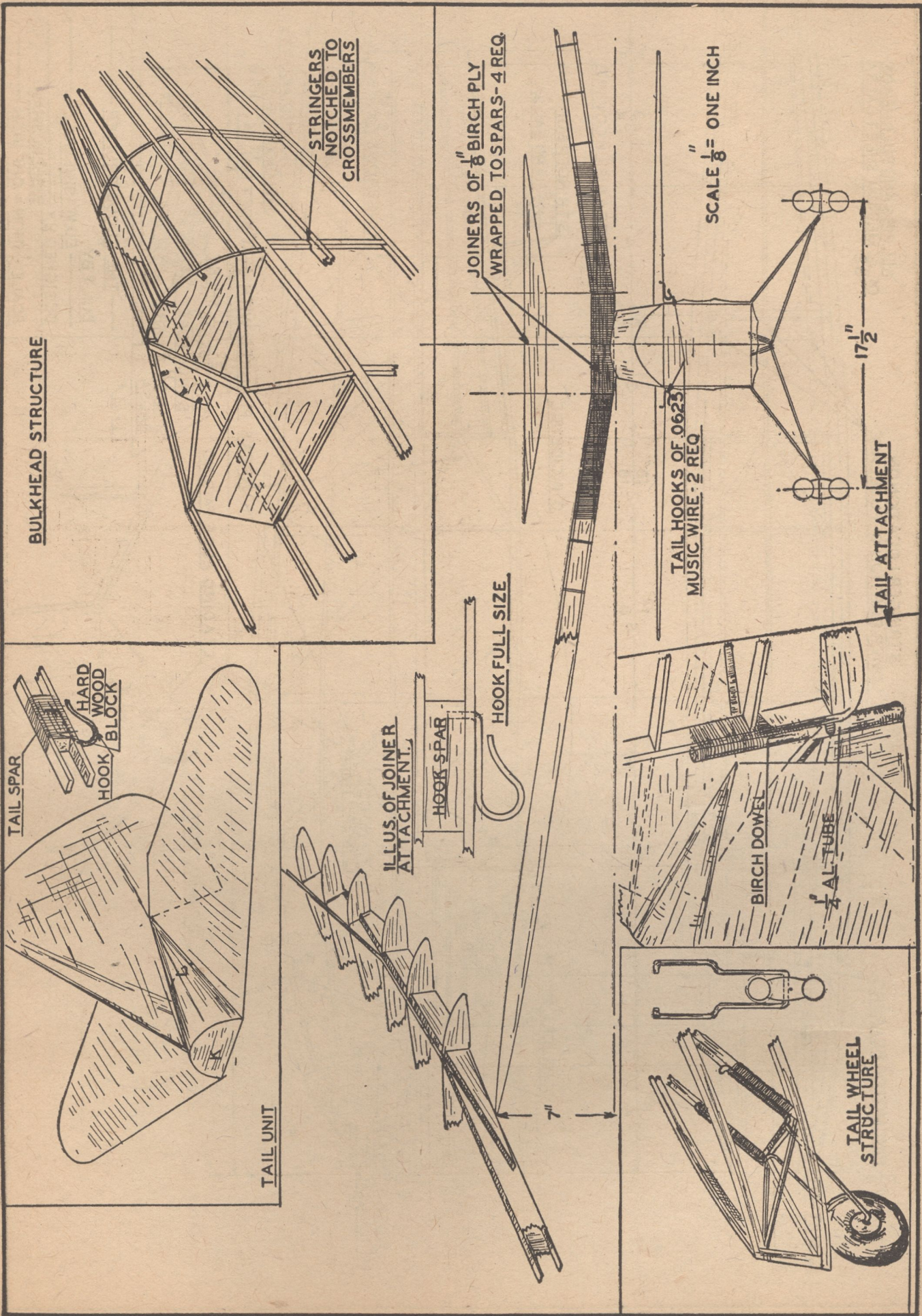
The landing gear (Plates 2 and 3) is next attached to the fuselage. All of the landing gear members are made of .125 music wire. Each is scaled up to full size and one-half bent (see next paragraph) to shape accordingly. Do not bend the wire too sharply as this is apt to encourage crystallization and consequent weakening of the metal.

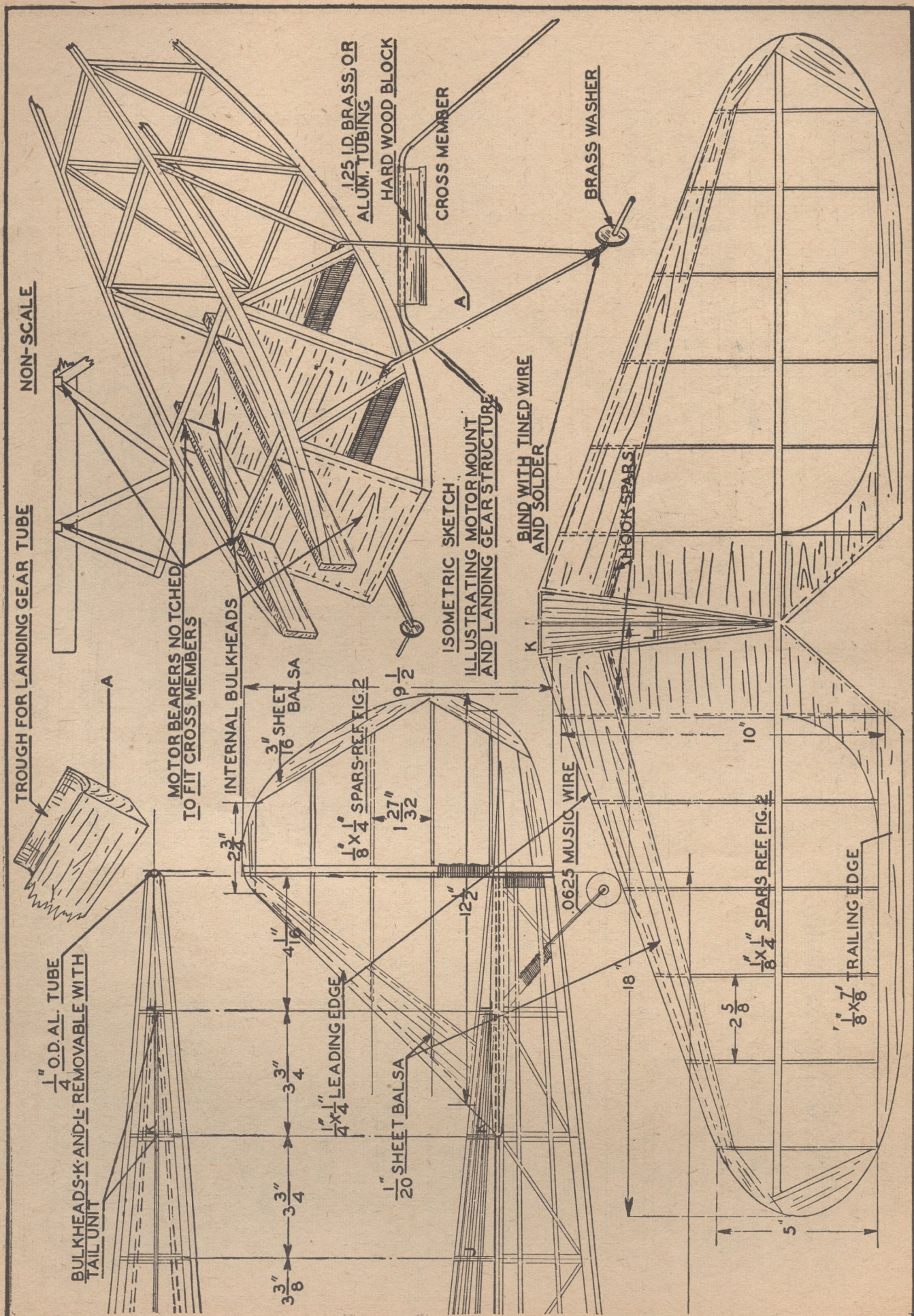
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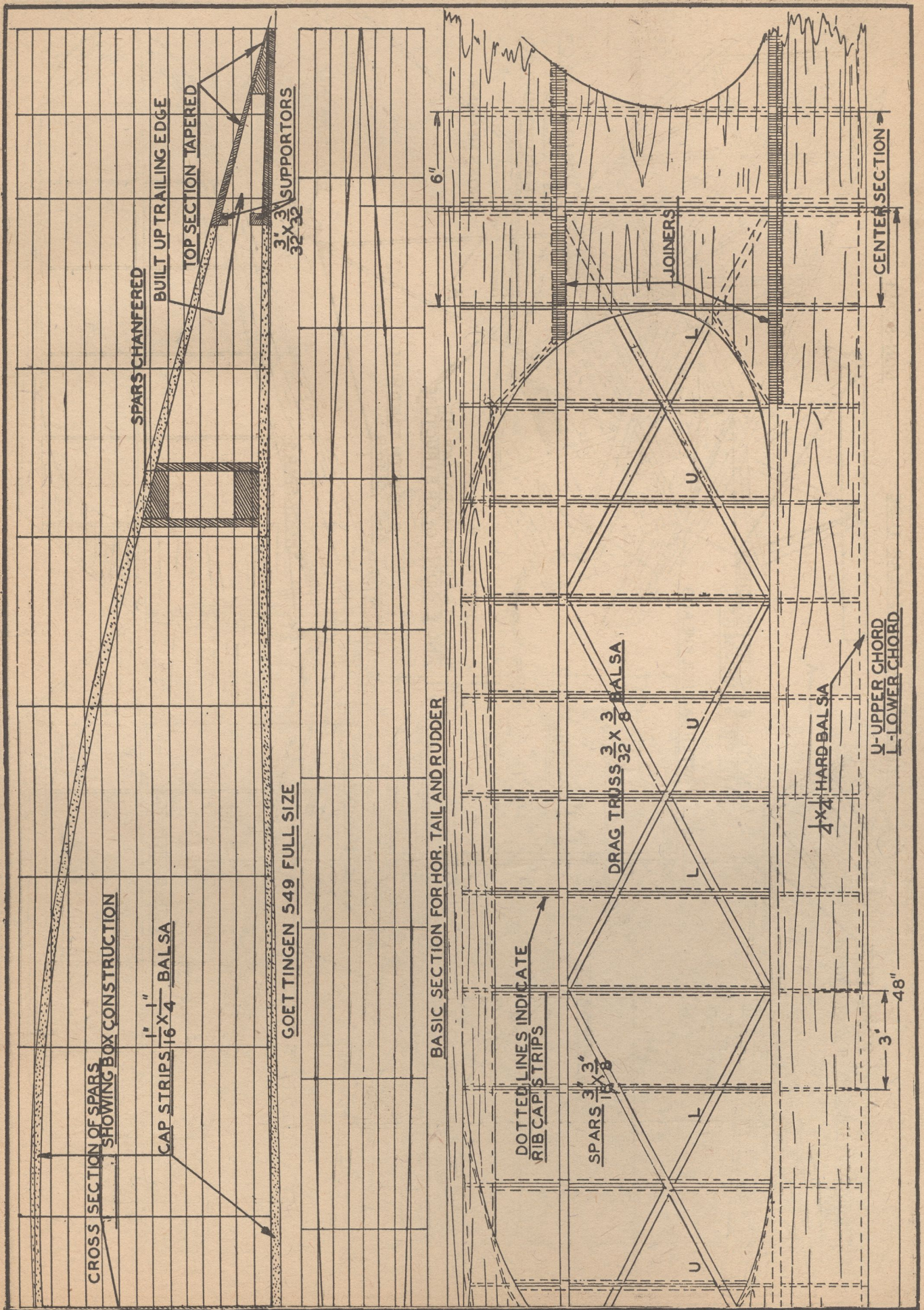


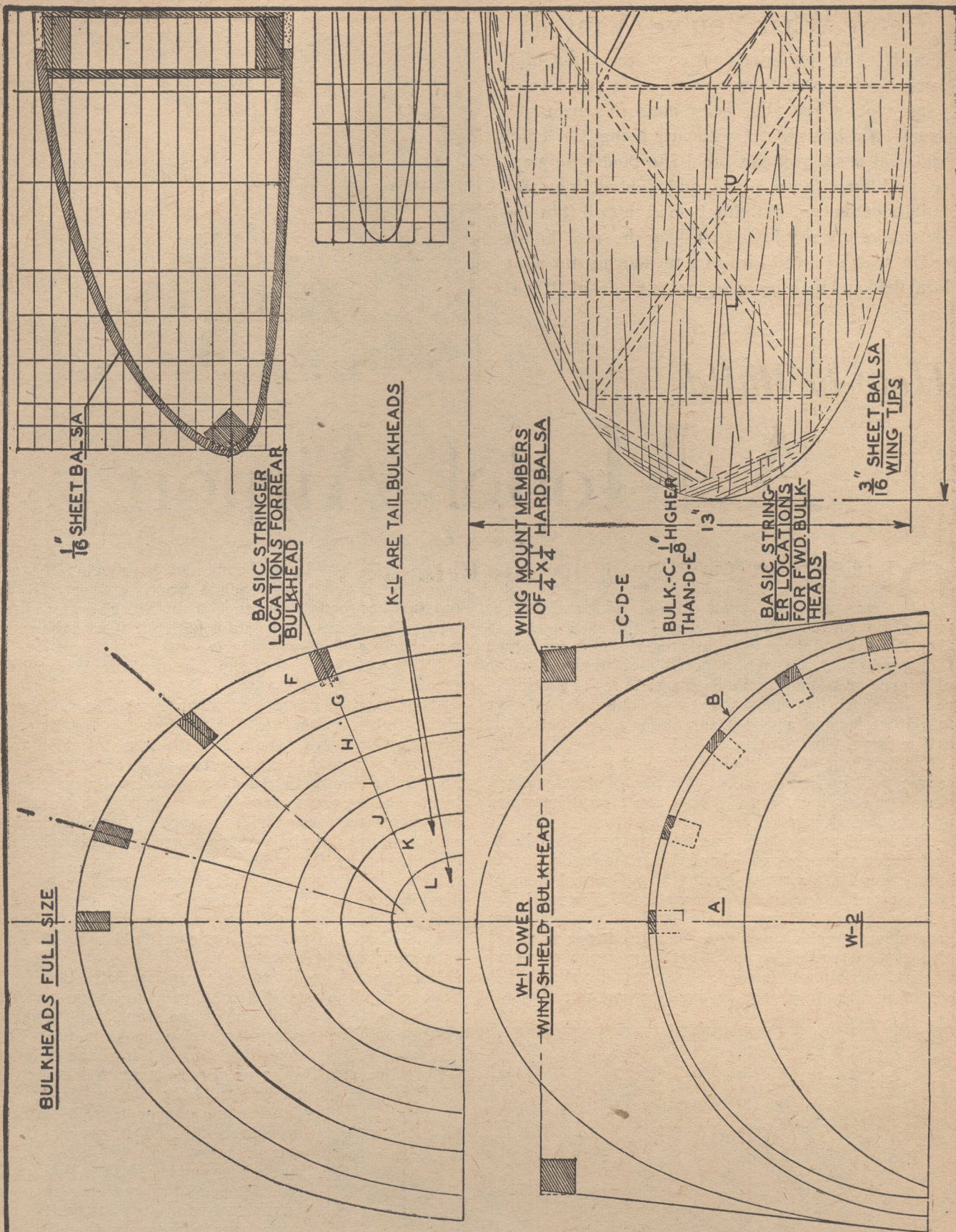
Ready to take off, all she needs is a twist of her prop to go! You have a swell chance here really to study this eight-foot wing-spanner of Shereshaw's, since the wings and tail, the fuselage and a part of the landing gear are all plainly portrayed.











Here's What You've Wanted!

Yes sir! And you'll not have to worry about high tension wires and telephone poles in the way of your pilots when you throw open this neat air-drome for business. Cardboard being the chief material used, you can build the model for next to nothing. These plans and instructions for building this typical flying field aren't all that Joe Battaglia gives you, either—for he also hands out a scad of swell hints on measuring up your local field and making an accurate model of it, too!

How to Build

A Model Airport

OF all the phases of model airplane work, none has been more neglected than the one which *should* be paid attention to—the phase of model airport construction. It is true that many fellows make models for which they would find it nearly impossible either for reasons of finance or lack of available space, to make a suitably scaled airport, but many chaps go in quite strongly for miniature models, and it is for these builders that this article is primarily intended.

Construction of baby airports in the workshop, of course, isn't limited entirely to the pigmy model makers, since our drawings, or your own, can always be scaled up to any desired size.

The model shown here was built to provide a background for some tiny models of the author's, but it was built also with a view to having an additional item of interest to hang upon the den wall. It looks real!

Real though it may seem—and I worked from government specifications and suggestions for standard airport construction—one interesting event occurred when it was almost finished. I was proudly showing it off before a group of friends, among whom were Colonel

By Joe Battaglia

Dean Lamb and Lieutenant Edward Grey, each a wartime flyer with an

outstanding record. And then just when I began to brag about the accuracy of detail, both pilots exclaimed, to my absolute dismay:

"But Joe! You've left out the most important item of all!"

And from the standpoint of pioneer pilots they were right. But from the point of present day airport engineering they were wrong. For the item to which they referred was high tension wires! Yes, our older flyers are all familiar with the days when hardly an airport in the country was free of these dangerous obstructions, and such other ones as telegraph poles, smoke-stacks and tall trees, but the pilots of today are comparatively free of such worries.

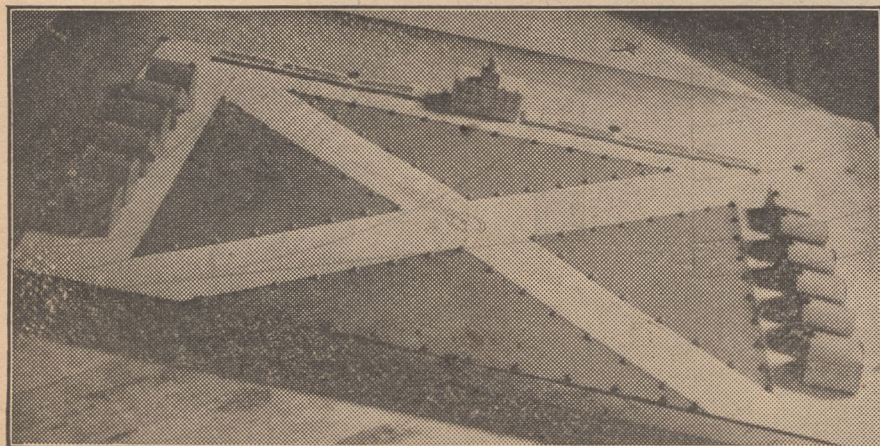
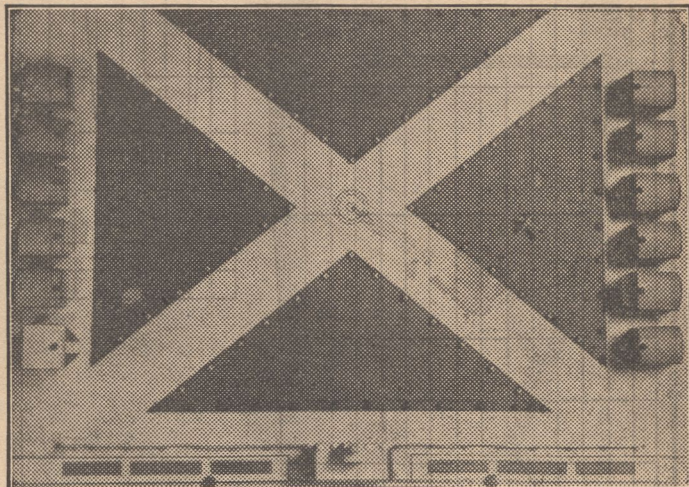
Hence, as it stands, the airport pictured here may be described as a typical, modern field. Of course, your own construction doesn't have to be a duplicate of this one, although I'd suggest that you build this one first as a sort of experience-giver.

But why not go out to your own local airport today? Take a tapeline and sketching pad, and your camera.

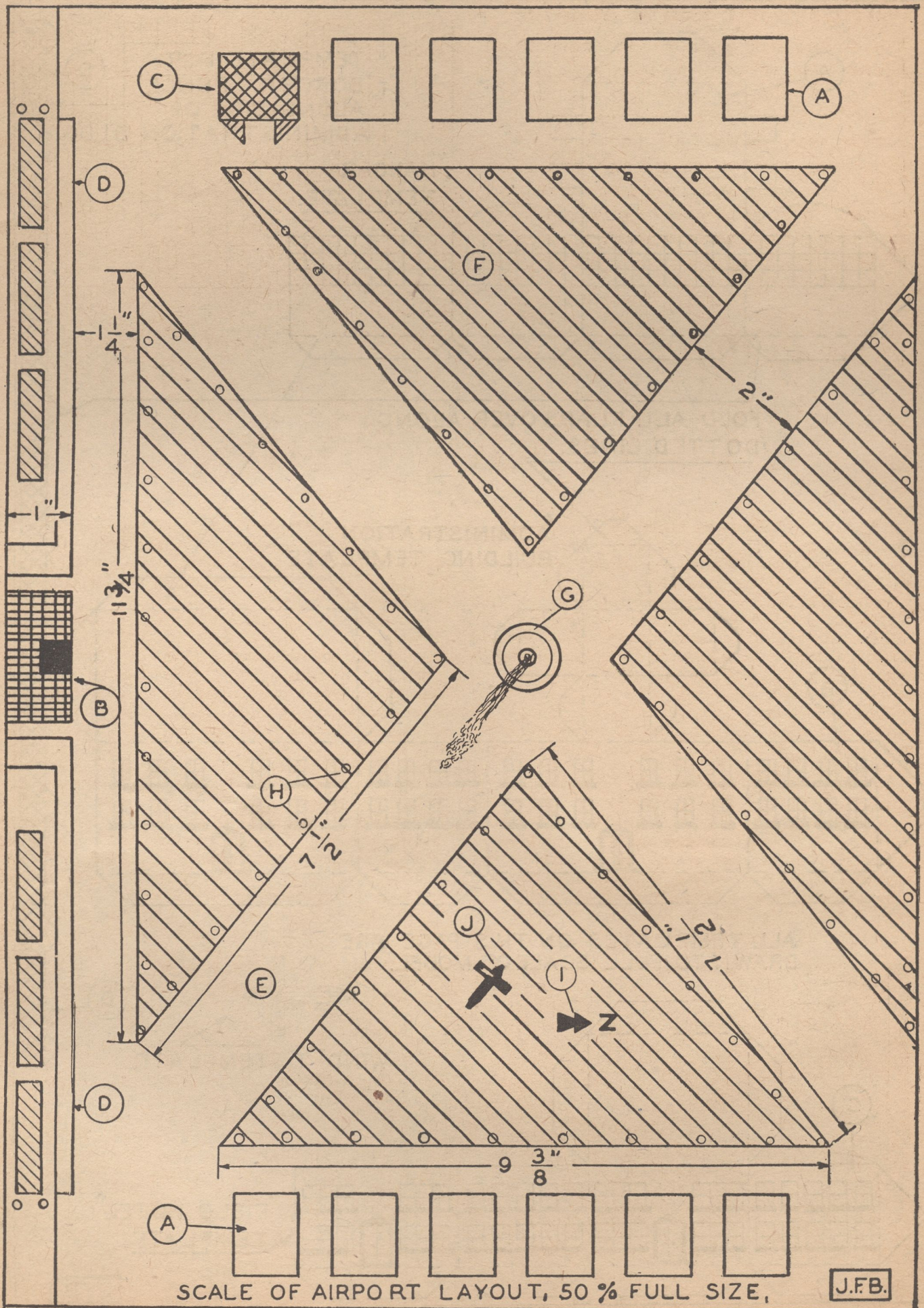
And survey the whole field, making a complete plan on your pad. You don't have to get into the way of ships or other danger to do this, for runways and the like can be figured by estimate rather than by actual measurement. And if your back is one of those that won't bend for careful measuring with a line, pace the distances, first walking in your normal way for about fifty regular steps, then measuring the distance you have covered so that you have a standard.

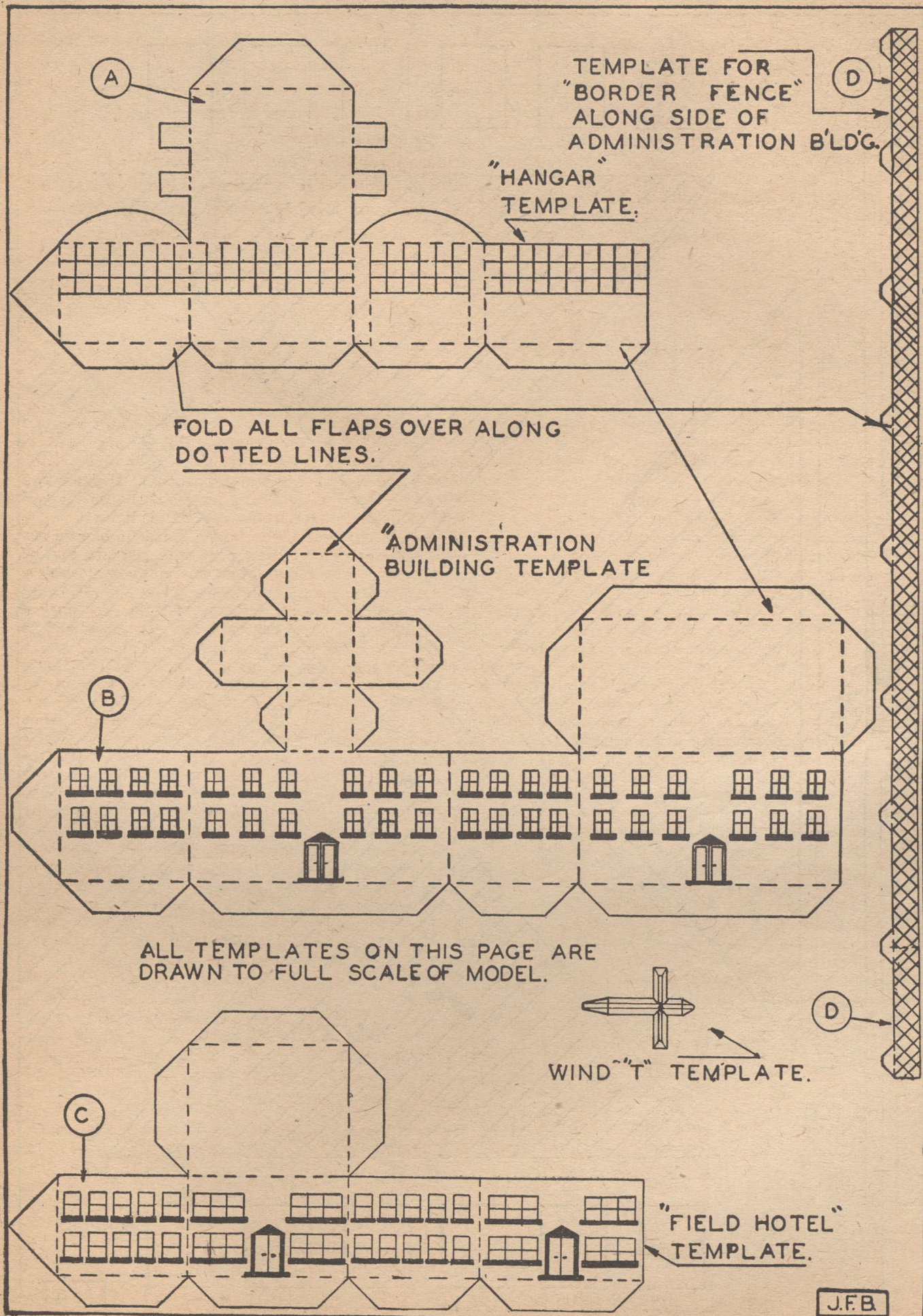
Perhaps you can copy from an airport map or blueprint in one of the buildings, the main details of the field. And after you have done this and have secured a good mental and

(Continued on page 90)



Circling in for that three-pointer! When you look down at this "shot" you can almost feel the change in Old Man Gravity's pull occasioned by the plane's bank, and you run a finger down to make sure your safety belt's locked tight. And pretty soon you'll be rambling in for a hot dog at the lunch shack at the end of the hangar line. Swell model, eh?





Dilemma! That's what this chap is in—and he can't get out of it! "To fly or not to fly!" is his problem. And you'd be scratching your head, too, if you were in the same fix. For if you fly your gas job in Boston—you get arrested. And if you don't fly it, you miss all the fun. So what to do? Well—we'd suggest complaining to your Congressman!



