AIR STORIES

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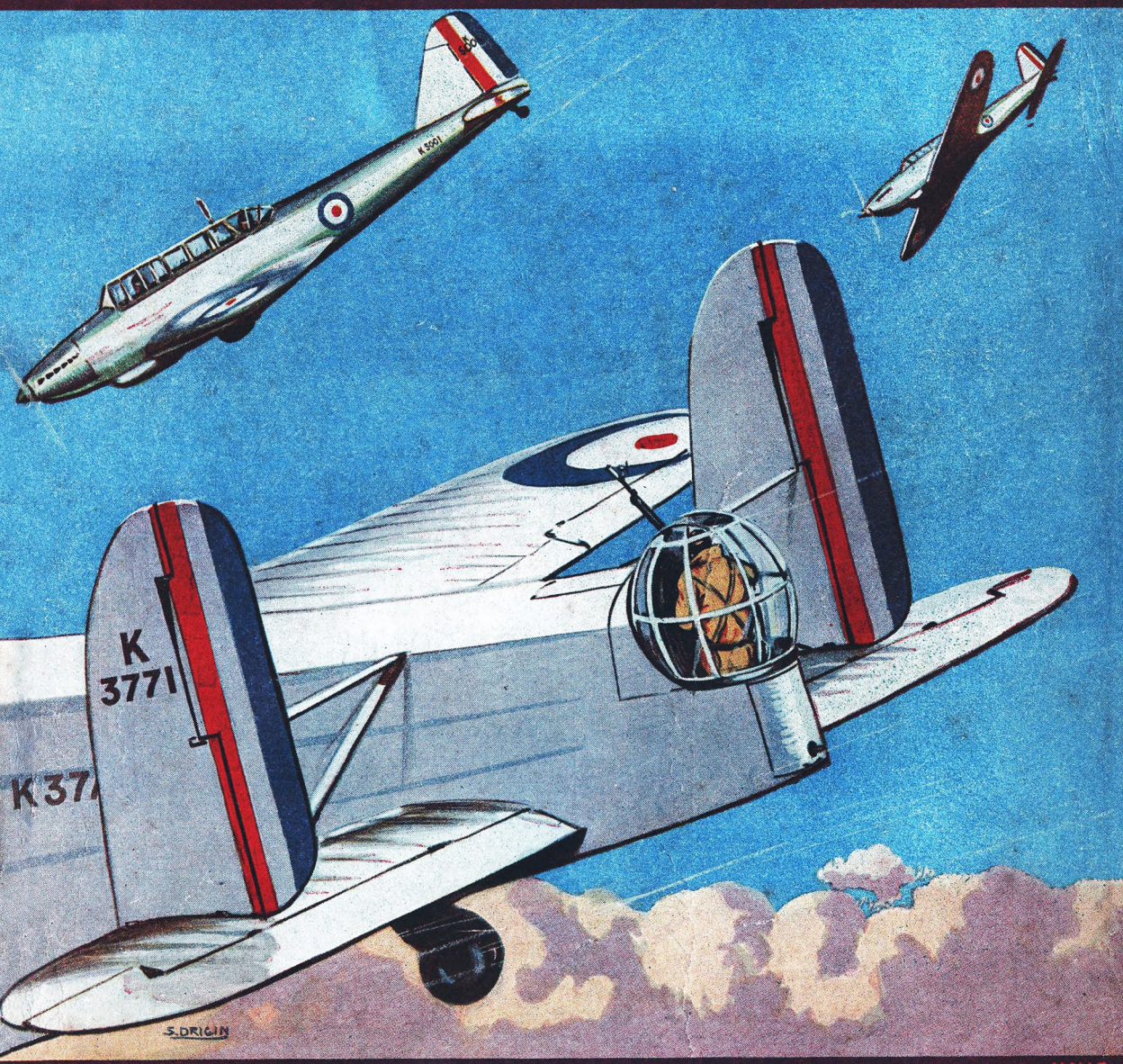
THE ALL BRITISH MAGAZINE OF FACT AND FICTION



THE BALLOONATIC
By G. M. Bowman

FOUR DUMB MOUTHS
By Capt. J.E.Gurdon D.F.C.

JUNE

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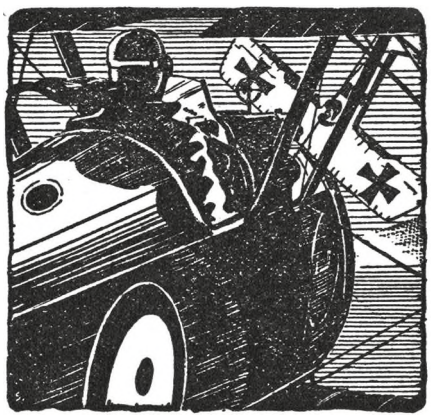

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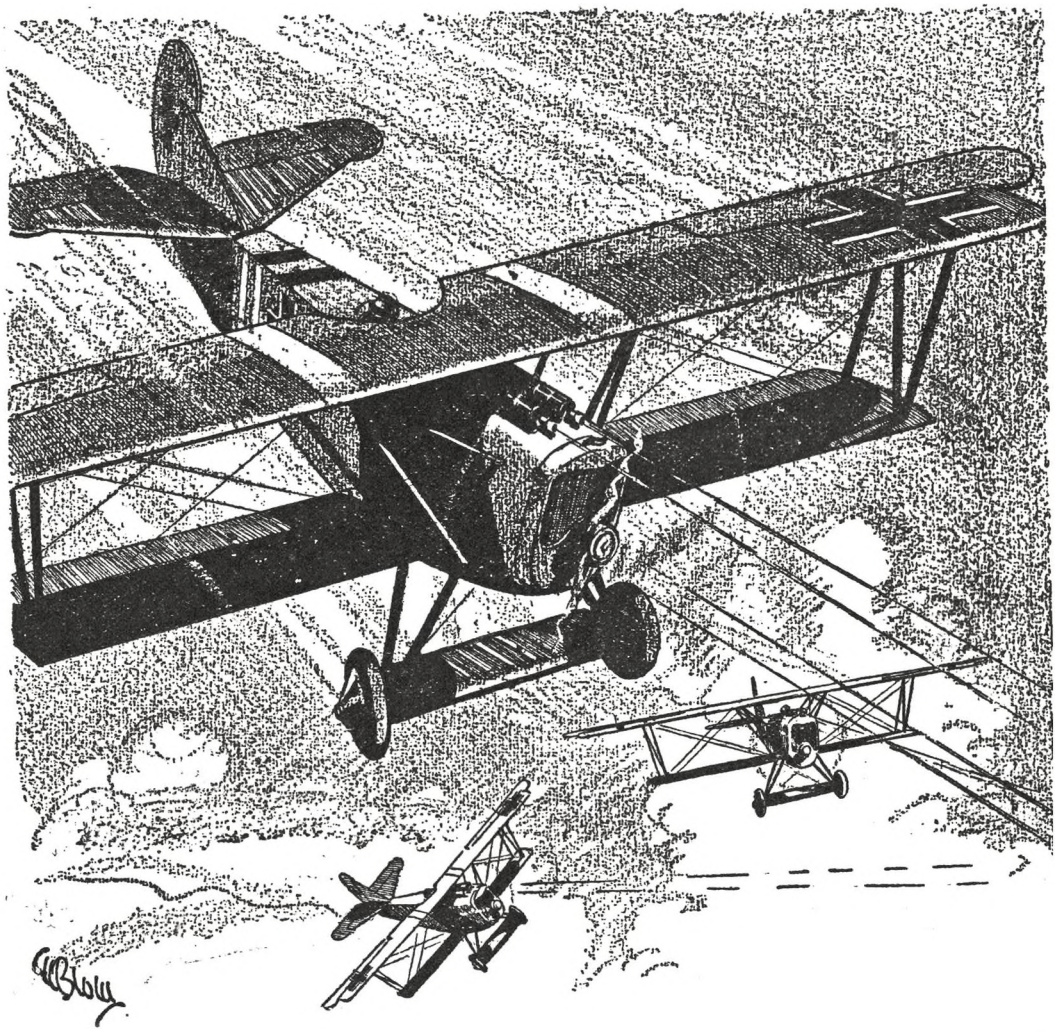
SOMEWHERE IN FRANCE



CHAPTER I

Visibility Nil

MAJOR DE MONTMORENCY-SMYTHE screwed his monocle firmly into his right eye and studied the pilot standing before him in the squadron office at Eastbridge as if he were some rare entomological specimen about to be impaled upon a pin.

"But, my good fellah," he remarked at last, "do you really possess the effrontery to call yourself a pilot?"

"Yes, sir," replied Second Lieutenant Billy Landers promptly and with no shadow of doubt in his tone. "I've put in twenty-five hours solo now, sir."

"Twenty-five. . . . Oh, ye gods," murmured the Major, drawing a handkerchief from the sleeve of his tunic and mopping his brow; "do you really think, my poor friend, that twenty-five hours makes a pilot? *You*"—with ineffable scorn—"would never become one after twenty-five thousand. As a matter of fact," he drawled, "it makes it rather worse. Five miles

A Great Long Adventure of The Air War

By MAJOR LIONEL S. METFORD

The Art of Navigation was a Closed Book to Second Lieutenant Billy Landers, R.F.C., who Believed that if an Aeroplane is Flown Straight Enough and Long Enough it will Always Arrive Somewhere—though whether it Lands you into the Finest Fighting Squadron in France or Just Back in the P.B.I. is Largely a Matter of Luck

to the ranges, and you go and lose your way. Where did you say you landed up ? ''

'' Winchester, sir.''

'' Winchester. Seventy-five miles away and forty degrees off your course. Why did you do it, my poor idiot ? ''

'' Spanner, sir.''

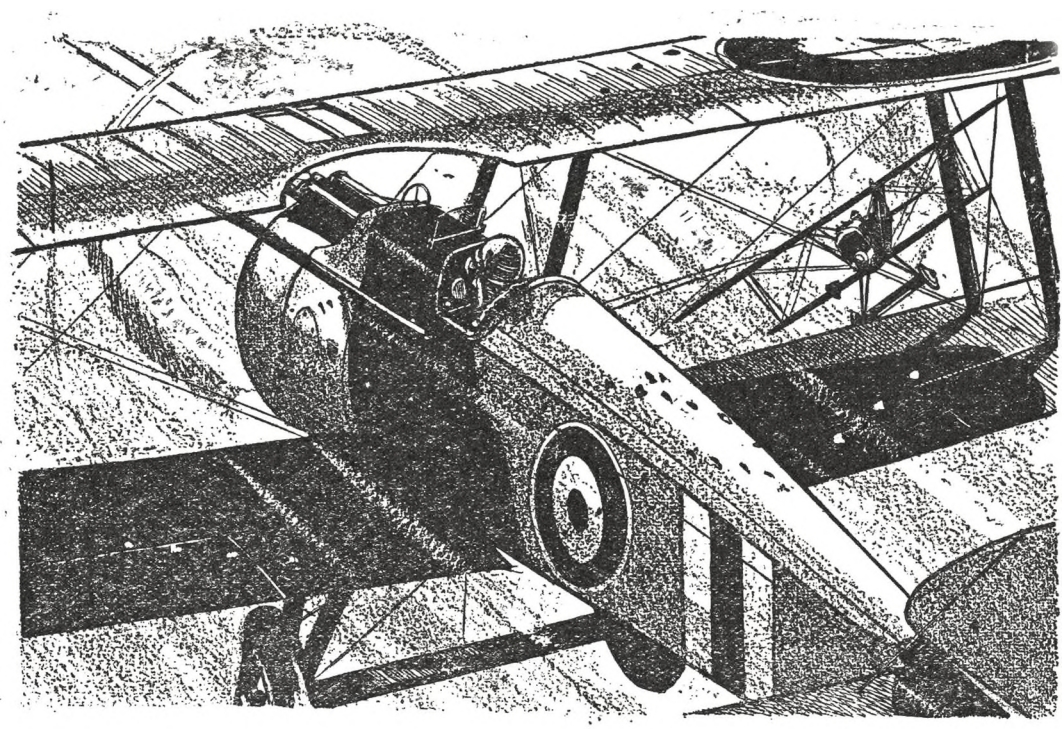
'' Er—what was that ? Sounded like ' spanner '.''

'' I *did* say spanner, sir. There was one in my pocket in case I had plug trouble or something, and it affected my compass.''

'' Oh, it affected your compass, did it ? I presume it also affected your eyesight so that you were unable to recognise any landmarks. Well, I suppose a poor excuse is better than none.

'' Now listen here, young fellah,'' and Major de Montmorency-Smythe leaned forward across his desk. '' This is abso-lutely your last chance. You go and lose your way once more—spanner or no spanner—and back you go to your jolly old battalion. You understand that ? The spanner has not affected your hearing as well as your other faculties, I trust ? ''

'' No, sir,'' replied Billy, outwardly calm but inwardly fuming. '' I understand, sir.''



He saw a Fokker diving straight at him—and shut his eyes, waiting for the crash.

"Splendid fellah."

The Squadron Commander reached for the telephone and called the range officer.

"That you, Balderson? C.O. speaking. Landers is back. What's that? Yes, back—really back. Only as far as Winchester. I understand he recognised the cathedral and thus gathered he was off his course. Er—yes; I told him so. Now, pay attention, Balderson. He is going up again now, as soon as he leaves my office, and he's going to put in his practice shoots on the targets. Give me a ring as soon as he starts firing so that I shall know he hasn't beetled off to inspect Canterbury Cathedral instead. G'bye."

He hung up and glanced at Billy.

"Did you gather the drift of my remarks, young fellah?"

"Yes, sir."

"Excellent. The day is yet young, so jump to it, my lad, and if you lose your way again, all you'll see of the unpleasantness in Flanders will be a worm's eye view from the trenches—as before."

He waved an airy hand to indicate the interview was ended, and Billy Landers saluted smartly and went out.

As he walked slowly back to the aerodrome, he thought moodily about the very one-sided conversation just concluded.

"Well," he communed with himself, extracting a cigarette from his case and inhaling gratefully, "I suppose I am a bit of a wash-out about finding my way, but old Whatsisname-Smythe needn't have been so dam' snotty about it. Easy enough for him to jaw. All he's got to do is sit back in his chair and emit hot air. Nice soft job. Jove!" he exclaimed as the long row of hangars came into view round the corner of the trees. "They're filling up my tanks again already. I'll have to hustle."

TEN minutes later, Second Lieutenant Billy Landers was scudding down the aerodrome with a Le Rhône thundering ahead of him, its prop. stream throwing back a young dust-storm in the wake of the fleeing Camel. A moment later he was in the air, making for the ranges, which had been his objective a little earlier that morning.

It was a beautiful late summer day, with a slight sea mist creeping in from the Channel and a few clouds dotting the sky. He cruised along cheerfully, looking ahead for the clump of trees which ran along one side of the targets.

Presently he thought he saw them. They were further to the left than he remembered them to have been, but he ruddered a little and turned towards them. A short while later, he throttled down a shade and put the stick forward. No good flying too high. He glanced at his altimeter. Two thousand feet. He glided down another thousand, over the clump of trees and ruddered over to dive on the target.

He looked to starboard and frowned. The targets were not there. He leaned over to port. Still no targets. Then he levelled out and did a couple of circuits, hunting with increasing anxiety for the elusive white squares.

"Well—I'll—be—blowed," he muttered at length. "I'd have sworn this was the place. Better do another circuit. Bound to spot 'em in a minute."

He did another circuit, and another, then "One for luck," as he put it, but all he saw was the sea mist growing a little denser; creeping a little higher into the atmosphere.

He sat back and thought.

"If I don't find those dam' targets in a minute or two," he muttered, "the fog'll be too thick anyway."

He went on flying.

BACK in the squadron office at Eastbridge, the telephone jangled. The Adjutant answered it; said "Just a minute, please," and handed it over to Major de Montmorency-Smythe.

"Oh, hello. C.O. speaking. Who? Oh, that you, Balderson?" He glanced at his wrist-watch. "About half an hour ago, as near as anything. Told him to leave immediately. Not seen anything of him? Really? How distinctly odd. Yes," he nodded a moment

later, glancing at the window, "it's getting a bit thick here too. Ring me in ten minutes and let me know, will you? 'Bye."

As he hung up the receiver, he turned to the Adjutant.

"D'you know, Bestwick," he drawled, "that young fellah Lander is the jolly old bane of my existence. He's lost again."

"How many times is that, sir—five?"

"Can't remember. If you can tell me how many times he's been up solo I could. The numbers would coincide exactly."

"Getting foggy outside, sir."

"Um. Tell the orderly officer to have flares set out ready to light as soon as I give the word, will you?"

"Very good, sir."

Captain Bestwick grabbed the telephone and gave brief orders.

Ten minutes later the bell rang again.

The Major reached for it.

"Yes, Balderson. Not seen anything of the young blighter? Oh, really—did you? Which way was it going? Righto. Fog quite thick, eh? All right. Better tell your party to wash out for the day. G'bye."

He turned to Bestwick.

"Seen nothing of the laddie, but Balderson heard a 'bus flying east a few minutes ago. It's Canterbury Cathedral for a thousand guineas. Get the flares lit and tell 'em to keep a bright look-out. I'm applying to Wing H.Q. to have him returned to his battalion as soon as he turns up."

CHAPTER II

The Sky Trap

CRUISING idly above a bank of cumulus cloud some ten miles east of the German lines was a British Spad.

It was alone, and its pilot was looking for trouble. And when this particular pilot looked for trouble, he usually found it.

And this occasion was no exception.

Suddenly he tensed in his seat and leaned forward, peering intently over the starboard side. Through a rift in the clouds beneath him he made out a lone L.V.G.

It was ambling stolidly along, flying due west. He knew these bombers; knew, too, that they seldom flew alone—if ever.

He grinned reflectively. Probably a decoy. Best left alone. Then the L.V.G. slid out of sight as a cloud rolled over the rift.

"Damn it," he muttered; "hate to lose a chance like that. Maybe it wasn't a decoy at all. I'll have a look-see."

Down went the nose of the Spad.

Less than a minute later, he was crouching in a grey darkness whilst his goggles misted over so quickly with the moisture from the cloud into which he had dived, that it was impossible to see through them.

He brushed his hand across the lenses and listened to the muffled drumming of the Hispano-Suiza out in front.

Gradually the darkness became less opaque and almost at once he was through. He straightened out and, opening the throttle, banked round in a wide circle, searching for the L.V.G.

He picked it up a mile or so away, still flying in leisurely fashion. He shoved the throttle full open and sped in pursuit.

No novice at the game was he, and his suspicions were soon confirmed by the apparent nonchalance of the pilot of the sluggish bomber.

"I know dam' well it's a trap," he muttered, looking intently about him. "But what kind of a trap it is, I'm damned if I know."

He carried on, the distance between pursuer and pursued narrowing fast.

Again he looked overhead, expecting momentarily to see a flight of enemy 'planes drop hawk-like from the shelter of the clouds, but none appeared.

He looked behind and beneath, puzzled. Still the air seemed empty of German scouts.

He glanced at his altimeter. Five thousand. Then he looked ahead again. The L.V.G. was turning slightly north.

He ruddered and followed. He looked upwards again. Surely there must be an ambush awaiting him somewhere.

Less than a quarter of a mile separated him from the big bomber now, and he fired a couple of bursts to warm his guns.

As if this had been a signal, the L.V.G. dived. The British pilot followed suit. He knew the German craft could not dive as steeply as his Spad, or its wings would fold up. He had him all ends up. Three thousand feet and the L.V.G. stopped diving and levelled out. The other did the same. He was almost within range now and his thumbs found the trips automatically.

Then, just on the point of firing, that subtle sixth sense which develops in some strange and unexplained manner in all aerial fighters who live to tell the tale, gave its spontaneous warning.

Without knowing why he did it, the Spad pilot crammed on right rudder and pulled the stick into his belt. The prop. clawed on to the air and the little Spad climbed almost vertically, vibrating from boss to rudder-post as the air speed indicator fell back.

As he removed the pressure from the rudder-bar, he looked downwards to his left.

Then he laughed—a singularly harsh and unpleasant sound.

"So that was it, eh?" he grinned and went on climbing.

A thousand feet below, the spot he had just left so hurriedly was now a black and crimson inferno of bursting shells. No 'plane could have flown through it and lived. It was like a thick fog, pierced through and through with brilliant flashings.

"Ambush all right," he muttered, "but a rather different kind to the usual. Must have trained every blasted Archie in the district on to the same spot, ranging at three thousand, and the cursed L.V.G. flew just at that prearranged height. Lucky—dam' lucky, I climbed when I did."

A RAY of sunshine filtered obliquely between a couple of cloud banks and shone on his doped wings. Then, for perhaps half a second something which was not sunlight flickered there, and vanished.

Long before his brain had had time to flash a warning to his nerves and muscles, he had acted subconsciously. But even as he pivoted on one wing-tip to face the only thing which could have caused that swift moving shadow, they were upon him.

Where they had come from he had no means of telling. Doubtless, he considered hurriedly, they were part of the Archie ambush and had dropped upon him unseen whilst he was congratulating himself on his lucky escape from their concentrated fury.

He teetered over as a smear of bullets and tracers bit into his right wing. His quick brain registered in one swift glance seven or eight black-crossed Fokkers riding for him.

He drove straight for the leader, prop. to prop., with Vickers blazing. The German veered off at the last possible moment with fabric rippling backwards from his top plane.

Instantly the British pilot Immelmanned and came streaking back with guns blazing as he dropped on the pilot he had singled out for attack.

But the rest were upon him at once.

Through the whirling light of his prop. he saw a plume of smoke, swiftly shot with licking flames, rush skywards as the pilot threw up his arms to protect his face.

Then, wracking and wrenching his Spad, the British pilot careened over and flashed in a triple burst at another black 'plane. At the same instant a withering burst shattered his instrument board and a red-hot wire creased his ear.

With a grim smile, he zoomed with almost a full stick, realising as he did so, that if he were ever to get back to his aerodrome alive, he would need to win every trick of the game.

Another 'plane sped across his line of vision, so close that he could almost read the three instruments set in the plain deal instrument panel. He was on to it like a night-hawk, sticking to

its tail as if attached by an invisible cable. He knew it was his only chance. Single out one at a time and trust to his perfect mastery of gun and stick to make the kill.

Patiently, doggedly, he waited; twisting and turning in all the convolutions of an aerial maze as he followed the 'plane in the lead. Then, as enmeshing fire from two of the enemy 'planes battered into his centre-section, he dived. Leaning back, he pulled the stick to him and hung on his prop. There, above him, was the belly of the 'plane he was grappling with. He pressed the trips, raking it from cockpit to tail-skid.

It wavered in mid-air, then fell apart so swiftly that he was almost engulfed in its descent.

He spun round on one wing-tip and tried to climb, but his controls were spongy with the punishment the little Spad had received and responded slowly.

In an instant the Fokkers were upon him, and he knew the end was near. Spandaus stuttered and drummed all about him, and he realised he was in one of the tightest corners of his flying career.

Caught suddenly in a cross-fire from which there seemed to be no escape, the Spad nosed over in a sickening downward lurch. The pilot steadied it with difficulty and tried to climb. The engine was vibrating badly with one cylinder cut out where a bullet had crashed into a plug, but he got back on to a level keel.

He looked over his shoulder with coldly calculating eyes. Three 'planes were diving down upon him whilst a fourth was boring up from below.

He could not climb, and with the drag of one missing cylinder, he knew they were faster on the level, and he dared not dive with his wings in such battered trim. He dodged to the right. Bullets splashed about him and clattered on his engine cowling. He dodged left, and tracers and steel-jacketed slugs ripped strips from fuselage and wings.

Then a heavy bar of iron seemingly descended on the top of his head and everything was suddenly peaceful and quiet.

CHAPTER III

The Stranger from the Skies

BILLY LANDERS went on flying. He had to. There was, he told himself, "absolutely nothing else for it."

After half an hour, thoroughly miserable and entirely fed up, he decided to land, come what might.

"Can't go cruising about all day in this mess," he grumbled. "Got to land sometime. May as well do it now and get it over."

He switched off and closed the throttle as he pushed the stick forward.

"Queer—very queer," he muttered. "Can't hear a dam' thing except the wind in the bracing wires, and the sound of the prop.'s all muffled up. Creepy, I call it."

Suddenly he became very active with throttle, switch and stick, as something dark loomed out of the fog in front of him.

Luckily for him, the engine caught at once and he zoomed up into the fog again, scared stiff, seeing from the corner of one eye something which looked like a bonfire beneath him.

The object that had so startled him happened to be one of the hangars at his aerodrome, and the bonfire one of the flares. But, not recognising either, Landers sped upwards again, congratulating himself on his narrow escape.

"This is a whale of a spot," he muttered between chattering teeth. "Damned if I know what to do now."

He put a thousand feet between himself and the ground and began to feel a little safer.

"Rather gather I'd better carry on till the fog clears up a bit," he decided. "Lucky the bally tanks are full."

He settled down to flying in earnest now with eyes staring into the damp darkness before him. He took his goggles off because he could not see through them for the tiny beads of water on them. The wind made his eyes ache, but he carried on. There was nothing else to do.

"Better fly straight," he considered.

"Then there's a chance I'll fly out of this blinkin' mess some time."

He nosed the Camel up higher and higher without noticing it particularly, since his watering eyes were glued to the compass-card, which, to his consternation, swung round in a complete circle from time to time, until, noticing the side wind on his face, he centred his controls and took the Camel out of the beginnings of a spin.

Gradually the fog became thinner and thinner till at last he found himself flying through nothing more dense than wisps and eddies, which gradually dissolved entirely.

"Thank heavens for that," he exclaimed breathlessly. "If this is what the jolly old instructors call blind-flying, I'd just as soon someone else did it. Phew! It's the very devil."

With which sentiment, anybody who has indulged in blind-flying without appropriate instruments, will be in entire agreement.

Then Landers' eyes sought his altimeter, and he jerked out of his seat in amazement.

"Eleven thousand! Ye gods! How in Tophet did I get up here?" He tapped the face of the dial, but the pointer remained steady.

"Gosh! I'll have to do something about it before the petrol gets used up."

He looked beneath him. Nothing very inspiring down there. Only countless acres of fog, with the sun shining brilliantly upon its upflung crests, in pastel shades of pink and mauve, of sea-green and palest orange; its hollows blue and indigo.

Far ahead of him, he could see the horizon, still, to his surprise, on a level with the nose of the 'plane, like the rim of a vast saucer.

He was sweating now; not, he told himself, with fear exactly, but with something very much akin to it.

"No good going down into that again," he decided. "I'll just go straight ahead. Bound to arrive somewhere, sometime, somehow."

Some half-hour later, the ground reappeared beneath him, and to his infinite content, he made out a long row of sheds, looking very much smaller than match-boxes it is true, but which he assured himself must be hangars.

He closed the throttle, switched off and dived.

Long afterwards, he caught his engine again and circled the aerodrome, now but a thousand feet beneath him. The engine picked up reluctantly but, a couple of minutes later, began to splutter and finally died. Landers shot a swift glance at his gauge.

It registered zero.

"Lucky Jim!" he grinned. "If that isn't the finest bit of luck that ever was. If that had happened in the fog, there'd have been a sticky finish somewhere."

LANDERS made a neat three-pointer, suffered some mental anxiety when the hangars raced towards him faster than he thought they should, and breathed a great sigh of relief when their speed slackened and the Camel pulled up a hundred feet away from the tarmac.

He jumped out and walked towards the hangars.

An ack-emma ran out and met him half way, stopped and saluted.

"You might see that my tanks are re-filled right away," he ordered. "I want to get on to Eastbridge as soon as possible."

"Very good, sir," answered the man. Then he hesitated. "To where did you say, sir?"

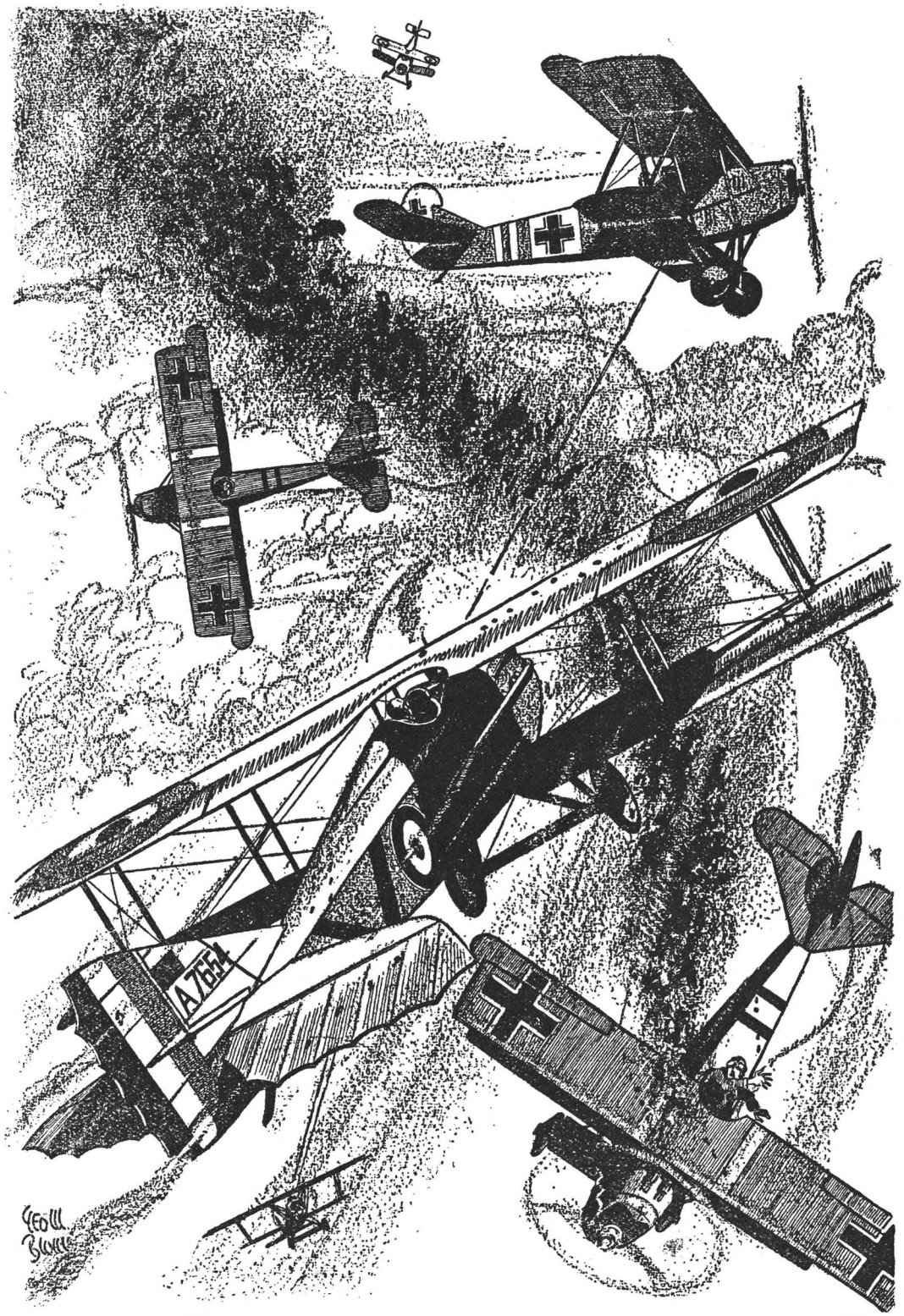
"Eastbridge. What's the direction from here—roughly?"

"You mean Eastbridge, in England, sir?" The man looked surprised.

"Naturally. Where else should I mean?"

Then he looked about him, vaguely uneasy. He had not visited many aerodromes during his flying training, but there was something about this one—an unwonted alertness, an indefinable something less peaceful perhaps than was in evidence at the others he knew.

"What's the name of this dam'



There, above him, was the belly of a Fokker . . . the Spad pilot pressed his trips, raking it from cockpit to tail-skid.

place, anyway ? " he blurted suddenly.

" This, sir ? Why, St. Omer, sir."

" St. *WHAT* ? Why it can't be. That's in France," he almost stammered in his surprise.

The air mechanic grinned broadly. This flying bloke was a queer duck if ever there was one.

" Yes, sir. But that's where you are all right, sir. Where've you come from, sir ? "

" Oh, hell ; what's it matter anyway. Get my tanks filled as quickly as you can. I've got to get back right away."

The ack-emma hurried off, returning shortly with another, and between them they man-handled the Camel up to the tarmac.

Whilst this was being done, Billy Landers made himself as scarce as he could. It wasn't likely he would encounter anyone he knew. He most certainly did not want to, and wasn't taking any chances.

He felt thoroughly ashamed of himself, but, as he admitted somewhat ruefully to himself, although he was certain to be sent back to his battalion after this latest effort, at least he had flown in France, even though he had not seen a single Hun 'plane.

But, at the moment, all he cared about was to get off the ground and back to Eastbridge just as quickly as he could before some officious flight commander or somebody came nosing round and making sarcastic remarks.

Peering round the corner of a hangar, he saw that the tanks had been replenished and hurried across to his machine.

The mechanics lifted the tail round, and he climbed in.

The engine fitter came alongside and saluted.

" Engine all correct, sir. Shall I swing her, sir ? "

" Just as quickly as you can," decided Billy. " Wait a minute. Which direction is Eastbridge from here ? "

The man grinned and pointed with outstretched arm. " Straight over there, sir. A little north of west."

" You sure ? "

" Yessir. Just asked the flight sergeant, sir."

" Good man. All right ; let her go."

" Switch off. Throttle open. Suck in," chanted the ack-emma in the stereotyped formula.

" Switch off," repeated Billy mechanically. " A little west of north—a little west of north—a little, eh, what's that ? "

" I asked for ' Contact,' sir," repeated the mechanic.

" Righto. Contact ! A little west of north—a little . . ."

The engine started at once. Billy waited a minute or two to check the revs. then waved the chocks away and sped down the aerodrome.

" Mustn't forget that," he muttered as he circled for height. " A little north of west—a little west of north, or was it the other way round ? What the devil did that chap say ? Well it's one or the other anyway, and he pointed over here, so I can't be far out whichever way it is.

" I'll just grab off a bit of altitude and then make for the Channel. Hope that beastly fog's gone by now. If it hasn't I'll be in a devil of a hole again."

Then he laughed out loud and shut his mouth again quickly as the wind from the slip-stream blew his cheeks out.

" It's a whale of a joke though," he grinned. " Fancy getting to Omer by accident. By Jove," he announced to the world at large, suddenly serious ; " I might just as easily have landed in the North Sea or Holland or behind the lines. There *is* something to this business of finding your way after all. Would've been the very deuce if I'd done that. Well, it's all over," he decided cheerfully ; " We're homeward bound."

CHAPTER IV

Beginner's Luck

BILLY LANDERS looked at his altimeter. It registered seven thousand feet.

" High enough," he decided. " Get-

ting a bit cloudy. Still, it's nothing like as bad as fog."

He levelled out, looking about him with interest.

"No sign of the Channel yet. Suppose I'll hit it about Calais." He glanced at his compass, and tapped it gingerly. It wobbled in its brass gimbals and then the bubble in the alcohol swam over to one side, then centred.

"The darn thing's all wrong," he muttered. "Where's the sun anyway?"

But there wasn't any sun to speak of, except in patches.

"Um. No, I suppose there wouldn't be any; at least not with all these clouds about," he muttered. "Still, the chap said it was straight over there, and that's where I've been flying all the time—except of course when I was getting altitude."

He looked over the side of his cockpit. "Funny, though. Ought to be able to spot the sea by now. Fact is I ought to be pretty well over it."

Then he caught sight of a number of 'planes flying in formation a couple of thousand feet below him.

"I know what I'll do. I'll just drop down beside them and ask them the way. I may be off my course a bit."

He pushed the stick forward and dropped down towards them.

Suddenly his jaw dropped and he hauled on the stick till the prop. clawed on to the air and the controls grew sloppy.

"Black crosses!" he gasped. "They're Huns! My Gosh, and I was going to ask 'em the way!"

He levelled out and circled, watching overside, fascinated.

Then he saw something else which tensed his body in his seat. Below them flew a single British 'plane. Even as he watched, those others dropped to the attack. The 'plane with the red, white and blue markings did not seem to have noticed them for it kept straight on. Further to the rear and below them all, Billy saw what looked like a dense black cloud burst suddenly into being, shot through with flame.

"Archies, by Gosh! Seen lots of 'em from the trenches but, Jiminy crickets! they look a jolly sight worse from upstairs. What about this other bloke, though? Looks as if his number's up."

STRANGELY enough, he was looking at the swift-moving drama being enacted beneath him with the detached view of a spectator at a football match or a horse-race; possibly with even greater detachment, for in the other cases he would have been closer; there would have been the excitement engendered by the proximity of partisan crowds; whilst here, here he was alone, a solitary and silent onlooker at something almost unreal and outside his experience.

But only for an instant. Swift realisation came to him that he was watching a brother pilot being attacked from behind by a superior and unsuspected enemy. He must do something about it. He felt the hair on the back of his neck crinkle and his scalp grow tight. He felt no fear; only the hope that he might be in time, in this, his first aerial scrap.

That there were seven of the enemy against himself and his countryman didn't count at all. Down went the nose of the Camel as he stood on the rudder-bar and shoved the stick forward.

Swiftly the instructions drummed everlastingly into his ears by patient men in war-stained uniforms at home flashed through his brain. Obedient to these, whilst still far out of range, he pressed the thumb-trips to warm up his Vickers. One burst—two. That was all. He went on diving.

He saw a Fokker burst into smoke and flame; another seemed to disintegrate in mid-air and fall to earth. He shouted incoherently, using any words that came to his tongue, yelling encouragement to the lone pilot who could not hear him.

Then suddenly he felt sick. With three Huns on its tail, something seemed to have happened to the British 'plane beneath him. It was circling slowly. Even as he looked, its speed increased and the nose dropped.

"A spin," he muttered. "The blighters have nabbed him."

There was no time to say more or even think. He was amongst them. He did not stop to think what he should do. He knew nothing of aerial tactics—save theoretically. He knew only that his job was to bring down as many of the enemy 'planes as he could before they turned on him.

Luck—beginner's luck—favoured him. With guns yammering, he bore down upon the nearest 'plane and raked it from rudder post to cockpit before ever the pilot knew he was attacked.

As the 'plane lurched over sideways, he saw the man slump forward, his hands clutching at his throat.

He spun on a wing-tip and attacked another. But by this time they were warned. The pilot writhed away unscathed. Billy dived on another who had zoomed upwards, but before he could press the trips, he heard the rattle of Spandaus behind him and skidded out of danger.

Four 'planes—four to one. He felt the blood drain from his face, and knew he was scared stiff.

He realised he was utterly at the mercy of the fighting pilots of these superbly-handled Fokkers, but he was not going to give up—not by a jugful.

SUDDENLY a chance remark dropped laughingly by one of the instructors at Eastbridge recurred to him.

"Scare 'em," he had said. "If you can't hit 'em—scare 'em. Scare the guts out of 'em. Drive straight at the blighters and keep on going. They'll dodge every time."

It had sounded silly at the time, he remembered, and he had laughed with the rest, but this fellow had run out of ammunition far over the lines when attacked by a flight of Huns, and had got back safely by just such a bluff.

It was worth trying. He set his teeth and turned—turned so sharply that he banked over the vertical and felt the 'plane slipping from under him. He jerked the stick and got back. Somehow it gave him confidence.

He saw a Fokker diving straight at him. He kept on his course, guns blazing. He was sure they would collide. He hesitated for a moment. Should he swerve aside? Perhaps this fellow wouldn't dodge. It was too late now, anyhow. He shut his eyes and waited for the crash, his thumbs still on the trips; the gun barrels jerking madly.

Nothing happened. He opened his eyes and looked before him. Empty space. With a start of relief, he realised he had won the second round. What about the next? He banked swiftly round and levelled out again. The first thing he saw was a blazing mass gyrating earthwards, and he knew his bullets had bitten home.

They were upon him again, but more warily now, seemingly with more respect, but nevertheless bullets sang past his head and he saw little strips of fabric stick up suddenly from his wings.

Again he spun round facing his enemies, but they scattered in all directions before him. Once more he banked over, wrenching his controls as he had been carefully taught not to do, but it seemed to work nevertheless.

Dodging, zooming, banking, over-controlling in his inexperience, never on an even keel, always chasing an elusive 'plane which invariably slipped out of his sights in the nick of time, he was growing desperate.

At last he saw a 'plane dropping on his tail with fire streaming from twin Spandau muzzles. He pulled the stick into his stomach and held it there. Over came the Camel in a tight loop—his first. His undercarriage hit something which was not the ground and bounced. He held the stick tight and began another loop. He did not know why, nor where he was. Upside down, he pushed the stick over to the left. His head whirled, and he jerked the stick central and away from him and found himself on a level keel again, but facing the opposite way.

"Gosh!" he muttered. "How did I do that? That was an Immelmann." He looked over the side. Beneath him a Fokker with its wings folded back was diving earthwards.

He shook his head, puzzled, not knowing that he had bounced on and off its upper plane and wrecked it.

He banked over steeply, saw a shape swish past him and flashed after it. The pilot glanced at him with fear-stricken eyes and tried to dodge. But it was too late. At fifty feet he could not miss. His Vickers sprayed a leaden hail which raked the Fokker broadside on, and the 'plane wavered away out of control.

Billy levelled out and looked wildly about him, wondering from whence the next attack would come. There was nobody in front of him, and he banked round swiftly, anticipating a rear attack.

But he could see no enemy 'planes there either.

Presently, already more than a mile away to the east, he made out the last remaining Fokker in fast retreat.

HE felt suddenly very tired, and realised to his great disgust that his knees were shaking like aspens. Glancing at his altimeter, he saw it registered only a bare thousand feet. He wondered where the pilot of the British scout had fallen and looked below him. Banking in a wide circle, he spotted it in a field and dropped down to investigate. As he drew closer, he saw a figure standing beside it, looking upwards.

Coming in low down, he cut the switch, skimmed a hedge and landed. The 'plane rolled to a standstill not far away from the Spad.

Billy got out and walked towards the other pilot who was advancing to meet him, swaying slightly on his feet. He proved to be a little man with a blood-streaked face and a red muffler round his neck, although the day was warm.

"My name's Sharpness," greeted the scout pilot, holding out his hand, with a grimace which might have been intended for a smile.

"How do, Sharpness," grinned Billy. "My name's Landers. Are you badly damaged?" he inquired, glancing at the other's blood-stained features.

"Scratch. Nothing to worry about. You put up quite a scrap. Took the beggars off my tail just in time. What squadron are you from?"

Billy felt his face redden painfully, and shuffled his feet in acute discomfort.

"Fact is, old man," he confided at length, "I'm a little off my course. I left Eastbridge this morning to go and do a practice shoot at the ranges, ran into a fog amongst other things, landed at St. Omer out of petrol, got a fill up and headed for Eastbridge again.

"In fact, between ourselves, old chap, I'm a bit of a dud at finding my way across country. That's why I landed up here. Can you tell me where I am at the moment?"

Major Sharpness looked at him keenly for what seemed to Billy an unnecessarily long time, then burst out laughing.

"Damn it, Sharpe, or whatever your name is," he burst out indignantly. "Don't be a fathead. It's nothing to laugh at. Where is this damn place, anyway? I've got to be getting back. I'll get a hell of a ticking off from that ass de Something-Smythe if I don't show up."

"Oh, I don't know," grinned Sharpness. "He's not so bad. Knew him pretty well. He's got a pretty good overseas record. This," he added, "is Lamontaigne, about five miles or so from Villeron where my squadron's stationed. Give me a hand to change a cracked plug and we'll run over together. Happen to have a spanner with you?"

Billy Landers nodded. "Righto. I can do with a drink or two, and I've missed lunch somehow, and I could peck a bit. Then I can cadge a fill of petrol and be on my way. Can't be far."

Sharpness regarded him approvingly as Billy produced a spanner from his tunic pocket, changed the broken plug and clipped on the terminal.

"Righto, Sharpe, old bean," he remarked, the job accomplished. "Get into your old tub and I'll swing your prop. for you, then you can swing mine, and off we go."

Major Sharpness made no comment, but did as he was told, grinning widely

as soon as the engine cowling hid him from the sight of Billy.

They taxied down the field together and took-off into the wind, Sharpness leading. They circled the field twice for altitude and then started due west. Then Sharpness went ahead and Billy followed. Since this was his first experience of flying in France, he was greatly interested in the countryside, so very different at a thousand feet from what he had seen in the infantry. So interested was he indeed, that he soon lost sight of the faster 'plane.

At length, however, he picked up a 'plane flying before him and followed along. It seemed a long five miles to him, but at last the leading 'plane nosed downwards and landed before a line of hangars. Billy followed, taxied up to the tarmac and climbed out.

A mechanic came towards him.

"So you've got back again, sir," he greeted him. "See you've been in a bit of a scrap, sir," he added, glancing at the holed Camel with professional interest. "Soon have her patched up again."

"Holy smoke," muttered Billy wearily, looking about him in the gathering dusk. "Blessed if I'm not back at Omer again. Who was that just landed?"

"That, sir? Just one of our officers—Mr. Wilkins, sir. Been patrolling up and down the lines."

CHAPTER V

A New Pilot "Passes Out"

SECOND LIEUTENANT BILLY LANDERS arrived back at Eastbridge at dinner-time the following day. How, he did not know, nor did he greatly care.

He walked straight to the squadron office, preferring to meet his fate rather than have Fate grab him rudely by the seat of his breeches when his back was turned.

He knocked at the door and was invited to enter.

Major de Montmorency-Smythe was carefully piercing the end of an after-dinner cigar and completed that delicate operation before looking up.