*** GOT YOUR LICENSE YET?

Yes sir, gas fans! By the looks of things in Massachusetts and Connecticut, it may not be long until all we "fuel fool-arounders" will be needing regular airplane pilots' licenses before we can fly our gas jobs. Pleasant outlook, isn't it? And that isn't all, either, since Phil Zecchitella prophesies that we'll have to hold mechanics' tickets in order to maintain our own miniature motors. But go to it, Phil—tell 'em all about it in your—

Gas Job Gossip

WE don't know whether this is gossip or whether it's news, but believe me, baby, it's *something*! According to present indications, we may be heading for legislation that will place us gas modelers in the same category as commercial aircrafters. In short, we are going to be *licensed*—and also our gas buggies!

At the Nationals in Detroit, a meeting was held concerning the future status of the gas model and its relative effect upon the community and on the morale of adjoining airports. The meeting was attended by a group of representatives of Washington's Bureau of Air Commerce and by leaders in model aircraft circles all over the country.

We will eliminate (thus beating Ye Editor's blue pencil to it!) the various arguments that were tossed pro and con. One decision, and it was upheld by universal opinion, was that all modelers and their gas chuggers should be licensed—from Washington.

Identifying numerals for each gas job would be secured by the respective owners so that the ships may be readily identified in the event of any discrepancy (*he means accident—Editor*). The numeral system presumably will be organized and maintained by the National Aeronautic Association.

Definite action has not yet taken place. Bill Enyart, of the N.A.A. has been laid up, but upon his return to duty we expect to hear that things are happening.

And in a very similar vein comes this little news item which we hardly know how to break to you. As you read it, we implore you to remain calm and collected—although we can't say that *we* did when we heard it! It's the real dope, however, and appeared in a Boston newspaper recently. Here it is, and the italics are ours:

"SPRINGFIELD, MASS. (AP)—Acting on a ruling of Registrar Frank A. Goodwin, William E. Heaton, state aviation inspector, today halted scheduled trials of five gasoline powered model airplanes at Bowles Airport. Goodwin ruled that *such models are legally aircraft and cannot be flown in this state unless licensed*

With Phil Zecchitella

and operated by licensed pilots."

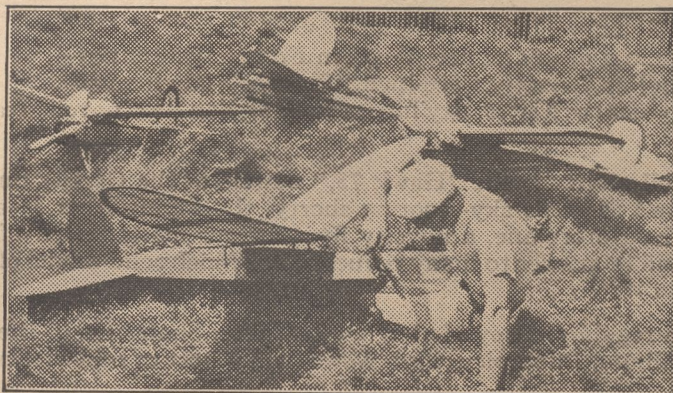
Following this ruling, which legally places a ban on gas model flying in Massachusetts, a letter was addressed to Major Clarence D. Hodge, State Aviation Inspector, by Albert Lewis, of the Boston Gas Modelplane Society. Here's a part of his letter:

"According to press reports, Mr. Goodwin banned gas models on the grounds that they were aircraft, and he insisted that they cannot be flown in this state unless licensed and operated by licensed pilots." (*Just as we were preparing this for the printer, news was flashed to our office that gas jobs have also been ruled out in Connecticut—Editor*).

"Except for the chief test pilot of United Air Lines, whom we understand is an outstanding member of the Central Gas Modelplane Society of Chicago, we know of no pilot who is able to build and fly a gas model plane.

"Gas modelers are not pilots, therefore the ban is illogical. If you ban gas models, you should also ban rubber powered models. And indoor models, weighing fractions of an ounce, are also aircraft, according to Mr. Goodwin's definition, and also should be flown only by licensed pilots.

"Russia is preparing to give thousands of miniature gas engines to its model builders for experimentation in gas models, according to press reports emanating from that country. France, Italy, and Great Britain are already competing with the United States for supremacy in the gas model field. Canadian advances in most every instance, are comparable with those of the United States.



Lucky thing that Vernon Boehle, of Indianapolis, was in Michigan and not Massachusetts when this shot was made. For now that gas jobs in the Bay State must be Federally licensed, Vern, who doesn't hold the D. of C. ticket for engine work, would probably be out a \$500 fine by now.

"Are American men, women, boys and girls to be hindered in their creditable work in that field of junior aeronautics devoted to the building and flying of miniature gasoline engine powered planes, Mr. Hodge?"

WE are prone to view Mr. Hodge's decision from its national aspect, and without becoming delirious, we are faced with his conclusion that gas models are legally air-
(Continued on page 93)

News of the Modelers

★ ★ ★

TRENTON "RAIN-OR-SHINE" MEET
WHETHER the sun shines or the rain pours, the Trenton Junior Chapter of the N.A.A. will hold a gas model meet at Mercer Airport on Sunday, October 24, according to an announcement made by Richard Scott, president of the chapter.

Trophies, cash awards, and FLYING ACES subscriptions and positive identification bracelets will be among the prizes. Out-of-town builders are welcome to compete and should first get in touch with Scott at 458 Cleveland Ave., Trenton. A 25c entry fee will be made.

AW, NERTZ!

THERE'S been a great deal of confusion, it seems, as to just who's who or what's what among the Chicago Aeronuts and the Gas Model Aeronauts of Chicago. The *nuts* aren't the *nauts*, and on the other side of the orchard the *nauts* aren't the *nuts*.

But now it's all been straightened out. The "Chicago Aeronuts" are a group of all-around model fans, while the "Gas Model Aeronauts of Chicago" palpably prefer to play with petrol planes. So that's that!

According to their secretary, Ed Swort, the Aero—wait a moment, yes, the Chicago Aeronuts—have re-

turned to the position they held once before at the top of the list as regards national model records. Just before the Nationals, Milt Huguelet captured the junior Class A R.O.G. record, then took time out to place 3rd and 4th in the Detroit stick and fuselage events, respectively. Then right after his return to the Windy City he established a new high time of 19 min. for the armory in which the Nuts meet.

Wally Simmers, another Aeronut, added to the Club's record when he brought the Stout trophy home after his ship made a flight at Detroit of 21 min. 30 sec., the highest time ever to win this indoor trophy. At the same time, this flight established a new Class B indoor stick record.

And has anybody seen Carl Goldberg's gas model that was flown in the Nationals? Carl took second place with a 52 min. flight, but the ship continued to fly and hasn't been seen since.

CALIFORNIA CONTEST

SPONSORED by the Weinstach Lubin Company and directed by Mr. A. Timberlake, a model airplane contest was held recently at Sacramento, Calif. While the temperature at the field on the day of the meet stood well over 100 degrees, the weather was perfect for model flying.

Class B (over 16 years old) win-

ners in the glider event were Bob Amos, Porter Towner, and Harry Aviazian. Towner, Aviazian, and Amos, respectively, likewise took the fuselage flying tourney.

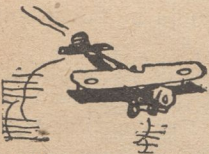
Towner, who also came out ahead in the flying scale event, was consequently awarded the Class B sweepstakes prize.

Wallace Winner scored first in the three Class A (under 16 years old) events, hence he also carried home the Class A sweepstakes award. Prizes for the meet consisted of trophies and model kits. Ted Ravellette served as FLYING ACES Magazine's reporter.

PITTSBURGH GLIDER CLUB

THE Boys' Club of Pittsburgh, Pa., has an intriguing offshoot that has been in existence now for more than eighteen months—a glider club with a membership of over twenty young chaps all vitally interested in motorless flying and glider manufacturing.

The glider group developed from classes in model building which were started about three years ago by Harry G. Vogler, a Works Progress Administration instructor who has devoted the major part of his endeavors toward interesting the boys in aviation as a potential vocation. At present there are well over 100 students in the model airplane group,



LINED UP ON THE RUNWAY

For The

NEXT SMASHING NUMBER OF FLYING ACES

Fact—David Martin reveals the inside story of that slashing death struggle, the Sino-Japanese air war. High-lights of the National Air Races—a special photo-packed article about the big speed show at Cleveland.

Fiction—Philip Strange in a dramatic new Western Front mystery novel. "Yankee Doodling," another ace-high "Phineas" laugh smash. And Arch Whitehouse's latest sky hit—a striking Far-East novelet featuring Tug Hardwick, flying newsman.

Model Building—Full plans for the "Hawk 75," newest of the Curtiss pursuits. Paul Plecan's sky-scooting shorty, the Flying Aces Flea gas job. The Rotorplane, a novelty flyer for our many "stick" fans. And in answer to many requests: A 20-inch solid model of the ill-fated "Hindenburg."

Plus—All our top-notch regulars: They Had What It Takes, Snapshots of the War, Wisecrack-Ups, Modern Planes Album, Pilotopics, Club News, and a host of other features.

IN DECEMBER FLYING ACES

ON SALE OCTOBER 25th

which is now handled by Mr. Vogler and two assistants.

A Northrop Training Glider was recently secured for the Glider Club. Practical training started immediately, in that the entire ship is being inspected, overhauled, recovered and doped by the boys themselves. It will be used this summer at the Pittsburgh Boys' Club Camp, near Mars, Pa.

AND NOW THE "NAUTS"

THE Gas Model Aeronauts of Chicago recently joined with the Chicago Park District and sponsored a swell midwestern states gas

model contest at Harlem Airport. More than 2,000 spectators were on hand to see the chug-chugs play hide-and-seek in the clouds.

Of contestants, there were about 150, with representation from seven different states. The ships ranged in size from 4 to 14 feet and in weight from 7 to 25 pounds. At time of going to press, we have not received the names of the winners in the various events. Sorry!

DETROIT GETS NEXT NATIONALS

DETROIT, Michigan, again will be the Mecca for model makers next year, according to an announce-

ment made at the close of the 1937 Nationals by Tom Colby, vice-president of Berry Brothers, which firm sponsored the affair this year.

It is expected that Wayne County Airport will again be the site in 1938, and those who attended the big model meet this year will recognize this choice as a good one. Mr. Colby is taking the responsibility in developing a permanent Detroit sponsoring committee for the Nationals.

The city itself is anxious to continue fostering this important annual event and has already started to co-operate in the laying of plans for 1938.

From the Model Builder's Workbench

★ ★ ★

MODEL MOTOR MAINTENANCE

WHEN you have a number of rubber bands on hand for motor use, it pays in performance to preserve them carefully. Here's a method I have found valuable—place them in an air-and-light-tight jar or can, sprinkle them with talcum powder, shake them around to insure an even coating of the powder, and then store them in a cool corner.

If you have a supply of rubber from which you are constantly cutting strips, you'll find that the containers used for adhesive tape, with snap covers, are good to keep it in.

But rubber will stick together sometimes when wound no matter how carefully it is kept. Naturally, this will have bad results as regards performance of your plane. So take a little castor oil (No! You take it—Editor) in the palms of the hands and thoroughly work the rubber in it. Then wipe off the excess oil and you're all set to go.

—E. T. ROBINSON

PINE MOTOR STICK

WEIGHT has been one reason for many of us steering clear of motor sticks of heavier wood than balsa. I decided to experiment, though, with a FLYING ACES "Super R. O. G." and had swell results. I built one with a balsa stick, and another, an exact duplicate, with a pine stick. The one with the pine flew higher and maintained its altitude much better than the other.

Some of the flights—perhaps *dar-ing* disaster—were made over a field of rocks and rough stubble. The balsa spar snapped on several occasions, but the pine stick is okay after many days of hard landing. This heavier stick seems also to be responsible for a longer, smoother glide.

I learned, incidentally, that a

strong repair joint could be made in the broken balsa stick by first inserting into one of the broken ends a short piece of wire, smearing it and the wood heavily with cement and then fitting the two ends together. The other end of the wire, of course, is forced into the second balsa piece.

—PINK WALKER

HINT FOR AMATEURS

MAYBE many of you model experts know all about this, but it seems new to a number of the amateur model builders whom I know. So I'm passing it on in the hope that it will be of help to the younger chaps who have had trouble in transferring model plans from the magazine to balsa wood.

Just lay a piece of typewriter carbon paper—it's usually just the size of a FLYING ACES page—over your sheet balsa, cut the drawing from the

magazine, then trace it onto the balsa right through the carbon.

This of course is only of value where you are working from full-size plans, but in these cases you'll find it a valuable help.

—JUNIOR PIAZZA

PUSH RODS

PUSH rods help greatly the appearance of a dummy motor. But to make these rods for a small motor is usually quite a tedious and difficult job. All you need do, though, is pick out a few common broom straws of approximately the right diameter and make your rods from these. Be sure, of course, that your straws are of uniform thickness.

Bunch them together and with a pair of sharp scissors cut them to the required length, paint them black and cement them in position in front of the cylinders.

—LEON GRAY

What Do You Say?

★ ★ ★

WHY EDITORS GO CRAZY!

Editor, FLYING ACES:

For some months past, I've been pestered by people in our model store asking me to write and tell you how they think FLYING ACES might be improved. Most of the comments of course were about the model department. So here's what they say—and I'm telling it all to you exactly as they told it to me:

"Why doesn't FLYING ACES print more model stuff in each issue? They should cut down on the stories and use the extra space for additional model dope.—B. T."

"Darn that Yankee magazine! I get mine to read the stories and find

that it all seems to be model stuff. Why does a mag like that have a model department, anyway?—R. M."

"That book's just okay. No silly models that don't look like planes, but all dinkum stuff that takes a real man to build!—V. B."

"FLYING ACES would be all right if it didn't have so many balmy models like auto-giros and other freak ships of various kinds. It should leave these out entirely and stick only to regular or standard airplanes.—N. T."

"Why not more solid models? These flying jobs are a waste of time and I never build them.—R. A."

"Say! I wish they'd give us more
(Continued on page 91)

FLYING ACES

Hell Over China

NOVEMBER, 1937

(Continued from page 8)

An exclamation from Wu Kang made him turn quickly. Doyle had now removed the flying-coat, disclosing the uniform of a lieutenant-colonel in the Japanese army air force. But it was not this which had caused the Eurasian's exclamation.

The dead man's uniform blouse had burst partly open, showering at least two score English pound-notes upon the ground.

Knight knelt, swiftly unbuttoned the rest of the blouse. A leather packet came into view, strapped around the dead man's waist. The impact of the crash had broken its lock, spilling out the banknotes. There was a bundle of still more currency inside. As he lifted it out, a small envelope fell to the ground. Li Sin's black eyes dilated at sight of the two Chinese characters brush-painted on the envelope.

"Look!" he whispered. "It is the sign of Mo-Gwei!"

Hank Larson jumped, and the two Chinese soldiers stared as if hypnotized by the symbols.

"Who the devil is Mo-Gwei?" demanded Doyle.

"You have answered yourself, Mr. Doyle," Li Sin replied with a harsh sibilance. "Mo-Gwei is Chinese for 'devil'—and that particular one has lived up to the name!"

Hank Larson scratched his bald head.

"Wait a second, Li Sin. This can't be Mo-Gwei."

"I understand that," said the Chinese, with an impatient gesture. "I was but thinking that if this miserable wretch had lived, he could have told us the secret."

Knight had opened the envelope. It contained a single sheet of paper on which two Japanese words and a number of figures were written.

"*Mata agarimasho*," Knight muttered. "That means, 'I will call again.'"

Li Sin glanced at him with lifted brows. "So you understand Japanese as well as Chinese, Mr. Knight?"

"I can make it out," said Knight. "But just what is all this about Mo-Gwei?"

A bitter expression came into Li Sin's oblique eyes. "Unfortunately, there is little to tell. 'Mo-Gwei' is the name given to a spy who has taunted us ever since the Japanese began to steal our country. He has made away with valuable information, time and again, and has caused Marshal Chiang Kai-shek much unhappiness."

"Besides slitting a number of throats," put in Hank. "Not to men-

tion poisoning important officials right and left."

"It is so," assented Li Sin moodily. "We thought we were rid of him—that he had died—when nothing was heard during this past year. But now—"

"What makes you think *this* Japanese wasn't Mo-Gwei?" Knight asked. Hank Larson answered him.

"It's generally agreed that Mo-Gwei isn't an Oriental. From bits of information, Chinese Intelligence has doped it out that he's a foreigner playing the spy-game while he's traveling around the Orient pretending to be in some business or other. He might be anybody from an Englishman to a Turk."

"There are many nationalities in China," Li Sin said dourly. "We have watched them all, but in vain."

He glanced around the group. Doyle glowered down his crooked nose.

"Don't look at me. I haven't been in China since the big fracas in 1932."

Hank turned suddenly to Li Sin.

"Say, that reminds me! Just before the call came through from Tamingfu, I caught a radio flash that hell had broken loose in Shanghai. What about it?"

Li Sin's face hardened.

"It is the truth. China has finally begun to fight."

"Then we ought to be back there instead of hanging around here—" Hank broke off, looked guardedly at Knight. "Unless you've brought other instructions—you know, the Pertwell business."

Knight stared at him.

"But I came here to ask *you* about that."

Hank's cherubic face creased into wrinkles.

"Now isn't that a sweet state of affairs! He told me to join the gang



here and wait till you arrived with special orders."

Knight looked around at Li Sin, who had taken the envelope and message and was holding them up to the light.

"Do you have any knowledge of this matter?" he asked bluntly.

Li Sin slowly nodded. "I was instructed to meet Lieutenant Pertwell,

of your Army, at Nanking two days ago to discuss a secret task he wished to have this special group undertake both for America and China. But he never appeared."

"That settles it," said Hank. "We're going back to Shanghai and take a hand in this war!"

"Wait," said Li Sin. "This mysterious occurrence Mr. Knight described will require investigation. Nanking perhaps may want you and your men to move up to the base at Paoting-fu, instead of Shanghai. There is still war in the North, Mr. Larson."

"Well, we're going one place or the other," Hank insisted. "We didn't join up to sit around and knit."

"I'm going to Nanking tonight, after a brief mission at the base near Hwaiianfu, if you will permit me to use one of your planes," Li Sin responded. "I will explain the situation, and return with orders—or send you word by telephone."

"The wires are down," put in Ben McCloud, pointing to where the Kawasaki had torn down a pole near the tracks.

Li Sin turned to Wu Kang, and Knight caught the veiled contempt in his voice as he addressed the Eurasian.

"Mr. Wu, you will station yourself in the radio office. Be ready to intercept a message in our Number Three code, and decipher it for Mr. Larson."

"It is understood," said Wu Kang curtly. He made off toward the radio shack, which stood at a little distance from the other buildings. Li Sin turned to Hank Larson, handed him the money they had found on the Japanese.

"Please, you will guard this until I return from Nanking, or until a Nanking official requests it with proper credentials. Also, will you be so kind as to have some one make a copy of this code message for transmitting to my superiors in the event that misfortune should overtake me?"

He glanced a trifle nervously toward the dark sky. The burning Japanese ship was now little more than embers, and the clouded heavens showed ominously black.

"Maybe you'd better go to Nanking in your car," spoke up Hank.

"No, it would take too long," replied Li Sin. He motioned to the two soldiers. "Return with the machine to Suchow. Mr. Knight, will you make a copy of this message while a plane is being started for me?"

DOYLE went along with Knight and Hank Larson into the drab flight headquarters. Hank shut the

door and swung around eagerly to Knight.

"What's the dope? Spill it, before somebody comes in."

"Hank," said the secret agent, "I'll swear on a Bible I told you the truth out there."

"Then it wasn't some crazy stall to cover up about the Pertwell business?" exclaimed the little man.

"No; have you been covering up?"

"I'm practically nude," said Hank. "But I know this: Pertwell was acting on a secret request from General Brett, the chief of G-2. They were all het up about some bird named Brown. Pertwell said he had to be found or there'd be hell to pay."

"Any particular Brown?" Doyle grunted sarcastically. "Or would John Brown's body do?"

"Pipe down, Lothario," said Knight. He finished copying the message, as the rumble of an engine sounded. They went out into the gloom to find one of the Boeing fighters being hurriedly warmed by Art Summers. Li Sin took the Japanese code message, bowed.

"One thousand thanks, Mr. Knight. And again, my humble apologies for mistaking friends of China for enemies."

"Forget it, captain," said Knight pleasantly.

"Yes, but don't forget we're sitting here waiting for orders," said Hank Larson.

"You will hear before midnight," Li Sin promised. He took the cockpit from which Art Summers had swung his brawny figure. "Please, you will hold your flashlight against the hangar, so that in taking off I can see to avoid it?"

Summers swung the torch, and Li Sin taxied down the dark field past the row of tents and buildings. The sound of the engine died away, then boomed again as Li Sin turned into the wind. In a few seconds the fighter came roaring out of the darkness, lifted smoothly, and was swallowed up in the night. A little hush fell over the assembled men as they stared upward, listening to the Boeing speed off to the East.

Doyle gave a sigh of relief when the drone of the ship had dwindled away. "Well, no magic lantern stuff this time. What do we do now?"

"We eat," said Hank, promptly. "That call from Tamingfu broke in on the important business of feeding the inner man."

"Judging from appearances," retorted Doyle, "your inner man must be quintuplets."

Hank patted his plump stomach.

"And all five of them hungry," he said.

CHAPTER III

THE DEATH CONE

THIRTY MINUTES later, as the hurriedly assembled meal was being finished, Knight idly lighted a cigarette over the chimney of a smoking oil-lamp. A troop-train was rumbling along the nearby track, rattling the canvas-covered windows, and conversation for the moment had been suspended. He took the opportunity for a more careful scrutiny of the nine men who composed Hank's pilots and pilot-gunners.

Besides lanky Ben McCloud and Art Summers, he knew two or three by name. The rest were strangers, and though he knew that Hank would



try to have none but square-shooters it made him uneasy to realize that all of them knew about his and Doyle's espionage work. There were foreign offices in several countries which would pay well for that information. General Brett must have been desperate over the case of the unknown Brown to have let the secret become so widely known.

The troop-train roared on past, and the windows ceased to rattle. Hank Larson looked up from his emptied plate.

"I clean forgot about Wu Kang. Hey, Ben, how about lugging some chow out to the radio shop, seeing as how Wu's stuck there?"

"Oh, all right," grumbled McCloud. "But why pick on me?"

"You've got long legs," said Hank. "They get you over the ground—"

There was a sudden ripping sound, and the blade of a knife sliced through the canvas at one window. With incredible speed, it cut out a ragged opening so that the lower part of the canvas fell down over the sill.

Knight jumped to his feet, snatched at the gun under his coat, but a bright light instantly shot through the hole and with it the muzzle of a sub-machine gun was visible.

"Raise your hands!" a voice rasped from back of the light.

Knight swore under his breath, but obeyed, and the rest of the group hastily lifted their hands.

"*Tres bien!*" the unseen man said in oddly guttural French. "Stand to one side, *Monsieur* Knight—or should I say *Monsieur* 'Q'?"

Knight hid a start at the reference to his secret designation in Army and Navy Intelligence. Com-

plying with the command, he stepped aside. It brought him closer to the opening in the curtain, but the brilliance of the light kept him from seeing anything but the muzzle of the machine-gun.

"Sit still, you others!" came a sharp order from the man back of the weapon. "Now, *Monsieur* Knight—unbutton your coat—very carefully. Now, take it off—and remove that pistol with thumb and forefinger on the stock."

Knight held his breath, estimating the chances of a leap to one side of the machine-gun while he drew his pistol and fired. The sinister black muzzle twitched toward him a fraction of an inch.

"I should not advise any trifling, my esteemed contemporary, unless you wish to be cut in two."

Knight gingerly lifted his gun from its holster, laid it on the floor at the unseen man's command.

"And now, if you please," the guttural voice said mockingly, "the message which was addressed to me—and the money which came with it."

"Holy snakes!" gasped Hank Larson. "It's Mo-Gwei!"

"*Vite!*" snapped the man outside the window. "The message and the money!"

Knight took the message from his coat, and dropped it on the windowsill, with the muzzle of the machine-gun almost touching his waist. A chair scraped behind him.

"Sit still, you fool!" he heard Doyle snarl. "He'll shoot Dick if you try anything."

"The money!" said the unseen man fiercely.

Knight took the banknotes which Hank Larson reluctantly produced, dropped them also on the sill.

"Now, get back in your chair!" came the curt order.

Knight sat down, his aching eyes straining to see past the light. A gloved hand flicked through the hole in the canvas, snatched up the message and the money. As it disappeared, the black mouth of the gun slowly traversed the group at the table, then came to rest on those nearest the window.

"Sit still, with your hands up, until I have counted this money," the man behind the gun said coldly.

A tense silence fell. Knight saw beads of sweat on Art Summers' face; he was the one nearest the leveled gun. The others sat staring at the window, faces white and strained in the glare of the light. Seconds passed into minutes, and Knight felt his arm muscles begin to ache. Not a sound had come from back of the weapon. He shot a quick look toward Doyle, but before he could signal his

purpose Art Summers broke the stillness.

"We're being tricked!" he said in a hoarse whisper. "That devil's gone and left the gun propped there while he makes a getaway."

The man at his left twisted his head around, wet his lips as he gazed into the muzzle. Suddenly, both he and Summers leaped toward the gun.

FLAME spurted! The gun had crashed into action, and Summers went screaming to the floor. The other man toppled over his chair, half of his head blown off. It was only a second, that murderous pounding, then the gun went silent and the voice came again as powder smoke floated in the dazzling light.

"Perhaps that will show you I am quite serious. If another man moves before I finish decoding this message, I will kill everyone in the room!"

The muzzle of the gun twitched around menacingly, came to rest pointing at Knight. On the floor, Art Summers gave a last groan and lay still. Beside him, a pool of blood spread slowly.

Knight sat, teeth gritted hard, looking toward the light. If his guess were right, there was no one behind it now; that first murderous trick had been to impress them. Still—he might be wrong!

Silence had fallen again, and he could hear Hank Larson's heavy breathing, and now and then a muttered curse from one of the others.

Suddenly, the sputtering roar of an engine broke into the tense hush. A ship was being started out on the line. Knight catapulted himself from his chair, struck upward with his fist as he dived under the machine-gun. The weapon flipped out of sight. He snatched up his pistol and joined the mad rush from the building.

Doyle was in the lead. Knight saw him sprint around to the window, where a portable spotlight had been centered on top of a box. The Tommy-gun lay on the ground, with no one near it. Doyle seized it, whirled toward the hangar.

The thunder of the engine had been swelled by the roar of a second one, and as Knight ran toward the line he saw the converted Boeing transport begin to roll.

"Stop him!" bawled Hank. "That ship's loaded with bombs!"

Knight triggered two swift shots at the pilot's compartment, and Doyle cut loose with the machine-gun, but the bomber gathered speed and taxied hastily into the gloom. Ben McCloud came racing up, dragging the spotlight unit. Doyle lifted the Tommy-gun again, but Knight stopped him.

"You might hit a bomb! Get a ship started before he has time to drop those eggs on us!"

Hank and his men were already swarming toward the planes. The Shrikes, motors still warm, were quickly started, and three of the ships sped out onto the field just as the big Boeing came roaring from the darkness. Knight saw one of the P-12 engines spit flame from its stacks as Hank Larson jerked the prop. He ran to the side of the fighter, gripped Hank's arm.

"I'll take this bus, Hank! Doyle's already got your ship revving!"

The little man ran with surprising



speed to the Shrike, and Knight jerked the chocks from the fighter's wheels. Forking into the pit, he sent the P-12 trundling downwind, its cold motor spitting. The bomber was midway of the field, with two Shrikes cutting in diagonally from both sides. He saw the huge ship swerve, forcing one of the two-seaters into a hasty turn. The second Shrike kicked around to pass behind the bomber. Then with a terrific crash it rammed its mate.

Fire instantly enveloped both ships. Knight saw one gunner leap to the ground, dragging his injured pilot to safety. The other two men were lost in the flames. The huge Boeing straightened, lifted in a careful climb. Hank's ship, with the remaining two Shrikes following, dodged around the burning planes and shot after the bomber. As Knight reached the end of the field, his motor now running more smoothly, he saw the big ship swing back in a vertical turn at less than three hundred feet.

Two bombs pitched down, and the Shrikes frantically whipped to right and left. The bombs struck in the middle of the field, and two blasts of flame shot up. Knight kicked into the wind, hurled the P-12 into a narrow lane between the bomb-craters and the hangar. The Boeing twisted to pass above him, but Hank Larson zoomed with guns spurting, and the huge ship was forced into a quick turn.