When he saw who had entered, his head jerked backwards in surprise so suddenly that his monocle slipped from its accustomed resting place and made a bad landing on the edge of the table, becoming twins on its way to the floor.

"Goodness gracious!" he exclaimed, producing and fitting a spare from his tunic pocket without visible rancour. "You don't mean to say you've returned. Where was it this time—Canterbury Cathedral?" He chuckled in quiet enjoyment of his jest.

"No, sir," answered Billy seriously, "the one at Amiens, I think, sir."

"The—the—the what did you say? Sounded like Amiens."

"Yes, sir. I think so. I—er—got a little astray in the fog, sir, and landed in France once or twice. But I've got back now, sir."

"You've got back now—really." The Major swivelled in his chair. "D'ye hear that Bestwick? He says he's got back now."

Captain Bestwick grinned thoughtfully and turned back to his work.

"Well, Landers, you've arrived just in time. Give me that letter from the Wing, Bestwick. Thanks. Listen, young fellah. I told you that if you got lost again you could return to the infantry. This is the Colonel's reply to my request that you be returned forthwith. We've no room or use for pilots who can't find their way. You can go just as soon as you like—or probably sooner. Anything to say against it?"

Billy had—lots—but he doubted if it would do him any good. It was a bitter pill to swallow, especially after all the hard work he had put in getting into the Flying Corps to begin with.

Also he felt the thing was unfair, damnably unfair. He knew he was, to say the least of it, rather a dud at finding his way, but that didn't mean he'd never improve. Then there were the adventures of yesterday still very fresh in his mind, but, dash it all, he reminded himself, a fellow couldn't very well go and shout about that kind of thing.

However, Billy Landers did not have red hair and a pugnacious jaw for nothing. These things will out on occasion. He decided to make this an occasion.

"Yes, sir," he answered curtly. "I've lots of reasons against going back, but I know dam' well it's no use telling them to you. What the hell do you know about it, anyway?"

He felt his chin jutting out further and further.

"All you jolly well do is sit in a comfy chair and give out a lot of hot air. I'd dam' well like to see you get up in a fog a hundred miles thick and get down again where you took-off. You'd probably make a dam' sight worse mess of it than I did. Another thing . . ."

"No," broke in the Major suavely. "Not another thing. You've said quite enough." He stretched himself and yawned slightly. "Any further remarks may be made in writing and then—er—torn up. See that he gets his travelling warrant, Bestwick."

THERE came a knock at the door and, without waiting for a reply, someone entered.

Billy Landers gave a start of surprise. Here was the very last man he expected to see.

"Hello, Sharpness," greeted Major de Montmorency-Smythe, rising with outstretched hand. "Where've you blown in from?"

"Villeron," answered the new arrival curtly, as he shook hands. "Just come in. Wanted to see you about a 'hun' of yours." He grinned at Billy in friendly fashion and added: "Ah, here he is. I'd forgotten his name, but remembered where he came from. When's he passing out from here?"

"At once, or sooner," smiled Major de Montmorency-Smythe grimly. "He returns to his battalion to-morrow. He's the . . ."

"Back to the P.B.I.?" grated Sharpness. "Are you crazy, man? I saw this feller bring down four Fokkers in twice as many minutes yesterday afternoon, and you talk about his going back to foot-slogging. Man—you're as mad as a March hare."

Major de Montmorency-Smythe sat down suddenly in his chair, goggling from one to the other, completely at a loss to understand what it was all about.

"But—but—but he can't find his way," he stuttered. "He gets lost every time he . . ."

"Hell—that's nothing. He's a born scrapper, and I want him. When can you pass him out?"

"But I've got the Colonel's authority to send him back to his reg——"

"Damn the Colonel's authority!" stormed Sharpness. "I'll see to that. Can you pass him out to-day? I'll see to the rest."

"Oh, ab-so-lutely," agreed de Montmorency-Smythe. "Do anything you like about it — anything, my dear fellah."

"Good. Then that's settled. Send him out to me to-morrow. By boat. See—not by air. I'll look after him once I get him, but I won't have him doing an aerial Cook's Tour all round France on the way out. G'bye."

And out he went.

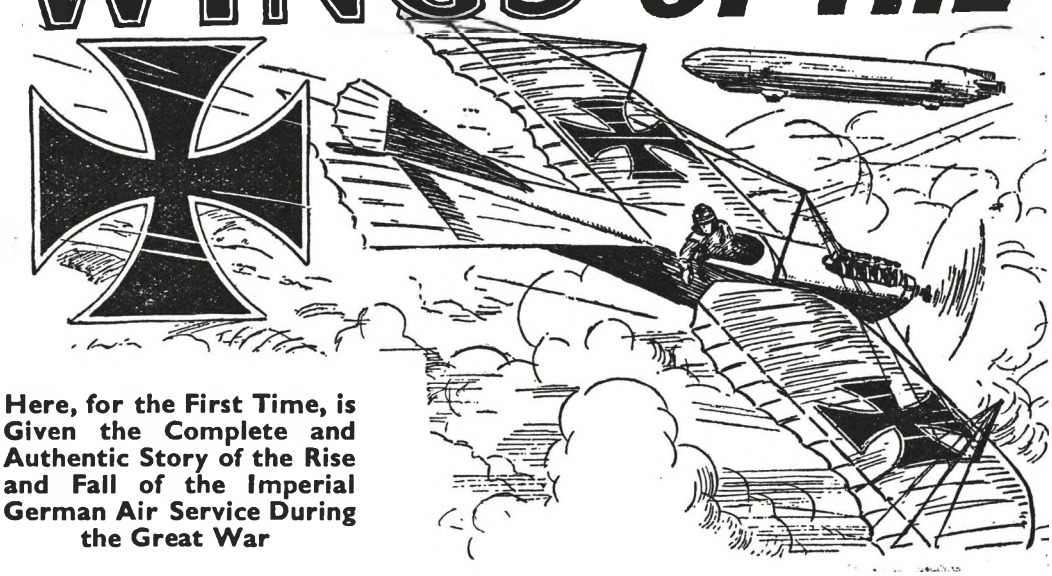
Second Lieutenant Billy Landers looked at Major de Montmorency-Smythe; saw he was not observed, and made a hasty exit by the same door.

He saw a short, squat figure hurrying a little way ahead of him. He doubled after him and overtook him.

"Major Sharpness, sir," he puffed, rather out of breath; "I want to apologise—for yesterday. I didn't know you had a squadron, sir." He glanced at the bare shoulder straps. "You see, sir, you hadn't any . . ."

"How the blazes should you have known," broke in Sharpness, following the direction of his eyes. "Lost 'em some time ago and never had time to put 'em on again. That's all right. See you at Villeron in a day or two, and for heaven's sake, don't go and dam' well get lost on the way."

WINGS OF THE



Here, for the First Time, is Given the Complete and Authentic Story of the Rise and Fall of the Imperial German Air Service During the Great War

The Epic Story of the Birth of German Air Power—

"BORN in the War. Died in the War." Such might well be the words inscribed on the memorial raised over the decaying bones of the Imperial German Air Force—and, until recently, the epitaph would have been fitting. From a very modest beginning in 1912, Germany's aerial might rose to the pinnacle of its power in 1918, only to be disbanded and destroyed under the terms of the Treaty of Versailles.

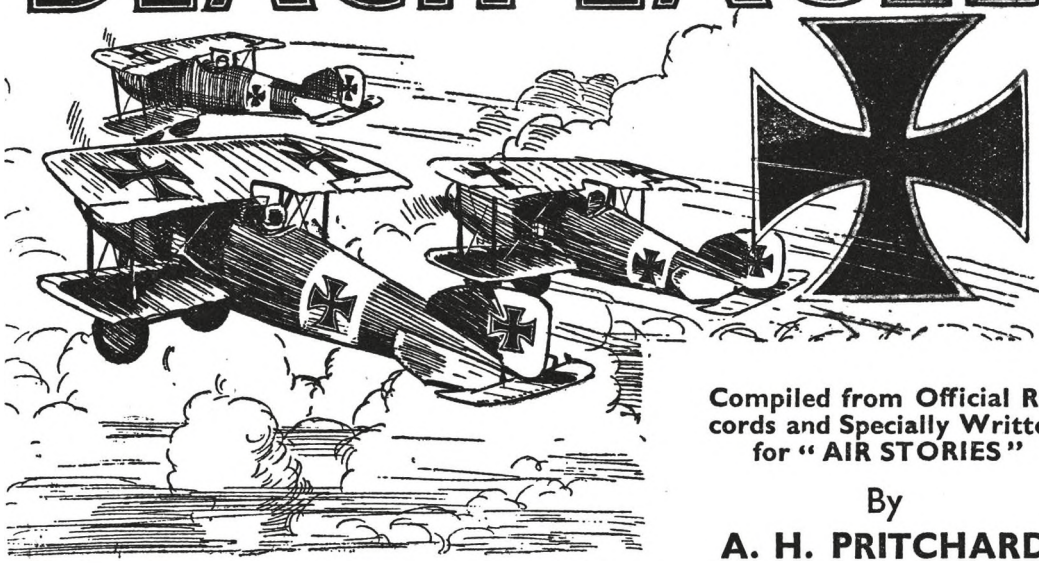
Now, after eighteen years have passed, newspaper headlines tell of Germany's rearmament, and once again the Black Eagle is spreading its great wings across the sky of Europe. Famous squadrons, lost but never forgotten, have again grown wings, and once again a Germany, powerful in the air, confronts an anxious world.

It is of past glories, however, and not with prophecies, that this article is concerned, and here, for the first time, is given the complete and authentic story of the Imperial German Air Force during the Great War. Its birth, early struggles, victories and defeats, and, most bitter of all, its final collapse and resultant disbandment are all faithfully recorded. For the most part, the men who filled its ranks and made its history will be seen to have been fearless, chivalrous fighters, not the grinning ghouls and body-snatchers that some "blood and thunder" writers would have us believe. Enemies though they were, Germany's airmen were a gallant company, the sky warriors of the Fatherland. To their dead, history will pay tribute; to the living we say, "Soft Landings" and "*Hals und Bundbrucken.*" And both, living and dead, play their heroic parts in this authentic year-by-year account of the German Air Service's meteoric growth in the forcing-house of aerial warfare.

The First Military Aircraft

THE mighty War Lords of the Teutonic Empire, always on the lookout for inventions that might prove

BLACK EAGLE



Compiled from Official Records and Specially Written for "AIR STORIES"

By

A. H. PRITCHARD

—And Its Amazing Growth in the Forcing-House of War

useful in time of war, had decided, as long ago as 1900, that aircraft presented great military possibilities. The outbreak of war, therefore, found Germany prepared in the air as well as on the ground.

Zeppelins and other lighter-than-air craft had first captured the attention of the War Council, and long before there were even rumours of war, millions of pounds had been spent on experimental work. Late in 1900, Count Ferdinand von Zeppelin, in his peculiar cigar-shaped gas-bag, made his first flight from Lake Constance, when, on October 17th, he flew his airship for the remarkable time of one and a half hours. Strangely enough, none of Germany's neighbours advanced with lighter-than-air machines beyond the use of non-rigid dirigibles and captive balloons, which were chiefly used for observation and fleet work. The rigids, that is, Zeppelins and Schuttze-Lanz airships, were purely offensive weapons, though later they were to prove costly ones for those who manned them.

When the Wright Brothers startled the world with their epoch-marking flight at Kitty Hawk, the German High Command again were the first to see in their flimsy contraption a potential war machine. They offered prizes for successful flights and designers were encouraged to submit plans or ideas, which, naturally enough, brought forward many queer contraptions. One proud designer presented a winged balloon that was supposed to be filled with bombs and to have a clockwork gas-release valve. This valve was set according to wind drift and, at a specified time, presumably when the balloon was over its objective, the valve would open, and down would go balloon, bombs and all. This idea was actually tried out in October, 1914, but the test was inconclusive, as the balloon resisted all efforts to get it off the ground.

In order to encourage designers still more, the Government then offered approximately £4,000,000 to be used as prize money and finance for the best machines and engines produced during the years

1904 to 1910. Despite this inducement, progress remained comparatively slow, and it was not until 1911 that a really successful and satisfactory design appeared. In that year Josef Etrich, an Austrian, had tried to sell plans of his flying machine to the Austrian War Office, but had been ridiculed and his plans rejected. While trying to obtain a backer in Germany, a Secret Service official made contact with him, and his plans were forwarded to the Committee of Aviation. A trial model of his design was made and proved so successful in its tests that it was bought immediately, and the Rumpler factory was ordered to make twenty machines at once, under an official licence.

These machines were the first of the popular Taubes, or Doves, and were so called because of the wing arrangement and their remarkable resemblance to a bird in flight. Contrary to general belief, the Taube was not a distinct make, but a type, over twenty factories producing them under War Office contracts, Gotha, Halberstadt, Jeannin, Goodekker, Stahalz, Rumpler, Albatros, and D.F.W. being the best known. All were built to the original basic specification, although improvements were made from time to time. The type had a length of 34 feet, a wing-span of 44 feet, and was usually powered with either an Argus or Mercedès engine of 100 h.p. Speed varied according to the manufacturer, some using lighter materials than others, but performance was usually between 50 and 60 m.p.h., with a ceiling of 8,000 feet.

It was the Rumpler model, however, that surpassed all others. On July 9th, 1914, Linnekogel, chief pilot of the Rumpler factory, made an attack on the altitude record in a 100-h.p. Benz-engined Rumpler Taube. Taking-off early in the morning, he landed again at Templehof aerodrome, Berlin, with his barograph showing a height of nearly 20,000 feet. The capture of this height record had a great influence on subsequent Rumpler designs, for, thereafter, the company's designers aimed for height and rapid rate of climb rather than high forward speed—factors which were destined to make their photography and reconnaissance machines some of the most successful of their kind ever used during the War.

The Outbreak of War

IN the spring of 1913, the High Command placed orders for additional aeroplanes, half of which were to be monoplanes, and half biplanes. The former were practically all Taube types, and the latter consisted of A.E.G., Eueler, Rumpler, L.V.G., A.G.O. and D.F.W.s.

Exactly twelve months later, when Germany was making active preparations for war, an army law was passed, granting £400,000 to the Air Service, and, at the same time, provision was made to turn over to it a goodly portion of the £4,000,000 that had previously been allocated for prizes and experiments. With this money, still more machines were ordered, and all old types were replaced.

Proof that war was foremost in the thoughts of Germany even then can be found in the phrasing of that same army law, for it went on to state that the new machines were to have room for pilot and passenger, must be entirely of German manufacture, and must include bomb-racks and fittings for a camera. Going still further, it stated that engines of less than 100 h.p. would not be accepted, speed must not be less than 56 m.p.h., and that the endurance should be at least four hours.

When the gathered war-clouds finally broke and began a storm that was to rage for nearly five years, Germany's air strength consisted of 38 airships, with 80 airship pilots, a little over 800 aeroplanes, and 36 seaplanes in the Naval Section, one of which was a British Sopwith "Bat-Boat." To fly and maintain these aircraft, there were nearly 1,000 pilots, 487 observers, and a personnel of some 2,600 men. Another example of Teutonic foresight in matters appertaining to aviation is the fact that, although possessing only 28 aerodromes

in 1912, this number had been more than doubled when war eventually broke out.

Small though Germany's 1914 air force and equipment may seem in the light of later aerial armadas, it was actually far ahead of the air power of any other belligerent nation. At that time there was no segregation of machines for specified work, and a pilot merely flew on the mission to which he had been assigned, in any machine that happened to be available. A "By Guess and By God" system prevailed, but, nevertheless—they flew.

In the beginning, the German air arm was to do the same work as the cavalry, scouting and reconnaissance, and it was thought highly improbable that aircraft would ever be able to carry explosives. The pilots themselves, however, thought differently, and on August 13th, 1914, the Imperial Air Force struck its first blow at the enemies of the Fatherland, and made the first entry on the clean white pages of the history of aerial warfare. Lieutenant Franz von Hiddeson flew to within a mile of Paris, dropped two 4-lb. hand-bombs on the suburbs of that city, and flew his Taube safely home. Max Immelmann and Jacob Werner followed hard on the heels of the pioneer, and the Gay City became the recipient of many small bombs and taunting messages. Immelmann's famous note, "People of Paris! Surrender! The Germans are at your gates. To-morrow you will be ours," can still be seen at the Paris Museum.

On September 2nd, however, the gallant von Hiddeson was shot down by a defence battery of anti-aircraft guns, near the Bois de Vincennes, the first raiding airman to fall in the history of the world. Hiddeson was not the first German airman to fall in war, however, for on August 24th a scouting Aviatik, piloted by Sergeant Kausen, was shot down near Le Quesney, and another was forced to land in the British lines the next morning. A few days later the first raid on an enemy aerodrome was carried out by two German airmen when, on August 29th, an Aviatik dropped three bombs on the R.F.C. field at Compiègne, and managed to elude the British machines that set out to overtake it.

Duck-guns as Armament

THE hazards of aerial warfare in those early days were great. Fired at by friend and foe, the airmen of both sides were a gallant band indeed; their machines were dangerous enough in peace time without having to put up with daily target practice from the P.B.I. Armament was conspicuous by its absence, but by mid-September the "winged cavalry," no longer content with shaking fists at each other and proceeding about their daily work, began to take duck-guns, rifles, pistols, and even bricks aloft with them. One German pilot, about this time, actually managed to wound Captain Mapplebeck, R.F.C., with a pistol bullet.

On October 5th, the observer of a French machine shot the pilot of an Aviatik stone dead from a hundred yards range, and the next day a German claimed to have destroyed a Caudron by throwing a brick into its propeller. The same month saw the first of the bombing squadrons come into being, when a squadron was formed at Ghistellens, on the 26th, and designated the "Ostend Carrier Pigeons," or Battle Squadron Number 1. This squadron went into action early in November, when it made a mass raid on Dunkirk, the first formation flight of the war. One machine from this squadron made a raid on Dover, on December 21st, but for some unknown reason dropped its load of bombs into the sea. Still another machine appeared over Sheerness on Christmas Day, but was forced to flee by a patrol of R.N.A.S. machines that quickly chased it out to sea.

Although fighting in the air had received little or no attention during the first five months of the war, the German pilots could claim the destruction of ten enemy 'planes by the year's end, with an additional seventeen claimed as "out of control."

Before closing the record of 1914, the aircraft production is worthy of mention, for it will enable the reader to compare the remarkable strides made later in this all-important work. Altogether some 1,350 service machines were built in five months, a remarkable achievement for that period.

1915

BY the time 1915 dawned, both sides had begun to take more notice of events in the air than had been thought necessary during the early winter. German and Allied commanders alike began to sort out their motley collection of machines and segregate them for varied duties, such as reconnaissance, bombing, artillery, photography and fighting, each squadron being allotted machines to be used for one purpose only.

To the German designer these duties were to be distinguished by letters before the factory type number. Thus the letter E denoted a monoplane single-seater fighter ; D, a biplane single-seater fighter ; Dr, triplane fighter ; C, observation machine ; CL, special ground-strafing machines ; G, a day bomber ; N, a night bomber ; R, a giant bomber ; V, a seaplane, single or double-seater ; J, an armoured 'plane, and, last but not least, B, for the school-training type. Thus the third model made by the Albatros firm became the Albatros type C.3, and so on. These groups were at first commanded by officers known as Inspector-Generals, but these were replaced, in 1916, by one man who held supreme control of the Air Services, and held a rank equivalent to that of an army corps commander. That man was Lieutenant Commander Thomsen, of whom more will be heard later.

Early in January, German armament experts began to experiment with machine-guns for aircraft use, and in February the L.V.G. C.1 was delivered to the front armed with a drummed-belt Parabellum in the rear cockpit, and a Mondraggen automatic rifle bolted to the side of the fuselage, beneath the exhaust tubes. To fire this gun the pilot had to reach out of his cockpit and pull the trigger, using the gun in much the same way as an ordinary service rifle. This type of armament was used on two-seater machines with considerable success for the best part of a year. Parabellums, with a specially large drum, were also fitted and used in much the same manner.

In mid-year, however, Germany dropped her greatest bombshell—a bombshell that was to win for her a momentary supremacy in the Flanders skies. For, in June, 1915, the Fokker Einedekker entered the lists, and a new menace arose for the Allied airmen.

The First of the Fokkers

ANTHONY FOKKER, a twenty-four-year-old aeronautical engineer, had offered a badly-designed two-seater to the British War Office, but it had been rejected as too unstable. Undaunted by this rebuff, Fokker went to Germany, and whilst there, turned his attention to the design of single-seater machines. His first brain-child in that direction became the Fokker "Spider," an advanced training-type machine which proved so successful that the Imperial War Lords decided to take Fokker in hand. Incidentally, for the benefit of those who consider that our own War Office should have accepted Fokker's original design, it is only fair to note that while he was demonstrating the machine in Germany the wings collapsed in mid-air, and the German officer who was his passenger was killed instantly.

Encouraged by the success of his second attempt, the "Spider," Fokker again set to work on a single-seater, which, when it came off the drawing-board, became the famous E.1. While this machine was being assembled, a French Morane Bullet was forced to land behind the lines with engine trouble. The pilot was Roland Garros, first of the French Aces, and his machine carried a machine-gun that could fire through the propeller. Plates of thin steel were rivetted on to each propeller blade to deflect striking bullets, and it was at once evident to the German pilots that

such a weapon was of vital importance in the ever-growing war in the air. Fokker and Franz Schneider, chief technician of the L.V.G. Company, were sent for and after a long and careful examination of the French gun, went home, and within forty-eight hours had designed a better gun. Adapting an air-stripped Maxim gun and synchronising it by a series of cams to fire through the arc created by the revolving propeller blades, they produced the gun which later became known as the Spandau. The first of these new guns was fitted to Fokker's new machine—the E.1.

At the outset, the German Staff were frankly incredulous at the claims put forward by Fokker for his combination of 'plane and gun, and insisted that the machine be tested in an actual fight before any orders would be forthcoming. In his book, "The Flying Dutchman," Fokker relates how he put on German uniform and attacked a Farman artillery machine, but at the last moment decided that this game of scientific killing was none of his concern, and drew off, much to the relief of two very scared Frenchmen. Various exhibitions of 'plane and gun in action, however, soon showed the doubtful ones just what they could do, and from disbelievers they became wild enthusiasts, and Fokker was asked to start production at once.

The first model to leave the factory was issued to Oswald Boelke on June 24th, and he was ordered to put it through tests of its front line capabilities and report back on the performance. Boelke flew the machine in practice manœuvres over Section 62's field for three days, had the gun gear checked, and went after a French Caudron on the 30th. As he dived on the French machine, a defective cartridge caused the gun to jam, and he had to pull out, with lead from the observer's gun cracking viciously about his ears. With the gun again overhauled, new cams fitted and every cartridge tested, he attacked a Morane over Vouziers on July 6th, and sent the Frenchman down with eleven bullets in his body.