BUT even as it banked, the pilot pulled his toggles and the remaining bombs came plunging down at the field. A furious explosion sounded behind Knight's ship, and the concussion drove the P-12 forward as though a giant hand had struck it. He hauled the stick back,

felt another terrific blast shake the fighter as the rest of the bombs hit the ground. The P-12 was buoyed up on a hot, rising draft, its controls abruptly useless. He saw Hank's plane slithering down in a crazy turmoil of air, with Doyle half way out of the rear cockpit. Then the fighter suddenly ceased to rise, and the nose dropped steeply. He waited until he felt the stick take hold, then zoomed across the railroad, away from the field.

The bomber was streaking eastward away from the glare of the burning ships and buildings. Knight pointed the P-12 after it, hastily charged his Browning guns. Hank had pulled out of the bumpy air currents, was swinging around to the North with the two other Shrikes following. Knight guessed that the little man could not see the big Boeing. He tripped his guns, saw Hank turn as the tracers glowed in the smoky gloom beyond the field.

The P-12's engine skipped a beat, picked up again as Knight nosed down. He could barely see the bomber as he climbed back to its level. For another minute he kept up the chase, with the other ship little more than a blur ahead. He held his fire, hoping the faster Shrikes would catch up and help him force the spy down alive, but when he looked back he could not see them. The bomber changed course, diminished its speed a trifle. Knight pulled up above it, shot a look at his compass. The spy had straightened on a course of 130 degrees.

For five minutes, Knight watched the compass, keeping above and as far back as he could without losing the bomber. It was evident that the spy thought he had shaken off his pursuers and was heading for some unknown destination. Knight reached toward a brass rocket pistol clipped at one side, then paused. The spy would probably see the rocket arc across the sky, and besides that it would not be an accurate guide for Hank and the others. He thought a moment, then reached out to the switch. Cutting it for a second, he set the carburetor adjustment for a rich mixture, then switched on the engine again. Flame shot from the P-12's stacks, died out as he changed the adjustment.

He repeated the process a minute later, and thereafter at five-minute intervals, dropping back of the bomber's tail each time. If Hank and the other two pilots had seen the first two flashes, he knew they would follow and watch for others. Twenty minutes dragged by. The spy had not varied his course, though he had climbed through the clouds to an altitude of seven thousand feet. Knight

shivered in the chill air, wishing he had stopped to pick up his coat. At intervals, he slapped his cold arms and hands to keep up circulation.

Through broken clouds higher up, he could see a few frosty stars. Except for these, the P-12 seemed suspended in a dark void. Then suddenly the big Boeing nosed down. Knight followed, felt the cold dampness of clouds, saw scattered lights as the fighter broke through. He could not identify his position, but he knew he must be within twenty miles of Hwaiianfu, which lay on the Grand Canal from Tientsin to Hangchow. He remembered at the same moment that Li Sin had taken off for Hwaiianfu. The spy was probably intending to follow Li Sin there in order to recover the original of the code message.

The bomber was about twelve miles north of Hwaiianfu when, without the slightest warning, two streams of tracer bullets sparkled down past the nose of the P-12 and into the big ship's tail. Knight whipped into a tight roll, came out in time for a dim glimpse of a Shrike zooming up from a brief attack. The bomber banked sharply. Its landing-lights went on, stabbed for an instant at the two-seater. The Shrike skidded out of the glow and the spy swiftly turned off his lights. In the resultant gloom, Knight lost sight of the big ship for a moment.

Suddenly a white circle appeared on the clouds above. Knight flung the P-12 aside, as a hazy luminance became visible in the sky beneath the circle. It grew brighter, became a shining cone of light exactly like that from which the Kawasakis had appeared.

Knight's hasty turn had sent the fighter a hundred yards from the edge of the cone. The bomber was racing away on the other side, nosed down to gain speed quickly. The pilot of the Shrike had cut back in pursuit of the spy, and the maneuver threw the two-seater straight toward the shimmering cone. Knight saw the pilot's face and recognized Ben McCloud.

McCloud cast a swift glance up into the cone, but no planes had appeared. Crouching over the stick, he hurled the Shrike at the conical wall of light in chase of the fleeing bomber.

The nose of the ship plunged into the cone. With an ear-splitting screech, the prop instantly broke into fragments, and pale red fire burst from the Shrike's cowl. McCloud sprang half-way erect, went rigid with one hand like a frozen claw stiffening before him. The Shrike zoomed vertically, lost speed and hung for a second inside the mysterious cone.

A COLD chill swept over Knight as he gazed on that scene. The gunner was like a figure carved in stone, his face marble-white under the misty light. A look of agony was stamped on McCloud's upturned face, and it too was deathly white, save where the thin red flame from the engine reflected on his cheeks.

A moment more the Shrike hung there, stalled, then its nose whipped down and it pitched toward the ground. No sound of shrieking wings came to Knight's ears, and his stunned mind realized for the second time that night all sound was swiftly fading.

The light-cone brightened. With consternation, he saw the shimmering, conical wall leap toward him.

He slammed the stick to his belt, climbing at full gun. Whatever the secret, a sudden and frightful death lay within that luminous space. His only hope was to zoom into the darkness of the clouds.

Five hundred feet above him, another Shrike was frenziedly climbing, and he saw the remaining ship off to the west and below him. The one above was zooming close to the point where the light pierced the clouds. With a swiftness which made Knight dizzy, the cone flashed past him and tilted toward the Shrike. The two-seater snapped around in a wild turn, climbed again for the clouds. It was almost lost in their sheltering gloom when the deadly light closed about it.

Bits of smoking metal came plummeting down the sky. In the sinister hush which had fallen, Knight heard nothing, but his awestricken eyes saw the evidence of the terrific force which had wrecked the two-seater. The engine seemed to have disinte-



grated, taking the nose of the ship and half of one wing with it. A twisted body, with a mangled but bloodless face whirled before him as the remnant of the plane spun by.

Dazed with horror, he saw the death-cone swerve toward the zooming P-12. He saw he could never reach the clouds in time. He renversed furiously, yanked the stick back to fire straight up at the top of the cone. The curved edge of the misty wall was within two hundred feet of his wings, and in a frenzy he tripped the guns.

One shot smoked from each Browning, then both weapons jammed! Black despair engulfed him and he gave himself up for lost. The death-cone brightened. A numbing

cold swept over him—and suddenly the light vanished!

The roar of the Wasp engine crashed upon his ear-drums as the silence also ended. For a second, he could hardly believe he was alive—that by some miracle he had escaped the fate of Ben McCloud and the others.

Something plunged from the clouds, materialized into the bulk of a huge plane, on fire. He thought at first it was the stolen bomber, but as he looked back after hastily banking away he saw that it was a much larger ship. It was spinning wildly, and the flames mantled it before he could tell anything else.

As the monster plunged earthward, a faint whitish glow shone in the clouds above. He backsticked, sent the P-12 drilling up into the mists. The glow died away, and he emerged in comparative darkness. With nerves at a raw edge, he circled, ready to dive back into the clouds at the first reappearance of the death-cone. But nothing was visible, save a few twinkling stars between the higher clouds.

CHAPTER IV

FROZEN DOOM

HE waited a minute longer, glided down through the clouds. The scene beneath was almost as bright as day from the blaze of the monster plane. It had struck close to the road into Hwaiianfu, lighting up the air base to which Li Sin had referred. A lone Shrike, the only one remaining from Hank's flight, was spiraling down to land, and Knight saw that the stolen bomber was already on the ground. He dived steeply, saw the man in the rear of the Shrike firing at something beneath. As he leveled out, he glimpsed a figure zigzagging madly to escape the hail of lead from the Brownings.

With a surge of relief, Knight saw that the Shrike gunner was Doyle. He had feared until then that Doyle and Hank Larson were in the ship which had been caught in the tilting death-cone.

Doyle stopped firing as Hank zoomed to miss a row of buildings. By the time Hank had kicked around for another try, the fleeing man had disappeared. The roly-poly leader slipped down to a fast landing, with Knight close behind. The two ships stopped a hundred feet apart. Knight cut off his engine and jumped down as the Shrike's Conqueror died. Doyle and Hank Larson climbed out of the two-seater, their taut faces mirroring the horror Knight still felt over the other Americans' fate.

"My Lord, Dick!" Doyle said

hoarsely. "Did you see what happened to Ben and the rest?"

"I was right there," Knight answered in a grim voice. "It almost got me the same way."

Hank shook his bald head dazedly.

"I still can't believe it! That second ship—it was smashed almost to pieces. How could a cone of light do that?"

Doyle swore savagely, wheeled toward the buildings, which were similar to those at the other emergency air field.

"Come on! If we get that butcher Mo-Gwei, we'll beat the truth out of him!"

"Look out!" Hank said in an undertone. "There's somebody crouching down by the left side of that third shack."

Knight took the pistol he had rammed into his shoulder holster, back at the other field, and stole around to the right side, Doyle and Hank stayed in front to cut off the man's retreat. The flames from the blazing plane lighted the area in front of the buildings, leaving the rear in shadow. Knight was half-way to the opposite side when he saw a figure crumpled on the ground. As he bent for a swift glance he heard Doyle's voice from around in front.

"Hey, Dick! This bird's passed out."

Knight knelt by the man he had found. It was a Chinese officer, and it took but one look to show that he was dead. His slanting eyes were wide open, glassy with terror.

"Dick!" Doyle shouted again. In a moment he appeared around the corner of the shack, with Hank at his heels. Both of them halted, stared at Knight and the dead Chinese.

"Holy mackerel—another one!" gasped Doyle. "Is he frozen, too?"

Knight started, touched his hand against that of the Oriental. Even to his chilled fingers, it was icy cold!

"Frozen!" he whispered. "So that's what killed Ben and the others."

"Look over there—by the door of the flight office," Hank said huskily.

Two more Chinese lay just outside the entrance, and the arm of a third could be seen protruding from inside. Knight went over to the doorway, made a quick examination. All three bodies were rigid and cold. They lay in grotesque positions, as though they had frozen as they fell.

"Even the ground is frozen," muttered Doyle.

Knight touched his hand to the earth, withdrew it hastily. As he stood up he could feel the cold through the soles of his shoes. He looked at Hank.

"We'd better get in touch with the nearest Chinese officials and report this."

"They'll think we're crazy," said Hank. He started into the flight office, shivered. "It's cold as a refrigerator in here."

"I don't think there's any danger now," Knight replied. "Whatever did it has gone. After that big ship dropped through the clouds, I noticed a white glow and I climbed up to see where it came from. But there wasn't anything in sight."

"You think it's some kind of death-ray?" Doyle demanded.

"It's got me stumped," said Knight. "But if it's a ray, how is it operated? Why didn't I see a ship when I climbed up there?"

"I'm asking you," Doyle retorted.

THEY both jumped as Hank Larson scratched a match upon the wall. In the yellow light, the body of another Chinese officer was revealed, where he had tumbled over his desk. His extended hand had knocked over the telephone, upsetting a carafe of water. The carafe was broken, and the water had turned to ice. There were tiny bits of thin, shattered glass on the floor, and Knight saw that they came from electric light bulbs, the stubs of which were still in the lamp-sockets.

"Those lights are busted the same as the Northrop's landing-lights," exclaimed Doyle, his breath showing white in the cold room.

Knight took his handkerchief, wrapped it around the telephone before he picked it up. Even then, the chill of the instrument stung his hand. The phone was a Continental type. He jiggled the cradle arm, but no one answered.

"The wires have probably been snapped by the cold," he said as he put down the instrument. "We'll



have to leg it into Hwaiianfu."

Just then something made a crisp sound on the frozen ground at the entrance. Knight spun around, made a grab at the pistol he had laid down on the desk.

"Stand still," a man in the doorway said tensely. He came inside, and the glow from across the field reflected on the gun in his hand.

"Wu Kang!" Hank Larson said in amazement. "How did you get here? What's the idea of—"

"The idea is that he's Mo-Gwei," Knight hazarded harshly. "We should have guessed it before."

The half-caste looked at him with a queer smile.

"If you were really clever, Mr. Knight, you would have guessed a great deal more. But I have no time to waste words. I will make a bargain with you."

"You yellow rat!" stormed Hank. "We'll make no deal with you."

"If you don't listen, it will mean your death," Wu Kang said fiercely. He shot a look over his shoulder, flicked his dark eyes back before Knight could leap for his gun. The secret agent forced a smile.

"Very well, Wu Kang, you have the drop on us. What's the bargain?"

The Oriental fixed him with suddenly burning eyes.

"You would like to know how your men were killed—and what has happened to Lieutenant Pertwell and Mr. Brown?"

"What's the price?" Knight said calmly.

"I desire that you assist me in an undertaking," Wu Kang replied. "I wish to destroy a certain—well, let us say a base. I will fly the Boeing, after you help me load it with bombs, of which there is a supply here. You will escort me to this objective—and drive off any aircraft which may attack me."

"And what if you are killed in this attack?" parried Knight. "How do we learn what we want to know?"

"I shall reveal the secret to you before we take off," replied Wu Kang. "That is, after you pledge your word of honor to accompany me."

"And after we help you wipe out this Chinese base," snapped Knight, "just what happens?"

"You will be free to do as you please—if you live. If you die in this attempt, you will have done a great service for your country."

"You mean for Japan!" rasped Doyle. "What does the United States have to do with this?"

"A very great deal. But there is no time to explain that now."

Knight had caught the furtive glance Hank had thrown him—a signal to play along with the Eurasian until they could trap him.

"Let's get out of this icebox," he said irritably. "We can discuss the details out where it's warmer."

"Very well, but I warn you—" Wu Kang stopped short, a frightened look on his olive-skinned face. "They are here! Quick, we must hide before—"

A SHRILL whistle sounded from somewhere close by, and this was instantly followed by a babble of Chinese voices. Wu Kang sprang to the doorway, but a squad of Chinese gendarmes dashed between the two buildings opposite and quickly cut him off. An officer with a sword

rattling at his side ran up panting as two of the gendarmes sprang at Wu Kang with fixed bayonets.

"*Lih ding!* Seize him—do not kill!" he barked.

Wu Kang, who made no attempt to resist, was speedily disarmed. The officer drew his sword, pointed it at Knight and the others.

"Arrest them!" he shouted, whereupon the remainder of the squad closed about the three men.

"One moment, *kuan*," Knight interposed. "You don't understand. We are Americans—friends of China."

The officer's yellow face darkened.

"That is a lie! I listened at the other door—I heard you plotting with this traitor!"

"And I tell you we were trying to catch him," insisted Knight. "You must not have heard the first part."

The Oriental bared his teeth.

"Not only did I hear you ask the price for information of some kind, but you said you would help destroy a Chinese base. You were planning to bring about the same devilish thing which has happened here."

The soldiers had heard, for the conversation was in Chinese, and they cast frightened glances at the frozen corpses. The officer lifted his sword menacingly.

"How did you kill these men?"

"We had nothing to do with it," Knight answered. "I don't know how it was done."

"You will tell!" snarled the officer. He brought the point of his sword close to Knight's throat. But there was a sudden interruption—the phone in the office was jangling. With a harsh command for his men to guard the prisoners, the officer went to the desk. After a brief conversation, he put down the phone.

"An officer of our Intelligence is on his way to question you," he said sullenly to Knight. "If I had my way, I would slit your throat."

"Why don't you grill the right one?" Hank Larson burst out angrily. He jerked his bald head toward Wu Kang. "This man is Mo-Gwei!"

The officer started, then laughed contemptuously.

"Mo-Gwei is a foreigner—our Intelligence has explained that many times." He stopped, looked from Hank to Knight and Doyle. "A foreigner," he muttered. "Perhaps one of you—"

THE exhaust of a speeding motorcycle broke in, and in a few seconds the machine appeared. There was a sidecar attached, but it was empty. As the helmeted driver swung from the cycle, Knight saw it was Li Sin.

"Thank the Lord!" ejaculated Hank. "Li Sin, put this *kuan* to rights, will you?"

No answering friendliness came into Li Sin's black eyes. Instead, they passed frigidly from Hank to Knight.

"You tricked me once, but it will not happen twice. *Kuan*, have these men's arms tied behind them. Be careful—they are dangerous."

The officer grinned wolfishly, snapped the order.

"Wait a minute," protested Hank. "Li Sin, you've gone off your nut! We weren't in on this business. Wu Kang's the man you want."

Hastily, while one of the soldiers went to find enough rope to tie the three of them, the plump little flight leader described what had happened at Field 32.

"Don't you see?" he concluded. "Wu Kang is really Mo-Gwei. He waited till you took off, then sneaked



back and pulled that trick at the mess window. He tried to cover up the whole thing by bombing the place. But we followed him here and were about to force him down when that cone of light saved him."

A cold smile touched Li Sin's lips.

"You are wasting your breath, Mr. Larson. The code message we found on the Japanese colonel was deciphered thirty minutes ago. An order for the arrest of you three men was sent to Suchow—but you have saved us the trouble."

"Order for arrest—but why?" sputtered Hank.

"For espionage," Li Sin replied. "That message proves you and possibly your entire volunteer group have been acting with the Japanese—through this clever friend of yours, Mo-Gwei." He bowed ironically to Knight.

Knight looked at him in amazement.

"If the message said that, it was a frame-up! I tell you Wu Kang is Mo-Gwei! He tried to change his voice by speaking French, but I could tell it was a Chinese talking. Search him and you'll find the money and the original of the message."

Li Sin nodded to the officer, and Wu Kang's pockets were quickly emptied. But there was no sign of the money or the message. The *kuan* looked at Li Sin.

"I find nothing, captain. But this miserable half-breed was bargaining with the Americans about destroying one of our bases."

"Have him tied, also," ordered Li Sin. "He has undoubtedly been working with them and Japan."

"Then why not shoot them now?" demanded the officer.

"Because they know the secret of this frozen death," Li Sin said impatiently. "At least a hundred men have been killed here, and more along the road and by the gate."

"I have seen," replied the other man, with a shudder. "But if you give me authority, I will soon force these white devils to tell how it was done."

"No, there is a danger of a rescue attempt, if the Japanese learn they have been captured," said Li Sin. "March them out to the converted bombing plane and have your men tie them in the space at the rear of the cabin. I will fly them to Nanking, where there will be no such danger."

Still protesting, Hank was hustled outside, and Knight and the others were tied and marched after him.

"You had better come, also," Li Sin told the gendarme as they reached the big Boeing. "It would be unfortunate if one of the prisoners freed himself while I was busy with the controls."

THE officer looked uneasily at the plane, gave a reluctant nod. Then the three Americans were bundled into the cabin and forced to lie face down just aft the bomb-bay which had been installed in place of seats. The gendarmes trussed them tightly together—so efficiently, in fact, that Knight knew they would not be able to get loose. Two of the soldiers pushed Wu Kang forward to the space between the bomb-bay and the compartment door.

In a few seconds the engines were started, and all the gendarmes but the officer scurried from the ship. Li Sin came back for a brief examination of the prisoners' bonds while the engines warmed up again, then he returned to the pilot's cockpit. A moment later the big ship thundered across the frozen ground and into the air.

The prisoners had been tied so that Knight and Doyle faced each other across Hank's boots, the little heavy-set man having been flung down in the opposite direction. As the bomber climbed up into the darker sky, Hank squirmed to see if he could free himself.

"Keep those big gunboats of yours still," Doyle growled. "It's bad enough being hog-tied without having your feet half-way in my mouth."

"How'd you like to have two pairs sticking in your face?" Hank retorted.

Doyle grunted, peered through the gloom at Knight. "Well, master mind, what happens next?"

"Don't worry," said Knight. "We can clear this up at Nanking, and we ought to be there in about half an hour."

But at the end of thirty minutes the big ship was still droning along.

"Must be a head-wind," Hank's mumble came from the opposite side of the cabin. "Wish I could get a little slack on these ropes. I think my stomach's about cut in two."

"Well, you'd still have enough," Doyle said unsympathetically.

He had barely finished speaking when a sharp report sounded, and the flash of a pistol briefly illuminated the cabin. A voice screamed, was drowned by the crash of another shot.

"Judas priest!" yelled Doyle. "Wu Kang's got loose!" Some one ran back in the dark cabin, and Knight went rigid, expecting the roar of a gun. But after a moment the figure turned and hurried forward again. Knight tried to raise his head, but he could not tell who it was.

Then for another half hour the Boeing cruised on at high speed, while Knight and his two companions waited, tense and helpless, to know their fate. Finally the engines slackened, and the bomber nosed downward. Light shone from below, shifted away as the man at the controls revved out a hasty signal. Knight felt the ship level off, touch smoothly, and roll to a quick-braked stop. The engines died, and light shone through the cabin windows as men approached the bomber.

The door was jerked open, and through the aperture Knight saw a group of staring, brown-faced blue-jackets—and beyond them a long expanse of deck.

They were prisoners on a Japanese airplane carrier!

CHAPTER V

THE SECRET OF THE LIGHT

A SMARTLY uniformed commander pushed his way through the crowd of Japanese sailors. As he saw the three captives, his white teeth flashed in a smile of mockery.

"*Ka-shi!*" he said brusquely to a petty officer. "Have these clipped birds brought out on deck."

Grinning Nipponese sailors cut the ropes, and the Americans were hauled to their feet. Knight looked swiftly forward. To his astonishment, Li Sin was standing there, watching with sardonic amusement showing in his oblique black eyes.

"You!" Knight said stupidly. "Then it was you—"

Li Sin inclined his head with ironic politeness. "*Qui, Monsieur Q-Agent,*" he said in French. "I am Mo-Gwei. I regret that it was necessary to deceive you."

Knight's gaze traveled past him to

a figure doubled up on the floor. It was the gendarme officer — shot through the head. Standing at Li Sin's elbow, free of his bonds, was Wu Kang. An expression of hate came into the half-caste's face as Knight glanced toward him.

"So you two were working together," muttered the secret agent. But the bluejackets shoved him out of the cabin before either man could reply, and in a moment he was ranged up beside Hank and Doyle and under the sharp scrutiny of the Japanese



commander. Li Sin emerged from the bomber, and Knight was amazed to see the naval officer stiffen and salute the spy.

"Good evening, *taisa!*" he said with obvious respect.

"If that means what it ought to," grated Doyle, "it means 'skunk.'"

The Nipponese whirled, struck him a backhand blow in the face.

"Let that teach you respect for a colonel of the Japanese Army!"

Doyle lunged at him, but four sailors threw themselves upon him and pulled him back. A squad of brown-faced marines trotted up with rifles at trail position and ominously surrounded the prisoners.

"Commander Kaisho!" Li Sin said sharply. "Instruct your men that there are to be no 'accidents' in dealing with these Americans. I have a special use for them later."

Kaisho rattled off a warning to the marines, looked back at the three Americans.

"I suppose from your description," he said to Li Sin, "that the tall one is Knight."

Li Sin nodded.

"And the one with the crooked nose is the former Marine Corps lieutenant, Doyle, who caused us so much trouble at Chapei in 1932. And of course you know Mr. Larson?"

Kaisho's brown face lost its ironic smile.

"Too well," he said in an ugly tone. "I have long waited for this opportunity. But about your mission, *taisa*, was it successful?"

"In the main," Li Sin said, looking at Knight. "I have covered up all clues which might lead to the secret. Knight and Doyle, you understand, came from Paris on code orders from the chief of American Army Intelligence—General Brett. They had no

chance to talk with Pertwell, as you know. They thought that Larson knew about the affair, but I discovered that he, too, was ignorant of the facts."

"But how did you capture them?" inquired Kaisho.

"I missed Knight at Shanghai, and so I flew to the field east of Suchow and obtained a car there. Larson's pilots were drawn from the field by a report from Tamingfu; the sound-rangers heard the big plane in spite of everything."

The Nipponese commander scowled.

"I know. The apparatus has not worked correctly. I think Brown deceived me about the blue-prints, even after our last session with him."

"That is obvious now," Li Sin said curtly. "At Field 32, the light-cone brought about silence, but it did not freeze. Apparently your men discovered it at once, for two Kawasakis dived to attack Knight's plane."

He described the fight and everything which had followed up to the finding of the dead Japanese officer.

"I signaled Wu Kang to be ready, then maneuvered it so he was at the radio building when I taxied the fighter down to the end of the field. We exchanged places, so that if there were any slip I would not be suspected by the survivors. I managed to recover the money and the original of the message which Lieutenant Colonel Hiroto was bringing me. I escaped in this bomber, but three of their two-seaters followed me."

"Yes, I know of that also," interposed Kaisho. "We caught your message to the G-38 and ordered the chief pilot to turn back and help you at Hwaiianfu. But the plane has not returned."

Li Sin looked at him, surprised.

"Then you did not know it was destroyed? I supposed there had been a radio report from the Hwaiianfu station after I took off."

K AISHO swore, and the surrounding bluejackets set up an excited chatter. The commander silenced them, looked anxiously at Li Sin.

"How did it happen? Can the Chinese learn the workings of the apparatus from the wreckage?"

"Not unless they are miracle workers," Li Sin said with a mirthless smile. "The plane was in flames before it crashed. I think they must have turned on the power with full force, trying to kill Knight. The cone flared up brightly, then failed. A moment later the ship dived through the clouds, burning."

"That leaves us only the original device," muttered Kaisho, and Knight saw him look toward a huge four-

motored Junkers some distance down the flight deck. "But what happened after the crash?"

"I landed the Boeing and escaped, though this broken-nosed *Amerikajin* nearly killed me. Wu Kang was waiting on the road with a motorcycle—he had seen the light-cone and fled just before it swept over the field. I sent him back to play a part—knowing he would be at once suspected of being Mo-Gwei. Gendarmes arrived to investigate the crashes, and I phoned from one of the shops, pretending to call from Hwaiianfu. Thus I prepared the stage for my entrance.

"The rest was quite simple. I brought along the gendarme officer to prevent his repeating the Americans' story. He began to suspect when I headed East, and I shot him. When I reappear, I can say that the Americans broke loose and killed him. I can say they escaped in the plane after I landed and attempted to overcome them."

"An excellent scheme," said Kaisho. "But what is this plan you mentioned for using the Americans?"

"I'll explain that to you privately," replied Li Sin. "I can tell you while I read the latest dispatches from Tokyo."

"My cabin awaits you," bowed Kaisho. He wheeled to the non-com in charge of the marines. "Take the prisoners to the brig."

Knight and the others were herded between two files of marines and marched forward. They passed a row of Nakajima 90 shipboard fighters and 90-11b two-seaters. Beyond them stood the huge Junkers monoplane. Its four engines were larger than the Junkers type customarily used; and though Knight could not identify the type, he knew the monster craft must have a speed of at least 200 miles an hour. Its hull had been altered, with oval glass ports in the sides and extending downward, so that wide vision could be had from within. Just visible below the bottom of the hull was the tip of an enormous searchlight unit which had been retracted into the belly of the ship, and through the oval-shaped ports Knight dimly saw a maze of condensers, fluorescent tubes, switchboards and other electrical apparatus. He turned his head, trying to see more of the device, but a marine struck him, savagely told him to keep his eyes ahead.

They went past another group of planes, obviously stolen or captured from the Chinese. He saw two Shrikes, a Curtiss P-6, and two British interceptors—all with Chinese insignia and numbers. The P-6 and one of the Shrikes showed marks of recent battle.

The marines marched the three captives to a hatch well forward of the bridge, and down three decks to a narrow passage which led into the carrier's bow. The brig was on the starboard side, almost in the "eyes" of the ship. A marine corporal with a Mitsubishi pistol at his hip unlocked the door, and the Americans were shoved into the dimly-lighted compartment.

AS the door clanged shut, two disheveled figures jumped up from iron cots secured to the bulkhead. The first was a sandy-haired, wiry man about thirty years old. Knight recognized, from pictures he had been shown, that this was Pertwell. The other man was big, gray-haired, with massive shoulders and a pugnacious jaw which showed a fighting spirit that years had not diminished. His face was bruised, and there was a bloody bandage across his forehead. Knight started, as recognition began to dawn, but Pertwell cut off his exclamation.

"Hank Larson!" groaned Pertwell. "If they've grabbed you, too, I guess we're sunk."

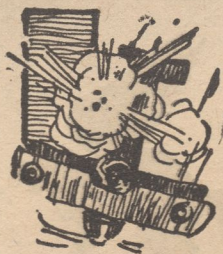
The little man sighed lugubriously. "Looks like it. If you'd only given me an idea what was going on, maybe this wouldn't have happened."

"How'd they get you?" demanded Pertwell. "Are these your pilots?"

"No—this is Dick Knight, and that's Larry Doyle; they're the ones you said would have all the dope."

Pertwell made a helpless gesture.