After this demonstration, orders for more Fokkers were rushed through, and the second model arrived at 62's 'drome near Douai, and was allotted to Max Immelmann. On the very night that he received it, a squadron of B.E.2c's raided the 'drome, and going aloft in his untried machine, Immelmann shot down one of the bombers in flames. Other pilots now began to clamour for the new fighting scout, but delivery was painfully slow, and for some months only two machines could be allowed to each squadron.

"Fokker Fodder"

EARLY in September, the High Command came to the conclusion that this haphazard system of a machine here and there was not bringing the hoped-for results, and thereupon decided to form the six leading Fokker pilots into a group and to arm them with a new and improved Fokker. This new machine was the E.2, powered with a 100-h.p. Oberursal engine, in place of the 80-h.p. Le Rhône or Gnôme engines previously installed. The new engine increased the speed to 85 m.p.h., and the Allied machines were now hopelessly outclassed.

The new Fokker group was split up, three being placed on the French Front, namely, Boelke, von Althaus and Otto Parschau, and three on the British Front, Immelmann, Gustav Leffers and Kurt Wintgens. These groups then became officially known as "Single-seater Fighter North and South Commands," and these six men, moving swiftly from place to place, had the Allied fliers so completely bewildered that "Fokker fodder" and stories of "clouds" of Fokkers were heard daily.

By the end of the year all had secured victories, Boelke and Immelmann leading with five each, Parschau next with three, Leffers and von Althaus had two each, and Wintgens had one. Several new pilots had also been added to the rapidly growing groups, among the most outstanding being Max von Mulzer,

Walter Hoendorf, Wilhelm Frankl and Baldamus, all of whom were to score many victories during 1916.

For the whole of 1915, the entire Imperial Air Force could show a record of 128 aeroplanes and 2 balloons destroyed, and of this total no less than 54 had fallen during September, October and November, while they had lost only 16 of their own machines during those three months. The aircraft factories had also pulled their weight and had produced 4,382 machines up to December 20th, 347 of these being Fokker scout machines. In addition to the scouts, several other new types had reached the Front, among them being the L.V.G. C.1 and the very successful Albatros C.3, both machines being used as bombers before reverting to their original job of observation.

It was with the Albatros that Battle Squadron Number 1, led by Baron von Gerstoff, had made history by staging the first night-bombing raid of the War. On Friday, January 28th, 1915, fourteen machines bombed Dunkirk at 11.30 p.m. and started several small fires in the docks. Although the material damage was very slight, the raid had a very demoralising effect upon the civilian population, to whom death that fell from the skies was something altogether new and terrifying. In April, this squadron was moved to a new base at Metz, and in eight months of service there, shot down ten French machines, took part in over eighty raids, eleven of them being massed formation night raids.

Air Raids on England

THE closing year was also notable for having brought a new development in the art of bombing from the air. After debating for nearly six months the question of making air attacks on England, the High Command eventually decided on a plan of campaign. The Zeppelins, which, up to this time had been working in conjunction with the Navy, or carrying out bombing expeditions on the eastern theatre of war, were all ordered back to Germany and assembled at Friedrichshafen and Dusseldorf. By January 1st all had been completely overhauled, bomb compartments enlarged and the fleet reinforced by ten new models. When all preparations had been made, a committee visited the Kaiser and requested him to sanction the proposed raid on England. The Emperor, after much deliberation, gave his consent, but stipulated that only military or armament centres were to be bombed, and on no account was London to be molested.

Thus it was that on the night of January 9th, 1915, ten days after the Kaiser had been consulted, the sleeping population of Yarmouth and King's Lynn were aroused from their slumbers by the rhythmic beat of powerful engines and the banshee wail and roar of high explosives. Two naval Zeppelins, the L.3 and L.4, had struck the first blow in bringing the war home to England, and left behind them a casualty list of four killed and sixteen injured. A month later, both these raiders were lost without trace when a blizzard sprang up while they were patrolling the North Sea on February 18th.

In March, the Kaiser granted permission to raid London, but ordered that Buckingham Palace, St. Paul's Cathedral and Westminster Abbey should be spared. On March 17th, the Z.12 set out for London, but soon got lost in the fog. Fortunately for the crew, the airship was carrying an observation car that could be lowered on a steel hawser for nearly 5,000 feet. This car was the invention of a Lieutenant Lehmann, who was on board the Z.12 and who volunteered to be lowered through the clouds in an attempt to ascertain their position. As soon as he emerged from the cloud base he discovered that the Z.12 was almost directly above Calais, and gave the signal to drop all bombs. Severe damage was inflicted on the docks and railway station before the Zeppelin drew off. The ship crashed in landing, but luckily there were no casualties.

(*Continued on page* 507)

SCORES OF THE GERMAN ACES

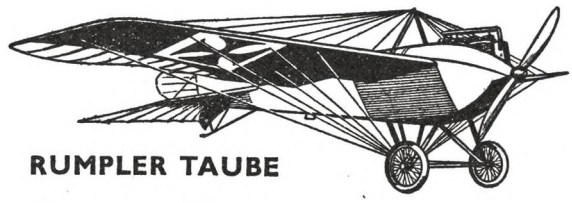
A Complete List, Compiled from Official Records, and Showing in Order of Merit the Victory Scores of All Aces in the Imperial German Air Service

NAME	VICTORIES	NAME	VICTORIES	NAME	VICTORIES
Manfred von Richthofen	80	Oskar von Boenigk	26	Walter Hoendorf	12
Ernst Udet	62	Eduard von Dostler	26	Rudolf Stark	12
Erich Lowenhardt	56	Oskar von Beaulieu-		Sebastian Festner	12
Werner Voss	48	Marconney	26	Fritz Manschott	12
Fritz Rumey	45	Robert von Griem	25	Emil Karjus	12
Rudolph Berthold	44	Georg von Hantelmann	25	Carl von Schoenbeck	11
Bruno Loerzer	44	Max Näther	25	Hans Pfiefer	11
Paul Bauemer	43	Fritz Puetter	25	von Heldemann	11
Josef Jacobs	43	Erwin Bohme	24	Jacob Theiller	11
Oswald Boelke	40	Hermann Becker	23	Stephan Kirmaier	11
Franz Beuchner	40	Georg Nyer	22	Fritz Loerzer	11
Lothar von Richthofen	40	Hermann Goering	22	Otto von Kendall	11
Karl Menkehoff	39	Hans Klein	22	Otto Gussman	10
Heinrich Gontermann	39	Hans Pippart	22	Joachim Wolff	10
Karl Bolle	36	Werner Preuss	22	Hans Berr	10
Max Müller	36	Karl Schlegel	22	Ernst von Althaus	10
Julius Buckler	35	Rudolf Windisch	22	Max von Mulzer	10
Gustav Doerr	35	Hans Adam	21	Oswald Schüz	10
Eduard von Schleich	35	Fritz Friedrichs	21	Georg Baur	9
Josef Veltjens	35	Fritz Hohn	21	Gustav Leffers	9
Otto Koennecke	33	Paul Seth	21	Jacob Bormann	9
Kurt Wolff	33	Friedrich Altemeirer	20	Braunnock	9
Heinrich Bongartz	33	Hans Bethge	20	Gabriel	9
Hermann Frommerz	33	Rudolf von Eschwege	20	Otto Parschou	8
Emil Thuy	32	Walter Goettsch	20	Friedrich Christhansen	8
Paul Billik	31	Jacob Weiss	20	Otto Esswein	8
Gotthart Sachsenburg	31	Friedrich Noltenius	20	Julius Plange	8
Theodore Osterkamp	31	Wilhelm Reinhardt	20	Karl von Schilling	8
Karl Allmenroeder	30	Wilhelm Frankl	19	Tide	8
Karl Degelow	30	Josef Kissenberth	19	Paul Meinicke	7
Heinrich Kroll	30	Kurt Wintgens	18	August von Bertrab	7
Josef Mai	30	Karl Baldamus	18	Paul Boemisch	7
Ulrich Neckel	30	Karl Plauth	17	Hans Immelmann	6
Karl Schaefer	30	Gustav Hess	17	Franz Walz	6
Harlad Auffarth	30	Hans Weiss	16	Adolf Schultz	6
Walter von Bülow	28	Fritz Rautter	15	von Hausen	6
Walter Blüme	28	Albert Dossenbach	15	Kreft	6
Fritz von Roeth	28	Max Immelmann	15	Otto Steinhauser	6
Otto Bernert	28	Hans Schnieder	15	Barth	6
Arthor Laumann	28	Gustav Geigel	15	Franz Gerliet	5
Otto Fruhner	27	Kurt Loffler	15	Rosenkrantz	5
Hans Kirchstein	27	Oskar Nathaneal	14	Kaffhier	5
Karl Thom	27	Karl Wendelmutt	14	von Seidlitz	5
Adolf von Tutscheck	27	Theodore D'ffenbach	14	Fahlbusch	5
Kurt Wüsthoff	27	Hans-Joachim Buddecke	13		

GERMANY'S

Representative Types of German Military Aircraft

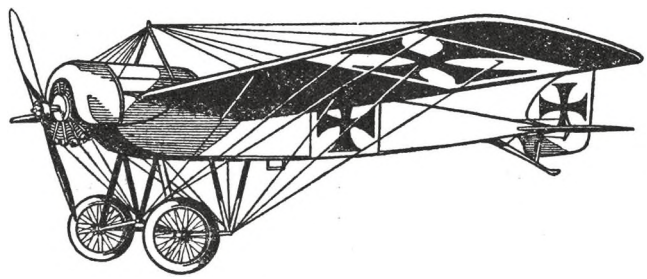
Sketches from Official Photographs



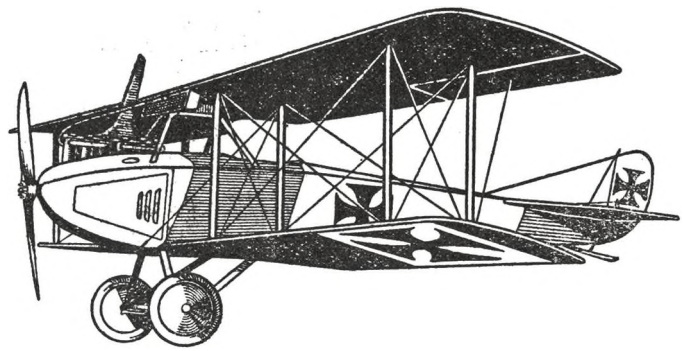
RUMPLER TAUBE

ONE of Germany's first war birds, the Rumpler Taube did a great deal of useful scouting work during the advance of 1914. It was known as the "invisible" aeroplane to the French, because the special cellulose dope with which the wings and fuselage were treated rendered the machine almost invisible at heights of over 1,000 ft. Like all the early-birds, it did not last long in the war skies. A single-seater, it was fitted with a 100 h.p. Mercedes engine and had a top speed of 70 m.p.h.

FOKKER E.2



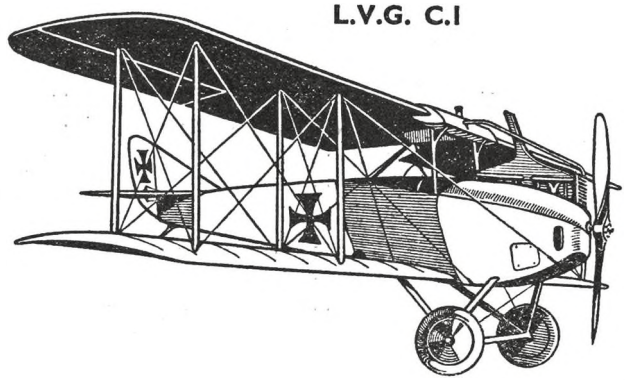
THE FOKKER E.2 was the machine on which Immelmann, Boelke, Wintgens, and other early German Aces won their first victories. Armed with a single synchronised Spandau, its armament and manœuvrability helped to win temporary command of the air for the Fatherland in 1915. The great Immelmann once had a narrow escape from death when the gun on his E.2 ran wild and shot the propeller to pieces. The engine was torn from its bearings, and only Immelmann's skilful pilotage saved his life. With a 100 h.p. Oberursal engine the E.2 had a maximum speed of 85 m.p.h.



AVIATIK TYPE P

ONE of the best known of Germany's 1916 machines, the Aviatik was employed in large numbers on the Western Front, and its name appears frequently in British and French combat reports. Armed with the usual Spandau and Parabellum, it was used as a day-bomber until outmoded and relegated to observation work. Many raids on Paris and England are credited to the Aviatik. Nungesser was twice defeated by an Aviatik, and even Guynemer once had to give one best after he had killed its observer.

L.V.G. C.I



A PRODUCT of 1915, the L.V.G. was a two-bay, two-seater biplane with a 130 h.p. Mercedes engine that gave it a top speed of 97 m.p.h. A reconnaissance-bomber type, the pilot was armed with a single Spandau, bolted to the fuselage beside his cockpit, while the observer had a Mondraggen automatic rifle mounted on a swivel post. A sturdy, stable machine, the C.1 did yeoman service during the first Ypres battle, and could give a surprisingly good account of itself in a fight. It was on a machine of this type that two German airmen, Ilges and Brandt, carried out the first air raid on London in 1916.

WARPLANES

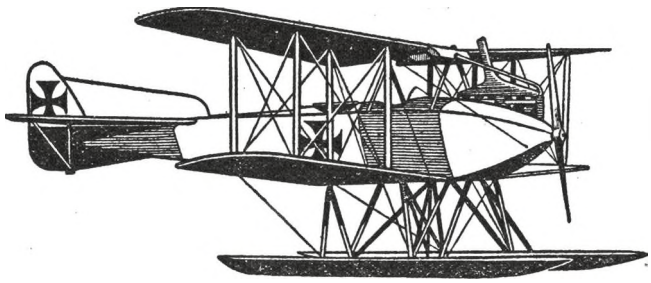
Used by the Imperial Air Service from 1914 to 1916

Illustrated and Described By A. C. LEVERINGTON

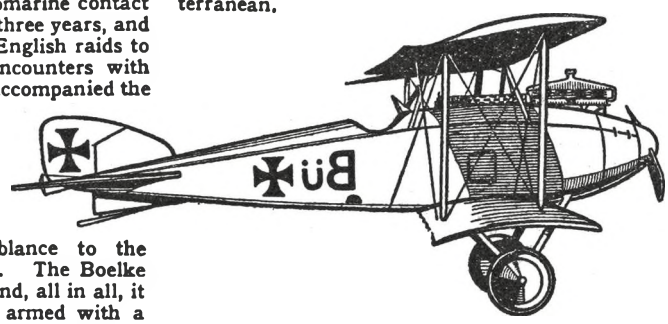
ALBATROS C.3

THE Peter Pan of the German Air Service, the Albatros C.3 saw active service continuously from 1916 to 1918, and many famous Aces had their baptism of fire in its front cockpit, including Richthofen, Udet, Buckler, Goering, and Loerzer. It was a C.3 that sent the famous American Ace, Raoul Lufbery, down in flames, while as late as 1918 the crew of an Albatros C.3 won the Pour le Mérite for destroying an English tank in the course of a ground strafing attack. Armament consisted of the usual 1916 Spandau and Parabellum, and the top speed was 90–95 m.p.h. As a bomber, the C.3 had no peer in 1916, and was for long the equipment of Battle Squadron No. 1.

FRIEDRICHSHAFEN SEAPLANE



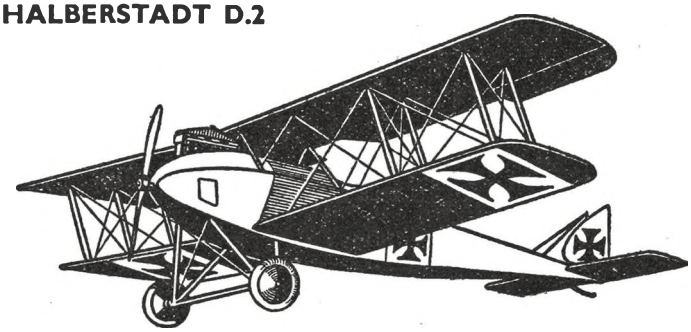
ONE of the most successful of Germany's naval aircraft, the Friedrichshafen was designed as a coast-patrol machine, but was actually used as a scout, bomber, observation, and submarine contact machine. It saw service for nearly three years, and in addition to having a number of English raids to its credit, had many successful encounters with R.N.A.S. machines. One machine accompanied the German raider "Wolf" on her adventures, while another was used as a contact 'plane by the submarine U.35 during its operations in the Mediterranean.



ALBATROS D.I

THE Albatros D.1 was commonly known as the German Spad, though, in fact, the only resemblance to the French 'plane was its tail assembly. The Boelke Staffel made history with the D.1, and, all in all, it was far ahead of its time. First armed with a single Spandau, and later with two, it reigned supreme among aircraft during 1916, while an improved model, the D.3, gave "Bloody April" its name. It was the first well-streamlined machine, and many other designers subsequently copied its sharklike lines.

HALBERSTADT D.2



ONE of the earliest of the German Scouts, the Halberstadt saw intensive action late in 1915 and early in 1916. Ball and other British Aces had many fights with it and did not always come off best, for the D.2 was a formidable opponent. A peculiar feature of the machine was that it had no ailerons on the lower wings, while its curious tail assembly did not stand much chance if hit by a few bullets. Armed with a single Spandau, it did good work, but was never popular with the German pilots, chiefly because it was difficult to fly and possessed of several vicious tricks. The engine used was an Argus of 120 h.p., which gave the machine a speed of 90 m.p.h.

THE WARPLANES OF GERMANY

A List of the Principal Types of Military Aircraft used by the Imperial German Air Service from 1914 to 1916

MAKE	ENGINE	SPAN	LENGTH	SPEED (m.p.h.)	PURPOSE
		—1914—			
Albatros	Mercedès 100 h.p.	44′ 0″	34′ 0″	56	General
D.F.W.	Mercedès 100 h.p.	44′ 0″	34′ 0″	62	General
Gotha	Benz 100 h.p.	44′ 0″	34′ 0″	60	General
Goodekker	Mercedès 100 h.p.	44′ 0″	34′ 0″	60	General
Halberstadt	Mercedès 100 h.p.	44′ 0″	34′ 0″	68	General
Etrich	Argus 100 h.p.	44′ 0″	34′ 0″	56	General
Jeannin	Argus 100 h.p.	44′ 0″	34′ 0″	55	General
Rumpler	Mercedès 100 h.p.	44′ 0″	34′ 0″	70	General
Stahalz	Argus 100 h.p.	44′ 0″	34′ 0″	65	General
L.V.G. B.2	Mercedès 100 h.p.	42′ 6″	29′ 8″	60	General
D.F.W. Type C.	Mercedès 100 h.p.	38′ 6″	26′ 9″	80	General
Friedrichshafen Type FF.17.	N.A.G. 135 h.p.	50′ 4″	33′ 6″	62	Tractor seaplane General
Friedrichshafen Type FF.27.	N.A.G. 135 h.p.	56′ 7″	36′ 0″	50–60	Pusher seaplane General
Sommer	Gnome 80 h.p.	40′ 11″	28′ 5″	70	General
		—1915—			
Albatros	Mercedès 130 h.p.	42′ 10″	27′ 2″	85	Reconnaissance Bomber
A.G.O. C.1	Benz 150 h.p.	48′ 9½″	29′ 0″	95	Bomber
Aviatik	Mercedès 130 h.p.	38′ 8″	27′ 0″	70	Reconnaissance
Fokker E.1	Le Rhône 80 h.p.	26′ 6″	24′ 0″	80	Scout
Fokker E.2	Oberursal 100 h.p.	26′ 6″	24′ 0″	85	Scout
Fokker E.3	Oberursal 100 h.p.	27′ 9″	24′ 0″	95	Scout
L.V.G. C.1	Mercedès 130 h.p.	38′ 6″	26′ 3″	97	Reconnaissance Bomber
Rumpler C.1	Mercedès 130 h.p.	38′ 2″	26′ 10″	85–90	Bomber-Fighter
Halberstadt D.2	Argus 120 h.p.	28′ 11½″	21′ 5″	90	Scout
		—1916—			
Albatros D.1	Mercedès 160 h.p.	28′ 2″	23′ 8″	115	Scout
Albatros D.2	Benz 160 h.p.	29′ 7″	24′ 3″	110–115	Scout
Albatros C.3	Mercedès 160 h.p.	38′ 6″	27′ 0″	90–95	Bomber
Aviatik Type P.	Mercedès 170 h.p.	40′ 8″	26′ 0″	82	Bomber
Aviatik	Benz 160 h.p.	39′ 0″	26′ 6″	85–90	Reconnaissance
A.G.O. C.2	Mercedès 160 h.p.	52′ 0″	28′ 4″	90	Bomber
D.F.W. B.2	Mercedès 120 h.p.	38′ 4″	25′ 10½″	95	Reconnaissance
Fokker D.1	Mercedès 170 h.p.	30′ 2″	23′ 4″	110	Scout
Fokker D.2	Oberursal 100 h.p.	30′ 2″	24′ 3″	110–115	Scout
Fokker D.3	Oberursal 110 h.p.	30′ 2″	24′ 0″	110	Scout
Gotha G.1	Twin Benz 160 h.p.	72′ 6″	37′ 6″	55–60	Bomber
Gotha G.1A	Twin Mercedès 160 h.p.	72′ 0″	36′ 8″	60–65	Bomber
Halberstadt	Opel Argus 160 h.p.	29′ 8″	22′ 10½″	115–120	Scout
L.V.G. C.3	Mercedès 170 h.p.	41′ 0″	26′ 3″	90	Reconnaissance Bomber
Roland D.1	Benz 160 h.p.	28′ 10″	22′ 4″	100	Scout
Roland D.2	Mercedès 170 h.p.	29′ 6″	21′ 5″	105–110	Scout

(Continued from page 502)

ON April 14th, the L.9, with Mathy, most famous of all Zeppelin officers, in command, raided Tyneside, but the damage done was slight, the only casualties being a woman and a baby, both of whom were wounded by shell splinters. Another, and more successful, attempt to reach London was made on May 31st, when the L.38, commanded by Linnezz and Ackermann, came in over the eastern side of London, seven people being killed and thirty-five wounded by her bombs. This success encouraged the airship men, and their raids continued throughout the year with ever-growing intensity. The Russian Front also saw increased activity in the air, and troops and Baltic towns came in for many attacks from the jubilant Air Service. Many unfortunate accidents in these new theatres of war soon quenched their ardour, however, and soon they were again turning their noses towards London. On the night of October 13th, five Zeppelins, the L.11, L.13, L.14, L.15 and L.16, roamed over London and the surrounding country for nearly four hours, scattering death and destruction broadcast. In all 71 persons were killed and 128 injured in what was to prove the most costly single raid of the whole war.

By December, 1,415 bombs had been dropped by the marauders, 207 people had been killed, 533 wounded, and the damage inflicted on property amounted to millions of pounds. The blow struck at civilian morale was of even greater importance than the material damage, and a state approaching panic obtained in England, despite official attempts to hush up the full extent of the damage. With the low powered defence 'planes unable to reach them, the giant airships roamed at will, and had only one enemy to fear—the weather—an enemy that was to inflict more casualties on them than any mortal foe.