"I intended to meet you fellows at Shanghai, but I had an urgent call from Li Sin, at Nanking. It was



a trick—that devil has been fooling everyone."

"We just learned that," Knight said dryly. "I suppose you know he's Mo-Gwei?"

Pertwell nodded glumly. The elder man now seized the chance to speak.

"How much do you know about this deal? Has Kaisho used my invention yet?"

"They probably don't know about that," began Pertwell. But Knight interrupted.

"We know plenty! And I'm just beginning to understand more. You're Alexander X. Brown, aren't you—the one who invented that system the Navy used for transmitting

sound signals down a searchlight beam?"

"That's right," said the big man. "They used it on the *Akron* and the *Macon*. That's what led me into this hell-spot! But tell me what those fiends have done."

Knight sat down wearily on one of the bunks. Without wasting words, he narrated the events of the past few hours. Brown turned a sick color as he heard how the deadly light had killed the American pilots and gunners. When Knight had finished, he lifted his haggard face.

"Before heaven, I would have died rather than let this happen. But they worked it so cleverly . . ."

"What is the invention—a variation of the other idea?" Knight asked as Brown's voice trailed off.

"Yes, though I stumbled on it by accident. It was comparatively easy to work out a means to signal down an ordinary light beam, confining the vibrations to the beam, but the disadvantage was that it would spot the men receiving the message, or at least indicate their general position to an enemy. So I tried to work it with an invisible beam of infra-red light or ultra-violet—something in the non-visible part of the spectrum. I tried a number of spectrum positions, and suddenly I found that at one point I could create complete silence with an invisible light beam. It was absolutely silent inside the beam—even for a short space outside of it."

"I think I know the principle," said Knight. "The higher vibrations counteract the ones in our hearing range."

"It's something like that," said Brown dully. "Same idea as two loud sounds causing a hush at a point where their vibrations overlap. Anyway, I became interested in studying vibrations to create a silent death-beam. I figured that if I could bring about silence by vibrations I could probably find one to cause a terrific heat, for heat has various vibration rates, just like anything else. I told Navy officials and they laughed at me."

"Then when I stumbled onto the rate of vibration for absolute zero of cold, I took the idea to the Army. They were skeptical, and I wasn't able to convince them until I finished a full-size model. We tried it secretly and found it would reach absolute zero—459 degrees below Fahrenheit zero—after going through the point where sound was blotted out. The slightest miscalculation made the beam as bright as a searchlight, and then it burned out the tubes or exploded them."

"Anyhow, the Army experts were enthusiastic about the possibilities, and they agreed to remodel one of the new four-motored Boeing bomb-

ers to install the apparatus for testing. Meantime I was to rebuild the device so that the beam could be widened into a cone to cover more area, and at the same time I was to adjust it so that there would be no risk of tubes exploding. The beam, moreover, would be invisible."

"G-2 should have had the invention guarded day and night—and you, too," interjected Pertwell.

"Well, they didn't," Brown said sourly. He looked back at Knight and the others. "You probably can guess what happened. Japanese agents learned about it somehow. They were clever enough not to approach me. They got hold of a white man to impersonate an Army officer, and he had some forged credentials that deceived me completely, so I let him help me crate up the apparatus for a rush shipment to the West Coast for installing at the Boeing factory.

"But when the crate was gone, my 'Army officer' must have put some knock-out drops in my coffee, for the next thing I remember was waking up in a private plane. They had my blueprints, too. I was drugged again and then onboard a Japanese liner at San Francisco. And ever since then it's been plain Hades.

"**W**HEN we reached Tokyo, they started to build a duplicate of my model. They used the blueprints, but couldn't make out some of the fine points, and after they'd 'worked on me' for two days I told them I'd explain everything. They'd found meantime that something had happened to the model on the way over. The cone was visible all the time, though the tubes didn't burn. I swore I didn't know what caused it, so they hurried the building of the duplicate, intending to use it against China. I figured I was finished, anyway, so I wired it so that the first time they turned it on full power the tubes would explode."

"Thank heaven you did," Knight said fervently, "or I wouldn't be here."

"Maybe you'd be better off if you'd been killed," Pertwell said moodily. "At least it was quick for those poor fellows."

"It was that," Doyle put in, with a grimace. "They froze stiff the second they hit the edge of the cone."

"Now I know what made that Shrike go to pieces," said Hank Larson. "The cold froze the Prestone in that Conqueror engine and made it burst."

"It could have burst even an air-cooled motor," Brown said heavily. "That sudden change in temperature would break anything brittle—a steel propeller, glass windows, anything

which couldn't stand the abrupt contraction. But there's one consolation—that duplicate model is destroyed, and they were afraid to use my original model even after they installed it in one of their ships. They were afraid the cone would be so bright that the Chinese would have a good target for their anti-aircraft guns."

"That's one thing I wanted to ask you," said Knight. "The vibrations of the cone must break up any clouds that get in the way."

"They do, but these devils can't always find clouds to hide above beforehand," returned Brown.

"They'll know now that you did something to that model of theirs," Pertwell predicted. "And this time they'll torture you until you tell them what they want."

Brown's jaw set fiercely.

"I'd let them kill me first!"

"You don't know the Oriental," Pertwell muttered. "They may not kill you—but you'll wish a thousand times that they would."

"How did they get *you* here?" Knight asked, to get Pertwell's mind off his gloomy prophecy.

"Wu Kang intercepted me on the way from Shanghai to Nanking. He said Li Sin had discovered a clue indicating that Mo-Gwei was an American, and that Li Sin wanted me to meet him at a certain place. So I got off the train and went with Wu Kang. A car was waiting. I hopped in—and Li Sin poked a gun in my ribs. They drove me to an isolated clearing, bundled me into a plane, and brought me here. The idea, of course, was to get everybody in China who knew about Brown's invention



safely out of the way. I was acting under instructions from General Brett, and Li Sin thought I might be 'in on the know'—which I wasn't."

"A cold-blooded rascal, that Chinese," Brown said savagely.

"He's only half Chinese," replied Pertwell. "To be exact, he's half Manchurian and half Japanese. He's one of those freaks of nature who looks almost completely like one race instead of a mixture of both."

"So he's a half-caste, the same as Wu Kang," grunted Doyle.

"Right," said Pertwell. "But Wu seems to be merely a paid traitor, while Li Sin is actually a Japanese

officer—a colonel on their secret register. He told me that when I called him a traitor—seemed to be proud of his Japanese blood and the fact that he'd been able to fool the Chinese all these years."

"He certainly made a fool out of me," said Hank sadly.

"I've often wondered what did it," grinned Doyle.

The plump little pilot bristled. "Anyway, I never was fool enough to be a Leatherneck."

"You mean you couldn't pass the physical, fatty!"

"Shut up, you two," said Knight. "We're in a spot, and we've got to figure a way out."

"There isn't any way," Pertwell said gloomily.

"Who else in China knows about this invention?" Knight asked him.

"Nobody, as far as I know," replied the attache. "I received the word by special code from General Brett. He said to round up a group of dependable American pilots and have them ready to take your orders. He said he had shipped your special Northrop because it was the fastest ship available and because we couldn't risk using a Service job. He gave me the barest details on Brown and the invention, and told me to tell nobody but you. That's that."

"There's slim chance that somebody will get on our trail," said Hank. He paused, scratched his bald head. "Say, Mr. Brown, are you sure they didn't build *two* duplicates of your model, instead of one?"

"Positive," said the inventor.

"Well, Dick saw a glow on the clouds, *after* that big ship dropped through, on fire."

"Must have been a light flashed from an escort plane," hazarded Brown. "I heard their plans, and they intended to have two or three Kawasakis go out with the Junkers for the first few trips. They could keep close, in the silent 'zone' created by the device, until the moment for action. I imagine there was a third plane there at your Field 32 fight, keeping above the Junkers in case of an attack from above. After the big ship caught fire, above Hwaiianfu, the Kawasaki pilot probably ran for it."

"He didn't return to the carrier, or Kaisho would have known all about it," observed Knight. "He might have been forced down somewhere and the Chinese may have made him talk."

"More likely he headed north with in his own lines," said Pertwell. "Might as well make up our minds to it—we're finished."

The last word had hardly left his lips when a muffled voice sounded from outside the brig. The sentry's curt reply was drowned by a sudden

thudding against the steel door. Knight heard a gasp through the narrow grill above the door. He jumped from the cot, sprang to one side as a key grated in the lock. Slowly, the door swung open—then without a sound the Japanese corporal pitched headlong into the compartment. Behind him, a dripping dagger in one hand, a helmeted figure appeared.

It was Wu Kang.

CHAPTER VI

WU KANG'S STORY

FOR a second, Knight stood paralyzed with astonishment at sight of the dead sentry and the grim-faced Eurasian. Wu Kang swiftly raised one finger to his lips, gazed back into the passage, then hurriedly entered the brig and closed the door.

"Ask no questions!" he said tensely. "One of you must wear this dead man's uniform and—"

"Another damned trick!" snarled Doyle. He leaped at the half-caste, but Knight dragged him back.

"Wait! Kaisho wouldn't stand for killing one of his men just to trick us."

Wu Kang looked feverishly from Knight to the rest of the prisoners. "Mr. Larson—you are nearest the sentry's size. Put on his uniform. I will try to explain what is necessary as you dress."

Hank stared dumbly from him to the dead Japanese, from whose left side blood was beginning to ooze.

"Quickly, please!" moaned the Eurasian. "If it is too bloody some one will see when we go above."

Brown knelt and began to undress the dead man, and Hank hurriedly started to disrobe. Knight gripped Wu Kang by the shoulder as the man laid his dagger on a cot.

"If this is a trick, you'll die with us!" he said harshly.

Wu Kang's eyes blazed at him.

"I am as good as dead, if they find me here! Does not this prove that I hate the accursed Japanese?"

"No," snapped Knight. "You still have too much else to explain. You were working with Li Sin."

"Because there was no other way," Wu Kang flung back. "That human devil had my wife spirited into Manchukuo one year ago, and since that day has forced me to help him, promising each time to have her returned to me unharmed. He has not fulfilled that promise, and meanwhile he has threatened to betray me to the Chinese Government as a traitor if I refuse to aid him."

The fury in the half-caste's eyes almost made Knight step back.

"Tonight," continued Wu Kang, "I

learned that my wife is dead! She killed herself the night they seized her—and all this time he has promised to give her back to me!"

The spasmodic working of the man's throat, the agony in his ashen face almost convinced Knight that he was not acting. But he had to make doubly sure.

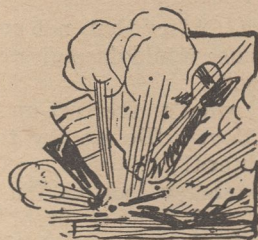
"How did you learn this?" he insisted.

A mist came into Wu Kang's eyes.

"I was listening outside Kaisho's cabin—hoping to hear something which I could use later—when I heard him mention my name. Li Sin laughed—"

The half-caste's fists clenched.

"—and then he told Kaisho of how my beloved one had killed herself, how he had tricked me all this time.



I would have gone in and stabbed him then—but the cabin door was locked."

"So you want us to help you kill Li Sin?" Knight said grimly.

Wu Kang's lips drew back in a snarl. "No! Li Sin is mine! But he loves Japan—as I too love a country that is only half my own—and to know that he has helped defeat her will be more agony than the moment when I kill him!"

THE dead marine corporal had been partly undressed, and Hank had put on the man's trousers. He looked up sharply at Wu Kang.

"If you love China so much, why didn't you tip off some one in Nanking about Li Sin? They would have worked it to get your wife back—if you had proved he was Mo-Gwei."

The agony came back into Wu Kang's eyes.

"He would never tell me the exact place where she was taken. If he died, she would be lost forever to me. That is why I have protected him—why I made it seem you were conspiring against China; Li Sin saw the gendarmes coming and told me to do as I did. But all the time—all these months—I have waited and prayed for the chance to strike back, when—when she was safe again."

His voice broke, and he flung out one hand in a desperate plea. "Believe me, it is the truth! I swear it!"

"I believe him," Brown said huskily.

"So do I," muttered Pertwell. "It all sounds like something Li Sin would concoct."

"Even so," said Doyle, "what does it get us? We might make the flight deck, but before we'd get a ship started they'd be on us."

"No, that is what I was going to tell you," interrupted Wu Kang. "I overheard something important, just after that fiend told about—her. They were talking of torturing Mr. Brown into revealing the full secret of his invention so that they could make it invisible when they turn it against the Chinese in the North and at Shanghai. But now they are going to use it at once—tonight!"

"What?" said Knight.

"Yes, it is an emergency, and they will be starting up the big German plane at any moment. Word came from their forces in Shanghai that your General Brett and an important official of your State Department have arrived by the Clipper plane from San Francisco. A spy in the pay of the Japanese installed a dictaphone at their hotel, and he reported that they have come on this matter of the invention. They are afraid it will become known that Japan is using an American invention which was developed by the United States Army. They are afraid that Britain and other nations will not understand. And they are going to tell the truth to the whole world—that Japanese agents stole the device and abducted the inventor."

"Good Lord!" breathed Knight. "It'll blow everything sky-high."

"Kaisho and Li Sin are afraid it will turn more nations against Japan," Wu Kang said swiftly, "and also that it may lead to war with your country—for which they are not prepared now. But most of all they are afraid that it will ruin their plans to use the invention, for searchlights would show up the special planes, even if they were silent."

"That's right!" exclaimed Brown. "And they've got to fly fairly low, or it won't be effective."

"This flight you mentioned," Knight said hastily. "What are they going to do?"

"Strike at your consulate-general building," said Wu Kang. "Arrangements have been made by your Intelligence general to broadcast through a Chinese station at four o'clock this morning. Your general has sent word to your Intelligence at Washington to have the message re-broadcast by standard and short-wave so that it will be heard practically all over the world. They have chosen this hour because it will then be daylight in America and early evening in Europe. The Chinese station will make it heard in Asia."

Knight's face had whitened.

"Brett must have decided we had been captured or killed when he

didn't hear from you," he told Pertwell. "He must be acting on White House orders to clear the United States of any blame because of Brown's invention getting into Japanese hands."

"Where are they broadcasting from?" Pertwell demanded of Wu Kang.

"From the consulate-general — where I told you Li Sin intends to strike. They plan to fly to Shanghai at once and turn the death-cone on that entire area. It is misty, and they will be able to come down low enough without much danger."

"Lord!" whispered Pertwell. "The heart of the International Settlement! They'll kill hundreds—perhaps thousands!"

"Then what are we waiting for?" raged Doyle. "Let's get going!"

"No!" Wu Kang said hoarsely. "Wait until you hear the engines start. Every second out of here means a second more in which we may fail. Besides," he added fiercely, turning to Brown, "you must promise to aid China—to let her use your invention."

"Nothing doing!" Brown cut him short. "I've no love for Japan after this deal—but the U. S. Army decides who uses that invention if I ever get it back."

"Then this may change your mind," said the half-caste. "They intend to kill you after forcing you to give up all the information they need. And tonight they plan to kill these others to hide the truth about the attack at Shanghai."

"How?" rapped Knight.

"The Boeing plane—the converted one—is being sent also. All of you but Mr. Brown are to be put inside—and shot down before the plane takes off. A Japanese pilot will be selected to fly it, and after the Junkers has struck, the Boeing will be brought down in full sight of Shanghai, so that its Chinese insignia can be seen in the searchlights that are sure to be turned on it. Its racks are to be filled with incendiary bombs, and the pilot will drop them as near the consulate-general building as possible, hoping to destroy many of the frozen bodies. He is then to make a forced landing somewhere just outside the Japanese lines, so he can escape and leave the four of you to be blamed for the 'mistake' in bombing. To make sure there is no failure, Japanese pilots are going to fly the planes you saw on deck which were stolen with Li Sin's help from the Chinese air service. They will guard the Junkers during the short flight to Shanghai, then they'll dive down so that they can be seen along with the bomber."

"They'll never get away with it!"

fumed Doyle. "Anybody could see it's a frame-up!"

"I heard them say that a paper would be found on Mr. Knight's body," Wu Kang retorted. "What it would be, I do not know — but the word 'Q-Agent' was mentioned."

K NIGHT groaned. "Li Sin could cook up a dozen fake orders, linking G-2 with this thing, through me. Japan could hold it as a club over the United States, and they might get away with it long enough for them to use Brown's invention



unhindered. After that, not even the White House would dare give out the true story."

"Well, what's the set-up?" demanded Doyle. "Do we try to grab those fighters?"

Knight shot a look at Wu Kang. "Which ship is to go off first?"

"I don't know — probably the Junkers."

"Then that's the ship to try for," Knight said tersely. "What was your idea about Hank's taking that uniform?"

"This," said Wu Kang. "He will pretend to be marching one of you up to the flight deck, and the rest will stay a little way behind. If he encounters anyone, he will have the marine's gun and—"

"I get it," said Knight. "Hank, I'll be your prisoner. Pull that cap down over your face; you're tanned almost dark enough to get by for a Japanese, except for your eyes."

Pertwell wet his lips.

"I'd give a thousand dollars for a gun," he said shakily.

The muffled roar of an engine was suddenly audible, and Wu Kang's black eyes dilated.

"Now!" he said, and swung open the brig door.

CHAPTER VII

DEATH OVER SHANGHAI

K NIGHT stepped into the passage, his hands elevated, with Hank thrusting the gun into his back. There was no one in sight. He paused at the turn which led to the hatchway ladder to be sure that no one was coming down.

"Step on it," Hank said tensely. "They're warming that ship in a hurry!"

More engines were revving, and Knight surmised that the Boeing and the other stolen Chinese ships had

been started as well as the Junkers. He climbed swiftly, shot a look about him as he reached the next deck. A faint blue battle-light glowed on an empty compartment; deserted hammocks showed where Nipponese blue-jackets had been turned out for the emergency. He was at the top of the next ladder when he saw some one coming down from the flight deck. He called a hasty warning down to Doyle and the others, and sprang into the gloom of the gun-deck with Hank at his heels.

The same squad of marines which had taken them below was filing down the ladder. Knight held his breath as the eight Japanese passed down into the semi-darkness below. But there was no outcry, and in a few seconds Wu Kang appeared leading the rest of the prisoners.

"Hurry!" he exclaimed. "Those men will give the alarm in a minute!"

Knight dashed up the last ladder. He had reached the top step when a petty officer and two seamen came running toward the hatch. There was no time to retreat. He stepped out, silently blessing the fact that the floodlights had not been turned on. As the petty officer saw him he opened his lips as though to shout, then grinned at sight of Hank with the pistol held at Knight's back. He and the two seamen stood aside. Knight took three steps, leaped around just as Wu Kang and Doyle came up the ladder into view. The petty officer jumped back as he saw the rest of the group running up the steps, but his frantic cry was lost in the thunder of a dozen airplane engines.

Hank's pistol thudded on his head, and he collapsed in a heap. One of the seamen whirled to escape, but Knight knocked him to the deck with a swift left hook. Wu Kang and Doyle threw themselves on the other bluejacket, and the half-caste's hand closed tightly on the man's throat.

The bluejacket's struggles ended quickly, and Doyle let the unconscious man slump back to the deck. Knight cast a hasty glance aft. The monster Junkers was in take-off position, and he could see the exhaust flashes of several smaller planes. The Boeing was beyond and at the side, waiting to be run out into position. At least a hundred bluejackets and officers were scurrying around the ships.

"Try to reach the ship before that gun-crew sees us!" Wu Kang hissed into Knight's ear. He pointed to three Nipponese by a tripod-mount Lewis across the deck as they hurriedly stole toward the Junkers. Suddenly a blue-clad figure shot from the hatch

they had just left. It was the marine sergeant.

Flame spurted from his pistol, and a bullet ricocheted from the armored side of the bridge. Hank wheeled, fired, and the sergeant toppled headlong. Pertwell flung himself down at the gun the man had dropped, pumped three shots at the marines who had followed the sergeant up the ladder.

Knight instantly abandoned the attempt to reach the Junkers. With a shout to Hank, he raced toward the Lewis gun. One of the Japanese was frantically swinging the weapon. Knight sprang to the other side, and a bullet from Hank's pistol dropped the gunner in his tracks.

A floodlight went on with a white glare, revealing the startled faces of the two remaining gunners. Knight hurdled the dead man, drove a sledge-hammer fist into the first gunner's face. The blow lifted the Japanese from his feet, hurled him back against his companion. The other man fell, but was up in a flash, jerking his bayonet from its scabbard. Knight had seized the spade-grip of the Lewis. He whirled the gun, but the other man dived under the muzzle, his bayonet twisted for a murderous sidewise blow.

BUT a splotch of red flame showed in the dazzling glow, and Hank's plump face appeared through pistol smoke. The Japanese sprawled with a slug through his heart, and Hank leaped to Knight's side.

"Make for the ship! I'll cover you!" Knight rasped.

From farther aft, and near the door to the "ready room," another machine-gun suddenly clattered. Tracers and solids smoked and gouged the deck as the deadly stream whipped around toward Knight and Hank. Knight's finger closed hard on his trigger, and the Lewis hurled an answering fusillade across the carrier.

The Japanese gunner fell, riddled. A dozen bluejackets sprang to take his place. Knight mowed them down, whirled the spouting Lewis as pistols began to blaze from amidships. In three seconds nearly a score of Japanese lay dead or dying, and the rest were scattering in panic for the nearest shelter. Knight let up on the trigger, looked around swiftly.

Doyle and Wu Kang were within sixty feet of the Junkers. Behind them came Brown, carrying Pertwell slung over his shoulder.

"Get going!" Knight flung at Hank Larson. "I'll hold them back until you're clear!"

"Don't be a fool!" howled the little man. "Come on, we can all make it!"

The Junkers' four engines thundered, and the giant ship began to move. Knight saw Doyle fire wildly at the pilot's compartment before the plane cut off his view. The Junkers gathered speed, roared the length of the flight deck, and took off. A rifle cracked from up on the wing of the bridge, and a bullet plowed wood at Knight's feet. Hank blasted a shot at the sniper, and a dark figure plummeted headfirst.

"You've got to take one of those Shrikes!" Knight rapped out. "Pertwell's hurt—you'll have to pilot for him. Doyle can take Brown."

"What about you?" cried Hank.

"Cover me after you take off—I'll grab the P-6 or one of the Vickers."

FROM two directions, rifle fire crashed—as Hank darted across the deck. He stumbled, jumped up, zigzagged toward Doyle and the others. Knight loosed a burst toward the red flashes near the edge of the superstructure, and three bluejackets wilted.

Then when he swung the Lewis back toward the other riflemen, he saw Kaisho and Li Sin crouching behind the landing-gear of the covert Boeing. But Brown and Wu Kang were blocking his aim.

Li Sin fired, and one of Brown's legs buckled under him. Pertwell rolled limply out of his arms, and Knight knew that the attache was dead. Doyle sprang to help the inventor. Brown pulled himself to his feet, clawed at the side of the Shrike to which Doyle dragged him. Li Sin raised his gun, but held his fire as the inventor's bulky form came between him and Doyle. Knight knew that the Japanese would kill Brown only as a last resort. He swiveled the



Lewis and poured a quick burst into the second group of riflemen.

He had lost only a second, but another rifle flamed just as he fired, and Brown sagged in a lifeless heap. Doyle took one look, sprang toward Hank. The little man shoved him toward the Shrike, tottered against the wing. Doyle heaved him up and into the rear cockpit, vaulted into the front seat. Wu Kang had disappeared, but as the Shrike lunged forward he saw the half-caste leap toward Li Sin.

A look of terror came into Li Sin's face, and he whirled his pistol. Wu Kang's dagger flashed like a streak

of light. The gun fell from Li Sin's hand as the knife gashed his arm. He threw himself back, raced madly under the Boeing. Wu Kang snatched up the fallen gun, sped after him amid a crackle of shots from aft of the superstructure. Knight emptied the Lewis into the group of advancing Japanese, sprang up and dashed toward the idling planes.

An engine bellowed with a louder note, and one of the Vickers interceptors shot out into take-off position. The carrier was still headed into the wind, and with a roar of its Bristol engine the fast little ship plunged past Knight and into the air. He saw Li Sin crouched over the controls, then hard after the Vickers came the P-6 with Wu Kang furiously bent on vengeance.

Kaisho had fled before Wu Kang's fierce onslaught, but now he screamed out a command, and a dozen bluejackets ran toward Knight. With a sinking heart, Knight saw he would be cut off before he could reach the other Vickers. But a sudden pound of guns cut through the uproar, and with a gasp of relief he saw the Shrike pitch down at the Japanese. He threw himself flat as Doyle unleashed all four of the Shrike's forward guns. The charging bluejackets went down like grain before a scythe, and the ones farther back fled madly from those grinding guns of doom.

As the Shrike zoomed, Knight jumped up and ran across to the Vickers. The deck was a shambles, and he slipped on its bloody surface. In the split-second it took to regain his footing, Kaisho had popped from the door to the "ready room" with a leveled automatic. The gun blazed as Knight flung himself into the cockpit, and hot lead creased his side like a branding-iron. He struck at the throttle, managed to claw the stick into his hand as the scene swirled before his eyes.

With a desperate effort, he drove off the sudden faintness and held the Vickers to a straight path down the bloody deck. The ship bounced over a dead man's legs, swerved and narrowly missed the superstructure. A hail of bullets filled the air as he hoiked the interceptor into the night. He sucked deep breaths of the cool air into his lungs, felt his reeling senses steady.

As he climbed, he saw the other Shrike race across the lighted deck and zoom in swift pursuit. Behind it came the Boeing. He closed the Plexiglas enclosure, anxiously inspected the sky. By the glow from the carrier's deck, he spotted the Junkers circling two thousand feet above. Evidently the pilot was waiting to determine the outcome of the fight before heading on his mission.

Now a powerful blinker light began to flash from the vessel's bridge, and the Junkers swiftly banked onto a southwest course. The blinker faded, but a searchlight stabbed up quickly and caught the Shrike which Doyle and Hank had taken. It was climbing steeply after the monster ship.

Knight retracted the Vickers' wheels, changed the pitch of the propeller. The searchlight probed at him, slid away. Anti-aircraft guns were pounding at the Shrike, and he realized that the gunners must have mistaken his ship for one flown by Li Sin, or he, too, would have been a target. Tracers off in the gloom abruptly marked the position of the spy's ship, as Wu Kang opened fire on the man he hated. Knight looked at his compass. Wu had said the carrier was in the mouth of the Yangtze River, between Tsung Ming Island and Woosung. At this speed, that meant it was less than a twenty-minute flight to Shanghai.

HE locked the stick between his knees, found his handkerchief, and made a first-aid pad to put under his shirt. He took off his belt, fastened it higher so that it pressed the pad tightly against his wound. The pain had subsided to a dull ache, but he knew he was losing blood.

The carrier's lights faded away astern, and light mist began to cover the Plexiglas enclosure. Sporadic bursts of machine-gun fire still marked the positions of the ships ahead, but he could see nothing else. There was an interval of five tense minutes, then from out of the darkness he could see a dull red glare ahead. They were approaching stricken Shanghai. In five minutes more the fate of kindly old General Brett and hundreds of Americans would be decided!

Then something flashed diagonally across the sky before him, and as he recognized the outlines of the other Vickers, he clamped the stick triggers. Cherry-red lines shot across the other ship's tail, and Li Sin kicked away in a furious turn.

Knight's hasty burst had missed the spy, but it brought action from the ground forces ahead. Searchlights sprang up hazily through the increasing drizzle, from vessels in

the harbor and from both Japanese and Chinese positions in Shanghai itself. Knight gritted his teeth as he saw the big Junkers going in on a long power glide, straight for the center of the Bund. The big ship was three hundreds yards away, but he tripped his guns into action.

A Shrike zoomed up on his left and he eased off to give Doyle a chance to join in the attack. To his dismay, the tracers of the Shrike's nose guns smoked after him. It was Kaisho's ship! He back-sticked, whipped out of range. An explosive blast of fire lit up the sky behind him. He stared around, saw the Boeing twisting down, a mass of flame. Doyle was zooming across the falling inferno, and Knight knew that he had done the job. The other Shrike was plunging in at the Vickers, cowl guns pounding. Knight snapped into a vertical bank, raked the tail, and dived under it at the Junkers.

With a prayer that Doyle would take care of Kaisho, he raced after the monster. A blob of fire appeared near the tail as the rear gunner saw the interceptor. Two torrents of slugs from high-speed guns crashed into the speeding Vickers. Knight shoved the stick forward a fraction of an inch, tensed as the gunner's bullets tore off the glassine top and ripped through the fuselage. Back came the stick, trips down, and with a grim triumph he saw his tracers tear into the Japanese. The Junkers' rear gun went dark, but before he could change his aim to bring down the huge ship Li Sin dived at him out of the misty night.

Knight rolled out of the spy's vicious barrage, came back with a fury which drove Li Sin into a wild skid. As the other Vickers lost speed, Knight whirled back after the Junkers. The monster had banked into the wind for a dead-on approach to its target.

And in consternation he saw that the deadly light-cone projector was now being lowered from its belly!

FRANTICALLY, he cut loose with his guns. The tracers were burning the air within a foot of the projector—when his belts abruptly ran out! He threw a desperate glance over his shoulder. Doyle and Hank had downed the other Shrike, but

they could never catch up in time to stop the Junkers. He whirled back to the controls—and went rigid. The projector was beginning to glow with blue-white light, and it was swinging back at his ship!

In a panic he hauled the stick back, shot above the Junkers. The beam slowly angled downward, sweeping across the water toward the Bund. A groan was wrenched from his lips as he thought of the frightful doom about to strike. An image of gray-haired John Brett seemed to smile at him through the mist

With a moan, he shoved the stick forward. His guns were empty—but there was one way left. Wings shrieking, he dived at the tail of the Junkers. The flashing prop was within fifty feet of the big ship's tail when Li Sin's plane pitched in again with guns blasting.

For a fraction of a second, Knight thought it was all over. But suddenly a look of horror shot into the spy's yellow face. Plunging head-on toward him came Wu Kang's ship!

Knight had a flashing glimpse of the terrible smile on the face of Wu Kang, then the two ships collided with a crash that shook the sky.

Blinding flame geysered from the hurtling mass of wreckage, and the searing heat scorched Knight's face. He threw his hand before his face.

When, seconds later, he uncovered his eyes the Junkers was spinning madly out of control, half of one wing torn off where the falling ships had struck it.

The Shrike which held Doyle and Hank Larson was the only other ship remaining beside his own. General Brett would never have to make his announcement now. That sinister threat of frozen doom was ended. Brown was dead, his blueprints useless, both models of his invention destroyed. Knight saw Doyle signal across the misty sky, saw the Shrike speed away toward Lungwha airport and safety. He banked to follow.

For an instant he gazed down the tilted wing and saw a mass of flaming wreckage plunge into the water. Wu Kang had paid his debt to China. Slowly, Knight raised his hand in a reverent salute to a half-caste who had been a great man. Then the Vickers raced westward into the night.

Scourge of the Spy Brood

(Continued from page 24)

Barney ducked down. This was more than aerial gunfire. He sensed that this was heavier stuff.

Keen threw the Bullet all over the sky, tried to get a sight on the source of the trouble. As he swerved away,

turning out to sea again, he almost ran smack into a giant flying boat which seemed to be in as much distress as themselves.

There were strange flashes coming from its control cabin windows

just below the giant wing.

CR-RA-SH! CRR-ASH!

Another salvo of fire now exploded all about them and the Bullet tangoed in waves of concussion. Keen climbed her hard, sensed that Bar-

ney was breaking out his rear guns. "No! No! Take it easy. It's not that flying boat!"

Barney turned, stared at Keen amazed. "Not that boat? Where is it from then?" he barked.

"I don't know. But look! The flying boat's getting it, too."

They both stared at the floundering transport as she took the beating from the explosions that rent the sky.

"What is it—a Clipper?"

"No, a Short Empire job."

"But the Imperial Bermuda ship is not due here until Saturday when the Clipper goes out," Barney argued.

"That's what's funny about it," Keen said as he cleared and ran into a thin patch of clouds.

"I think she *was* firing at us," Barney said, letting his lower lip fold over the upper. "I saw flashes."

"Just Aldis lamp signals from the control pit. They were trying to signal some one."

"Sure, but who? I didn't see anybody."

"I give up, too," said Keen. "But let's buzz off."

They were in the clear now. The firing had ceased and the silver Empire boat was somewhere well below them heading for Port Washington.

They raced away into the darkness on a south-east course, settled down for a four-hour run. All the way they saw nothing but the stars, a few straggling surface vessels, and the lights of that majestic liner, the *Queen of Bermuda*.

It was nearly 4 o'clock Bermuda time when Keen finally swung her around over Port Royal Bay. The straggling fish-hook of land known as Bermuda lay 6,000 feet below.

"Well, we're here. What are you gonner do with this boiler?" demanded Barney.

"You'll see," said Keen. "I've been here before. It's perfect for prowlers like us."

"If the British Coast Guard doesn't spot you," added Barney.

The Bullet sped on for a mile or so, then Keen snapped in the Skoda mufflers. Finally, he carefully turned her back and let her glide gently toward Church Bay. Watching carefully ahead, he let her clear the South-West Breaker Bar, then suddenly switched her around at right angles, headed for Great Whale Point, and with careful S-turns finally brought her down on the silent waters.

Keen snapped an order.

Quickly, Barney slipped out of the cockpit and stood on the wing root. Keen eased her in quietly, released the wing king-pins, and the Mick folded the airfoils back. Then like a wraith the Black Bullet slipped inside

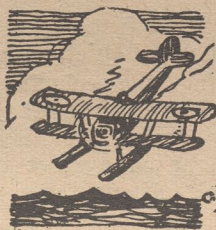
a black slit in the rocks and disappeared.

EIGHT HOURS later, two men in neat white linen, with well shaven chins and the early flush of a tropical sunburn, trundled black enameled bicycles along Front Street in Hamilton. They stopped in at Arundell's, had a drink, and made a few discreet inquiries. Yes, these men were Keen and Barney.

Finding a newspaper, Barney quickly scanned the headlines. "They are still working on the knife theory," he whispered to Keen. "And say, how's that Planter's Punch?"

"Lovely! But what about the knife?"

"Says they have made another examination of all aboard the plane and



again proved that none jibes with the prints on the handle."

"Maybe he was murdered in New York City and he walked out to Port Washington with the knife in his chest without anyone knowing it," said Keen colorlessly. Then he added: "There's something screwy about that knife business. I'd like to see that weapon."

"Let's ask the Governor-General," smirked Barney, folding up the paper.

"Oh, it can be done," Keen snapped. "Drink up and pop along with me No, that's no good. You'd better stay here and see that that bartender keeps the Planter's up to snuff."

Barney readily agreed to that, and Keen went out, threw a leg across his bicycle, and pedalled away. In a few minutes he arrived at the Council Chamber buildings and got directions to the Island Police Inspector's office.

With the aid of several cards and letters he had carefully fixed up for the event, Keen was able to get inside and ask a few questions concerning the murder of Beale. The Chief Inspector, a ruddy, bacon-faced Britisher, was brusque at first, but he gradually warmed up as he talked to Keen. Keen, however, had adopted the name of Ginsberg for the occasion, as he usually did under such conditions.

"It has left us somewhat flat," the Inspector admitted, trying to adjust the name of Ginsberg to Keen's profile. "This knife business, you know."

"That's what I was interested in," Keen added. "I'm something of an expert on weapons of that sort and I'd like to see it. I have a theory about it."

"Of course you may see it. Anything to get on with it, you know."

The Inspector led Keen into a smaller room, nodded to a young man in civilian clothes who was working at a chemistry bench, and showed Keen the exhibits of the case. The knife was among the most prominent.

At first Keen simply stared at it without touching it. But then the Inspector spoke up.

"You can pick it up. We've done all we can with it."

Keen smiled, took the knife in his hands, and with a quick underhand movement suddenly drew the handle off the knife and handed it to the Inspector with a smile.

The Inspector was amazed. He took it gingerly, fumbled with it for some seconds. "But I say, it never came off before. It was on tight."

"They all are—until you shove this curved section of the small hilt guard down with the knuckle of your first finger. Like this—see?"

Keen demonstrated for the Inspector's benefit.

"This is a Ghoorka knife, all right," Keen explained, "but it is small—a woman's knife. They carry them for many things, and one of their features is that they can use them for sticking in pieces of meat for smoking or cooking. You see, they remove the handle until they are ready to take the meat down. But it never had the same ceremonial standing as did the regular fighting knife of the men."

"But what does it mean?" the Inspector asked, puzzled.

"Only one thing. Beale was killed on board the Clipper all right, but the handle of the knife was changed, and this one put on with a lot of misleading fingerprints on it. But hello! Look here!"

Keen was holding the knife in his hands and putting the blade back and forth inside the handle. As he fingered with it in this manner, the handle end of the blade disclosed a small piece of folded white paper.

Keen picked it up off the floor where it had fallen and examined it. He unfolded it—and they both stared at a portion of a Clipper menu.

"Get it?" said Keen.

"Not quite, except that it might have been fitted into that particular handle to make the tang of the knife fit tight at that end."

"Right! But who put it there?"

"You have me unless"

"Of course. The steward—Blott. He would have used one of the printed menus to make the tang fit,

so that it would be tight after he had changed the handles. Had it been loose, you might have stumbled over that trick catch idea and realized what you know now."

"Then Blott's our man. I'd better wire New York right away," the inspector said anxiously.

"But you can't arrest him on anything as flimsy as that," Keen said in feigned horror. "You might have him traced, or carefully watched. But he'll be down here again tomorrow afternoon. I'd wait and have him apprehended here."

"I suppose you're right," the inspector said. "Besides, I believe a Secret Service man is on his way down on that flight to get—"

"I know—to get Commander Stanwick," broke in Keen. "And there's another point, Inspector. You have charge of Stanwick, haven't you?"

"In a general way, yes. He's under some sort of parole until he goes aboard the Clipper on Sunday. Navy chap of some sort, and it's messy, that parole business."

"Your men, of course, keep a fairly good tab on him, eh?"

"As well as we can."

"Then you would know if he has received a wooden box—a special steel-gray box, well braced, and all that sort of thing. As a matter of fact, it's a U.S. Navy box of some sort. Between you and me, Inspector, it's lost—and I have a hunch that Stanwick is to get hold of it somehow."

"I'm almost certain he would not have received anything like that without our knowing it. We keep a close tab on him, you know, as far as his post and communications are concerned."

"All right. Do you have a man on the island by the name of Haageman—a Professor Haageman?" Keen asked suddenly after another examination of the knife.

"Haageman? . . . Professor Haageman? Of course! He's a guest of the Governor-General. It's said he's got something to do with a German munitions syndicate."

"Yes. I read about him being down here—and I just wondered."

"I think I understand."

"Thanks, Inspector. So if you run into this gray box, it's to be returned to the U.S. Navy—unopened. You understand that, too, eh?"

"I think we understand one another, Mr. Ginsberg. By the way, where are you staying?"

"I'm with friends—aboard a yacht. I'd rather keep that quiet, too. I'll keep in touch with you during the next few days, but don't take a chance on Blott yet. He may slip out of your fingers."

"Thanks for your assistance in the

matter, Mr. Ginsberg. I hope you'll come in again," the grateful Inspector replied. "I'll have Blott watched."

"I know a better plan. I'll have him watched. I'll have someone aboard the Clipper watch him. How's that?"

"I'll leave it up to you, sir," the Inspector said.

Keen went out, found the government post office, and wrote a telegram to Drury Lang. It read:

KEEP YOUR EYE ON THE CLIPPER STEWARD STOP HE MAY BE THE GRIFFON

—GINSBERG

And with that he hurried back to Arundell's and joined Barney who had picked up more interesting information.

THEY chatted quietly in a corner, watching the colorful tourist crowd mill in and out as they talked. Across the street, the *Monarch of Bermuda* creaked against the piles of the dock. About them was the clean spicy smell that only Bermuda can provide.

"Well, what about it?" Keen finally asked. "Anything doing?"

"I got a boat and I think I can get the 'juice' later on this afternoon. I had to pay a buck a gallon, but it's aviation stuff."

"What is it in—four-gallon cases?"

"Sure, export stuff. But we got to haul it ourselves."

"Don't worry. No one will be in on this. When will it be ready?"

"I take the boat around about 4 o'clock and tie it up to a small pier on this end of Morgan's Island. Then



we go back after dark and clear it. I have the boat until noon tomorrow."

"That means we've got to run through Seeley's Narrows to get out on the south side of the island," Keen said reflectively as he glanced up at a lithographed map of Bermuda that was framed on the wall. "Well, that's the best we can do, I suppose. It'll work out, I hope."

They split up again after that. Keen went to a nearby hotel and ordered dinner while Barney clambered on his bike and pedalled away.

KEEN met Barney again that night at the end of a bicycle path that ran down from the main road to the sands on Burgess Point.

Barney was at the oars of a light skiff and together they rowed across to Morgan's Island, which lay about a mile away.

They found the boat Barney had hired and climbed aboard. Below under neat tarpaulins were stacked a number of boxed cans of aviation fuel. They looked them over quickly, saw that there was enough for what they would require, plus a few gallons of oil into the bargain.

"That Limey thought I wanted it for a motor boat," Barney laughed under his breath. "He said: 'You won't 'arf be able to splather about wiv this stuff in yer tank, mate!'"

"I hope he keeps on thinking that way," Keen answered. "And now, let's go."

The boat was an American job of a popular type. Barney had no trouble starting it and getting it under way. They shot westward at high speed and headed for Seeley's Narrows that slit Somerset into two chunks. They carried all riding lights and Keen even turned on all cabin lights to stimulate the impression that they were on a typical tourist holiday outing. For about an hour they carefully picked their way through the Narrows on a chart Barney had wisely borrowed. Then they eased out on to the ocean side of the island and turned south to make their way to the hidden cave that sheltered the Black Bullet.

"How did you know about the place?" Barney asked, showing interest in it for the first time.

"Funny, all right, how I remembered it," Keen replied. "It actually belongs to a very close friend of mine who is in New York at the present time. The cave has been there for years and probably was used in the old days as a hide-out by the pirate trade, but few enter it today owing to the morays that infest the water."

"Morays? What are they?"

"Why, they're a form of giant eel, and they are absolutely ferocious—have teeth like razor blades. If you fell in the water there, you'd have a rather bad time for a while. For they will attack a human being with all the vim of a barracuda."

"Oof!" grunted Barney. "You sure pick the spots."

"It's a good one. You can bet no one will go in there. No, it's a swell place for what we want."

And with that explanation they settled back for the four-mile run to their lair. Barney was at the wheel and Keen sat in the stern and enjoyed the night. They kept well outside the Great West Breaker Bar, then turned toward Great Whale Point.

The headlands were ahead of them now, and Keen, deciding to play safe,

doused the riding and cabin lights. Barney throttled her back and let her skim along with hardly a sound. They were riding thus when Barney suddenly sat bolt upright. He peered about, cut the engine down even more.

He turned and looked at Keen who had caught it, too.

"Where the deuce did that come from?" Keen said in a husky whisper. "It wasn't there a few minutes ago."

"It came up out of the water," Barney said quietly. "Must be a submarine."

"There's no British submarines in these waters. I checked that this morning. Look, it's got German markings on it."

"I didn't know Germany had any submarines," Barney husked, watching the long gray wraith come out of the water.

"Lay low! Look, there's a boat out there."

They let the motor boat ease along quietly, then saw a small boat run up to the deck of the dripping submarine. Two men climbed out and got aboard the submersible. Keen and Barney watched it, their hearts in their throats.

"Beat it!" screamed Keen. "They've spotted us!"

Barney rammed the throttle up the quadrant, shot the boat up on its step. Almost at the same instant two shots rang out from the submarine and threw up two jets of water in front of them. Barney jerked the wheel back and forth, rolled the boat over on her side. Back she went like a Gold Cup chaser. Two more shots rang out, but they were well past the mark.

From his crouched position, Keen watched the activities aboard the sub. The boat was quickly taken aboard, folded up, and stowed away in a metal slot along the base of the conning tower. The men, indistinct figures, clambered up the ladder and dropped down the hatch.

A few minutes later the submarine disappeared below the water again.

"Well, there goes Commander Stanwick and Professor Haageman," Keen said as Barney throttled her down and turned back for their original destination. "From now on, anything can happen."

In a few minutes they were easing the motor boat through a narrow gash in the rocks and guiding her by shoving against the damp rock wall. Inside they could see the Black Bullet high and dry on a platform of rock that was now out of the water, owing to low tide.

They worked fast unloading their fuel crates and in another hour the

plane was completely refuelled. They checked her carefully and prepared her for a quick getaway in event of an emergency. While they worked, hungry morays slashed about in the black waters below, snapped at chips of the crates.

Giving the craft a last careful look-over and turning her so that they could run her out with little trouble, the two conspirators now climbed back into the motor boat and eased her out into the open again.

"Yeah, let's get back. I'm afraid those Planter's punches won't hold out against the thirsts of those American tourists," moaned Barney.

They made their return trip uneventfully, but noticed that several



government cutters were speeding up and down outside the Great West Breaker Bar.

"Those shots aroused someone," Keen reflected. "Don't stop unless you have to—and remember, we didn't see or hear anything. We have just come from around Elbow Beach way—a bathing party."

"Yeah. It came near being one," growled Barney.

But they were not bothered, since there were too many light craft racing about for them to be selected. They got back through the Narrows and returned to Morgan's Island without hindrance. Finally they skiffed over to Burgess Point, picked up their bicycles, and cycled back to town.

HAMILTON was at fever heat in excitement. The newspaper, the *Bermudian*, had ripped out an extra, the first since the Armistice. The story was a strange conglomerate affair concerning the escape of Commander Hugh Stanwick, an American Naval officer who had been held on parole until the arrival of Secret Service men from the States. It seemed that Stanwick had slipped out of his hotel window by the use of a rope, had dropped down on a small cottage nearby, and had escaped. Then there was the mysterious disappearance of one Professor Haageman, a German munitions man who had been a guest of the Governor-General. The Professor's room had been left in complete disorder. The Governor-General's private study had also been raided, sev-

eral important portfolios of papers being missing. And to top it all, there was the report of movements of a submarine of some kind off Great Whale Point.

Keen sipped his punch, read the reports, and smiled across at Barney.

"Oh, what fun we shall have tomorrow," he grinned. "Old Lang is in for a tough day, but he'll have to go through with it now."

"He'll never make it," Barney muttered. "Somehow they'll pinch that Clipper—and there will go Mister Lang and the box of tricks." And Barney leaned back and let out a loud guffaw.

Keen frowned, stared at the ice in his drink. "That isn't so funny. It's too true to be funny. What time do they start tomorrow from Port Washington?"

"About noon. They'll be here about 5 o'clock—if they get here."

Keen sat gritting his teeth while Barney ordered two more Planter's punches. Keen was making plans for stopping the German submarine from getting away.

"We can do it," he muttered. "But it sounds too easy. There's a dark gent in the kindling somewhere. They are not just working with a submarine alone. There's too many chances to take. No, we've got to be ready for almost anything."

When the Mick came back, Keen mulled over the whole mess again to see if Barney had any more good ideas. They knew, for one thing, that old Lang would be on his way down on the Clipper the next afternoon, because he would want to check up on Stanwick's escape. They were certain, too, that Blott, the steward, was the killer. And in all probability the man would have the box containing the secret model of the aircraft carrier arrester gear somewhere on board.

"As a matter of fact," Keen said, "the best thing we can do is to give them a chance to show their cards. In that way we shall be sure of several points jibing up. Haageman and Commander Stanwick are no doubt aboard the sub. Blott will have the box with him. And if we pull the right strings. . . ."

"Or press the right triggers," grinned Barney, "we can nab a lot of birds with one rock."

Keen nodded, packed a new briar with some pungent shag, and applied a match after due contemplation of the whole situation.

"But there's something in all this, somewhere, Barney, that worries me. They're not relying simply on the submarine. There's some other angle to it somewhere."

"Well," agreed Barney, torching a massive black cigar, "we'll find out

what it is—later on. For now, let's worry about that bartender."

THEY checked out quietly the next noon and had their light bags taken to a point near Gibbs Hill lighthouse and left with a cottager. They had lunch in Riddle's Bay, rode around the Warwick Camp, and watched the Sherwood Foresters winding up their morning maneuvers. Then they picked up their bags, quietly cycled away, and headed for the scrubby gorse that sheltered the pathway down to the rocks that hid the cave where the Black Bullet was sheltered.

It was well after 1 o'clock when they clambered down inside and worked their way up to the amphibian. Using small flashlights, they changed into their black flying kits, being particularly careful now to put on full length face masks under their helmets. Then they eased the plane down into the water, started the engine, and guided her out through the narrow opening and into a small cove outside. Barney quickly opened the wings and Keen jabbed the king-pins in. They held her there a few minutes until the engine warmed completely, then they took off with a roar and a milky wake before anyone in the vicinity could figure out what had happened.

Keen hoiked her up fast, climbed her to 4,000 feet, set the throttle for cruising speed, and went to work on his avigation. Bermuda fell away fast as they headed north-west toward New York. Barney was twisted in his seat in such a way that he could watch the water below and still keep a close watch on anything above and behind.

The Black Bullet gleamed like an evil thing in the glare of the mid-day sunshine as it raced to keep a rendezvous with crime.

* * * *

THE Bermuda Clipper left Port Washington dead on the clang of noon. She carried sixteen passengers and a crew of five headed by Captain Marty Strack, First-Officer Pete Blumenthall, and Avigator Jerry Mundin. Eric Lawrence was the radio man and George Blott the steward.

The passenger list was a typical tourist crowd that included two honeymooning couples, three school teachers, several middle-aged couples of the comfortable class, and a number of unassuming men who were obviously on "tired-business-man" trips.

Drury Lang was not one of these; for while he was tired and not a little worried, he was making no effort to get into the snatches of conversation

that was bantered back and forth across the cabin. He made no effort to change his seat at any time but simply sat near the window in the compartment aft of the Steward's pantry. Across the aisle, three men in business clothes started some sort of a card game that Lang could not quite understand.

As they headed out to sea, Lang pondered on the strange message he had received from a man named Ginsberg who was in Bermuda.

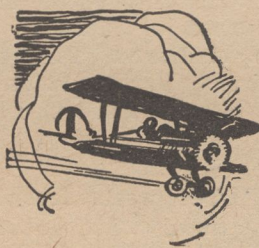
"To think that *that* guy turned up again. I thought we were through with the Ginsberg and Pulski business. I wonder who Ginsberg is, anyway."

Then he sat thinking about the business of the escape of Stanwick, the mysterious rumors about a German submarine and the disappearance of Professor Haageman.

"I wish Keen was here," he muttered. "All this would make sense to him, the lug. I don't even know why I'm going down now that Stanwick is on the loose. Still, I don't see how the guy can get off an island like that."

The Steward now came along the gangway and dropped a printed menu on Lang's table which had been drawn out of recesses in the wall. Lang took it without looking up, then watched Blott as he moved across the cabin and handed out three more.

In a few minutes Blott came back and Lang ordered soup, cold chicken, vegetables, and coffee. The men across the aisle gave their order, too, without breaking up their card game. From farther down the aisle, gay laughter could be heard in the other compartments, and Lang wished he



could find something to laugh about.

Blott stood in the doorway, consulting his watch. Then the three men in Lang's compartment quit their game and the Steward began serving the first course.

For the next half hour, Lang was occupied enough to quit worrying, and as Blott carried his dishes away and inquired whether there was anything further he could do for him, he relaxed into a comfortable position, let his chair fold back a trifle, and took it easy.

He did not know that the three men across the aisle were watching him carefully, even though they had returned to their three-handed card game.

After the ship had been on its way for about ninety minutes, Marty Strack turned the wheel over to his co-pilot, dropped down the narrow companionway, and walked down the aisle to see how his passengers were faring. He was amazed to find that practically every one was sound asleep.

"Humm! What a lullaby trip this turned out to be," he remarked to Blott who stood near his galley doorway. "I thought we were having an easy quiet flight, but I never saw them cork off like this before. You'll have to wake them all up to get them unloaded."

"How far out are we?" Blott asked casually, turning back into his pantry.

"We're about here, last check," Strack said, pointing out the position on the lithographed chart on the compartment wall.

The three card players, sleep having not as yet won them, glanced up and saw where the Skipper had planted his forefinger. They exchanged glances, stared across at Lang. The Secret Service man was actually snoring.

Then before Strack could sense what was happening, he felt a gun rammed in his ribs.

"All right, Strack. Take it quiet now and sit down."

Amazed, the Clipper Captain turned, saw that all three men had dropped their cards and were carrying big black automatics. Strack stuck his hands up, then suddenly brought them down fast, in an attempt to grab one of the guns. But Blott quickly stepped up and smacked his Captain with a short brown leather billy. The Skipper grunted, folded up at the knees, and went down. They dragged him clear of the aisle and rammed him into one of the seats they had vacated.

Blott turned and stared at Lang. That worthy had stopped snoring and was twisting uneasily in his chair. Blott went over, gave the sleeping man a solid smack across his hair part with the billy. Lang slipped farther down into his chair.

The three men now worked fast. While Blott ran through the compartments to make certain his doctored lunch had done its trick, the others clambered forward into the control section. First, young Lawrence, the radio man, was caught cold and tied up well away from his instrument panel. Then Mundin was jerked away from his chart table, rammed against a bulkhead, and tied to the wall.

Two of the men with automatics eased up alongside Blumenthall and displayed their hardware.

"All right, Blumenthall, it's a

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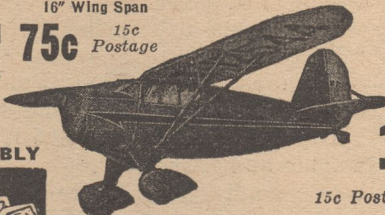
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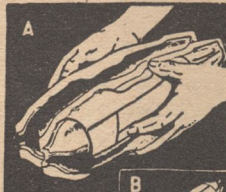
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stick-up and you can live a long time if you keep your nose clean."

"What's the idea? We've got passengers aboard this boiler," young Blumenthall argued.

"Sure, you got passengers, Blumenthall. An' you want to get them to Bermuda, Okay, eh? Well, act smart. We only want to go down on the water a few minutes and do a little business. We won't bother you after that. What do you say?"

"What about the Captain?"

"He's all right. He's just got a headache for a while. He's back there, Okay. You'll get your name and your picture in the papers, Blumenthall."

"Yeah? In the obituary pages, I guess. What's the gag, anyway?"

"See that gray streak ahead there—about two miles ahead? Well, that just happens to be a submarine. And all you got to do is to put this boiler down alongside her. Simple, eh?"

"And then what?"

"Well, after that you just get rid of us guys who don't want to go to Bermuda, see?" the beady-eyed gunman grinned. "That's all there is to it."

"I'll put her down—but no monkey business with my passengers, remember."

"Now you're acting smart, kid. You put her down and hold her as near to that tin-fish as you can. They'll come out to get us."

Blumenthall stared ahead, saw the distinct outlines of the submarine. He eased back on the throttles and let the four big engines tick over gently.

"What country runs that sub?" Blumenthall asked.

"Never mind. Get this flying boat down—fast. But say, what the hell is

that up there?"

Blumenthall looked ahead and above. He could see the distinct lines of a fast black plane. He frowned.

"So you're gonner shoot us down again when we take off?" he started to argue.

"That must be one of their jobs," one thug said to another. "They said they'd have a couple nearby—just in case."

"Yeah. But *that* ain't one of them," the first grunted. "Get her down fast, Blumenthall."

The big Clipper nosed down steeper and the co-pilot curled her around sharp into the wind and let her glide toward the long gray submarine which was now well out of the water. The crew on the forward deck of the sub was breaking out the folding boat and three men stood before an A-A gun which came up through folding deck plates.

"Yer see, Blum, they ain't taking no chances. So don't try anything funny."

* * * *

KEEN climbed the Black Bullet higher as he spotted the Clipper coming on. He had been watching for it for the past hour. Apparently he had timed his approach beautifully.

"There's the sub," he muttered and Barney stood up and peered over.

"Yeah," the Mick muttered moving fast. "There's the sub and here's some more trouble. Look above us."

Keen jerked his head up and spotted three silver-gray fighters bearing down on them from above. Two were Arado seaplanes with narrow, racy pontoons that looked like long torpedoes. The third, likewise, a sea-plane, was a Focke-Wulf biplane.

"I get it. They've got one of those depot ships somewhere in this area, eh? I knew there was something else to this game. They're taking no chances on this gag failing with Professor Haageman aboard the sub. Let 'em have it, Barney. I'm going down for the sub—in a minute."

Barney opened fire at once and the two Arados replied in a wicked dive. Barney slapped it at them with his Brownings while Keen held his dive until the proper time. Below, the Clipper was on the water and churning up close to the submarine.