Heartened by these raids on England, the hopes of Germany soared high, and the people at home looked forward to a staggering victory for their armies early in the New Year.

1916—The Fokker Scourge

THE year 1916 opened quietly for the opposing armies, but behind the apparent calm a conflagration without equal in the history of the world was smouldering. The German War Lords were making preparations for their world-shaking attack on Verdun, and the Air Force had to redouble its efforts in order to stop Allied observation machines taking note of the ant-like activity that was going on by day and night in the Meuse valley. All available aircraft were flung into a so-called "barrage line," and every squadron received personal orders from the Crown Prince that no enemy machine must pass over the imaginary line, no matter what it cost to stop them. This order has since been admitted to be a colossal mistake, for had the airmen fought an offensive battle, the story of Verdun might have had an entirely different ending.

Meanwhile, the Fokkers still reigned supreme, and victories continued to pile up, although their pilots' method of fighting—a steep dive out of the sun, a rapid burst of fire, and then a dive away—came in for much sarcastic criticism from comrades as well as enemies. Scorned or not, the method brought the desired results, and "He who fights then runs away, lives to fight another day," proved a motto well worth adoption.

January 5th saw Boelke again to the fore when he shot down a B.E.2c in flames for his sixth victory. Exactly a week later both he and Immelmann scored their eighth, for which feat they were rewarded with the *Ordre Pour le Mérite*, a decoration equivalent in Germany to our Victoria Cross. During 1916, all scout pilots with eight accredited victories received this award, Mulzer, Hoendorf, Frankl and the majority of the early Fokker pilots having won it by October. Only a few months later a man was required to have at least twenty victories before his name was even mentioned in the despatches.

On February 21st, the German Army launched itself at Verdun behind a nine-hour barrage of high explosive

shell and an almost visible curtain of shrapnel. High above this scene of carnage the Fokkers fought madly to do their part, no less than twenty-three French machines falling to them in the first eighteen days of the battle.

March saw the monthly score jump to forty-seven, a direct result of the offensive policy favoured by the French. Machines of every type crossed the German lines in an effort to stop the troops by air bombing and the scores of the German Aces showed the heavy price paid by the old Farman and Caudron squadrons. Boelke won four victories to make his score thirteen, Leffers destroyed a Caudron on the 16th, while both Althaus and Parschou did well.

Yet, despite the fine show put up by their scout pilots, this is what the High Command stated in an official report published after Verdun :

" *The single-seater scouts were able to accomplish little owing to bad visibility—the work done by the various observation flights was by far the most important.*"

This was also the official view during the early battles of the Somme, and goes to show that the War Lords were still not greatly impressed with the value of air fighting. Certainly, though, the German observation machines did remarkably fine work with grenades and stick-bombs. These could be strapped all round the rear cockpit, and when the observer spotted a group of French infantry below, " whack " would go his fist on the pilot's head, down would go the 'plane, and out would go the grenades. This was the first known example of ground-strafing, an art that was later to be perfected into a deadly part of modern warfare.

The Allies' Counter-Attack

APRIL brought the German Air Service only thirty-two victories, and this low score was due, in no small measure, to the new Allied machines that were, by now, beginning to appear over the lines. The scourge of the Fokker was nearing its end. The Nieuport Scout with a Lewis gun mounted on its top wing, the D.H.2, F.E.8 (or " Bloater "), and other speedy pusher scouts soon proved themselves more than a match for the Fokker, and its victories came far less easily, loss and defeat becoming the order of the day. It is an historical fact that the first D.H.2 to reach France was shot down and captured on the very day it first flew over the lines. This did much to curtail its front line usefulness, for the shrewd German designers were soon building a machine to counter its activities.

As still more of these new Allied machines came up, some of the old names dropped from the German victory lists and appeared instead in the casualty columns. Early in May, Count von Hōelk, a famous pre-war flier, shot down a French Caudron, only himself to fall in flames before the concentrated fire of three of his victims' squadronmates, who attacked him over Diaumont. Three days later, Lieutenant Henick, who had won doubtful fame by being shot down five times in three days, met his end over Dead Man's Hill, the scene of some of the bloodiest and most terrible carnage of the whole Verdun battlefield. Then, to make matters worse, June 24th saw the British start the preliminary barrage to what was to become known as the first battle of the Somme, and the German Air Service had to be hurriedly remustered on the British Front.

The attack began on the 31st, and a German Army report (Aerial Section), compiled on the 30th, gave the following strengths of the various concentrations :

On the Somme Front : Six reconnaissance flights, a total of 42 machines ; four artillery flights, 17 machines ; one bombing squadron, 8 machines ; one bomber-fighter group, 43 machines ; and one full scouting squadron of 19 machines ; making a total of 129 machines in all. Against this force the British could array some 170 machines.

Of the other main German Armies, the 6th had 120 machines, the 4th had 75, while the Crown Prince's Army at Verdun had nearly 400. These were reinforced by a further 164 machines

of all types during the month, 44 of these being bomber-fighters for the Somme Front. This same report went on to state that the Fokker was no longer a match for the new enemy aeroplanes, and ordered that they should quickly be withdrawn from service and replaced by new Halberstadt and Albatros Scouts by the end of August. The first models of the latter were to be issued to a new type of combat group, details of which would be placed before the High Command on July 25th.

When this group came into being it was none other than the famous Boelke Staffel. Just how completely the Allies had turned the tables on their enemy and gained mastery of the air is shown by the German losses between June 20th and November 20th, when 587 machines were shot down and destroyed, 116 damaged beyond repair, and 42 listed as missing.

While the above report was being drafted, another reverse had befallen the Fatherland. Baron von Gerstoff, famous leader of Battle Squadron No. 1, was shot down in flames on June 17th, and the following day brought news of a disaster that rocked the morale of the service to its very foundations.

In the late evening Max Immelmann and two companions went out on a twilight patrol and encountering two F.E.s near Annay, all three dived to the attack. In the uncertain light of that misty evening, the Fokkers became separated, and when the short clash was over, one F.E. had gone down and Immelmann had crossed the last horizon. The credit for his defeat was given to Lieutenant George Reynolds McCubbin, pilot of the surviving F.E., and Corporal Waller, his gunner, but on the German side many different opinions were expressed as to the manner of his death, none believing that the "Eagle of Lille" could have been bested in an air fight. Some claimed that his machine had collapsed in the dive, but Fokker himself, after a minute examination of the wreckage, swore that the machine had been struck by anti-aircraft fire. As the fight had taken place well inside the German lines, this theory was quickly hushed up, but . . . an anti-aircraft battery claimed to have shot down a French Morane where Immelmann fell, at exactly the same time. In the uncertain light a Fokker could easily have been mistaken for a Morane.

Still another report stated that Immelmann's guns had become unsynchronised, shot the propeller blades to pieces, and the resultant strain, caused by the terrific vibration of the racing engine, had buckled the fuselage framework, and the machine had collapsed in mid-air. Even if the machine did break up and the propeller had been shot through, a burst from McCubbin's gun could easily have caused all the trouble. Be the truth what it may, the "Eagle of Lille" was dead.

Champion of the Black Cross

WITH the death of Immelmann, Oswald Boelke became the uncontested aerial champion of the Black Cross, and his victories continued to mount steadily. Three days after Immelmann fell, the first of the promised new fighters, a Halberstadt D.2, with a 170-h.p. Mercedès engine, was sent direct to Boelke from the factory, and he was asked to give his opinion of its capabilities.

Meanwhile, the High Command was planning to get him away from the Front, for if any accident had befallen him so soon after Immelmann's death, the moral effect would have had serious results. Therefore, when Boelke returned a report on the new scout, he was ordered to present himself at Headquarters. Once there, he was given a short leave, then, on July 4th, was sent on what was supposed to be a tour of inspection on the Balkan, Russian and Turkish theatres of war. In reality, it was the outcome of the June report, for he was given the authority to demand the transfer to his personal command of any pilot who showed signs of making a good scout pilot. History was in the making, and the day of the Jagdstaffel and massed air battles was at hand.

During Boelke's absence, the Imperial Air Force was almost beaten out of the sky, and the Allied machines prowled at will, doing much execution by bombing the German trenches. This resulted in the German infantrymen raising a great outcry at the lack of aggressiveness on the part of their own machines, and many stories have been told of their famous July prayer. "May God punish England, our artillery and especially our Air Force."

Even the High Command admitted its air inferiority, for a famous general is quoted as saying, "The enemy aeroplanes enjoyed complete freedom in carrying out long-distance reconnaissances over our lines." Such was the state of affairs when Boelke returned to the Western Front.

By August 30th, he had reorganised the famous Jagdstaffel 2, and this picked force of fighters was anxiously awaiting its call to action, a call that was delayed by the non-arrival of their machines. For three days the pilots listened attentively while Boelke lectured on combat tactics, and air conditions on the Western Front, then, on September 3rd, the 'planes arrived—sleek, deadly Albatros D.1's, powered with a 160-h.p. Mercedès, and capable of outpacing the D.H.2, or any other Allied machine, by a good ten miles an hour. Within an hour of their arrival, Boelke flew one up to Pozieres and proceeded to shoot a D.H.2 to matchwood, following up this success with eleven victories in just sixteen days—but that is getting ahead of our story.

For the "cub pilots," came a few days of formation flying, a chance to get the "feel" of their new machines, and then came September 17th, red-letter day for the Imperial Air Force, when its lucky star shone at its brightest. That morning Boelke led out the entire squadron in battle array, the first of the "Circus" formations, and tangled with a mixed flight of six F.E.2d's and two B.E.2c's from No. 11 Squadron R.F.C., over Cambrai. Against the speedy Germans, armed with twin guns, the latest innovation in aircraft armament, the obsolete British 'planes stood no chance, and the entire flight was put out of action. Among the fledglings who secured their first confirmed victories on that memorable day was one whom fate had decreed should live to become the greatest of them all—Manfred von Richthofen.

The High Command was delighted at the success of this new system; no longer did they scoff at the usefulness of scout machines, and new circus formations sprang into being overnight, while the Allied 'planes tumbled from the sky like clay pigeons before a sharpshooter, no less than 126 falling during the month. Once again Germany assumed mastery of the air, a mastery they were to hold until the spring of the following year. On all fronts the Imperial Air Force held superior equipment, in Turkey, Bulgaria and even in Austria, where many German pilots saw service.

A Change of Command

DESPITE their very inferior machines, the R.F.C., who bore the brunt of the rejuvenated Germans' attacks, fought back gamely for their lives, and several well-known Aces fell. Winand Grafe, one of the victors of September 17th, was shot down on the 27th by the observer of an F.E.; Kurt Wintgens was the next to go. He had destroyed a B.E.2c for his eighteenth victory on the 26th, only to fall before the guns of Captain Albert Ball the very next day. Herewath Phillips of the Boelke Staffel went down on the 30th, and Mulzer, who had scored ten victories, carried his *Pour le Mérite* with him when he died on the first day of the new month.

October brought a change in the aerial command of the Fatherland when ex-cavalryman General von Hoeppner displaced Thomsen as sole commander of the Imperial Air Service. A born leader, von Hoeppner was also a great organiser and, with remarkable efficiency, soon had things moving with despatch. New designs were rushed from the drawing-boards, and every factory capable of making aeroplanes or component parts,

and that could be spared from the manufacture of munitions, was pressed into service. He also introduced an entirely new system of air strategy, namely, that instead of being scattered units placed about the various fronts, the major portion of the Fatherland's air power should be concentrated on the strongest front, at this time the British. With reinforcements from the quiet Russian and Bulgarian Fronts, the concentration of machines on the Somme Front reached its peak during the first two weeks of October, and in an official census, taken on the 15th, a grand total of 333 machines was announced to have been massed against the R.F.C. This force consisted of seventeen reconnaissance flights totalling 100 machines ; thirteen artillery flights, 53 machines ; three scout groups, 45 machines ; and three bomber-fighter groups, comprising 135 machines.

Against this muster, the R.F.C. could count a total of some 400 or more machines, a numerical superiority to which German aviation historians often refer. But the real significance of the figures lies in the fact that the majority of the British force was made up of old B.E.12's, F.E.2d's, R.E.'s and a few early Martinsydes. Of the entire force, only thirty-seven machines could be classed as scouts, and of these thirty-six were D.H.2's, eight of which were undergoing repairs and yet another five so badly crashed that they were beyond repair. The other machine was a French Spad which was undergoing tests, and not a single one of these scouts could boast of belonging to the same class as the German machines. Even the old Albatros two-seater, most ancient of the German machines, was in far better condition than the British F.E.'s, R.E.'s and Martinsydes, and was in fact still a formidable foe to the D.H.2's.

Advent of the Jagdstaffeln

THE Air Force Orders, issued during the same month, showed the influence of the Boelke experiment, and echoed Thomsen's report when it stated : " The present system of aerial warfare has shown the decided inferiority of the isolated fighting machine and that the verdict of victory will always fall to the well-organised groups." It continued to the effect that henceforth " all scout machines would operate solely as Jagdstaffeln, each group to consist of 14 front-line machines, an additional two to be held in reserve, and that any deficiency from this strength must be reported at once." So well was this order carried out and so admirable was the co-operation given by the workers on the home front, that thirty-three fully-equipped Jagdstaffeln were ready for action by the end of the year.

Before the change could be carried out, however, Boelke, the real founder of the circus system, had fallen to his death under tragic circumstances. No enemy bullet claimed this master of air fighting, but one of his own devoted squadron mates. In the course of an offensive patrol on October 28th, Boelke dived to attack two D.H.2's, closely followed by two of his pupils. Erwin Böhme, flying only a few feet from his leader's tail, did not see Boelke signal a turn, and his wing-tip just grazed the centre-section of the leader's machine. A wing strut snapped, then the wing crumpled, and Boelke went down to join his forty victims.

After the death of its famous leader, the squadron was, by the decree of no less a person than the Kaiser himself, to be for ever known as the Jagdstaffel Boelke. Commanded in turn by Wahl, Böhme, Max Müller and Bölle, it was never quite so well known as the Richthofen group, but built up a fine record. From the date of its birth on August 30th, 1916, until the end of the war, eighty-four names had been entered on its roster, of which strength fourty-four had made the supreme sacrifice. Against this loss the squadron could show 356 victories against Allied machines, ample compensation for their dead, since the odds were more than eight to one in their favour.

Earlier in the year, the death of Boelke might have had disastrous effects on morale, but so confident had the pilots

become under their new commander and the promises of still better equipment, that it only served to make them fight all the harder to avenge his death. The new Albatros machines, the D.1 and D.2, and the Halberstadt Scouts now began to arrive in large numbers, while the D.H.2 and other pusher types of Allied scouts fell like autumn leaves before the fury of the new storm.

November 10th saw the first great "dog-fight" of the war take place just north-east of Arras. In this fight, thirty British machines and forty-two Germans made a Dante's Inferno of the sky, and when the smoke cleared away, six British 'planes had gone down and Germany had lost three.

On November 23rd came Richthofen's memorable fight with Major George Lanoe Hawker, V.C., of No. 24 Squadron, R.F.C. Accounts of how Richthofen killed Hawker, when the latter was almost out of petrol, have been so numerous that we need not describe the combat anew; sufficient to say that a victory over so notable an opponent greatly increased the Baron's prestige. He had been placed in command of Staffel 11 on November 5th, and his men looked forward to many victories under his leadership. They were not disappointed, for on December 20th, he and his merry men destroyed a complete flight of D.H.2's. The machines they flew could operate at anything from 17,000 to 20,000 feet, and were able to make rings round the French and British machines, whose best height was between 12,000 and 15,000 feet. The only machine capable of meeting them on anything like even terms was the Sop-with Pup, but very few had yet reached the Front. The few that were in action gave a good account of themselves, and on the day that Richthofen's men destroyed the D.H.2's, a Pup pilot shot down Stephan Kirmaier, second in command of the Boelke Staffel, an Ace who wore the *Pour le Mérite*, and had won eleven victories.

The year closed with the deeds of the scout pilots being given much publicity and acclaim, but what of the bombers who, unheralded and unsung, had put in a year of remarkably fine work?

England Invaded by Bombers

ON January 1st, 1916, an order was issued to the effect that Nos. 1 and 2 Squadrons should become the "*élite*" bomber squadrons of the Father-land, while another squadron, Battle Group No. 3, would be formed to help them. This latter squadron carried out the first raids on England.

Battle Squadron No. 1 had a particularly interesting history. With its head-quarters in a dozen railway carriages, it was extremely manœuvrable, and after some fine work during the Somme battles, was sent to Bulgaria and Macedonia, returning to the Western Front in May, 1917.

Continuing their offensive policy of 1915, the bombers carried out many daring raids. On the night of January 23rd, an Aviatik made a solo raid on England, dropping nine bombs without result. The following afternoon two Friedrichshafen seaplanes attacked Dover, and though chased by six R.N.A.S. machines, they gave their pursuers the slip and escaped scot-free. Day after day, small groups of these seaplanes made their lightning raids on the coast, and although the bombs dropped were very small, considerable damage was done, while the nerves of the defence force were kept constantly on edge.

Squadron No. 1 then entered the news with a mass raid on the 25th, when the railway station and docks of Dunkirk were considerably damaged. During the night of February 19th–20th, four squadrons, totalling thirty-six machines, attacked Amiens, and the three-quarters of a ton of bombs they dropped did much damage. March 19th saw four seaplanes make a daring round trip of the English coast, attacking Dover, Deal, Ramsgate and Margate during the course of their tour, and leaving a trail of over forty people killed and wounded. Four days later a Zeppelin raided Paris and inflicted fifty-three casualties. While all this was going on, the Zeppelins continued to raid London

and other towns in England, a pastime they kept up throughout the year, despite the loss of a dozen of their number, victims of the defence forces and stormy weather.

On July 20th, four machines of No. 40 Squadron carried out a raid on the St. Omer-Calais railway junction and set a record for the number of bombs dropped by so small a group. No less than 1,700 lb. of high explosives were hurled from the sky in the course of that one raid, and the casualties amounted to nearly 1,000 killed and injured.

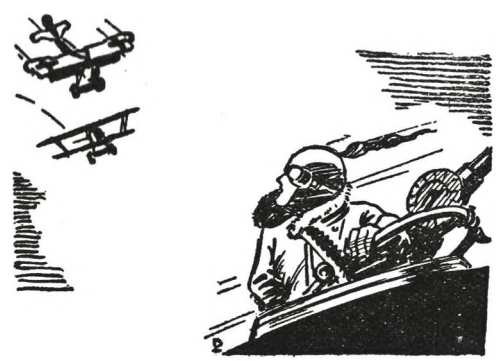
Most Daring Raid of the War

IN the face of such a record of achievement it fell to two unknowns to carry out the most daring and audacious raid of the whole war. Setting off during the early morning of November 28th in an old L.V.G. two-seater, Lieutenant Walther Ilges and Deck-Officer Paul Brandt staged the first aeroplane raid on London. Reaching the metropolis during the lunch hour, they circled over Waterloo Station and dropped six bombs, which wounded ten people. Then started the hazardous journey home. Successfully eluding the Home Defence machines that were sent up after them, they reached the Channel and set a course for their home aerodrome at Mariakere, a haven which they were fated never to reach. Flying low over Dunkirk, their machine was spotted by a French anti-aircraft section and the whole battery opened fire at point-blank range, registering the L.V.G. with the first salvo. With his engine hit in three places and half his controls shot away, Ilges had no other option but to land to inglorious capture on French soil. When interrogated by their captors, it was found that these two daring men had not only photographed the result of their hits, but had pin-pointed on their map the position of the defence's anti-aircraft guns for future reference. A very gallant flight, it serves as a typical example of what the bombers were doing, and to England it was an omen of the things to come.

Before leaving 1916, and the first half of the war, the Home Front is well worthy of mention here. The aircraft workers of Germany had produced no less than 8,369 complete machines in answer to von Hoeppner's appeal for their aid, and in addition, had turned out some 12,000 aero engines and 50,000 machine-guns, while every factory was steadily increasing its output. With this fine effort to spur them on, the pilots could do no wrong, and, though the year had begun in trial and experiment, it had ended gloriously, and they looked forward to the coming year with ever-increasing enthusiasm.

(*To be continued.*)

Part II of " Wings of the Black Eagle," recording the achievements of the Imperial German Air Service from 1917 until the end of the War—a period when, by almost superhuman effort, the Allies won and maintained supremacy in the air—will be published in next month's issue of AIR STORIES.



NORTH SEA RAIDER

Three Times was Flight Lieutenant Jimmy Lynn, of the R.N.A.S., Fated to Meet the Same Grim Raider above the Storm-lashed Waters of the North Sea before there came the Last Decisive Reckoning between Zeppelin L.88 and the "Fool who Couldn't be Killed"

CHAPTER I

Escape of a Raider

THE great moment had come at last!

Flight Lieutenant Jimmy Lynn, at the controls of his big F.2a flying-boat,* came humming out of the clinging vapours of a cloud-bank into the morning sunlight—and saw, not a mile away and some two thousand feet above him, a long silver-grey cylinder hanging against the azure sky.

A Zeppelin!

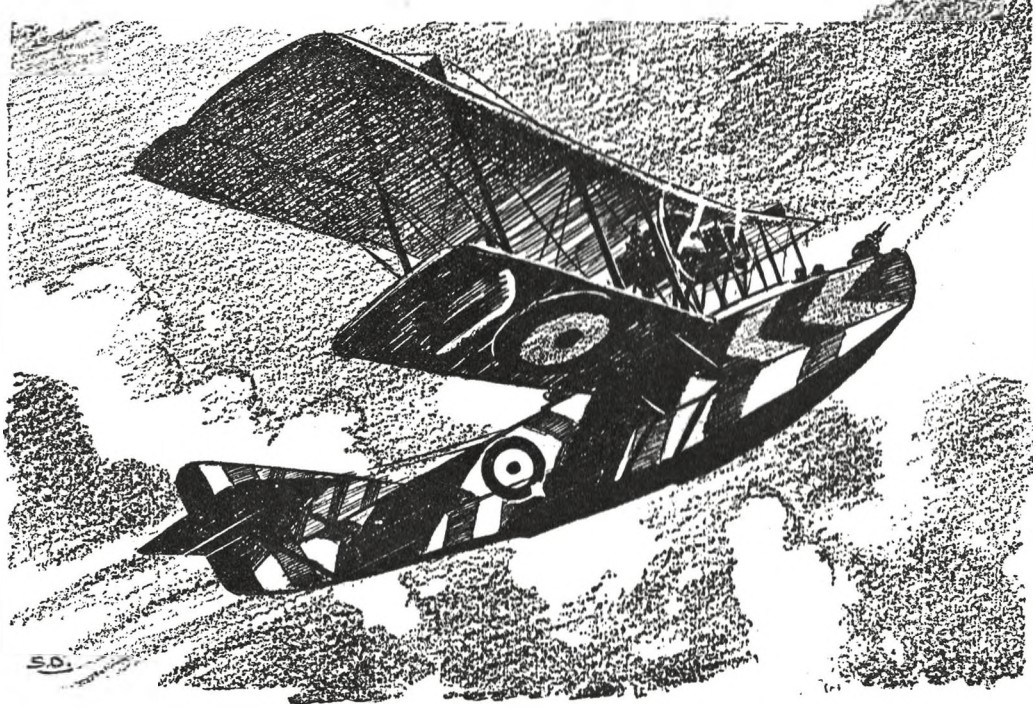
After all the weary weeks of patrolling in fog, rain, mist and chill, with never a sight of an enemy to relieve the deadly monotony—here was the greatest game of all, a Zeppelin, and almost under his guns!