The enemy fighters fanned out and Barney took them on one at a time as they hammered at the Black Bullet. He finally clipped one of the Arados. Pummelled by a second terrific burst from his Brownings, it twisted as though in torture. They saw the pilot stiffen, jerk up into an almost standing position, then go head first out of the cockpit and over the wing. Out of control, the plane fell away in a spinning dive. It finally hit with a terrible smash that sent up a climbing spurt of bluish-white water. A rosette of steam followed and blotted out all signs of the craft.

"That's the stuff, Barney," yelled Kerry Keen. "Hold them off long enough for me to time my dive."

Keen was now circling the submarine below and watching the Clipper ease toward her. The sub's small boat had already been launched. It was headed for the big Sikorsky.

"Hang on—and get ready to take a passenger," Keen barked.

Then they went down, hell-for-leather, toward the submersible. To repulse them, the gun crew opened fire from the deck of the undersea boat, pounding through a salvo of three-inch stuff that deafened them

with steel throated screams. Archie concussion high above them added to the din. But Keen held her there. He would not pull out until he could read the small markings on the side of the conning tower.

Down . . . down! But now the fighters were on them again. Barney spewed out another burst at the Focke-Wulf, then watched the second Arado skim past their wing-tips with but inches to spare. As it went by, the Mick poured a double stream of lead into her vitals. That was the death blow. The raider's right wing crumpled and she plunged downward in a tight spiral.

It was at that instant that Keen pulled his bomb toggles. He yanked twice, and the Black Bullet jerked as two slim, armor-piercing projectiles flicked out of the belly compartment. They went down flashing and spinning, and Keen had to hoik out of the dive fast.

As they whipped past the submarine's deck, Barney swung his guns around, poured lead at the gun crew below, and watched two men roll away and struggle to grip the scupper rail.

Then the whole scene blanked out in a curtain of garish flame and smoke!

The Black Bullet was hurled over on her back by the force of the explosion. Keen fought to get her back, and as he eased the throttle he saw the Focke-Wulf hurtle down through the smoky haze and disappear in the mass of wreckage.

"We must have nicked the sub's magazine first shot," he screamed at Barney who stood stock still, uncertain what to do now. "That Focke-Wulf slammed smack into the middle of it. The concussion was too much for it."

"Look! Those fellows are trying to get back to the Clipper," Barney yelled.

Keen dived at the folding boat now and poured a long burst ahead of it. The men in the boat eased up on their oars. They saw the Clipper start to move away.

"That's right. Clear off, Clipper," grinned Keen. "Cover them, Barney, while we go and do a little picking-up on our own."

Barney kept a short series of bursts battering the water around the submarine's folding dory and they saw two sailors, a man in a white mess jacket, and three other men, huddled aboard.

Keen dropped the Bullet on the water after he got his pontoons down and eased up to the boat while Barney covered them with his Brownings. They sat tense, white and plainly frightened. One of the sailors was mopping at a bad gash on his fore-

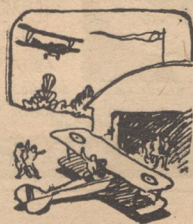
head with a large dirty handkerchief. One of the men in a dark business suit was standing up holding a white handkerchief by its corners in the form of a flag.

"They give up," grinned Barney. "What now?"

Keen eased the Black Bullet up close to the bobbing boat and opened his cockpit hatch. He raised himself a trifle and yelled:

"We want George Blott—Blott, the Steward aboard that Clipper. We want him aboard here at once and he must come with the U.S. Navy box that was stolen from the Brooklyn Navy yard. Is that clear?"

They saw the men in the boat turn



to the man in the white mess jacket and expostulate.

"You've got two minutes to get him and that box aboard. So make it snappy, or I'm sinking the lot of you. Move fast now!"

There was another hasty discussion and finally Blott leaned down, picked up the gray box from somewhere, and with reluctance moved toward the prow of the boat. Keen edged the Bullet in close so that Blott could step onto the port pontoon and steady himself with the leading edge of the wing. Finally he shoved the box ahead of him and climbed up. Keen took the box, noted that the seals had not been broken. Then he ordered him to get in beside Barney.

Blott was terror-stricken and obeyed orders like a whipped dog. Barney made him sit down and stood over him still covering the boat.

"What do we do now?" someone in the boat yelled.

"Don't worry! We'll see that you are picked up. The *Queen of Bermuda* will be along shortly. We'll tip them off about you and see that you are taken care of—well taken care of," Keen added.

The small boat then bobbed away through the streaked oil surface of the sea while the Clipper stood off and awaited developments.

Keen rammed the Black Bullet through the water and came around on the windward side of the Clipper. Then he took out a megaphone and hailed her.

"Ahoy, Clipper!" he called. "Carry on with your trip. I'll see that Blott is taken to New York and turned over to the proper authorities. Is Mr. Drury Lang aboard?"

"Yes—but he's unconscious. Any

other message?" came back from Blumenthall in the control pit.

"No, that's all. Pleasant voyage—and my respects to Mr. Lang."

"Thanks, who shall I say left that message?"

"The Griffon!" bawled Keen. "He won't believe you," he added, "but you tell him anyway."

"The Griffon?" gasped Blumenthall. "You're the Griffon? Thanks! . . . Thanks! You did a swell job on that mob."

"The same to you," laughed Keen, "so long, and all the best. And will you advise the *Queen of Bermuda* to pick the rest of these thugs up?"

"I sure will. Thanks, again!"

And with that Keen threw them a cheery wave and raced the Black Bullet away and over the rollers into the sky. Barney, in the meantime had shackled Blott's hands behind him and had fastened him securely to a cross-bracing rod.

IT was about three o'clock before they got clear, leaving the small boat bobbing about on the surface of the Atlantic, and the Clipper churning a white wake in her take-off. They had to kill several hours before they dared attempt to get into Long Island, so Keen headed her north-west again for an hour, climbing to about 7,000 feet.

"I hope that guy aboard that Clipper don't try to have us checked," Barney muttered.

"Don't worry. He's got his hands full bringing the Clipper in. But keep your eye on Blott there, and see that he don't try any monkey tricks."

"He won't. He's tied up tighter than a drum."

Keen pondered on his new problem—Blott. Then he decided to head for the long stretch of beach running north out of Cape Hatteras. There were several long dunes in that area where they could hide away for several hours until it got dark. That would give Keen time to question Blott, also, so that he could get the inside story on what actually happened.

In another hour and a half they landed again, ran the Black Bullet up out of the water, and hid her away between two high sand dunes. Barney crawled out on top, lay flat, and acted as a sentry, just in case some prowling fisherman might stumble on them. Keen released Blott and gave him a chance to stretch his limbs. Then for about three hours they rested and Blott was induced to tell his story.

Keen took notes and stuffed them away in his pocket. Barney came back and they shared their light meal with their captive, then they carefully blindfolded him, stowed him away on

board again, and took off for their flight north.

By ten o'clock they were back at Graylands where they led their blind-folded captive through the hidden hangar, up the hidden stairs, and into Keen's study. All this time neither Keen nor Barney had removed their masks and only spoke to each other with the use of the names Ginsberg and Pulski.

Barney fed Blott while Keen typed out a full report on the case, explaining how the aircraft carrier model had been stolen from the Navy Yard, and how the Secret Service man, Beale, had been murdered with a knife having two handles. He also explained Blott's tie-up with Commander Stanwick, who, he learned, had once got the Clipper steward out of a jam when both were in the Navy.

"He wasn't such a bad guy," Blott had argued in a subdued manner. But Keen pointed out from behind his mask that, after all, Stanwick had been in the Navy and pledged in the service of his country. Blott agreed sullenly that there was something to that.

"But anyway, I liked him and he was good to me," Blott doggedly continued. "I wasn't gonner let that Secret Service guy get him if I could help it. Sure! I bumped that Beale guy off, an' the knife had two handles. I had one handle in a saloon with me the night we knocked off Old Lady Kennedy—to get it daubed up with fingerprints from fellows at the bar. I changed the handles after I drove the knife into Beale's heart. I handled it with a tissue paper napkin to keep my own fingerprints off it."

The rest was clear to Keen. He completed his report and then jerked Blott to his feet.

"All right, Pulski," he growled at Barney. "Clap the bandages on him again. Let's get him out of here."

In a short time they were racing down Long Island for New York City. Once they got rid of Blott they returned to their 55th Street apartment and went to bed.

BOTH Keen and Barney slept soundly for a full twelve hours: for they were physically exhausted by the time they had completed their job. It was well after 3 o'clock on Sunday afternoon before they were up for a meal. After that they sauntered out, entered a motion picture house on 50th Street, and sat through a two and a half hour show.

"Well, let's get back and see what happened," Keen said. "He's had plenty of time to blow in by now."

They sauntered back to their pent-house and entered just as the Paramount Building clock showed the hour of seven. There, just as they expected, was the raving Drury Lang, pacing up and down the corridor.

They looked at him in mock amazement, squinted at the bandage that capped his head.

"What did you do—fall out?" Keen inquired.

"Never mind me—where the hell you guys bin?" Lang demanded. "I bin here half an hour."

"How's Bermuda?" demanded Keen, ignoring the question.

"You look like you bin there yourself. Where'd you get that sunburn?"


"On Long Island. The sun still shines out there, you know," Keen parried. "And now, what happened?"

"I got slugged on that Clipper—just as you said I would. Say . . . you weren't on that Clipper, were you . . . under another name, or something."

"Don't be silly. Get on with your story."

"Well, we got the guy who got Beale—and we got the arrester-gear

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model back."

"Good work! I was wondering about that business. How did you do it?"

"I didn't! Last night old Scott got a call to meet a guy named Ginsberg at his office—that is, Scott's office. Well, when Scott got there, he found this mug Blott tied up in a chair with the Navy box on the table in front of him—and a typewritten report of the whole thing."

Both Keen and Barney acted surprised. Neither spoke for several minutes. Lang got sore at that, too.

"Don't look at me like that. It's right enough. There was the guy—tied up tight as a—"

"But how did Blott get there?" Keen broke in.

"I don't know. It's all screwy. But he said that two guys—and get this, two guys named Pulski and Ginsberg—brought him there."

"But . . . But Blott went to Bermuda on the Clipper, didn't he?"

"Yeah, he did—and so did I. But they took him off, swiped his box, and brought him back by plane. So that left you out, Keen. And once they landed somewhere down along the coast near Hatteras. He doesn't know what else happened to him because they kept him blindfolded."

"Who gets the dough for the arrester-gear model, Lang?"

"Nobody. We can't figure out how Blott got there, but this guy Ginsberg was in Bermuda, too. He tipped off

the Police Inspector down there how Beale was killed. If we could find Ginsberg, maybe we could get somewhere."

"Ginsberg? Ginsberg was in Bermuda, too?" gasped Keen.

"Sure. In fact, he tipped me off to watch out for Blott." Then Lang mournfully told the story of the business aboard the Clipper and how he was put to sleep while the gang captured the ship and forced the co-pilot to land alongside the submarine.

"Then Ginsberg might be the Griffon," suggested Keen.

"No. The Griffon was the guy who blew up the submarine and took Blott—but say, maybe you're right! The Griffon nabbed Blott and the box, brought him back to New York, and planted him—" But Lang then gave up, wiped the perspiration from his nose, and reached for Barney's bottle.

"Then the Griffon is entitled to the reward, eh?"

"Sure! But who the hell is the Griffon?" moaned Lang.

"Ginsberg," suggested Keen.

"Pulski, maybe," added Barney, grabbing the bottle back.

"You know, a funny thing happened here last Friday night," Lang went on. "One of the trans-Atlantic flying boats coming down from Montreal—one of the British test boats—reported something queer."

Neither Keen nor Barney flicked an eyelash.

"Funny, in a way," Lang went on.

"The Army was doing a special anti-aircraft show on Governor's Island and the Empire boat had not been warned. They flew smack into the restricted area. They got out of it for a time, but landed and said that they had been fired on by a strange black plane of some sort."

"They were laughed at, of course," Lang went on after another drink, "and the situation was explained to them. But the crew insisted that they had been fired on by a black plane."

"So what?" demanded Keen.

"Don't you get it?" beamed Lang. "That black plane was the Griffon going down to Bermuda to snatch Blott. They just happened to be in the air over that anti-aircraft display at the same time."

"Well," agreed Keen with a stifled sigh of relief, "I suppose that's as good an explanation as any."

"Sure, and that's why I went to Bermuda, even though I knew that Stanwick had escaped. I figured I'd nab the Griffon myself."

"Boy! That was close—only you were asleep all the time the Griffon was nabbing Blott," laughed Keen.

"Never mind. I'll get that guy yet!"

"Sure! But when you do, don't forget you owe him the reward for getting Blott and the arrester-gear model."

"Oh yes. But I *still* wonder who Ginsberg and Pulski are," muttered Lang as he sidled toward the door.

Crash on Delivery

(Continued from page 16)

"Ah—er well, I must be gettin' home now," Phineas stammered, his brain doing spirals. "I am ze Lieutenant Pinkham an' have eet ze air-drome to find *encore*. Adoo for now, grampa. I weel geet eet more marks *pour vous*. Bong swore!"

"*Vous* breeng, I buy, *merci*," cackled the old Frog, showing Phineas to the door.

THE pilot from Boonetown now wended his way in the general direction of Bar-le-Duc. But three quarters of a mile of pounding his puppies against the rough terra firma of France was enough for Phineas. And so he tried for a lift, but an assortment of Yankee rolling stock passed him by without a tumble. Deeply depressed by this lack of consideration, he seated himself by the roadside near Triaucourt and set about getting his cerebrum and cerebellum unscrambled.

It did not take long for his gray matter to start simmering and the result was productive of an agreeable change in the expression of the Pink-

ham map. A broad grin spread his freckles into new areas as his eyes lined up a Frog animal of the *genus bos*—cow to you—which was grazing under an apple tree not a hundred yards away. To see was to act. Phineas rose and went over to make the cow's acquaintance.

"Won't gimme a ride, huh?" he mumbled, cutting the moorings of the moo specialist. "You would think I was reekin' with leper germs. Well, I'll git a ride. Come, bossy, that's a nice dame! *Allez avec moi* as you can help the Allied cause, Daisy. That's the old fist!"

The wandering Yank got the cow into the road and tied its hempen necklace to a fence rail. Then he pulled succulent tufts of herbage from the roadside and tossed it to the moo maker. Subsequently he sat down to wait. Soon the headlights of a car cut through the Frog mist around a sharp curve to be followed by the car itself. Mistress cow lifted her head briefly, blinked, then went back to her belated supper.

SQUE-E-E-E-E-E-EK! HONK!

HO-O-ON-NK! Brakes and horn howled in unison, but the cow was adamant. Its stubborn nature brought it to disaster. The brakes of the Yankee boiler were none too good; Phineas could see that before the radiator merged with the cow's empennage. The U.S. boiler swerved into the ditch, spilling its human cargo all over the soil of Sunny France, and the moo cow took a brief trip through the air and came to grief against the rail fence. Phineas then saw two men pick themselves up and start running.

"Beat it, Butch," yelled one. "What a break!"

Our hero having observed the meeting of car and beef strolled over to where three more Yankee patriots were crawling about on their hands and knees. He picked up a bulky object that proved to be a trenchcoat tied up in a bundle. In the light from the headlamp of the wrecked machine Phineas spotted something protruding from the cloth. It was a bank note—a Kraut bank note. The Boonetown hero's heart started thumping

as he kicked the bundle of cloth out of sight into the bushes alongside of the sunken road. Then he turned his attention to helping a man to his feet—a fellow who wore the brassard of an M.P.

"What happened?" Phineas gulped as if he did not know. "Boys, them Frog *vaches* are tough when you nudgè 'em, ain't they?"

The groggy M.P. was still speechless, but a stentorous voice behind Phineas made the miracle man's big ears flap. "You, damn it! You with the fan ears! That cow was tied there—and, by gad, if you deliberately—"

"H-huh?" Phineas interrupted innocently. "You must still be gaga. Where would I git a cow? That is plain silly. I was walkin' along lookin' for a street car an'—tryin' to blame me, huh? Well—"

"You know what?" the brass hat trumpeted. "Those two doughs escaped. We caught 'em red-handed with a pile of marks. We—where are the marks? Start searching for—oh-h-h—if we've lost the evidence, too, we—"

"What a shame!" Phineas exclaimed sympathetically. "Tsk! tsK!"

The red tab and the two Yankee doughs hunted all over the road, but somehow they overlooked the depression in Frog real estate where Phineas had kicked the bundle. But Garrity's chief pain-in-the-neck cultivated a crop of goose pimples when an M.P. drew close to the hiding place.

"You're still cold, haw-w-w-w!" the culprit stuttered. "Er—ah—I mean it is cold of a night here in France, ain't it fellers?"

"They must've got away with 'em again," the brass hat groaned when he gave up the search and leaned against the fence in despair. "We'll get busted for this. You're an aviator, huh? Well, I bet you're a spy. An aviator with no plane, huh?"

"If you saw an Eskimo in Paree," Phineas snorted, "you would say he was a fake if he wasn't draggin' his igloo behind him, huh? I will demand satisfaction for this. Nobody can accuse an officer of the Ninth Pursuit Squadron of such a crime. It is a fine kettle of smelts, you drivin' around with no brakes. You have destroyed Frog property!" he added severely.

"Somethin's rotten here," the brass hat spouted. "I only wish I could put my finger on what it is. Come on, men, we've got to get a lift somewhere."

"I been tryin' for hours," Phineas cracked. "But look! Just in time! Here comes a great big truck. We'll get a ride or wreck the—ugh—Haw-w-w-w! It is a big truck, huh?"

The truck driver told the stranded

ones that he was on his way to Commercery. The brass hat, climbing aboard along with the growling M.P.'s, gave a hint or two of his affiliation with U.S. Intelligence and nodded with satisfaction. Commercery was on the way to Chaumont. Phineas, however, waxed indignant.

"That is out of my way! What am I goin' to do, huh?"

"Now ain't that jus' too bad, Loo-tenant," the burly dough behind the wheel sopranoed. "Just sit down by the road, make a wish, an' Cinderella'll be along with her coach an'—"

"Fresh bum, huh?" the intrepid Yank bridled. "Gimme your name as I am a superior officer and you can't insult me an' get away with it."

"Marmaduke Q. Windermere," the dough trilled. "Tooti frutti, ol' custard!" And the truck lumbered away. Phineas could hear the brass hat mumbling and swearing until it was out of sight.

The Pride of the Ninth then waited ten minutes before he retired to the bushes to pick up the evidence of Yankee dough connivery. Then he climbed over the fence with the bundle and made his way across the pasture to where an old dead sycamore tree stood. Before depositing the coat in a yawning hole in the tree's ancient trunk, he made sure that it contained the legal tender that was to have sent two financial geniuses to the hoosegow. Yes, his exploring fingers told him, there was plenty of pay paper stuffed inside that trenchcoat!

THIRTY-SIX hours later Lieutenant Pinkham dropped off a truck near the drome of the Ninth and limped, sore of foot and weary, past a sentry on the edge of the tarmac. The Boonetown exponent of skulduggery had bundled up his flying coat and was carrying it via stick, hobo fashion.

"Huh," grunted the human watch dog, "so it's you, sir? We was hopin'—er—I mean we figured you must of 'went west.' They was about ready to bury your trunk an' things, the officers was. They said it would do 'stead of a stiff."

"You're a liar," Phineas grinned and kept on walking. He trudged to his hut and tossed his flying coat on his cot. Then he flopped down beside it, wishing that he could get fifty cents worth of good old U.S. ice on which to set his burning dogs.

Bump Gillis nosed in a few minutes later and eyed the prodigal crookedly.

"Hello, Rothschild," the sturdy Scot began. "Where'd you hide the dough, huh?"

"What dough, huh?" Phineas countered. "What's the idea anyway?"



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I s'pose a bank in Paree has been held up an' they blame me. I don't know what it is you are talkin' about."

"The Old Man will enlighten you, Carbuncle," Bump said with a superior air. "He has been waiting for you to show up. Did you by any chance take a detour around the Alps?" Then Bump ducked as Phineas gathered strength to swing his fist.

Five minutes later an orderly knocked and asked Phineas Pinkham to step over to see Major Garrity for a couple of minutes. The Iowa wonder went to the Operations office and reported that he had come back.

"Don't remind me of it," the Old Man exploded. "How is the big financial wizard, huh?"

"The wha-a-a-a-a?" Phineas gulped. "What's all the— Why hello, Colonel. You get around, don't you, haw-w-w-w? You still think I stole them marks when you hit the cow with the jilopi, huh? By the way, the Frog is goin' to sue you, as after you left me he come along an' said the *vache* had a pedigree longer than—er—"

"Search his hut!" Colonel McWhinney of the U.S. Intelligence stormed. "I know he stole those marks, Major. That cow was tied up to a fence when we hit it. It was eatin' grass in the middle of the road. Whoever saw grass growing in the middle of a road over here the way those trucks have been pounding them the last two years? Lieutenant Pinkham, I demand that you give up the marks."

"Don't make me laugh, as when I cracked up I split my lip," Phineas pleaded. "I never heard nothin' so silly. Humph!"

But Colonel McWhinney persisted, so the Pinkham hut was searched minutely. An M.P. unwrapped the Pinkham flying coat, then barged out yelling bloody murder and begging some one to unhinge a snapping turtle from his thumb.

"That gives me another idea," Phineas mumbled as he watched the M.P. dive into the medico's shack.

Colonel McWhinney finally headed out of the drome. Nevertheless, he still insisted that Lieutenant Pinkham was a crook and that he would catch up with him if it took forty years after the war.

"Stubborn bum, ain't he?" Phineas remarked to the Old Man as he followed his C.O. into the Operations office. "Haw-w-w-w!"

"Pinkham," Garrity thundered, "don't try to kid me. Once there was a guy named Rothschild and he got close to the Battle of Waterloo to see how it would come out. He planned either to buy French Louies or English pounds. Then when he saw that

Wellington was going to knock Bonaparte into a cocked hat, he beat it to the Channel, hopped a boat to England, and bought up all the British money he could find. That mean anything to you, you buck-toothed simian?"

"That is a swell story, daddikins," the irrepressible Yank baby-talked. "Now tell me 'bout the barber who cut the throats of forty thieves, will ya papa? Haw-w-w-w! You believe anything, too, don't you, Major? I am gettin' so I don't think it is a joke any more. A Pinkham accused of stealin'! Why I'm as honest as they come. I never heard of—"

"Listen, halfwit!" Garrity bayed. "Ten minutes before McWhinney got here, a couple of war correspondents dropped in and said they stumbled over an old chateau where an old guy was hived up. He asked 'em did they have any marks to sell—especially the new ones that had the numbers "1½" printed on 'em. What did you sell that Frog, Pinkham? Cigar coupons or marks, huh?"

"H-huh?" Phineas tossed out, eyes wary. "What does that prove? I never heard of the old—"

"Oh no?" Garrity snorted. "Well he mentioned your name. The correspondents reported it to Lieutenant Sprinklem. And the old Frog said to tell you not to forget what you said about getting him some more marks. Look here, Pinkham, come clean. Did you tie that cow in the road? Did you sell cigar cou—?"

"I am surprised at you," Phineas countered. "You—believin' such things of me, a Pinkham. I guess you need a rest, as your dome—say, why



don't you ask for three weeks off? If you don't, you will be tellin' me I am Bismarck next week. Well, I have things to attend to. Adoo, sir."

The Major ground his teeth and grew apoplectic, but that did no good so he flung a book at the wall. His eyes started out of his head and he groaned when the pages disgorged dozens of important memorandum slips that he had filed carefully inside the book for safe-keeping.

OVER in Alsace a perturbed Heinie Herr Oberst was conversing with the leading squarehead of *Staffel 7*, the Kaiser's top aerial

circus. "Ach, der Marks here vill coom in zwei maybe drei Tags, ja, Herr Hauptmann. Already yedt der gross agent K-4 he ist by der lines ofer where ist das Haus mit der Marks. Yoost haff idt der patienze und der chentlemen of der circus vill gedt idt der pay. Ho! Ho! Das ist sehr gut! Den dey vill fly vunce again."

"Ja? Ve safe der laughs yedt undtil der Marks ve haff by den Handen, Herr Oberst," growled the Jerry Hauptmann. "No more ve risk der necks for noddings, mein Freund. Der Leutnants dey haff idt der pockets embdy und dey read off der Cherman profit makers vot eat der sauerbraten und trinken vunce der Rhine vine und bouncing yedt der Frauleins by der knees in der beer gartens, bah!"

"But you vill see," the Herr Oberst insisted. "Der Marks ve vill gedt!"

FORTY-EIGHT hours after Phineas Pinkham had returned from his momentous bat patrol adventure, a new flyer reported for duty at the drome of the Ninth Pursuit Squadron. He announced to Major Rufus Garrity that Lieutenant Clarence Devine was reporting for duty. A few moments after that formality was dispensed with, the C.O. brought the newcomer to the mess to introduce him around. When he shoved out his hand toward Phineas his overly-handsome pan lighted up like that of a cat that spots a mouse slowed up by arthritis. But the smile did not fool Phineas one iota. He held out his own hand and Devine gripped it. The next second the newcomer started to yowl and began to imitate a man who has pulled on a pair of pants filled with angry hornets.

"Haw-w-w-w-w!" Phineas erupted. "It's only a buzzer, Clarence. Sit down an' manjay. That's Frog language for puttin' on the nose bag."

"I don't like your face, Pinkham!" Clarence Devine snorted. "I don't like anything about you."

"Well, I ain't exactly been standin' here plannin' to kiss you, either," the scion of the Pinkhams retorted. "Huh, you ain't got no sense of humor, Clarence."

"That's enough out of you!" Garrity roared at him. "Lieutenant, pay no attention to Pinkham. You're here to fly—"

"If you can make a pilot out of that nasturtium," Phineas sneered elaborately, "then you could-knit a doily with barbed-wire an' a couple of crowbars. Haw-w-w-w!"

Thereupon, Clarence and Phineas reached for each other, and it took the combined efforts of Captain Howell, Lieutenant Gillis, and a few other pilots, to keep the two from a fist fest. Finally, the wonder man from

Iowa stepped toward the door. "Won't let us fight, huh? It's gittin' to be a sissy squadron, if you ask me. I'll see you around, though, won't I, Clarence?" he called back over his shoulder. "You're simpullly gor-r-rgeous. Adoo for now."

Lieutenant Pinkham then went to his Nisson hut to think things over. He knew as well as he knew his mother's first name that Clarence Devine had been sent to Bar-le-Duc by the Intelligence Corps. Clarence would keep his eyes on Lieutenant Pinkham on the ground and in the air. This was a pretty pickle, Phineas decided, what with an old Frog citizen near Souilly ready to pay plenty of francs for a bundle of marks.

The Boonetown magician taxed his mental equipment to the limit and finally gleaned an idea from its whirling mechanism. Inside of half an hour he was on a motorcycle en route to Bar-le-Duc. When he arrived in the Frog metropolis, he parked the machine in an areaway and waited in the dark. Ten minutes later the squadron car pulled up in front of an *estaminet* that was well patronized by members of the Ninth. Out of the car tumbled three pilots, one of them Clarence Devine. Phineas strolled out into the light and, whistling a popular air, minced toward the domicile of his light of love, Babette.

Once closeted with his fair lady, Phineas asked if rats had been prevalent in her cellar of late. Babette admitted that they had.

"Oui, Pheenyas, beegair an' beegair zey get lak *les chats*. Zey chase ze what you call tommychat out from ze *maison*. I have eet ze very beeg strong traps, *aussi*."

"That is all I want to know, cherry," Phineas grinned, giving her a bunny hug. "I want to borrow one of ze rat traps, comprenny? That is trez good, Babette," he said as she handed him the spring steel device. "And now if voose *avez* ze grub, I weel manjay. See swar at the mess I lost ze appetite, *oui*."

An hour later Phineas emerged from Babette's house. Twenty minutes after that Clarence and a couple of M.P.'s searched the place. Lieutenant Devine burst forth with a scratched prop boss and a lump on his noggin as big as a croquet ball. But he had no other marks. Meanwhile Phineas Pinkham was out beyond Bar-le-Duc in a sheep pasture that he had often used as an emergency landing field. He was busily occupied near a hollow tree for fully fifteen minutes.

Then on the way back to the drome he passed the squadron car which was standing beside the road with a flat tire.

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near the ammo shack idly smoking a cigarette as Captain Howell, Phineas, and Bump climbed into their respective battle wagons. When the Pinkham Spad with its galloping dominoes insignia kissed the tarmac goodbye, Clarence hopped away in search of the Equipment Officer. Astride a mechanical bug, he rode toward Bar-le-Duc muttering: "Smart guy, huh? I'll show that speckled baboon I can read his mind. Got a landing field, has he? Engine trouble when he wants it, huh? I'll have him booked for Leavenworth in ten days!"