A hard hand gripped his shoulder: a sharp voice barked orders in his ear, above the thunder of the engines:

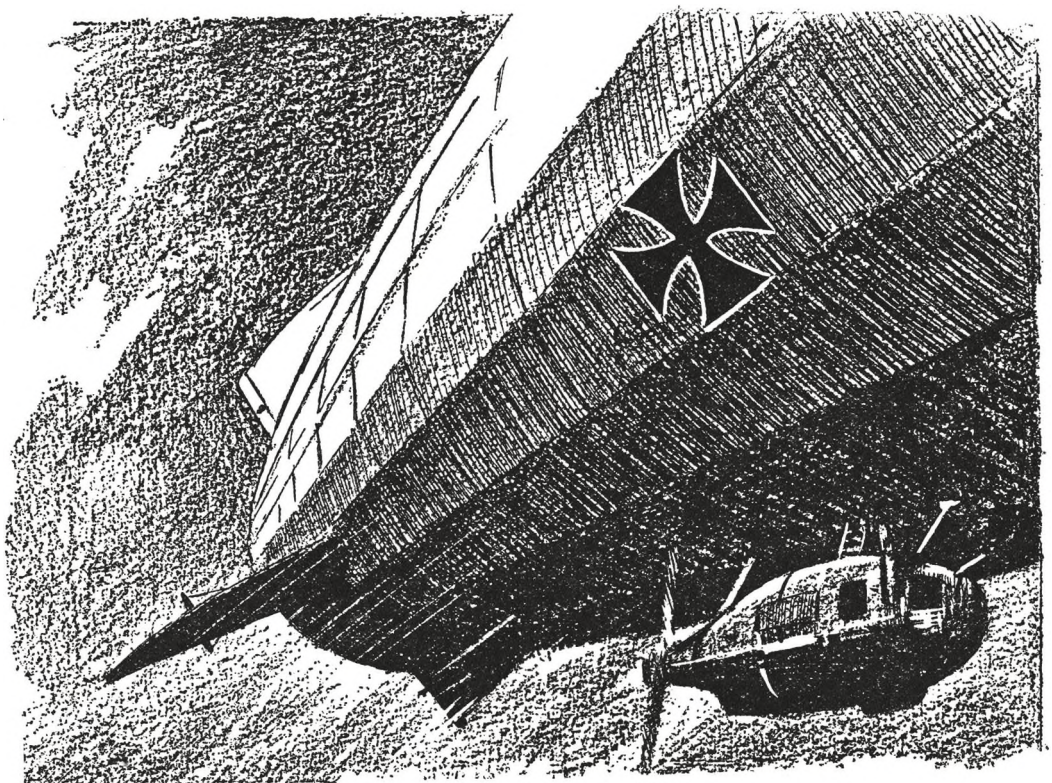
"Back into the cloud-bank—quick, before he sees you! Then climb as hard as you can till you get above him. Quick, or you'll lose him!"

The hand and the voice belonged to Squadron Commander Roberts, who was flying this patrol with Lynn to see for himself what conditions were like on the

* The F.2a, one of the largest flying-boats of the Great War, carried a crew of five and, fully loaded, weighed 5 tons. Driven by two 375-h.p. Rolls-Royce "Eagle" engines, it had a top speed of about 75 m.p.h.—EDITOR'S NOTE.



On a long slant, the flying-boat roared up at her huge enemy . . . .



. . . guns trained on the great silver target of the airship.

A Story of the Royal Naval Air Service
By MAJOR G. F. ELIOT

German side of the North Sea. He was an experienced and capable flying officer, and knew well the capabilities of the latest Zeppelin airships. It is doubtful, however, whether young Lynn even heard his orders. There was the Zepp.—Lynn's madcap brain had room for but one thought : get it !

His right hand jerked back the stick, and, at his urgent signal, the front gunner's hand closed on the pistol-grip of the twin Lewis in the bows. On a long slant the flying-boat roared upward at her huge enemy, her guns spitting flame.

" You fool ! Oh, you fool ! " yelled Roberts. But he did not countermand the gunner's orders ; have to make the best of it now, and there was just a chance—

A mile is long range for aerial gunnery, but the mile was dwindling with terrific rapidity. Lynn, his silver target held with merciless precision dead ahead, felt like a young god ! A Zeppelin brought down in flames—a decoration —promotion. Guess the folks back in Canada wouldn't laugh now at "that wild Jimmy Lynn " who had run away from home to join the Royal Naval Air Service !

Closer and closer—the rear gunner was getting in a burst or two now—another half minute should do the trick.

Then suddenly the Zeppelin forged ahead. Her stern look-out had seen the approaching danger at last. The airship's nose tilted upwards slightly as she gathered speed.

" I knew it ! Hell ! " shouted Roberts.

"She'll never get away!" snarled Lynn between clenched teeth, holding the flying-boat to her course.

As if in answer, the Zeppelin was suddenly shrouded in a fine white mist; not a smoke screen, but the spray of tons of water-ballast being suddenly discharged overboard. Her nose tilted farther—then with appalling suddenness she shot upwards—into the high blue of the firmament.

Lynn tried to follow, but it was useless. The Zeppelin's astonishing powers of ascent had carried her far above the "ceiling" of the heavy flying-boat, and far out of range of Lewis guns. Already she was almost lost to view—speeding eastward, home towards Germany.

Lynn kept on till even he had to admit that further pursuit was hopeless, and the flying-boat was so high that she was beginning to fail to answer her controls. Then, sick at heart, he wheeled in a long curve and dropped slowly back towards the gleaming whitecaps of the North Sea, cutting out the engines to save fuel as he glided down to his proper "patrol height" of three thousand feet.

The ensuing silence was cut by the grim, incisive voice of Squadron Commander Roberts:

"Didn't you hear my order to dodge back into that cloud-bank, Mr. Lynn?"

"No, sir. I——" faltered Lynn, feeling more uncomfortable every minute.

"You've been told often enough, then, to try to get above a Zeppelin before attacking," snapped Roberts. "You've been told how fast they can rise when they use their static lift and their elevators together: and you had a perfect chance, with those clouds behind you. You threw it away! You—you—eh? What's that, Heyward?"

The petty officer who acted as engine mechanic and rear gunner was holding up a glistening bit of battered metal, and pointing to a hole in the wooden hull of the flying-boat.

"The Zepp. got in a couple with her after guns, sir!" the petty officer said. "Here's a bullet that ricochetted from the engine casing."

Roberts took the bullet between thumb and finger, examined it an instant, and scowled at the dejected Lynn.

"Too damn bad this didn't drill your thick head," he snarled. "But no such luck. Fools like you never get killed."

He would have said more, but Lynn had heard all he could stand and cut in his engines to make further conversation difficult. He had almost reached the northerly limit of his patrol; ten minutes later he picked up the black-and-white cone of Terfrischen light-buoy, changed course and headed home for Yarboro.

On the way back, Roberts had nothing to say; nor, in his patrol report, did he offer any remark save the terse official sentence: "At 5.19 a.m. sighted Zeppelin airship L.88; attacked unsuccessfully, airship escaping by rising rapidly to about 15,000 feet."

After all, Roberts had been in command, the responsibility was his, and he was not the sort who seeks to throw the blame on a subordinate.

BUT from that day on, young Jimmy Lynn was made to feel how completely he had forfeited the confidence of his squadron commander. And no chance did he get to redeem his rashness.

Instead, he found himself employed on coast patrols, looking for mines, for submarines that never appeared, routine, humdrum jobs. In these weary tasks he ate out his heart, listened to the rumours that the Germans were planning a new Zeppelin raid on England with their latest type of airship—of which L.88 was one—and on clear dark nights lay awake hoping they would come.

And then the officer commanding Yarboro Air Station issued an order. It was to the effect that, hereafter, patrols with flying-boats should be carried out only with two fully qualified and well-experienced flying-boat pilots aboard. A flying-boat is apt to be a tricky handful, especially on the take-off, and there were altogether too many

of them laid up for repairs to suit the C.O.'s ideas of economy.

Now Jimmy Lynn was one of the few "pukka" flying-boat pilots on the station, having been through the complete course at Felixstowe, and this order brought him back into his own. The very next morning he was warned for a distant patrol.

Squadron Commander Roberts had invented a new scheme for strafing the Zeppelins which were reported as patrolling daily off Ameland and the mouth of the Ems. This scheme consisted in going after the Zepps. in the new, fast, high-ceilinged D.H.4's which had just been delivered for use at Yarboro. These could manœuvre much faster than the heavy flying-boats and rise to greater heights. Of course they were land-'planes, and a flight of several hundred miles over the sea in one of them was a most hazardous undertaking, since, in case of engine failure, the D.H.4 would sink the moment it touched the water. Roberts conceived the idea of sending out a flying-boat to escort the D.H.4—and, in case of trouble, to rescue her crew.

Being the man he was, he was flying the first of these new and dangerous patrols himself—in the D.H.4. He stood now, in the chill of the dawn, beside his machine, and with visible reluctance gave Jimmy Lynn his orders for the conduct of the flying-boat escort.

"Keep close to me, Lynn," he directed, "and whatever happens, if we flush a Zepp., leave her to me. Don't butt in, now, or let your wild ideas run away with you."

Lynn saluted, saying nothing; spun on his heel and made for his flying-boat. If only he could get a chance to show Roberts! But he was strictly ordered to keep out of it if they met the enemy. Prospects seemed pretty grim.

CHAPTER II

Forced Down

THE weather over the North Sea was gusty that morning; the wind was veering from east to north-east, which was ominous, and a choppy sea was running. Lynn managed his take-off in a manner which won the admiration of his crew even while they were flung about like ninepins as the flying-boat bumped and slapped over the wave-tops. Once in the air, Lynn was ordered to steer a compass course until daylight, when he would pick up and conform to the movements of the D.H.4.

Dawn found them well out over the North Sea; mist lay thick upon the water, and the sky was cloudy. Once, through a rift in the vapour, Lynn saw a British destroyer tearing along upon some urgent mission; again, a lubberly sailing-barge showed up, pitching and rolling in the grasp of the sea. The wind tore and howled round the sturdy flying-boat as she held on her course; and always, just ahead, flitted the D.H.4, looking frail by comparison, yet keeping formation without difficulty. Lynn looked at his watch, glanced at the chart on which his second pilot was recording their progress. They must be almost off Terfrischen light-buoy now—entering the area of German air operations.

"Keep a sharp look-out!" Lynn warned, peering out from his cockpit at the wraith-like D.H.4.

At that instant, a more violent gust of wind than usual sent the mist scurrying before it. Lynn saw the dark bulk of an island low down on the horizon, and right above it—dead ahead—a Zeppelin!

There was no mistake, Roberts saw the airship too, for the D.H.4 shot suddenly forward like an arrow from a bow. Speed, Roberts knew, would be his only hope this time; for the higher he rose, the more visible he would become to the Zeppelin's crew. Speed and surprise—and what cover the low-hanging mist might give; an altogether different situation to Lynn's matchless opportunity with the cloud-bank.

Lynn followed at normal speed. He must keep the D.H.4 in sight, but not come close enough to interfere; he even dropped down to fifteen hundred

feet, to get better cover from the rolling upper layers of mist. He hoped Roberts would get that Zepp.—of course he did : yet deep in his heart a sneaking hope raised its head that maybe, somehow he, too, might have a chance to do something.

The mist thinned momentarily, and then, down from a leaden sky, three winged shapes were dropping, swooping as falcons swoop upon their prey, down upon the D.H.4. Lynn knew them instantly for what they were, Brandenburg seaplanes from the German air station at Borkum. Fast, tricky, dangerous fighters !

He jerked his throttle wide open, lifted the nose of his machine a little, and roared up out of the mist to the attack. There could be no question what his duty was, this time. The Brandenburgs, unfortunately for themselves, had been so intent upon making a mouthful of the D.H.4 that they hadn't seen the flying-boat half hidden in the mist, and the first warning they had of her presence was the ripping lightning of tracer-bullets tearing through the fuselage of the foremost, raking her from end to end. The front gunner's hand never wavered on the grip of his twin Lewis as the German seaplane staggered, side-slipped and went spinning helplessly down towards the waiting sea.

Roberts was aware of his danger now ; he was turning the D.H.4, and his observer in the back seat was firing at the nearest Brandenburg. Lynn closed with the other : he heard a splintering crash as her bullets tore through the wooden hull of the boat, saw front and rear gunners working like mad, then the front Lewis suddenly ceased to chatter. Jammed. They always jammed.

Lynn saw one of the Brandenburgs turning away ; where was the other ? There she was—dropping into the mist trailing an ominous trail of black smoke behind her. Two down, and one gone home to Borkum—how about the Zeppelin ? She had seen and heard, alas ; and now she was nosing upwards, high aloft and all but out of sight.

Lynn looked round for the D.H.4. Good God, she had disappeared ! Where was she ? Had anything happened——

THE second pilot touched him on the arm, pointed out to starboard. Like a wounded bird, one wing down, the D.H.4 was side-slipping down towards the sea. She had not come scatheless through the fight.

Lynn followed her down. The wind was fast clearing away the mist now, and he could see the heaving, angry sea that waited for him. He knew too well that if he alighted on that sea he could never hope to take-off again with the added weight of two extra men on board. Yet Roberts and his observer were far worse off, for their machine wouldn't float at all. Yet, knowing his danger, knowing that the best he could hope for was a long and weary "taxi" towards England, Jimmy Lynn never even hesitated, but put the flying-boat's nose down and headed for a spot on the heaving waters as close as possible to where the D.H.4 was going to strike.

He saw her hit with a mighty splash and for the next minute or two he was fully occupied with his own machine. The gusty wind was veering back to the east again, and Lynn had to turn the flying-boat almost right around to alight into wind. Now he was very close to the rolling seas—wait for a long roller—now ! Crash ! The step hit a wave crest, the flying-boat was hurled aloft, came down again with a terrific thud that jarred every man in her, sped on and then, losing way, dropped her tail slightly and settled on the heavy waters.

"She's riding 'em !" cried Lynn. "Take the controls, Bellairs, and hang on for my orders."

The flying-boat was riding the rough seas, though already the waves were pitching her about as though savagely anxious to destroy this strange visitor from another element. Out into the screaming fury of the wind climbed Lynn, to stand on top of the hull between the great propellers, clinging to a centre-

section strut. From this elevated post he surveyed the angry sea.

Almost at once he saw a round object —the head of a swimming man.

"Port two points!" he called down to Bellairs. "You, Sparks—pass me up a coil of line."

As they approached the swimmer, Lynn saw that there were two heads—Roberts was swimming with one hand and supporting his observer with the other. There was no time to lose, and Lynn flung the rope. His throw was true, and Roberts, fighting gallantly in that mad sea, made the line fast under his observer's armpits and himself clung to the loop. It took the combined efforts of Lynn, the wireless man, and the rear gunner to drag the two castaways aboard, while Bellairs struggled with the controls to keep the waves from turning the flying-boat clean over.

Down in the cockpit again, Roberts faced Lynn, and thrust out a hand :

"Thanks, old man. You've saved our lives—and it was a damned stout effort, putting down on a sea like this."

Yet there was a queer look in his eyes ; Lynn noticed it even as he took the extended hand. A sort of questioning look, but Lynn had no time to worry about questioning looks.

The rear gunner, who was also the mechanic, was struggling forward.

"Magneto trouble on the port engine, sir," he shouted. "She's only firing on one bank of cylinders."

CHAPTER III

Adrift in the North Sea

LYNN'S last hope of getting into the air faded. Nevertheless, he tried every ruse he knew—running full out, bumping along over the wave-tops—but it was of no use. He couldn't gain flying speed, couldn't get her to lift. She was overburdened with the additional weight, and the port engine was missing badly. He'd only tear her to pieces if he kept on trying. There was nothing to do but taxi.

He slowed down, and the chart was got out, and with Roberts' aid a course was set for Yarboro. Then with deft touches on the controls Lynn managed to get the boat round without capsizing her, and headed for home with the wind astern.

Immediately he found that taxying a flying-boat with a following sea was no easy task. A steep wave lifted the tail high ; the following billow plunged the boat's nose deep into the hill of water ahead. A regular Niagara cascaded into the front cockpit, half-drowning the gunner. Before that unfortunate man could shake the salt water out of his eyes, it had happened again.

"Ease her over the rollers, man!" yelled Roberts. "Ease her—you'll swamp her if you hold on like this!"

It was only too true ; Lynn altered course to the northward, though the chart told him the danger of missing the coast of Norfolk altogether if he did so. He had barely enough fuel to make Yarboro : if he was carried off to the north and failed to be picked up in the War Channel off Cromer, he'd find himself drifting helplessly towards the Wash, at the mercy of sea and wind.

There was only one two-gallon tin of fresh water aboard, and one emergency ration for each of the flying-boat's crew of five. Roberts and his observer had none. It was a depressing outlook.

The wireless, too, was useless ; the trailing aerial was deep in the sea. One faint hope remained. There were two carrier pigeons in the machine, and one of these was at once released with a message to the officer commanding at Yarboro, giving the approximate location and course of the flying-boat.

Then they carried on. Lynn stuck to the controls while the others tried with petrol-tins to bail out the water that had poured into the hull. They didn't seem to make much headway ; in fact the water had risen ankle-deep when Roberts discovered that the hull was leaking badly. There was a splintered tear where the bullets of the German seaplane had found their mark.

They set to work to bail in good earnest —bailing, in very truth, for their lives. The wind tore at them, the sea battered

them ; Lynn fought his jumping controls, fought with every ounce of strength he possessed to keep the machine from burying her nose again. But with all his efforts she shipped a good deal of water, and the leak was getting wider with the battering of the seas.

So the weary hours of that day dragged on, while seven men—wet, hungry, thirsty, seasick and exhausted—struggled to keep their leaky craft afloat and on her course. During the afternoon Bellairs relieved Lynn at the controls ; but not for rest. He must turn instantly to bailing ; not a hand could be spared from that all-important task. Only by the utmost exertions of everyone could they keep the water in check. An hour before sunset they released their second and last pigeon.

Night came down upon that surging sea, and they had sighted neither 'plane nor ship, nor so much as a wisp of smoke. Just the heaving waves, the gloomy grey sky, an occasional gust of rain——

JUST after nightfall both engines failed. The fuel tanks were empty ; and the English coast was still fifty miles distant. In the cold and darkness they fought on with their eternal bailing. Lynn had long since lost any sensation of pain or fatigue. He lived in a sort of haze ; his body moved mechanically —dip the tin into the water that raced about his knees, hand it up to Roberts perched in the hatchway above, who flung the contents overside and handed the tin back. Dip again—on and on and on. The others were doing the same ; and they were still afloat, still just alive.

Towards midnight, a particularly vicious sea lifted the flying-boat high and dropped her slantwise, so that her starboard wing-tip crashed heavily into a roller. There was a splintering, tearing noise—the boat lurched heavily to starboard, and failed to roll back. Lynn was flung across the narrow cockpit by the impact, and Roberts came tumbling down on top of him.

" Starboard wing-float's carried away," Roberts exclaimed as he rolled clear of the swearing Lynn. The words took all the anger out of Lynn instantly. With one wing-float gone, the injured wing would droop continually ; it could only be a question of time until it would bite deep into a roller and capsize the boat.

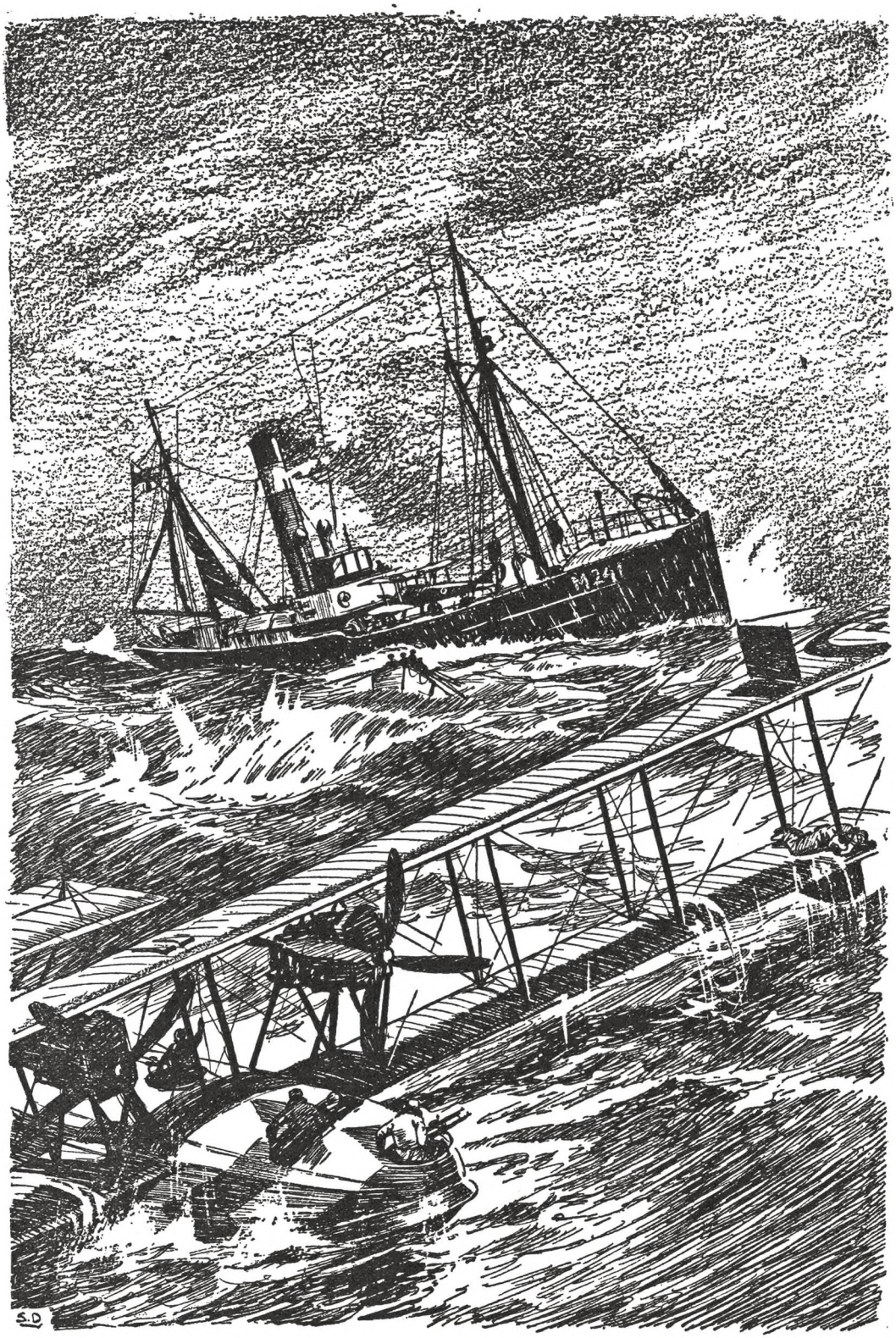
" Well, we've done our best ! " said Roberts, and the resignation in his tone sent Lynn scrambling to his feet.

" Yes, and we're not done for yet ! " he snapped. " Stay at those controls, Bellairs, keep the rudder amidships. We've got to hang on till morning."

Without further explanation, he jumped for the hatch and dragged himself out into the night. The wind almost flung him overboard ; he lay flat, clinging to struts, and wriggled under the port engine and out on the port wing as far as he could go. There he lay on his stomach, his two hands clasped tightly around the outermost strut, his feet braced against another.

The wing sagged with his weight, then as the sea leaped at the boat the wing went soaring aloft twenty feet or so. Down she came again with a terrific crash ; green water boiled over the wing, submerging Lynn, and all but tearing him from his grip. Then he emerged again, sputtering, gasping, half-drowned—up and down once more —up and down—an infernal see-saw. Drenched and bruised as he was, he hung on grimly ; for he could feel that his weight was helping to keep that injured wing from burying itself too deeply in the seas. So the flying-boat drifted on through the night, a plaything of the storm, while Lynn clung to his precarious post and others bailed.

Dawn came at last. The sea was moderating a little ; the wind had veered to the south-east and was slowly lessening in force. Roberts tried to relieve Lynn on the wing, but Lynn would not budge. In fact, he dared not ; for once he loosed his grasp on that strut, he knew he would never have the strength to drag himself back to the cockpit. From his vantage point on the hull, Roberts swept the horizon with anxious, salt-rimmed eyes.



The trawler hove-to and sent off a boat to rescue the crew of the disabled flying-boat.

"Smoke! Smoke ho!" he croaked suddenly, and almost fell down the hatch in his eagerness to get a pair of binoculars. Lynn heard him, but the words meant nothing; nor did the sudden report of the Verey pistol as Roberts signalled frantically lest the approaching steamer should miss them. So far gone was he that he even resisted when at last strong hands tried to lift him from his place, and he was still struggling feebly when they lowered him with all gentleness into the lifeboat of the trawler "Harrier."

THE cheers of the "Harrier's" crew, the sound of voices all about him, the sharp tang of brandy and the hot tea eventually brought him out of his coma in the "Harrier's" little ward-room. They had taken off his soaked garments and put dry ones on him; he felt warm and deliciously at rest, but very, very weary.

Nevertheless, he sat up on the transom and grinned shakily at Roberts, who was propped up in an arm-chair close by.

"Well, here we are, sir!" he found voice to say.

Roberts nodded.

"Thanks to you," he acknowledged. "Good show last night, my lad, crawling out on that damned wing. I thought our number was up, but you pulled us through. Keep on like that, and you'll make a fine officer yet."

The words were well meant, but to Lynn they carried an implied criticism. *Yet!* What the devil *did* the man want? His feelings must have showed in his expression, for Roberts went on:

"You've a long way to go, you know. You've a lot to learn still about the meaning of the word 'duty.' I shouldn't talk like a Dutch uncle to you, Lynn, if I didn't want to help you; it may sound damned ungrateful and all that, but it's meant for your own good."

"Duty!" exclaimed Lynn, finding at last the strength for anger. "Duty! What more——"

"Listen to me!" interrupted Roberts. "Where you failed in your duty was in coming down after me at all. You had another officer and three men to think of, with a valuable flying-boat—five lives in all, besides the boat, entrusted to your charge. You might very well have crashed the boat and drowned the lot of you, coming down in a sea like that; and if you did get down, you must have known you couldn't get off again. You must also have known what a hell of a job it would be to taxi a hundred miles home to England, with only an off chance of being picked up on the way. One of our pigeons got in, or we'd not have been found now. Your duty was to beat it for home, using your wireless on the way to summon help for us. Our lifebelts might have kept us afloat."

"And they might not! And the rescue ships might never have found you in that mist!" Lynn snapped. I couldn't fly away and leave you there to drown—any man would have——"

"You've got to forget all that before you'll make a reliable officer," Roberts cut in. "You've got to stop acting on your first impulse—like coming down for me, or going hell-bent for that damn Zeppelin."

That was Roberts: pukka Navy, very sure of himself, very calm. His clear mind could always cut to the core of a question, could always dissociate mind and heart. As a man he was profoundly grateful to Lynn for saving his life; as an officer, he profoundly disapproved of Lynn's risking five lives for two.

Some dim realisation of all this checked the hot answer on Lynn's lips. He looked for a moment into Robert's clear grey eyes, then grinned.

"Sorry I saved you, sir," he said with a chuckle. "Hope you'll forgive me!"

Other officers—the rescued Bellairs and Roberts' observer, with the "Harrier's" surgeon and the pilot of the seaplane she carried—trooped in to the wardroom and the atmosphere was fast becoming fog-like with tobacco smoke, when a quartermaster came clattering down the ladder from the deck above.

"Zeppelin coming up astern, sir!"

he cried to the young seaplane pilot. "Captain wants you right away, please, sir!"

CHAPTER IV

A Raider Meets its Match

THE seaplane pilot jumped to his feet, grabbed a flying helmet from a hook, and went dashing off up the ladder at the petty officer's heels. Immediately the other airmen staggered after him, turning a deaf ear to the surgeon's loud protests! A Zeppelin—by Gad, that was *their* game! They must have a look at her!

On the quarter-deck of the sturdy little trawler, clinging to stanchions and life-lines for support, they looked up and out into the eastern sky, flushed now with the promise of the coming sun.

Above the ship, however, the dispersing clouds still lowered above the sea; and it was here that they searched for the Zeppelin, for the roar of her engines could be plainly heard. She was flying low—yes, there she was! A great dark shape, flashing out of one cloud and into another. Perhaps her people hadn't seen the trawler; or if they had, the clouds had prevented them noting that the "Harrier" carried a seaplane.* The chance of a lifetime for a surprise attack, if only the seaplane could get aloft unnoticed!

The young pilot was giving swift orders; the derrick creaked as it swung round to make the chain-falls fast to the little Sopwith seaplane. In the engine-room below, gongs clanged and the trawler began to lose way.

Trembling with eagerness, the young pilot started to clamber into his cockpit, whilst the other airmen watched him with envious eyes.

Lynn alone turned away; he couldn't bear to look at another man going up to do that job. For, with a borrowed telescope, he had caught a glimpse of a painted number on the Zeppelin's bow; and he was sure, almost sure, that it was L.88!

A cry of pain, a shout from the seamen working at the winch—brought his head round again. The trawler, losing way, had rolled suddenly and heavily, flinging the pilot from the edge of the cockpit as he climbed in—flinging him out on to the deck, where he sat up to emit a string of blistering oaths and to hold out a limply dangling hand.

"Damn and blast the luck!" he yelled. "I've bust my confounded wrist!"

Some inner fire swept suddenly through Lynn's veins, driving out all thought of weakness and pain. He found himself running aft, climbing with the alertness of a monkey into the seat of that seaplane. A Sopwith Schneider † she was, with a 100-h.p. Gnôme engine—fast and handy while the engine lasted, but damned unreliable. Nevertheless, she was a type Lynn knew well.

Her engine had already been started by the mechanics and was ticking over.

"Hoist away!" yelled Lynn to the petty officer at the winch.

Roberts was stumbling aft, crying out in protest:

"You're not fit to go up! Get out of that machine!"

But the petty officer was obeying Lynn's command; Roberts' borrowed jacket was a plain one, without the two and a half stripes of his rank—and over the side went the 'plane. The instant her floats touched the water, Lynn jerked the hook clear and pulled open his throttle. Out he charged over a sea whose waves had changed now to long even swells, the song of his engine rising louder and louder in his ears, spray leaping under the twin

* During the latter stages of the War, seaplanes were extensively carried by British trawlers and light cruisers operating in the North Sea. Launched overboard in mid-ocean, they were thus brought nearer to their objectives when carrying out bombing-raids on German-held territory, and were also better able to intercept and engage approaching air raiders.—EDITOR'S NOTE.

† The Sopwith Schneider, a development of the Sopwith Baby seaplane which won the 1914 Schneider Trophy Race at a speed of 86·8 m.p.h., was widely used by the R.N.A.S. throughout the War, for patrol duty and for bombing attacks on submarines and Zeppelin bases.—EDITOR'S NOTE.

floats of his speeding 'plane. Above, the Zeppelin had disappeared, shielded by the low hanging clouds ; but once through that layer of vapour——!

EASING back on the stick, Lynn's heart bounded with joy as the seaplane rose gracefully from the water and slanted upwards in a long climb.

In front of him was a twin Vickers gun on a fixed mounting ; Lynn slid a belt of cartridges into place, pulled back the operating handle and let it fly forward, testing the gun in a short but satisfying burst of fire. Evidently the pilot had been expecting to go up after Zeppelins, for Lynn saw—examining the belts—that they were loaded in sequence with tracer, explosive and incendiary bullets ; the ideal "gruel" for airships.

He was in the clouds now, and felt their chill embrace close round him. He was flying "blind," his eyes on his instruments, keeping the nose of his machine pointing steadily upwards.

With startling suddenness he shot out into clear air ; and, almost directly over him, her great envelope seeming to fill the sky, was the Zeppelin.

He could see her two cars, fore and aft, with the outflung silver eggs of the four engine-gondolas ; the roar of her propellers came to him even above the clatter of his own engine. For a moment he was almost awed by the majestic bulk of the huge airship ; then into his vision swam the black letters : "L.88"—and the sight recalled him to his duty.

His hand closed on the firing-grip of his Vickers—a savage chatter rewarded him, and fire streaked across the sky. He could actually see the bullets tearing into the envelope of the Zeppelin on the lower curve of her long body, almost amidships. He swung his machine a trifle to rake his huge foe—and his guns jammed !

As he tore at the breech-blocks with frantic fingers, a head appeared at a window of the Zepp's forward car, peering out and down ; then wind-swept water splashed in his face as the Zeppelin vanished in the mist of her discharging water-ballast.

Up she shot—and still those guns stuck. They always did. Lynn remembered saying that once before. But what devilish luck to have them do it *now*. Once more he'd been too impulsive ; he might have had a chance to get above the Zeppelin if he'd not been so impatient. Once more——

He was climbing as steeply as he could, and suddenly the left hand gun functioned. B-r-r-r-t-t-t—a long burst, as the belt jumped through the guides ; then it jammed again.

The Zeppelin was slanting upwards on the start of one of the surprising climbs which had so often carried German airships to safety. She was gone and Lynn had lost his last chance.

Then, suddenly, a faint glow appeared on the side of her envelope. Instantly it spread ; a tongue of flame licked out, ran round the whole circumference of the airship, and in a flash the entire after-part of the ship was in flames ! One of Lynn's incendiary bullets had found a hydrogen gas-bag after all !

The airship seemed to stagger, her after part drooped a little as the framework buckled in the intense heat ; the consuming fire licked forward with a dreadful eagerness and, like a great pillar of fire, L.88 dropped flaming through the clouds into the waiting sea.

Then exhaustion claimed Lynn for its own in grim earnest. Only by a superhuman effort of will was he able to manipulate the controls of his seaplane and bring her down in safety. His last conscious memory was the column of brown smoke rising where the Zeppelin had fallen into the water, and the "slap" of his floats as they struck the surface.

LYNN woke in his own bed, in his cubby-hole of a room at Yarboro.

The room was full of people—too full, for it was a very small room indeed. Also it resounded with voices, which Lynn faintly resented. They made his head ache. He lay with eyes closed

listening—why, that was the gruff old C.O. himself speaking :

" This youngster did a damned fine job, Roberts. Good sound work all around—eh, Roberts ? "

Lynn almost groaned. Well he knew what Roberts would say—" rashness, impulsiveness, no sense of duty " all that over again. He heard his squadron commander clear his throat :

" Yes, sir," Roberts said. " A damned fine job all around, as you say, sir. And at least two of the things he did are deserving of a spot of ribbon in my opinion, sir. I trust you'll see your way to recommend him for it ! "

Lynn could hardly believe his ears. Roberts recommending him for a decoration !

" I'll recommend him, certainly ! ' the C.O. agreed with considerable heartiness. " Moreover, I'll see that the Commander-in-Chief at the Nore puts a good strong boost behind the recommendation ! "

" Thank you, sir," said Roberts, and there was real gratitude in his tone. " I only hope the lad'll live to wear it ! "

Lynn sat up suddenly.

" You bet I'll live, sir ! " he said with what vigour he could muster. " You can't kill a fool like me ! You said so yourself ! "

A NEW HEAVY BOMBER FOR THE R.A.F.

Three Gun-Turrets on Latest Heavy Bomber—Gauntlets Go Into Service—The R.A.F.'s Four-Gun Fighter

ONE of the latest of the new type aircraft which will assure the high technical excellence of the expanded Royal Air Force is the Armstrong Whitworth Whitley heavy bomber, now going through its flying trials. It is a big cabin monoplane with the wings attached low on the fuselage and powered with two Siddeley Tiger air-cooled radial engines. The undercarriage is retractile. The Whitley is built entirely in metal, except for the fabric coverings of relatively unstressed components, and the fuselage is of monocoque form. Five stations are provided for the members of the crew, two of whom are pilots. The second pilot acts as navigator.

Three enclosed gun-turrets are fitted to defend the Whitley against the attacks of fighter aeroplanes. One is located in the extreme nose of the fuselage, a second in the tail between the twin rudders, and the third amidships in a position from which the zone of fire downwards is unrestricted. No performance figures may yet be announced, but it is known that the Whitley shows a great advance on any heavy bombers yet in service in the R.A.F.

An Aerodynamical Curiosity

FIGHTER squadrons of the Metropolitan Air Force are now receiving Gloster Gauntlets in place of the obsolescent aircraft previously used. This machine, a single-seater biplane, is the one that, ever since its introduction, has been puzzling experts by attaining a speed some 10 m.p.h. higher than was expected by its designer. Tests to discover the precise reason for the extra speed are still going on and, meanwhile, the aircraft remains an aerodynamical curiosity. With full load, the Gauntlet has a top speed of 231 m.p.h. at a height of 16,000 ft. above sea level, and can climb to 20,000 ft. in nine minutes.

A Four-Gun Fighter

AN immediate successor to the Gauntlet—the Gloster Gladiator—has also been ordered in considerable numbers for the use of the R.A.F. This is a four-gun fighter biplane whose performance overshadows even that of the Gauntlet. On the power of a Bristol Mercury 685/715 h.p. engine the Gladiator, though it carries a considerably heavier load than its forerunner, flies at no less than 264 miles an hour, which is far above the speed of any comparable craft yet in service with any of the world's air forces. It will prove a fitting stepping-stone to the " 300 m.p.h. and more " monoplane fighters which are just going into large-scale production ; the first of which is the Hawker monoplane, officially stated to be the fastest aeroplane in its class in the world.

HEAVIER-THAN-AIR

The Discovery of an Abandoned Steam-Roller in a Disused Chalkpit May Not Seem a Very Startling Event but, in the Hands of a Mechanical Maniac, Even a Steam-Roller May Make Air Force History

By PHILIP ARNALL

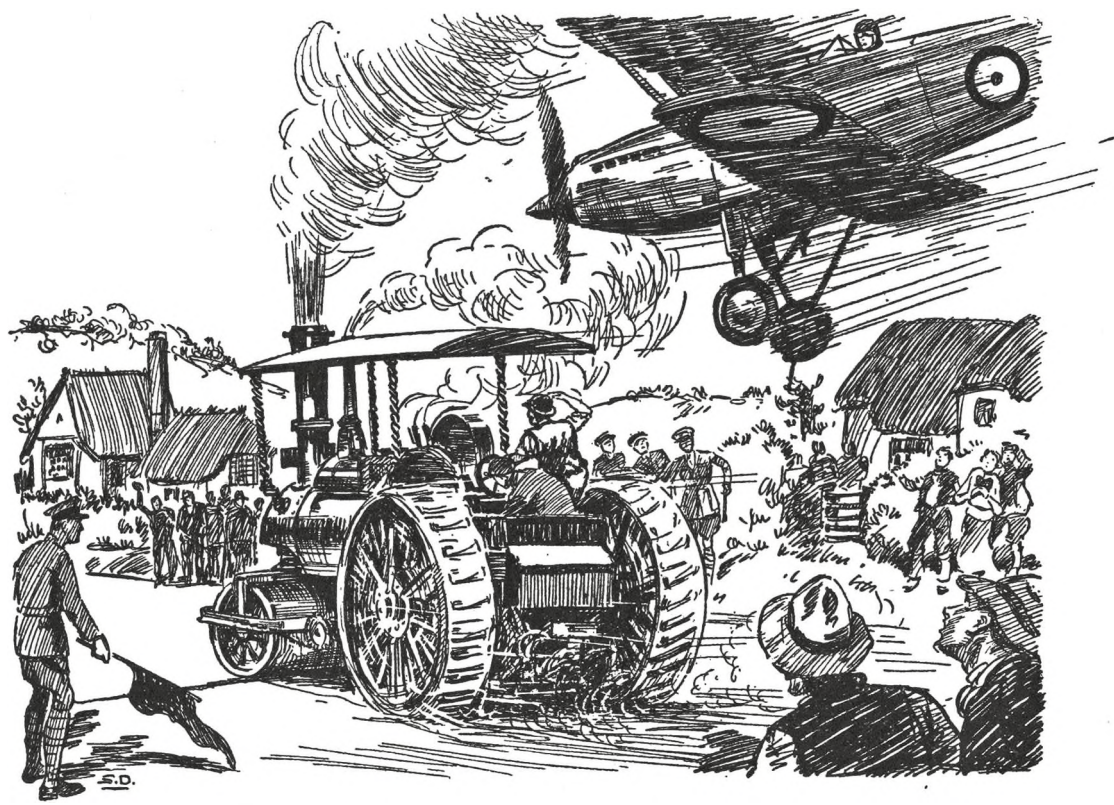
CHAPTER I

New Equipment for the Squadron

FLIGHT LIEUTENANT EDGAR FAIRBAIRN was a crank-crank ; one of those people who dote on machinery.

He loved machinery not for the advantages it offers, but for itself. When he bought a motor-bicycle, for instance, he did not buy it to get about the country ; he bought it so as to be able to take it to pieces ; to grind in the valves, fit new pistons, polish the parts, re-balance the crankshaft, alter the timing, and generally mess it about until it finally reached the stage that all machinery reaches when it has been long enough in the hands of one of these mechanical maniacs, and would give terrific power and go at a prodigious speed for a few moments and then break down.

It was not Edgar's fault. He was just born to be mechanically-minded. Everything he came into contact with he tried to take to bits and tune up—even his wrist-watch. He took that to bits so often, and tuned it up with such supreme cunning that, as Archie Mares-Gracefield drawled, it went about twice as fast as any other wrist-watch in the world.



With an angry roar of terrific power, the Fury tore past overhead.

Present a man of Edgar's temperament with the spectacle which he saw in the disused chalk-pit by Clayton's Farm, about five miles from the aerodrome one spring afternoon, and one can predict with certainty exactly what he will do.

The spectacle may not seem very startling. It consisted of a steam-roller, very rusty and decrepit, lying on its side in the bottom of the chalk-pit, half covered with earth. How it got there no one knew. One explanation was that it had "run away," rushed down the adjacent hill and, with a wild hoot, gone over the top, and that, once it was at the bottom of the chalk-pit, the local council found that the expense of getting it out again and putting it into working order would be greater than that of a new Diesel roller of the kind ostentatiously owned by a neighbouring council. So they bought a new Diesel roller and abandoned the old steam one. And there the old thing was; a thoroughly disreputable old wreck at the bottom of the chalk-pit. Nobody but Edgar would have given it a second thought. But directly Edgar saw it, as the squadron car passed it, a strange gleam came into his eye.

"What's that?" he asked Archie, who was with him.

"It might be a Handley Page 42—and then again it might not."

"But what is it?"

"It looks suspiciously like a steam-roller, old man."

"I wonder why it's there."

"It's probably resting after lunch."

FROM then on Edgar was remarkably silent. The next day he went out on his motor-bicycle to the chalk-pit. The motor-bicycle actually took him there non-stop, five whole miles. He examined the old steam-roller. Archie, telling the story, used to say he "gloated" over it. Archie, being a youth of enormous wealth and influence, went about either in a 200 m.p.h. Air Force Fury or in a supercharged Mercedes which was kept in condition by his chauffeur. He professed scorn of mechanisms, and said that the only pleasure to be had from cars and aeroplanes was in controlling them and not in tuning them.

"Make 'em work but don't mess 'em about," was his motto. He boasted he had never even taken a plug out, because it was always easier to go on to the nearest garage or aerodrome and have it done there by a mechanic. Naturally he chaffed Edgar unmercifully. But it had no effect. Edgar remained true to his bits and pieces; his tuning and assembling and dismantling, and, be it added, his oily tunic and torn finger-nails.

So the disreputable old wreck of a steam-roller preyed on his mind. Pieces of it began mysteriously to find their way to his room. Large levers; a massive brass steam-gauge reading up to 240 lb. per square inch; a water-gauge of the old glass tube variety; huge chains from the steering-gear and other odds and ends. Then, one night after dinner, down by the flight sheds, Edgar was seen in earnest conversation with Flight Sergeant MacAlister, Leading Aircraftmen Willis and Moresby, and his batman, the fat, placid and incredibly lazy Aircrafthand, Rugg.

Later there was the sound of an engine from the transport sheds, and "big Willy," the crane intended for salvaging the wreckage of twin and four-engined aeroplanes, was seen proceeding down the road, not indeed at high speed, but at as high a speed as it could attain, Edgar in person at the wheel.

When it returned, the crane, which was designed for use with weights up to 10 tons, was slightly damaged. But the transport vehicles housed on the aerodrome were augmented by a steam-roller. It was found the next morning in "B" Flight shed covered over with a tarpaulin sheet.

The C.O. looked at it during his morning's inspection.

"What's that?" he asked.

"It's a steam-roller," answered Edgar, with perfect truthfulness and an expression of beautiful innocence.

"Why is it in the shed?"

"I had it put in in case it rained, sir."

"Where are the men in charge of it?"

"I don't know, sir."

"Is it for the aerodrome road or the tarmac?"

"I couldn't say, sir."

"I daresay it's for the road. I complained about the surface months ago."

"Probably, sir."

"Tell whoever's in charge of it that we can't guarantee to put it under cover. We can only give it room temporarily. And it mustn't come near the shed when its fire's going."

"No, sir."

And that was how Edgar's steam-roller joined the squadron.