Now Howell and his flyers spotted scant few of enemy aircraft on their last jaunt of the day. The one two-seater that they did spot was high-tailing it toward Potsdam. Phineas thanked the Boche in the rear pit for shooting at them with his Span-da-us although a half mile separated the Rumpler from the Spads. Near Bar-le-Duc he threw the Spad into a sort of fit as if a bullet had nudged its vitals. He dropped out of formation and slid down toward the carpet.

"That wise guy!" Howell roared. "If that Boche lead hit him, then traffic whistles in London scare the kangaroos in Australia. He's faking. Wait until I tell the Major. I'm still boss of this flight. That's twenty times he's ducked out on me since—I'll burn his pants!"

Lieutenant Pinkham rolled to a neat landing in the pasture outside of Bar-le-Duc, got out of the Spad, and looked about cautiously. Satisfied, he taxied over to the hollow tree and plunged a hand inside.

But suddenly a triumphant, gloating voice rang out.

"Got you, Pinkham! You're covered! Ha! Thought you could fool me, did you? I'm Lieutenant Devine—of the Intelligence Corps. Step back and keep your hands up."

"Why if it ain't Clarence," Phineas said, feigning frustration. "You sure are some detective. Well, you're the better man an'—well, a Pinkham will admit when he's licked, haw-w-w-w!"

Lieutenant Devine shoved a hand into the hollow tree—and there came a sound like a sabre tooth tiger's teeth banging together. Clarence leaped off the ground and hollered like a wolf with a toothache.

"Ha-a-a-alp! Somethin'—bit—me! Ha-a-alp! It won't let go! Ow-w-w-w-w-w! Halp!"

Phineas saluted jauntily. "Good evenin'. I bet you will get awful tired of that tree durin' the night, Clarence, ol' thing. But don't feel too bad; lots of bums have tried to match wits with a Pinkham—to their sorrow, haw-w-w-w! If you are Sherlock Holmes, I can milk turtles!"

Having rid himself of a nuisance, Phineas climbed into his sky wagon and pointed its prop boss toward Souilly as soon as he had lifted it out of the clutches of the law of gravity. The job of picking out a landmark near the old chateau taxed the avigating acumen of the miracle man of the Ninth. But he finally sighted an adjacent cow pasture. Then after landing Phineas walked cautiously to the location of his cache and plunged a hand into the hole in the sycamore tree where he had deposited the Heinie legal tender. He pulled out something that certainly was not a trench coat. The fabric was much too smooth to the touch and it seemed to have no end—like colored handkerchiefs being hauled out of a magician's sleeve. There were ropes tied to it and when the Boonetown sleight of hand performer had finally brought all of it to light, he knew that he was looking at a parachute.

"Huh," he grunted, "a Boche has dropped in an' I ain't got a cake

baked. What is he after, huh? What was it I heard about Heinie *Staffels* not getting paid and threatening to quit the *guerre*? Hm-m-m—let's see now. Haw-w-w-w, that is what the spy-droppin' was for. To get some marks as they have heard about old Bouillon, too. Now if Clarence was watchin' me, I am sure McWhinney is not blindfolded, either. It is a tough game bein' a financier. I bet I'll be jumped on before I get close to that old Frog."

The errant flyer bundled up the chute, crammed it back into the tree, and moved away. Intuition hit him and he saw a way out. A parachute had come down—but nobody had made one that could take off, he ruminated. A Boche was looking for a chance to get off Allied soil and he must be somewhere about. It was now quite dark and Yankee bat flyers were up doing their stuff. As Phineas retired to a thicket nearby, a searchlight from the front began to sweep the nocturnal ozone with a spear of artificial light. And the sound of bursting shrapnel reached the Pinkham ears while he was hacking at shrubbery with a big jack-knife.

In ambush near the chateau Colonel McWhinney and two M.P.'s were licking their chops. "That was Pinkham, I'll bet my pants," the brass hat clipped. "We'll let him get into the chateau—and then hop him! We'll get him so cold he'll have chilblains. Fool with me, will he?"

BETWEEN the chateau and the spot where Phineas was exercising skulduggery a Kraut was lurking. He, too, had heard the Spad and had poked his bullet-like head out from under cover to watch its fiery exhaust settle closer and closer to the ground. Near his elbow rested a big bundle of Jerry marks. And back in the chateau an ancient Frog was bound and gagged, his beard tied to a chair leg.

"Gott sie danke," the Kraut guttured. "Oudt mit der Spadt I vill go." He began to crawl forward cautiously.

Phineas was standing on the Spad stirrup placing something in the pit. Once he yelped and put his thumb into his mouth and bit down hard. Then he jumped down and walked away from the battle wagon. Its prop idled lazily as Lieutenant Pinkham sauntered aimlessly toward the road where a U.S. boiler still lay in a ditch quite defunct. No sooner had he climbed the fence when K-4, Potsdam snooper, reached the Yankee air bus and hurriedly tied a package to a strut. Then the Junker scrambled aboard and settled heavily into the pit.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933.

OF FLYING ACES, published monthly at Springfield, Mass., for November 1937.

County of New York } ss.
State of New York

Before me, a Notary in and for the State and county aforesaid, personally appeared A. A. Wyn, who, having been duly sworn according to law, deposes and says that he is the Publisher of FLYING ACES and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher, A. A. Wyn, 67 W. 44th St., New York, N. Y.; Editor, H. F. Powell, New York, N. Y.; Managing Editor and Business Managers, None.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
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3. That the known bondholders, mortgages, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

Magazine Publishers, Inc., Publisher, A. A. Wyn, Publisher. Sworn to and subscribed before me this 19th day of August, 1937. Edward H. Zinser, Notary Public, Queens County, Clk's No. 2976, Reg. No. 3095, N. Y. Co. Clk's No. 100, Reg. No. 6-Z-66. (My Commission expires March 30, 1938)

"Ow-w-w-w-w! Gott! Himmel! Donnervetter!"

Phineas ran back toward the Spad as the howls assailed the air. "Haw-w-w-w-w!" he guffawed. "Black-thorn is the spikiest stuff that grows. I bet he's stuck up worse than an Astorbilt. Boys, have I got intuition like dames!"

Colonel McWhinney yipped: "Come on! Somebody beat us to it. They've nabbed Pinkham. Come on, men. Maybe Devine followed him. Hurry up and get into that car, you dumb—!"

K-4, jabbed in a dozen spots on his empennage, tumbled out of the Spad and hopped around in circles. His painful ululations could be heard halfway to Chaumont.

"Wee gates!" Phineas chortled. "How *ist der* tail assembly, eh? Don't make a move, Heinie, or idt giffs *der*—" He brandished a fence stake and, since K-4 could not stop moving, Phineas caressed his noggin. The Prussian folded up like a campstool and the Boonetown conniver promptly sat on him. He was nonchalantly smoking a cigarette when McWhinney and his A.E.F. cops came over the rise from the sunken road puffing like wheezy engines.

"What kept you?" Phineas inquired with a grin. "Where have all you big policemen been while this Kraut was stealing the old Frog's marks? They are right on the wing there. It looks like it always takes a Pinkham to get Chaumont out of a mess."

"Well—why—you've got a spy there!" McWhinney whinnied.

"It ain't no boy scout," Phineas countered. "Load him into that car an' take the marks, Colonel. You can see that them doughs who escaped that night must've come back when we was gone an' got the marks to the Frog. An' then the Heinie come along an' lifted 'em along with a lot more. I bet there's a hundred thousand marks in that package. Well, let's get goin'. We got to see what happened to Bouillon, monsoors."

THREE hours later a mud-bespattered machine lurched into the drome of the Ninth Pursuit Squadron and pulled up in front of headquarters. Old Man Garrity and Captain Howell were standing on the tarmac looking up at a Spad that had been circling overhead for fully fifteen minutes. Sergeant Casey kept ackemmas burning petrol flares on the ground while he jumped up and down and waved his fist at what they were sure was the Pinkham Spad.

"Why don't the big lug land, huh? Come down, you bat-eared bum, or we'll let you feel your way in from

memory. What ails that fathead?"

"I've been trying to figure that out for years!" the Old Man snorted. Turning, he legged it to where five men were unloading themselves from the khaki-hued jilopi. They were Colonel McWhinney, a gesticulating old Frog with a white beard, a Boche spy, and two M.P.'s. The Spad now nosed in for a landing, nearly sideswiped two trees, then rolled the length of a snaky rope of flare fire.

"One of my ailerons was jammed," he yipped, covering up the fact that he wanted to be sure McWhinney had arrived before he landed. "An' I'll bet you wanted to hog all the credit for capturing that Boche, huh, Colonel? Haw-w-w-w! Well, here I am with the marks." And he tossed the bundle of Boche legal tender at Garrity's feet and struck a defiant pose.

"Uh—er—yes, Major, he caught the Boche," the brass hat gulped. "I—er—can't seem to figure it out—how he knew the man was there—er—put thorns in the Spad—and—er let's go inside and think things out."

"Oh, it's simple," Phineas said airily. "Even to the Intelligence Corps. But they nearly messed up everything. Clarence Devine chasin' me like that, huh! I had to—er—I was on the spy's trail ever since that night—er—I got the cow—the cow got in front of the Colonel's buggy. I says to myself, what would I do if I was a spy an' nobody could get to me to pick me up? So I did what I thought I would do if I was K-4. Why, I would look for an Allied crate. That's what the Boche spy did, and I left the Spad where he could take it—even left the prop turnin' over for him. K-4 made a mistake, though, haw-w-w-w! He should have looked the gift horse in the mouth, as it was lined with them spiky—"

Colonel McWhinney shook his head and muttered: "Somebody get me a drink."

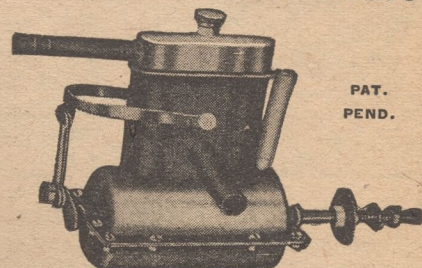
"Yeah," Phineas went on, chuckling, "Clarence was an awful nuisance and I had to put him where he would be *hors de combat*. Babette has rats in her cellar."

"Now whatinell has that got to do with gettin' this Boche?" Garrity hollered, jumping up and down with exasperation. "Rats—"

"They catch 'em with traps big enough to hold a woodchuck," Phineas replied blandly. "I put one in a hollow tree where Clarence thought I'd hid the marks I—the marks they said I stole. Huh, accusin' me of—Colonel, you did not do so good, either. You lost those doughs an' the swag, an' you was hidin' out in the woods near the chateau while a Kraut was assaultin' an' robbin' a Frog taxpayer. Say, what is it you have to

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know to be in the Intelligence? Haw-w-w-w!"

"I will not stay here to be insulted!" the brass hat spouted indignant-ly. "No, I won't."

"Well, who's holdin' you down?" the professor of skulduggery, ledger-demain, prestidigitation, and just plain practical joking, inquired, quite sure of his ground. "And you'd better send somebody out to get Clarence toot sweet, as he must be cramped where he is, Major. I bet you want to know why I knew he was in the A.E.F. police force, too, huh? Well, it was because he looked so dumb. Also when he got into a Spad he wiped off the bucket seat first. And once I saw him try to spin it like it was a swivel chair. Haw-w-w! What a *guerre!*"

"I weel see ze preseedant of all ze Franch!" old Jacques Bouillon sputtered. "I know ze rights. Remembair Lafayette et Jean d'Arc. Ze satees-fac-se-on from Robespierre!"

"He forgot Madame DuBarry," Phineas grinned. "He's got cuckoos in his belfry. I would let him go, if

I was you bums—er, officers—as if he takes things to court, Chaumont will find out the things that I am willing to overlook if I am not persecuted any longer, haw-w-w! Cheer up, Colonel, as you will maybe make your mark some day. Boys, I am full of 'em, see swar, huh?"

"Let me out of here!" Colonel McWhinney snorted. "Let me through there, gentlemen!"

"But don't forget Clarence," Phineas trilled.

Jammed Controls!

(Continued from page 19)

plane whipped over on its back, he had been catapulted from his cockpit. But instantly, I knew that couldn't be. For how come the jammed stick?

Then I knew. Johnny had been thrown out of his seat—probably hadn't buckled his belt securely. Yes, he had been thrown out of his seat all right *but not out of the plane*. He had been thrown forward into the cockpit. His body was wedged in there. Wedged in and holding that stick ahead.

"Johnny!" I screamed into the wind. "Johnny, get off that stick!"

No doubt he was trying to get off. But I recalled with a dull sense of hopelessness the difficulty I had in turning my head against the slipstream of that terrible dive. It would be a superhuman task for him to get back—and time was so short.

Short—yet strangely protracted. An impression caused, perhaps, by the acceleration of thought under emotional stress. I glanced at the altimeter. The needle pointed to three thousand, but it lied and I knew it. It hadn't kept pace with us. I looked over the nose at the up-rushing ground. The tiled roof was quite large. Not over fifteen hundred feet. It wouldn't be long . . . now.

Again I jerked on the stick. Wham! I was hurled back into my seat. My lungs felt as if they were crammed down into my abdomen. My ears rang. I was suddenly dizzy and everything began to go black. But it was a grand feeling—that stick coming back.

Somehow, Johnny had fought himself loose. Immediately I eased off. "Take your time! Take your time!" I kept telling myself. "No use tearing a wing off now."

And believe me, brother, I took my time! I took every foot of remaining altitude to level out. Then I opened the motor and swung back for the field.

That ground! How good it felt when I limply slipped down out of my cockpit. Yes sir, I took the rest of the day off!

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F. A. Club News

(Continued from page 36)

Doug Allen, and Doug, it seems, had supplied him with a book of American hillbilly and cowboy songs! And now, believe it or not, we understand that John's playing these doleful ditties on his bagpipes!

Which reminds me of the story of the Scottish aviator during the World War. Mac had been shot down and wasn't expected to survive. So the old Medical Corps major told him that as a sort of parting gift before Mac left for "the last tarmac," they'd grant any reasonable request.

"Weel, majorrrrr!" rolled Mac, "there's just one thing I'd like. I'd love to hear the skir-r-r-l o' the Scottish pipes afore I go." Well, that was a reasonable enough request. So one of the wildest of the kilted pipe-and-drum brigades was asked to furnish Mac with the music of his clan.

So they came over and mar-r-rched outside the ward of the wounded men. And right soon the pretty nurse rushed from the ward to the medical officer's room.

"Major," she reported, "Mac's been cured! He's actually dancing the Highland Fling on his bed!"

"Fine," said the major. "And I suppose the other patients are enjoying the music, too?"

"Oh no, sir," replied the nurse. "That awful music from the pipes has killed them all!"

Happy landings, gang.

—CLINT RANDALL

If Russia Attacked

(Continued from page 17)

likewise another nail in the coffin of the single-seat fighter; for no present day pursuit could attempt to carry out the defense tactics of the Bell.

In the first place, a Bell fighter could start out from any point along the border, and meet an oncoming enemy well outside our territory. With skilled gunners aboard, this high-speed craft could shoot down the raiders long before they could get anywhere near an American target.

The arrangements aboard the Bell will be ideal. The gunners will have steady platforms unhampered by whirling tractor propellers. The cockpits are to be completely covered in, electrically heated, and provided with oxygen equipment for high altitude flying. The wing nacelles will be reached from the main fuselage through tunnels in the wings.

We understand that large fuel tanks will be stowed away in the wings, and the long range thus

achieved makes these fighters all the more efficient. Single-seat planes attempting to defend a focal point have to stay near their base and can only attack the enemy raiders over the target. The recent war games over London brought out this weakness; for out of forty bombers employed in a sham raid, practically every one reached the focal points and theoretically dropped their bombs. Many were adjudged "shot down," of course—but that was only after the "damage" was done.

The Bell fighter will be able to cruise out a thousand miles or so and

cated the correct number of pounds, so after a check by the senior pilot, the ship was ready to land.

But this particular pilot's method of landing at this field was to approach low under part throttle, then, as the ship reached the edge of the field, to close the throttles and land. Why this field worried the fellow so much was something I could never understand, since you could normally expect a fair breeze and this ship was equipped with a good set of

engage the enemy miles away from any home target. It will be capable of maintaining high speed during "running fights" and still provide steady platforms for the gunners, whose weapons have no doubt been designed to out-range known weapons aboard foreign bombers.

So if enemy raiders do reach the neighborhood of our northern border, Uncle Sam will hurl into the air squadrons of these striking new flying weapons—Bell monoplanes. Mr. Schomburg's cover painting depicts the scene that might result—and we're betting on the Bell!

"I Am a Co-Pilot"

(Continued from page 12)

brakes. Unless the pilot overshot badly, he had very little chance of "running out of field."

This pilot, however, was of the over-cautious type and on this particular day he tried to land a little too short.

WHAM! the wheels hit on the inside top of the drainage ditch! The ship bounced higher than I ever saw a ship that large bounce. The throttles were immediately pushed open to ease the next impact, but she

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smacked very hard, nevertheless. Then on the second bounce she finally stayed in the air. Friend pilot wanted to buzz around a bit and get his breath.

Had we hit the ditch six inches lower, I believe the ship would have gone over on its back. And to be optimistic about it, that would have been somewhat of a mess. As it was, we found ourselves flying around the field unable to get any pressure on our landing gear—and without pressure it would fold up on landing. A swell predicament!

Finally, we decided on a water landing.

But where was there any water? That was the question, so still having plenty of gas we went looking for any expanse of aqua. Oh yes, we found it — right back at our home base!

There went a half-day schedule shot to hell!

THE CO-PILOT "HOLDS THE BAG"
SOME TIME ago a co-pilot friend of mine told me a good one. He was flying with a pilot in a large twin engine flying boat, the cockpit of which was partitioned off from the cabin. This co-pilot noticed occasionally during stops that some of the passengers would look him over in a rather queer manner. It was not until one of the co-pilot's friends overheard something that the stares were explained.

It seems that the pilot, though a good flyer, was very sensitive about the quality of his landings. As is the case with most pilots, he would have bad days when he'd bounce the ship as badly as any student. And so, since a great portion of the air-traveling public assumes that a pilot is exactly as good as the smoothness of his landings, this flyer devised a system of keeping up his good reputation.

Whenever he made a landing that was not up to par and some passenger would politely inquire as to the difficulty, the pilot would smile benevolently—always, of course, noting the location of the co-pilot out of the corner of his eye—and explain that he had let the co-pilot make that one!

Was my friend indignant? Brother, that's putting it mildly.

FIFTY CENTS ON THE DOLLAR
ONE evening shortly after I had retired, the telephone awakened me with the pleasant (?) news that I should report at 4:30 a.m. for a charter trip. Consequently, instead of enjoying my slumbers the following morning, I was taking off before daylight in an S-38 amphibian to pick up a fruit company executive some five hundred miles away.

Well, everything went smoothly.

In fact, the man was so pleased with his trip—or perhaps so glad to get away from the sweltering banana plantation—that as a little token of appreciation, he gave the pilot \$100 and me \$50.

Of course, we were both very pleasantly surprised, since the charter rates were rather high and the person paying the bill hardly ever develops such a magnanimous frame of mind.

But quite naturally, the pilot was exactly *twice* as much pleased as I was. Such is the life of a co-pilot.

I BECOME A CAN PUNCTURER
AT one time I helped open an airline along the China coast. The ships were seaplanes and we refueled from five gallon gasoline cans, throwing the cans in the river after emptying their contents in the planes' tanks.

These cans, as we soon found out, were almost priceless to the Chinese river folk, who used them for almost everything under the sun. But the fuel which they had carried was 87 Octane containing tetra-ethyl lead, which is known to be very poisonous. Hence there was objection on the part of the airline officials toward the river people salvaging the empty cans, primarily for the humanitarian reason that the company didn't want to be responsible for an epidemic of lead poisoning. So orders were issued for the co-pilots to puncture the cans on several sides before throwing them in the river, thus causing them to sink and thereby not subjecting the members of the various river colonies to poisoning.

Well, it developed that the Chinese "had a word for it." Our puncturing the cans, they decided, was merely "another of the foreign devils' dirty tricks." When the pierced containers hit the water, a free for all ensued that featured the elements of a combined yacht race and naval engagement. Eager hands grabbed the cans before they had time to sink!

It could be plainly seen, too, that a definite amount of organization existed between certain sampans—much to the detriment of the "independents." A fat, begowned head man with all the dignity of an admiral was observed directing the operations of the "cooperatives."

All this sort of thing might provide color for a party of round-the-world tourists, but it did not contribute to the prompt departure of our airliners at the end of the allotted time of twenty minutes for refueling.

The Chinese, though, are a hardy people. If anyone ever died from lead poisoning, we heard nothing of it. However, this panic around the plane during refueling had to stop, and

eventually we refueled from fifty-gallon drums, thereby eliminating a troublesome condition which had seriously gummed up our schedules.

UMBRAGUNGUNCIAN NEW YEAR
DURING a Christmas week a few years ago we carried the line's vice-president on an exploration flight preparatory to extending the airline, then terminating at Paramaribo, to Buenos Aires. We left Paramaribo with full gasoline tanks, flew down the coast, past the notorious Devil's Island, and on over the jungle to Laguna, Montenegro. This point, on Brazilian territory, was considered as a possible refueling site. Completing our business there, we took off for Para.

Prior to this flight, few airplanes had ever flown over the route, and it was impossible to obtain accurate charts covering this territory. The maps we did carry were designed primarily for the benefit of surface vessels, hence when we were not flying over the coast itself they were of little value. In addition to all this, the terrain in the delta of the Amazon is undergoing a constant change. Over a period of time tributary rivers will change their courses due to mud deposits filling in the river beds and very often a chart of the area will hardly even resemble the actual topography.

Anyhow, we kept flying along by compass, checking off what we could on the chart and estimating our drift, expecting eventually to pick up certain definite landmarks and finally the city of Para. Even so, no landmarks showed up, nor Para, either. But there was one thing we did find—that we were just about out of gasoline!

Not wishing to have the motors cut out over the jungle, we headed for a river, where we noted a couple of Indian huts on one bank, and landed. And baby what a current there was in that river! Our sixty-five pound anchor wouldn't hold the ship. We had to toss in an extra thirty-five pound anchor to make fast. That matter being settled, the four gasoline tanks were checked and found practically empty. In five more minutes those two motors would have gone dead—and we'd have crashed in the "green hell." We had no idea where we were, except that we must have passed Para so far on one side as to be out of range of vision. On which side, we could only guess.

The natives of the huts on the bank acted somewhat timid. We waved for them to come out, but not one made a move. Finally, when we were about ready to inflate our rubber boat, a few of the more venturesome shoved off in their dugouts and paddled out

to the ship.

No one in our party could speak Portuguese—the language of Brazil—but the vice-president could speak fluent Spanish, which can be partially understood by the Portuguese, which was swell—except that only one Indian in the whole camp could speak any Portuguese at all, and he only a very few words. And the fact that they were suspicious of us did not help matters much.

After passing 'em several gifts with an accompaniment of natural diplomacy and the old faithful sign language, the local boys, beginning to understand that we were not Brazilian police, warmed up a bit. The information was finally obtained that the name of their "village" was pronounced "Umbragunguncia," and that the nearest town of any size was Bragancia, which was hours away by canoe. Their tiny settlement wasn't shown on our chart. But luckily Bragancia was, plus an 85-mile branch railroad line running to Para, where special aviation gas had been stored.

After much dickering, the largest dugout was chartered with a crew, and the vice-president left to arrange for the shipment of gasoline. Meanwhile, we had some sandwiches on the ship, plus concentrated emergency rations and fresh water. The pilot and I had the sandwiches for our first meal—swell eating for a Christmas week! You see, a brief inspection ashore showed little promise of anything tempting in the line of food. They did have some fresh water, but we did not have need of that yet.

BY this time the natives appeared quite friendly, so the entire village proceeded to visit the ship by groups. Via the sign language, we explained, as best we could, what made our Sikorsky tick. That night, the pilot and I slept aboard the ship on the cabin floor. Incidentally, we had our .38's and flashlights ready.

The following morning we gobbled a cake of the concentrated rations and swigged a cup of water; for lunch we had just the water. Fortunately, we had plenty of cigarettes.

That afternoon we scoured the village for something besides the dried fish that the natives used as a standard diet. We finally located a few chickens—only to find that the owner definitely would not sell them for any price. Evidently he had imported these fowl with great difficulty and was trying to raise them. But wait! he *did* have three eggs of uncertain age. What was our proposition?

American, Dutch, or English coins? No, they didn't interest him. And an American dollar bill was apparently worth about as much as the green leaves of the trees. Too bad, but neither of us had any Brazilian money.

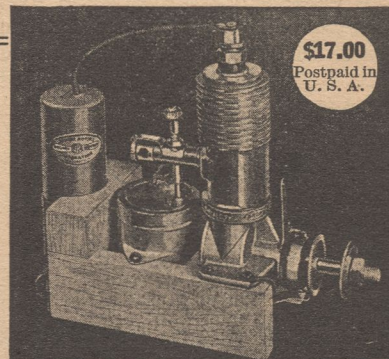
Suddenly, however, he evinced a very great interest in my cigarette lighter—and we got our eggs. Thereupon, the head man of the village had his wife fry up the eggs in fish oil. What's more, we batted a good .666 average—for only one of the three was rotten. Also, quite fortunately, the cigarette lighter worked efficiently throughout the length of our visit at Umbragunguncia.

The following day we finally broke down and sampled the dried fish, and because our ship's water was entirely consumed, we tried some of their water. Not trusting it "straight," we added a little of their native white rum, which we rightly presumed would kill any possible germs the water might contain. Well, the resulting "cocktail" nearly bowled us over as well as the germs!

Another day. And now we commenced to wonder about the vice-president and the gasoline. It was New Year's Eve. Yes, and we knew a number of places where it could have been spent more comfortably. Yet, the natives did not seem concerned about the return of their kinfolk. And New Year's Eve? That didn't

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mean a thing to them.

Came evening, and between drinks of the water—water rather generously purified—we diplomatically reopened negotiations for one of the chickens. The owner, smoking our cigarettes and using his \$7.50 (U.S.) lighter, began to weaken at the sight of a pair of pliers and a jackknife. But while he was thinking it over, the stillness of the jungle was broken by the faint putt-putt of an outboard motor. We immediately lost interest in the negotiations. Our gasoline was here—and we were going to eat!

Boy! What a New Year's Eve! It

was really one of the best I can remember. All the villagers were our guests because our understanding vice-president had brought plenty besides gasoline. His delay was in having the gasoline shipped from Para to Bragancia by special train.

On New Year's day, all hands were paid off generously and we left our jungle friends. And I know those people are hoping some day another big, noisy bird alights at their village—especially that native who had my lighter when—as even airplanes sometimes do—it ran out of gas.

I'll never forget the look on his

face as he futilely flicked it, then came running down to the shore shouting the native equivalent of "HEY!" But we'd already shoved off.

SO it goes with the co-pilot—the good with the bad, the interesting with the dull—as he patiently awaits the day when he will move over to the left-hand seat and be the pilot.

And my sympathy is always extended to the co-pilot when I read of a fatal crack-up. He studied, he worked, and he died—without ever reaching his goal.

On the Light Plane Tarmac

(Continued from page 30)

Have you the physical stamina to fly? Are your eyes okay? Is your sense of balance suitable, and are you the kind of fellow who is capable of flying?

According to government figures, the average time taken in getting an amateur ticket is 10 weeks, and 17 for a private license. A limited commercial license demands about 20 weeks of your time, and a transport ticket will keep you busy for about 46 weeks. But all this is aside from what we were getting at. You may be the type who learns to fly in two or three hours of solo; surely, you will never know how well you can fly until you try. But you cannot attempt to fly until you can pass the government physical examinations.

In other words, before you spend a cent for flight training go to the Department of Commerce physician in your district, lay down the necessary ten dollars for a physical examination, and find out whether you are fit to fly. Once you pass this medical test you can get your student permit—but not until. This permit will specify the highest grade of pilot license your physical qualifications will permit you eventually to

obtain, according to the results of this physical examination. In short, you will be classified immediately as to your qualifications for the commercial or non-commercial grades.

This doctor's examination is based on recognized minimum physical standards for flying and are designed to detect those human defects which would present an element of danger if the applicant were allowed to fly. The examination covers acuteness of vision, ability to judge distance, ability to coordinate action of the eyes, color vision, the size of the visual field, and eye diseases. The ears, nose and throat are likewise examined for diseases and obstructions, and the power to maintain one's equilibrium is tested. Then a general physical exam is given with particular attention to the heart, lungs, and kidneys. And finally there is an examination of the nervous system to detect the presence of organic or functional diseases.

These are the points we wish to impress upon you. We of FLYING ACES are not physicians and are not competent to give advice on personal physical matters regarding air licenses. Only one trained in medicine

is capable, and we sincerely hope that you will not swamp us with questions of this sort in the future. Only the Department of Commerce physician can give you the right answer.

So, while we are anxious to have America take to wings, we warn our readers, one and all, that they should first make certain they have the physical make-up to fly before they spend one penny on flight training. You can't beat the physical demands. In the case of the amateur or private pilot, the tests are not too severe. But if you can't pass them, don't try to cheat your way in with some other doctor. You will only be cheating yourself.

The question of eyesight comes up ten times a day. If you have a defect of some kind, take your problem to the D. of C. physician and he will tell you whether you can fly while using corrective lenses in your goggles. You may get by, but don't take it for granted until you have had an official examination. You may be partially lame and yet feel that you can efficiently handle an airplane. You will not know until you have consulted a Department of Commerce physician.

How to Build a Model Airport

(Continued from page 54)

an accurate paper picture of the set-up, with a few photographs, you're prepared to make a miniature of your local air station. I know one chap who made a model which was so good, that when the attention of the airport authorities was called to it they placed it on display. Who knows, yours might be that kind of a model, too?

Incidentally, in working out the details of a more elaborate airport model than this one, you will find a most valuable aid in one of Uncle Sammy's

publications, *Airport Design and Construction*, available from the Bureau of Air Commerce, Washington, D. C.

Such a model would of necessity be more "solid" than the one given here. Instead of paper, you would use balsa, perhaps, with artificial grass such as the window decorators use, for the grassy plots. And your administration building, hangars and the like might be made to scale from balsa, with cellophane covered windows. Your smoke indicator for wind

direction could emit real smoke, and some of your lights could be real lights from a battery. These items would be limited only by your own ingenuity.

But let's get to work without further delay on the model described here. This is what you will need in the way of supplies. The letters after each name indicate the position of the various constructional and other features on the drawing.

For the hangars (A) administration building (B) hotel (C) fence

(D) and runway (E) you will use a heavy grade of drawing paper, brick red for the hangars and fence, and grey for the others. A heavy green desk blotter is used for the green lawns (F). The circle marker (G) in the center of the field is drawn in with ink.

For the boundary lights (H) you'll find that druggist's capsules, colored green and yellow, will be perfect. The direction marker (I) and the Wind "T" (J) can be made from scraps of drawing paper—yellow, if you have it.

A sheet of pearl grey drawing paper, 14" by 20" in size, is used as a "base" for the whole project. Use either a good grade of library paste, or rubber cement.

AIRPORT LAYOUT

FIRST, our job is to increase the size of the accompanying drawing to the given measurements and then to lay it out on the heavy sheet of grey drawing paper. Next, with a sharp razor blade, we cut out the four triangular patches that will represent the grass on the field. The oblong patches alongside the administration building are also cut out now.

With care, the sheet is then cemented or pasted onto the green desk blotter of similar size. The green will show through where the grass should be.

The drawings of the hangars, administration building, hotel, fence and the wind "T" are all full sized. Trace them onto drawing paper, then cut each one out. After bending them into shape along the dotted lines, cement the side flaps.

When all the buildings have been made, bend in the bottom flaps and with them cement each building in its proper place along the "aprons." Then cement the fence in place near

the administration building.

To mount the Wind "T," cut a $\frac{1}{4}$ " length from a round tooth-pick or applicator, then cement the stick to the "T" at the point where the two sections cross. When cement dries, fasten the bottom end of the stick to the "grass" on the field as shown on airport drawing.

BOUNDARY LIGHTS

THE boundary lights are made of gelatine capsules of $\frac{1}{8}$ " diameter, obtainable from your local druggist. A $\frac{1}{8}$ " length of the "dome" end is used. To cut the capsule, it is best to round off the end of a piece of dowel wood, slightly smaller in diameter than the capsule. After slipping the capsule on the dowel, roll the dowel, and make an even cut around the capsule with a razor blade. Cut 113 of them. Ninety-six should be cemented along the runway, and 2 at each outer end of the green patches beside the administration building. The remaining thirteen, colored red, are used on the hangars and administration building.

Before fastening the lights to the field, place a drop of cement at each light station. When the cement dries, glue the lights in place, then color the boundary lights green and the runway lights yellow.

The arrow pointing North, and the "N," are of the same color and material as the wind "T." Cut these out, then cement them to the field as shown on drawing of airport.

In the center of the field you will note a circle from which smoke issues. This is a circle marker and smoke signal indicating wind direction. It works to supplement the wind "T." To make this you simply draw a circle with an ink compass and sketch the smoke with a pen.

What Do You Say?

(Continued from page 59)

plans for flying models. The solid crates are all right, I guess. But who wants to build 'em just to look at, when for the same amount of work and money you could build a corking good flyer that would give you a genuine thrill for your trouble.—T.E."

So there you are, Mr. Editor. And now you know what's wrong with your model department. Or do you? Anyway, be careful you don't go goofy trying to figure out how to please all of these birds who read your magazine.

GORDON P. S. SMITH,
"Betta" Model Supply Company,
New Plymouth, New Zealand.

ABOUT SPECIALISTS Editor, FLYING ACES:

Too many chaps in the model airplane game are specializing, in my opinion, that is, they are sticking too much to one particular phase of the hobby. They either build stick models all the time, or gliders all the time, or fuselage models all the time, or some other one type of job without even considering that there might be something interesting in another angle of the game.

I know one chap who's been building models for years, and with great pride he shows us "his latest ship." And, so far as one can tell from the looks of it, it might have been built



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from the same plans as the dozen other ships he's got lined up right beside it. Not a blessed real change anywhere!

Where's the fun in that? If you're in business, it's okay to make everything the same. Saves production costs.

But in the field of hobbies the fun is in variety. Build stick jobs, build biplanes, and monoplanes, and triplanes. Try your hand at dirigibles, and at some of the novelty crates F.A. prints every once in awhile.

In other words, enjoy the grass from all over the airport instead of

munching away at that little clump in one corner. You'll learn lots more about airplanes, and you'll become thoroughly acquainted with the theories and uses of the different types of aircraft.

JIM B. WHEELER.
New York, N. Y.

The "Cloud Cruiser"

(Continued from page 48)

The landing gear is joined to the fuselage by means of brass or aluminum tubing of .125 inside diameter. The tubing runs above the lower cross members and is bound in place with silk thread, after which a generous coat of cement is applied to each assembly. Insert the landing gear members through the tubular fixtures. One half only has been bent to shape—the other half is bent while the wire is in the tube.

The forward strut accommodates the axle, which is bent as a part of it.

The other members are bent so that they are parallel with the front ones for approximately $\frac{3}{4}$ " up from the axle. This facilitates the binding together of the landing gear members with tin wire and the subsequent soldering with resin core solder.

The tail wheel bracket is made of 1/16" dia. music wire. The wheel is first inserted on the wire and the bracket is shaped as indicated on Plate 2. After the bracket is completed it is bound and cemented to the last diagonal brace at the stern.

BULKHEADS

ALL the bulkheads are cut from 3/32" medium sheet balsa. They are indicated on Plate 5 in full size. Cut them about 1/32" oversize and sandpaper the excess material down. The direction of the grain should run across the fuselage.

Do not cut the stringer notches until all of the bulkheads, with the exception of K and L, are cemented to their proper stations. Plot all of the stringer positions relative to their basic locations on the drawing. It is important to note that the nose stringers are of 3/16" by 1/4". The other stringers are of 1/8" by 1/4" hard balsa. Insert each stringer as each notch is cut and align the stringer on the adjacent bulkhead. From its position mark off and cut the next notch.

Follow this procedure until all the stringers are inserted at their proper stations. Consult your drawings on the stringer structure for the wing mount. The side and bottom stringers are placed in position, and are notched and bound with a single loop of thread to both a vertical and a

diagonal member.

Plank the forward areas as indicated on Plate 1 with small false bulkheads, which should be located between the stringers on a cross or diagonal member. This will keep the planking from sagging between the stringers. The planking is later sanded smooth to 3/32" thickness.

Where the planking ends and the fabric areas begin, an abrupt indentation can be prevented by cementing a small tapered cap strip about 6" in length on to the stringer.

The nose block is cut to its external dimensions and cemented to the fuselage and motor bearers. When the cement is dry, the nose block can be trimmed and rounded off.

RUDDER AND ELEVATORS

ALIGHT grade of balsa is used throughout the construction of the tail surfaces. Only the basic airfoil for the tail assembly is shown (Plate 4) but in order to scale the airfoil for its various chord lengths use the following procedure: The tail surface ribs need not decrease in depth relative to its chord. The same airfoil may be used by cutting down the leading and trailing edges to their required chords. The highest point of the ribs should be 30% from the leading edge. The ribs are then cut from the 30% point so that they assume a relationship to the basic airfoil.

After plotting and cutting the tail and rudder ribs, the spar and sheet balsa notches are cut. From the sketch you will note that the main spars are of boxed construction. Assemble the horizontal tail, and cover the shaded portions with 1/20" sheet balsa.

Bulkheads K and L are then cemented at their proper stations on the horizontal tail. The rudder is then assembled and cemented in place.

Be absolutely certain that the horizontal tail and the rudder are properly aligned with each other. Continue the fuselage fairing on the horizontal tail by inserting the stringers and filling between them with 3/32" soft balsa on bulkheads K and L. A small fillet can be formed between the tail fairing and the rudder

if desired. The birch dowel (Plate 2) is then bound to the main spar of the rudder to provide tail anchorage.

The next step is to bend the horizontal tail hooks, and to build a small false spar to accommodate them. These hooks are indicated on the drawing. The construction of the false spar should be done before the sheet balsa covering on the horizontal tail. The tail is anchored by inserting the rudder dowel into the 1/4" aluminum tube at the stern post and encircling the fuselage with 1/8" flat rubber attached to the tail hooks.

The entire tail is covered with bamboo tissue. The "trimming tab" can be inserted after covering by splitting the trailing edge of the rudder and inserting a piece of .010 aluminum. The tab should not be more than 5/8" wide and 1 1/2" high.

WING CONSTRUCTION

THE wing is constructed in three sections, the two outer panels and the center-section. The ribs are of 3/32" medium sheet balsa, and are scaled down from the basic rib layout (Plates 4 and 5) for their tip chords. The spar, leading edge and balsa support notches are cut, and the lower front and rear spars inserted. The upper spars are cemented to the ribs with an eye on the rib alignment. The trailing and leading edges of hard balsa are next attached to their respective locations. The leading edge is left untrimmed to form a glueing surface for the 1/20" sheet balsa.

Before the sheet balsa is applied the center section should be built up and both panels joined to the center section at the butt ribs, which are of two 3/32" ribs laminated together. The next step is to cut the notches in the ribs for the birch plywood wing joiners (Plate 2) which are cemented and bound against the spars.

The sheet balsa covering is next applied. The trailing edge is then trimmed to conform to the airfoil and the 3/32" balsa supporters are placed in position. The wing spars are next boxed with 1/16" sheet balsa with the grain running parallel to the span.

The drag trusses are now inserted

with the upper chord members running at approximate right angles to the lower ones. Complete the trailing edge by covering the portion between the 3/32" supports and the trailing edge strip. The structure is completed by cap-stripping the ribs in the fabric areas. The wing is finally covered with silk and given three coats of dope.

TEST FLYING

OUR *Cloud Cruiser* should be test flown on a day with but little wind. She should be glided first with plenty of flying speed, to see that her approximate trim is correct. If she should nose upward slightly in a glide this should be corrected, because the thrust forces with "power on" will possibly result in a stall.

Gas Job Gossip

(Continued from page 57)

craft, must be licensed, and that they can only be operated by licensed pilots. Most gas modelers have in their possession an average of three gas models. And the number in each of the many gas model clubs throughout the country run well into the 30 and 40 figure.

Now with all those models classed as legally licensed aircraft, and all their owners as licensed pilots, do the gentlemen forget that engines on a legally licensed aircraft can be maintained *only* by licensed mechanics, and must be regularly overhauled and inspected?

So, since modelers maintain their own engines, they must also, under the Massachusetts idea, be licensed mechanics! There are, conservatively, about 10,000 miniature engines in use in the United States. Therefore, we figure that altogether about 30,000 additional licenses will have to be issued and kept track of—10,000 pilot's licenses, 10,000 mechanic's licenses, and 10,000 airplane licenses.

To go further, the pilot tickets will have to be renewed every six months, and the holders thereof must have piled up a certain number of flying hours within a short period preceding the renewal applications. In other words, in order to renew a license to fly a model, a pilot *must fly a real plane first!*

Now all that may sound like a lot of fancy figure-tossing, but in view of the argued legality of the Massachusetts ruling, these things would have to follow!

And another little detail is bothering us something awful! In the federal rules and regulations pertaining to the flight of legally licensed aircraft, there is an altitude requirement. A plane flying in a westerly

When the proper trim has been attained the model's attitude in a glide should have a slightly inclined path. The glide should be uniform from the time it leaves your hand until it touches the ground. On the first test flight with motor run, the engine should not be revved at more than half throttle.

PROP SELECTION

SINCE most props can be bought already carved, it is best to select one that will suit both the horsepower available and the ship. For those using 1/6 h.p. engines a 13" dia. prop with a six-inch pitch will give you the best rate of climb. For 1/5 h.p. engines a 15" dia. prop with a seven inch pitch will give good results.

direction must maintain an altitude on the *odd* figure, in other words 1000, 3000, 5000, or 7000, feet, and the like. And those planes going east must fly on the *even* altitudes, or 2000, 4000, or 6000 feet, etc.

It is a law! And with gas models classified as legally licensed aircraft, they would have to adhere to it. But models, of course, fly in circles. As long as a model has a certain altitude—naturally under one thousand feet when it takes off—it *must* fly west! So assuming that it is launched in a westerly direction, when it circles to come back in the opposite direction it must gain or lose 1000 feet of altitude! Doesn't that put the model between the Devil and the Deep Blue Sky, or do you miss the pernt?

Oh, what the heck!

THE WAKEFIELD WHIRL

THE financing of a complete Wakefield Team to London by voluntary contributions, as announced during the past few months, was a flop-rola of the first order. But despite this fact, we are nevertheless pleased to announce that exactly 50 per cent of our American Team, namely three members of the six-man group, crossed the ocean to participate in the British Brawl.

The exact course of our Wakefield Team was shrouded with uncertainty, and up to the last minute it seemed that the United States would have to represent itself only by proxy, and that's a heck of a way to represent the United States of America (if you'll pardon our English and our patriotism).

It is regrettable that the drive for Wakefield support could not have been of the more robust variety, instead of following as it did the vol-

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untary contribution idea. For the fund reached the staggering total of \$146—instead of the \$2000 required to send the entire American team across.

So it was decided that the \$146 be given to the lead man on the team, who was Herb Fish, from Akron. But the Akron group at the Nationals was already at work on plans for a super-drive to send Herb, and Bodle, his buddy—another Wakefield winner from Akron—to the British meet.

There was but one week in which to raise several hundred dollars and pack off the boys! Mrs. Ray Brown, president of the Akron Womens' Chapter of the N.A.A., immediately returned from Detroit to Akron and arranged a Jamboree at "Shorty" Fulton's Airport and a swelegant banquet in the luxurious Mayflower Hotel, scene of the banquet for the 1934 Nationals. Word was passed around at these affairs that finances

would have to be raised for the team. Mr. Seiberling (of the tire company bearing his name) promptly donated a \$100 bill (*promptly*, no less)! William O'Neil, of the General Rubber and Tire Company (and Santa Claus-in-General to Akron modelers) gave \$50—and in short order about \$450 was raised right then and there.

Meanwhile uniforms for the two A-kronies were being fitted. The outfits consisted of blue gabardine slacks, with officer's coats and caps (brass buttons 'n all!). Passage was booked on the *Berengaria* which was to sail at high noon on Wednesday. The boys arrived in New York Wednesday morning at nine, three hours before sailing time. And they had no passports or visas yet!

Final arrangements were taken over by the energetic Ken Bensen, active in N.A.A. circles. Ken rushed the group to the British Consul for visas, having secured their passports a short time earlier. From then on,

it was a mad race uptown and down. And at twenty minutes before noon the boys dashed breathlessly onto the gangplank. Just before the ship's departure Bensen told the boys:

"You bring back the trophy, and we'll give you the town!"

That accounted for two of the team of six—and meanwhile a little drama was unfolding in Tulsa, Oklahoma, home of Alvie Dague, second place man on the Wakefield Team.

Upon returning home, Dague diverted his thoughts from the Wakefield Competition and concentrated upon the possibility of getting a summer job. He applied to a banker. The banker made numerous inquiries as to the character of Dague, and upon hearing of his interest in aviation, summoned him for a personal chat. In a few minutes the story was told—that Dague had won the right to compete as a member of the American Team, but could not go to England due to lack of finances.

Can you guess what the banker did? Well, almost before Alvie knew it, he was bound for New York with tickets in his pocket for the *Europa*, which was to sail the following night!

And that, my little chickadees, is the end of the tale, wherein a team of six was chosen—and three stayed, three went, and three cheers!

(P.S.—But that isn't the end of the tale after all. For we learn as we go to press that a modeler from France took home the Wakefield championship, while Herb Fish brought the Captain Bowden gas model trophy to the United States—Editor.)

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Fly This "I-Strutter"

(Continued from page 45)

placed on the fourth rib of each wing and cemented. Use 4 strands of brown rubber for motive power.

FLYING

SINCE the wings are glued to the body, all the adjusting is done by warping the elevator or rudder. Glide the model several times to get the feel of it and then let her go with about 50 winds in the motor. In case she stays in the wind until the power is gone, adjust the rudder for a right turn. And so, gradually increasing the number at each flight, finally 200 turns may safely be wound.

Do not be discouraged if the plane noses down when fully wound. Just warp the elevator flippers up a bit and reduce the right turn with rudder. Always launch the ship straight into the wind because this helps to gain altitude. R.O.G. (Rise-off-

Ground) flights should be tried only from concrete or smooth cardboard to prevent the plane from turning over and causing any unnecessary

damage in a slam-bang take-off.

Lubricate the rubber with glycerine, to get longer service and better endurance.

Construct the PT-11

(Continued from page 38)

be built up and put in place with a small washer cemented to the axle.

The balsa tail wheel and its wire fork may be made at this time, but lay them aside for attaching after the fuselage is covered.

Now, first fitting stiff paper templates to the model, cover the nose and cockpit portion of the fuselage with 1/32" balsa veneer, holding it in place with pins and rubber bands. Make the cockpit cutouts.

The balsa noseblock is now added, having been previously hollowed on the inside, and is sanded to fit smoothly into the fuselage lines.

Sand the entire assembly lightly to remove any rough seams and corners. Cement two bamboo strips 4 1/2" long, in place to support the lower wing, piercing the lower longeron with the sharpened end of the rear one. The fuselage is now complete.

WINGS AND TAIL

CUT all the ribs from the templates on Plate 5, using 1/20" balsa sheet. Holes to save weight are made with the aid of the small eraser tube on the end of a pencil, sharpened for use as a punch.

Place waxed paper over the wing drawings after joining them. Make the upper wing first, cutting the spars long enough so that the wing may be made in one piece. Pin the rear spar in place and after cementing a few ribs in place, add the leading and trailing edges. Use one of the solid standard ribs where struts join. Add front upper spar, miscellaneous small fillets, and the wing tips of 1/8" stock. Remove the completed wing and sand smooth. Crack the spars at the point where the dihedral starts, and blocking the wing up, again cement the spars.

The lower wing is made in a similar manner. Be sure you don't make two wings for the left hand side. Tilt the solid ribs next the fuselage to take care of the dihedral angle.

The construction of the tail surfaces should require but little explanation, since they are of 1/16" sq. and flat material only. Simply build right on the drawing, and sand when dry. Then cement in the wire hinges.

PROP AND NOSE PLUG

A STANDARD machine carved prop is recommended, but block dimensions are given for those who

desire to carve their own. Ours is of the "half-and-half" type, and should be left of medium weight. Balance carefully after shaping in the usual manner, and cement washers in place. Then give several coats of silver dope, sanding between the first and second.

The hook that engages the free wheeling prop shaft must be bent slightly to the left to prevent slipping. The drawing shows plainly the plug and shaft construction.

Assembly is as follows—bend the winding loop on the shaft, then slip on the prop. Solder a washer to the shaft, leaving room for the prop to rotate disengaged. Then slip on another washer and the nose plug, and lastly, bend up the rubber hook.

COVERING

COVER all parts of the model before final assembly. Use whatever covering method you are most used to, or dampen the paper before attaching, and draw smooth on the model. In this way you can draw the paper over compound curves.

If you are making your model for maximum flights, use yellow and blue colored tissue to cover the wings, tail, and fuselage respectively. Add black tissue lettering, and red and blue tissue rudder stripes. If you intend using colored dope, use a tough grade of white, fibrous, tissue.

Cover the entire fuselage, including the sheet covered portions. When covering the landing gear, overlap the paper around the wires, giving a stronger V-strut assembly. Cement tail-wheel and fairing in place after fuselage bottom, but not the side, has been covered.

When all parts have been covered they may be doped. Two coats of colored dope, smoothly brushed on, will be ample. Colors are as follows: Fuselage, landing gear and wheel centers, all blue; wings and tail, except for rudder stripes, yellow; tires, wing lettering, and miscellaneous details, black; wing struts and propeller, silver; fuselage lettering and zipper openings, white.

FINAL ASSEMBLY

JIG the fuselage up in flying position with any convenient objects. Cut the upper wing mounting jig and cement it lightly on top of the fuselage, propping it in place with light braces to the upper longerons inside

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1/16x1/8 35 for 5c	Silver ea. 5c	PAUL-O-WINA
1/16x3/16 18 5c	Superfine, wh. 5c	10c. Add 5c per
1/16x1/4 15 for 5c	WHEELS per pr.	in, up to 10 in.
1/16x1/2 5 for 5c	Breh Blsa Celu	Machine Props
3/32x3/32 30 5c	1/2 .01 .03	5"4c
1/8x1/8 .30 for 5c	3/4 .02 .04 .05	(Add 1c per
3/16x1/8 12 for 5c	1 .03 .05 .07	Inch up to 16")
1/2x1/4 10 for 5c	1 1/2 .04 .08 .10	THRUST
3/16x3/16 8 5c	1 3/4 .07 .10 .16	BEARINGS 1c
1/4x1/4 .6 for 5c	2 .15 .30	BUSHINGS
1/2x1/2 .3 for 5c	18" Balsa Planks	Doz.3c
1/2x1/2 2 for 5c	1x11 for 8c	ALUMINUM
18" Balsa Sheets	1x21 for 9c	WHEELS
1/32x2 .5 for 5c	2x21 for 15c	1" pr.6c
1/16x2 .5 for 5c	2x31 for 23c	1 3/8" pr.11c
3/32x2 .4 for 5c	2x61 for 35c	1 1/2" pr.14c
1/2x2 .4 for 5c	PROPELLER	NOSE PLUGS.
3/16x2 .2 for 5c	BLOCKS	large .10c doz.
1/4x2 .2 for 5c	1/2x 3/4x 5 8-5c	small .5c doz.
1/2x2 .1 for 5c	1/2x 3/4x 6 6-5c	CEMENT
3" sheets or 36"	1/2x 3/4x 8 6-5c	1 oz.5c
lengths, double	3/4x1 1/2x 8 8-5c	1/2 pt.25c
above prices; add	3/4x1 1/2x10 2-5c	Model Pins
10c pack 1 g	1 x1 1/2x12 6c ea.	pkg. 5c
charge for 36"	1 x1 1/2x15 7c ea.	Brushes No. 6 5c
lengths.	DOPE	INSIGNIAS
NOSE BLOCKS	1 oz. 5c 1/2 pt. 25c	French, American,
1x2x11c	2 oz.10c	English, German
2x2x12c	1 oz. 5c 1/2 pt. 30c	1/4"4 for 3c
2x2 1/2x13c	2 oz.10c	2"1c
3x3x13c	11" BAMBOO	1 sheet of 24, 5c
3x3x28c	1/16x1/4 6 for 5c	Dummy Radial
3x3x310c	Shredded 40-5c	Engines
Alum. Tubing	ALUM. LEAF,	1 1/2" Diam.14c
1/16", 3/16",	2 sheets for 1c	2" Diam.18c
1/4"10c ft.	WIRE	3" Diam.23c
Rubber Motors	6 ft.3c	Sheet Celluloid
1/16 sq. 20 ft. 5c	THINNER	2x6, 2c 6x8, 15c
1/8 flat 20 ft. 5c	Best, 1 oz. 5c	12x1815c
Sheet Aluminum	REED	Wood Veneer
.003 .sq. ft. 10c	1/32, 1/16"	3 ft. 1c 20x30"1 for 9c
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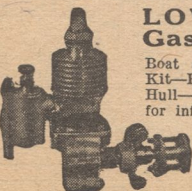


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the front cockpit. Cement the lower wings to the bamboo pins, blocking up the tips for the dihedral.

Put the upper wing in place on the jig, cementing it lightly, and then fit in all struts by the "cut-and-try" method. The struts should already have been sanded and doped with silver. Cut away paper wherever the struts join the wings, to get a good "hold" for the cement. When all struts are in place and dry, remove the ship from the jig, and rig with silk thread.

Cement tail surfaces in place, noting the positive incidence of the stabilizer. Rig with white silk thread.

Add all small details such as windshields, cylinders, and the like.

Make up a ten (or twelve) strand rubber motor of 1/8" flat brown rubber, lubricated, and install in the ship.

Now comes that great event in the life of every model, its test flight!

FLYING THE PT-11

Thance at the rear spar of its upper wing. Add weight to the nose if necessary to obtain this balance, since only minor adjustments should be made with the tail surfaces. Glide the model over grass, adjusting until a good, flat glide is obtained. Always check setting of tail surfaces after each flight, as they might be moved in landing. Now try a little power—just a little at first—then more as confidence is gained.

If your model refuses to fly well, check thoroughly for warping and for incorrect incidence. Any warping of the surfaces due to the dope may be readily and permanently corrected by holding the surface in the

steam jet from a tea kettle, and twisting in the desired direction. But beware of scalded fingers!

When you have ironed out the small bugs that always show up from the first few flights you will find that your ship really goes places, so take care where you launch it. After all, the side of a building is hardly a suitable landing field, and since you have put quite a little work into your PT-11, protect the investment with judgment. Good luck!

Answers

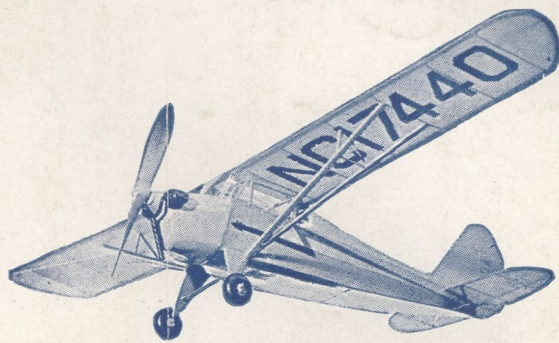
TO QUESTIONS ON PAGE 28

- 1—The Oerlikon Tool Company, located in Switzerland, is the maker of noted aircraft cannon used on many European planes.
- 2—The Curtiss Y1A-18 is a twin-engined attack ship, a number of which have been ordered by the Army Air Corps.
- 3—Ryan is developing a new three-place cantilever-wing cabin job for private use.
- 4—Col. Clarence Hartney was the wartime commander of the First Pursuit Group.
- 5—Santos-Dumont, pioneer Brazilian aeronaut, made the first successful airplane flight in Europe on Aug. 22, 1906.
- 6—The average cost of training for a private flying license runs between \$350 and \$500.
- 7—Steps are put into the lower sides of seaplane floats and pontoons to assist in breaking the suction force of the water, thus assisting the plane in getting off.
- 8—A full-feathering prop is one controlled from the cockpit so that in case the engine stops the blades may be turned edge-wise. In this way, the dead engine is not forced to turn over and much drag is eliminated.
- 9—Vance Breese is a noted test pilot.
- 10—The old R.E.8 (Reconnaissance Experimental No. 8) was affectionately known as "Harry Tate," a popular British music hall comedian.

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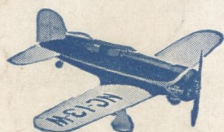
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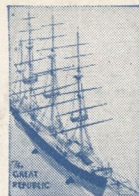


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