CHAPTER II

A Wager is Made

DIRECTLY he had got it to his shed Edgar forgot all about his duties: about flying, promotions, exams., and everything else. Whether a man can truly love a steam-roller I leave to the psychologists; but if Edgar ever marries and treats his wife as well as he treated that steam-roller, she will be a lucky woman. He pampered and petted and cared for it. Naturally his first act was to "take it down," or turn it into the greatest possible number of separate pieces.

Now I do not suppose that my readers are interested in steam-rollers, but it is necessary, in order to understand the stupendous event of June 15th, which I propose to relate in some detail, that the technical facts about this steam-roller should be given and carefully studied.

It was a single cylinder roller made by a famous Midland firm, and on its chest or front was a brass horse rampant with flowing mane. It was of the usual three-wheel type with a front roller four feet wide and with the driving rollers each measuring one foot five inches wide. The front roller had a diameter of three feet nine inches, while that of the driving rollers was five feet exactly. The cylinder had a slide-valve, and was of eight inches bore by nine inches stroke. A three feet six inches fly-wheel of the solid type was at the side close to where the driver stood—Archie said for him to strike matches on. The boiler was of the usual tube variety, with the grate below it. Double safety-valves were fitted, and the whole boiler was lagged with non-conducting material. The tender at the rear carried coal and water.

Steam-rollers do not have any of your synchromesh or self-changing gear-boxes, but they have gears: huge, naked, toothed wheels. The transmission of this roller incorporated a two-speed gear, the gear wheels having a locking arrangement. A Stephenson type reversing gear was used. The injector fed the boiler through a check valve fitted on the side of the boiler barrel. Steering by the front roller, which was in two parts, was by hand-wheel. Worm and wormwheel actuated a chain barrel, from which the chains were connected to shoes or quadrants bolted to the steerage-fork. The brake was of the screw type acting upon a cast-steel drum on the driving-axle, and also controlled by hand-wheel.

This, then, not forgetting that brass embossed horse rampant (with flowing mane) on the front, was Edgar's steam-roller. It was his pride and passion. Archie said that if you leant against one of the rollers, Edgar would gently edge you away and then carefully go over the part with a duster. And obviously it was a great day when Edgar was ready for his first trial run. All the squadron wanted to see that trial run; but Edgar had different ideas. Possibly he wanted privacy because he was uncertain of the thing's behaviour, and he knew that Archie was longing to be offensively funny.

ANYHOW, at an unearthly hour one morning, long before it was light, Edgar and his batman, Rugg, could have been seen going down to the transport sheds behind which the steam-

roller was now standing under its tarpaulin—the C.O. having become too inquisitive when it appeared in Edgar's flight shed. I say they could have been seen had anyone been about to see them; but nobody was about. The squadron was fast asleep, not thinking about steam-rollers.

Edgar was in the highest state of excitement, and even the lethargic Rugg dragged his feet less than usual. He had been spending many evenings polishing up that brass horse. Both of them wore overalls, and Edgar, to look professional, had brought out an old bowler hat. He carried a set-spanner the size of a Kestrel cylinder-block.

A veil may be drawn over the early hours of that morning while Edgar and Rugg shovelled coal, and hissing and sizzling sounds came from behind the transport sheds. Just after it was light, there was a prodigious puffing and clanging, and the steam-roller emerged majestically on to the open road, moving under its own power, Edgar at the helm—or whatever it is in steam-rollers—and Rugg beside him. The huge machine ambled down the road, and finally passed the guard-house to the astonishment of L.A.C. Sarraway, sentry. For a moment Sarraway had a vague idea that he ought to turn out the guard; but he compromised by presenting arms. Edgar touched his bowler hat by way of returning the salute.

Edgar decided that he had gone far enough when he neared the Sergeants' Mess, and he reversed and got the steam-roller back to its position behind the transport sheds. With the fire going, it could not be covered with its tarpaulin, but it stood there quietly sizzling to itself, very polished and contented-looking. It would have been difficult to think of that quiet and majestic machine as a centre of controversy and excitement. But let us now move to the Officers' Mess on this very morning at breakfast.

EDGAR was there early, looking smug and contented. Archie came in soon after, and there were a good many others. Edgar said nothing, but ate his porridge. Archie, however, was always talkative—even at breakfast. Noticing how silent Edgar was, he turned to the assault.

"How's the old steam-kettle, Edgar?"

"All right."

Possibly Edgar had allowed some of that triumphant feeling to escape into his words. Archie looked up sharply at him.

"You know what it'll cost you before you get that old crock on the road?"

"What it'll cost?" asked Edgar, puzzled.

"Yes. I mean taxation."

"Taxation?"

"Ah! You hadn't thought of that. I tell you that old kettle's going to cost you a packet before you can step on the gas and get the old geyser going. It's going to cost you a packet."

"I don't see why." Edgar was less triumphant and rather startled. Taxation had not occurred to him.

"Commercial vehicles go by weight, you know," said Archie casually. "I suppose that old thing weighs six or eight tons——"

"Ten and a half," said Edgar, and there was a wild shout of laughter from the mess.

Archie very solemnly pretended to calculate.

"If you take a six months' licence," he said, "that'll be fifty-three pounds fifteen."

Edgar was dumbfounded.

Archie saw it, and sought to make the most of his advantage.

"Still, Edgar, what do taxes matter to you? You'll never be able to get the old geyser going."

It gave Edgar his chance.

"As a matter of fact," he said, restraining himself with an effort, "I've had her out for a spin this morning."

All at the breakfast table stopped eating and looked, open-mouthed, at Edgar, forks, spoons and knives poised in mid-air.

"You've had her out *for a spin?*" asked Archie incredulously.

"Yes."

"For a spin?"

"Yes."

"Good Gosh!" and there was the loudest and longest laughter ever heard at breakfast in an R.A.F. mess. Edgar and his steam-roller seemed incredibly funny.

But now Edgar felt something queer going on inside him. He did not laugh or smile. He began instead to be exceedingly angry. He had felt the old roller chugging under him that morning, and there seemed something unkind, almost irreverent, about these young air pilots scorning his steam-roller and feeling so superior. He remembered the thrill he had had as he knocked at the throttle lever and felt the steam firmly thrusting the single piston down its nine-inch stroke. He knew every nut and bolt of that roller, and he loved the old thing. So he was annoyed at this laughter, and especially was he annoyed with the supercilious Archie. He turned on Archie angrily.

"I know it isn't a Merc'," he said, "or a Fury; but, by Heaven, it's every bit as good for its job! It's built for a specific purpose and it's efficient. Talk about your Furies! That's all very well. A Fury weighs about a ton and a half. I weigh ten and a half tons. A Fury's got twelve cylinders. I've got one. There are hundreds of points like that. The old roller's just as good as any of your damned aeroplanes *at its job*."

"A steep hill would kill it."

"It could climb any reasonable gradient."

This was the beginning of an argument which waxed louder and louder and more and more violent. Edgar was championing his roller, and refused to allow it to be scoffed at. And the bursts of laughter which greeted some of his most serious points maddened him.

Jackson, the doctor, put a sudden, unexpected end to the argument by shouting out:

"Why don't you have a race?"

There was a gust of laughter; but Edgar by then was pale with rage and beyond reason.

"At a fair handicap for all points I'll take on any machine on God's earth or in the air!" he shouted.

"Done!" yelled Archie. "It's your roller against my Fury over a measured course."

CHAPTER III

"The Contest is . . ."

AND so we approach that historic date, the 15th of June.

After the challenge in the mess, Archie had professed to regard the whole thing as ridiculous and impossible. The truth is he was afraid he, as well as Edgar, might cut a rather ludicrous figure.

"I'm not doing any more till I see that roller licensed," he said evasively. "I'm just wondering where Edgar is going to find fifty odd pounds suddenly."

Edgar heard of this, and said he would race with the roller unlicensed and risk being caught by the police and fined; but Archie was suddenly very law-abiding and said that he was afraid that he could do nothing of the kind.

Meanwhile Edgar had the roller in bits for such a tuning as was never heard of before. He and Rugg spent all their time polishing, fitting, and adjusting. Before dismantling the roller, Edgar had done a measured furlong against the stop-watch and recorded 2.7 m.p.h. He was determined to improve on that, and he worked on that roller like the mechanical genius he was.

At last it was ready. Secretly he took it out. Nobody heard what the result was. But Edgar looked pleased with himself, and sought out Archie and told him that he was ready for the race, and wanted an independent person appointed to set the course and handicap. Archie, however, still believing that he might cut a rather ridiculous figure, racing in a Fury against such a curious antagonist, was anxious to back out of the affair. And he had a ready-made way of doing so.

"Have you got it licensed?" he asked Edgar.

"No."

"Nothing doing. Race off."

"But I'm taking the risk of being fined for that—not you."

"That doesn't matter. I should be implicated, old man. I always believe in complying with the law."

Edgar was furious. He had nothing approaching fifty pounds in the world. He added up what he might raise on his old motor-bicycle, on some presentation cuff-links, his wrist-watch, and a few other odds and ends. It would not have been more than twenty pounds. Then he thought of a short-term licence, and wondered whether it might not be possible to take out a licence only for the day of the race. He went down on his motor-bicycle to see the local licensing authorities.

A few minutes' conversation with a puzzled and amused civil servant, and Edgar returned to the aerodrome smiling even more gleefully than when he returned from his test run. But this time the smile did not come off.

The steam-roller was licensed for an entire year. It was entered as an "agricultural machine," and the fee was 5s. He did not fail to mention the fact to Archie. And at last Archie realised that, whether he made himself the laughing-stock of the R.A.F. or not, he must take part in the race.

DR. SPINDLEDRAW, chief technical officer of the Government test station at Martlesham Heath, was appointed handicapper by general consent, and the course was settled.

The distance was eight miles of the straight and normally almost deserted road leading from the aerodrome through Little Ashby towards Westmornington. It was a good course, perfectly straight except for a steep slope, with a small hump-backed bridge at the bottom and a left-and-right S-bend on the far side of Little Ashby, only half a mile from the finish. The date, as I have said, was June 15th, because the C.O. was to be away then.

On the last two days before the race some feverish tuning was indulged in, both by Archie and by Edgar. Archie had all clearances and adjustments checked over on the Kestrel engine of his Fury.

On the day before the start a disturbing rumour came to Edgar's ears. It was said that Archie had obtained a special supply of leaded fuel, which would allow him to bring in the Kestrel supercharger near the ground and keep it in with a consequent large gain in speed. No direct confirmation of Edgar's counteraction was ever forthcoming, but it was said that he obtained a special supply of Welsh coal.

There was tremendous excitement in the mess on the eve of the race, when, the C.O. having safely gone away on leave, the handicap figures were announced by Dr. Spindledraw.

Dr. Spindledraw enjoyed the occasion. After coughing three times he addressed the assembled officers in the following words :

"The contest is between Flying Officer Archibald Mares-Gracefield flying a Hawker Fury aeroplane with 700-h.p. supercharged Rolls-Royce Kestrel engine (cheers) and Flight Lieutenant Edgar Fairbairn (loud cheers) driving a single cylinder 'Invincible' three-track steam-roller. (Deafening cheers.)

"The course, duly surveyed, is from a line extending from the aerodrome water-tower to the wind-sock mast in the south-western corner and crossing the Little Ashby road. Both machines will be drawn up with their front wheels —or roller as the case may be—touching this line, and will be started by the dropping of a flag at their pre-arranged times.

"Both machines will proceed over the course of eight miles to a finishing-line marked upon the road beyond Little Ashby. It will be a speed contest without limitation. Each competitor is required to cover the course in accordance with the rules in the shortest possible time, and the machine crossing the finishing-line first will be declared the winner. The aeroplane will conform to the international regulations, and will not exceed a height of five hundred

metres at any time. It will carry a sealed barograph to ensure that no infringement of this rule occurs. It will cross the finishing-line in flight."

Dr. Spindledraw paused and looked round over his glasses. He coughed importantly and glanced down at a paper he had with him.

"I am now able to announce the handicap times. (Cheers.) The race will commence at 3.30 p.m. to-morrow, June 15th, exactly. At this time Flight Lieutenant Edgar Fairbairn in the steam-roller will receive the starting signal. (Loud cheers.)

"Flying Officer Archibald Mares-Gracefield, in the Hawker Fury, will receive the starting signal at 4.09. 49 p.m., that is one hour nine minutes and forty-nine seconds after the steam-roller." (Deafening cheers.)

Dr. Spindledraw solemnly folded his papers and sat down, and at once there was a babel of conversation. Both competitors, surrounded by friends and helpers, amid the frantic buzz of chatter, began to compute their speeds and what they would have to do to win.

"If that roller does anything like 5 m.p.h. over the course," said Flight Lieutenant Jones to Archie, "you'll have to do 220 m.p.h."

"That's all right. I can do more as a matter of fact with my high octane fuel."

"How much more?"

"Ah, we'll see to-morrow."

Edgar did not seem unduly depressed by the figures. He believed he could do well over 4½ m.p.h. for the eight miles, and he thought he might do five miles an hour or something approaching it. He was worried about the downhill slope, the hump-backed bridge, and the S-bend beyond Little Ashby. There might, he thought, be difficulty in taking this hazard without reducing speed, and he could not very well hope to skid round the corners.

CHAPTER IV

The Tortoise and the Hare

WHEN Edgar's steam-roller and Archie's Fury aeroplane came to the line, the sun was out, blazing from a blue sky.

There had been a last-minute "incident." After coming to the line Archie had ordered his rigger to take off two landing-wires from the Fury so as to reduce drag and increase speed. It was a risky move if Archie made a bumpy landing, but not otherwise. Edgar could think of no reply to this move, for there are no bracing-wires on a steam-roller.

Ten minutes before 3.30 both machines were on the line, ready. The Fury had well over an hour to wait, and Archie had not yet thought about putting on his overalls. He stood among the crowd near the steam-roller to watch it start and, if possible, get in one or two witticisms at Edgar's expense.

The roller's brass horse was sparkling in the sun, and every part gave evidence of the care and work lavished on it. Edgar and Rugg were on the footplate, Edgar looking competent and professional in his overalls and bowler hat. A wisp of steam was at the safety-valve when the roller first drew up into position; but as the minutes before the start ticked away, and Edgar and Rugg did energetic things with shovels, the wisp became a thin spray, then a fine, sharp column, then a hissing jet, then a roaring tornado of steam.

Edgar looked at the safety-valve and then at the pressure-gauge. He had put the strongest springs he could find in the valve, but the needle on the pressure-gauge had gone "off the map," and nothing was going to hold the bottled-up energy that Edgar and Rugg had stoked up in the old boiler. It was a case, literally, of win or bust, and Edgar and Rugg knew it.

Now there is one minute to go.

Every officer and man is there—except Jimmy Rushton, whose job it is to keep the village policeman in Little Ashby out of the way—and, of course, the C.O. Cars and motor-cycles are drawn up behind the starting line, for everyone intends to be in at the finish and to cheer the winner. The chatter dies down as Dr. Spindledraw looks at his watch.

Edgar also looks at his watch and then scans the long straight road ahead, as if preparing to hurl his gigantic mount along it at break-neck speed. He places a hand on the throttle and fixes his eyes on Dr. Spindledraw.

The flag is up! That means ten seconds to go. The crowd is silent, waiting tensely.

"One more!" shouts Edgar to Rugg, who instantly heaves one more shovelful of coal into the furnace. The steam roars from the safety-valve like a waterspout. The old roller is straining at the leash.

"Go!"

THE flag drops. Edgar bangs open the throttle at full valve travel. The roller gives a fearful heave and a tremendous puff from its funnel. Sparks and cinders fly in all directions. With a horrific and terrifying lurch and a sound like the entire Great Western Railway in labour, the old roller moves forward. A deafening yell of encouragement rends the air, but Edgar, standing at the throttle, eyes fixed upon the road, does not heed it. The great solid flywheel beside him spins until it looks as if it will fly to bits. The gigantic machine gathers way like a herd of elephants starting a charge. There is a tremendous crunching and puffing and clanging and hissing and roaring.

It is not necessary to tell of the first part of the run. Edgar got into top gear about a quarter of a mile from the start, the roller then tearing along at over two miles an hour. For one hour Edgar and Rugg between them flogged it along the straight road in a way that no roller had ever been flogged before. They stoked like demons, their overalls wet through with sweat and clinging to their bodies.

Then they came to the steepening down-grade into Little Ashby, not far from the finish.

And now Edgar looks repeatedly and anxiously back over his shoulder as if expecting at any moment to see the black speck in the sky which will be the Fury, seven miles away, but rushing down upon him at 220 m.p.h. As the roller begins the descent into Little Ashby, both Edgar and Rugg know that the moment has come to sprint. The roller attacks the down-grade at five miles an hour. Its 10½ tons give it an irresistible momentum, and it flings itself down the steepening slope as if bent upon self-destruction.

Rugg, terrified, clings to the side. But Edgar kicks him and yells to him to stoke like fury. The roller gathers speed irresistibly as the hill steepens. Its mechanism screams and shrieks in agony, the puffing from the funnel almost trips over itself in its hurry. It is going berserk.

"The bridge, sir!" yells Rugg. "You must slow it up for the bridge."

"Stoke!" is all the answer he can get from Edgar, who now seems crazy with the speed and noise and bent upon suicide.

Rugg shouts for caution, and again "Stoke!" is the only reply he gets as the machine, smoking and steaming and clanging, rocks and roars down the slope. Its speed has risen to 6, 7, 8 and 9 m.p.h.—a world's steam-roller speed record! It is a frightening spectacle.

The bridge suddenly looms up horribly close, and just beyond it the sharp S-bend. Edgar pins himself to the steering-handle with both hands. The roller rushes at the bridge. There is a rending crash as it hits the incline with its 10½ tons at nearly 10 m.p.h.

RUGG said it left the ground and jumped, but that can hardly be credited. With Edgar spinning the handwheel this way and that, and the roller reeling furiously from side to side, it went over the bridge somehow, in an awful blundering crunch. It got round the first corner. At the second corner it overtook an Austin Seven on the wrong side of the road, because Edgar could not turn the steering-wheel often enough in time to get it on the correct side, and it trumpeted towards the finishing straight.

The inhabitants of Little Ashby,

including, of course, the pretty girl from the tobacconist's, had heard what was afoot, and turned out to cheer. Handkerchiefs were waved, including that belonging to the pretty girl, and shouts were hurled into the air amidst indescribable din and noise.

And now they were in the finishing straight a few hundred yards from the line. Already the whole squadron was massed there watching the struggle through field-glasses.

A cry went up ! The Fury had been spotted as it took-off from the aerodrome. And if ever a Fury moved that one did. Archie took the throttle right through the gate and held it against the forward stop. The Fury leapt off the ground and was rushing for the line at 200, 220, 225 m.p.h. It came towards the crowd like a Walt Disney bad man, grotesquely growing in size with the rate of its approach, and roaring like all the fiends in hell.

That must have been a dreadful moment for Edgar. He must have seen the spectators' eyes looking and the hands pointing to where the Fury was coming. He must have known that Archie would go straight as an arrow at forty times his own pace for the line. He must have felt a fearful helplessness against that attack of sheer speed. For there was nothing more he could do.

The old roller was going as fast as it could go. It was clanking and gnashing along for the line, a gallant old warrior ; roaring, rocking, rumbling, grunting, puffing, spluttering, chuffing.

Edgar looked back over his shoulder and saw the Fury. Rugg looked back and saw the Fury. It was moving like a thunderbolt.

They were only a few feet from the finishing-line ; but the Fury was eating up the distance—it was going to . . .

But wait ! The roller thundered on. And as those at the finish were able better to gauge the relative positions, they saw there was a slight chance—a chance—a big chance of Edgar . . .

Yes ! There was a deafening cheer as the roller crashed over the line, and the cheer was almost immediately drowned by the angry roar of the Fury as it tore overhead.

Edgar had won by inches !

BEFORE Edgar had time to stop the roller, people were clambering all over it slapping him and Rugg on the back and shouting their congratulations.

The Fury had curved up out of sight into the blue sky. Archie had told them before the start that he would not land, because the fields were rather small there, but that he would return to the aerodrome and await them there.

Everyone knew it would probably be a long wait, for Edgar calculated that the journey back at normal speed would take him three and a half hours.

When he did get back, however, Archie was not there. He had burnt out three plugs in his dash over the course, and was waiting for spares to be sent him by road.

Naturally the laugh was now on Archie ; not only for losing the race, but also for taking longer to make the return journey than the steam-roller.

But it turned out in the end that Archie had the last word.

Whether the C.O. got to hear of what happened and decided to exercise his own peculiar brand of oblique humour or not, is immaterial. Anyhow, a fortnight after that historic race, Edgar was posted to Larkhill—for a course in kite-balloons.

The Ace of Storks

Victor in Twenty-three Aerial Combats, Survivor of a Mid-Air Collision, René Dorme, French Air Ace, Received only Two Bullet Holes in his Machine in Two Years of War Flying

By

A. H. PRITCHARD

René Dorme of "Les Cigognes."

THIS month's biography is the story of a man who fought for two years in the seething war-skies of France, won twenty-three victories over enemy airmen, received only two bullet-holes in his machine during his entire service, and finally disappeared into the blue, his fate unknown—René Dorme of Squadron No. 3, the famous Storks.

Like so many of France's great "aces," Dorme was a product of the ranks and the greater, therefore, is the credit due to him for the honours he won. Born at Aix-Abancourt in 1894, the son of a station-master, Dorme's early life was one of hardship, and at the age of eighteen he enlisted in the 7th Regiment of Artillery and was drafted for service in Africa six weeks later. The threat of war brought the 7th Artillery back to France early in July, 1914, and it was while proceeding to barracks that René saw his first military aeroplane. The sight impressed him so much that he applied for service in the Flying Corps that same week-end. Months passed and René had almost given up all hope of flying when, in February, 1915, he was ordered to present himself for training.

Poor Dorme! He had received very little education as a boy, and was so terribly slow to learn that, many times, he came near to rejection. Indeed, the only thing that saved him was his determination to succeed, for so impressed was the field commander by his unceasing efforts, that he allowed Dorme to plod slowly through the course. Inspired by this officer's confidence, Dorme at last began to make headway, and in September he was awarded his pilot's *brevet*, which also carried an assignment to the Paris Air Guard, a group that flew old machines in defence of the capital, more to cheer the population than for any practical value they would have been in actual combat.

For seven months Dorme piloted an old two-seater Caudron before that fickle lady Fame beckoned to him. On April 3rd, 1916, six Aviatik two-seaters staged a raid on Paris, and the only machine in their path was Dorme's aged Caudron. Six Parabellums opened fire on the lone French machine, but Dorme dived for the leader, and with one burst sent it

down in flames, after which the rest fled. Such an exhibition of daring was greeted with wild acclaim by the excited civilians, and Dorme became famous overnight. It also brought a message that meant more to him than all the fame. Commander Brocard, of the "Storks" was greatly interested in this young man whose remarkable flying skill had enabled him to stage a victorious attack on an enemy formation in an ancient 'plane, and he sent an invitation for Dorme to join *Les Cigognes*.

A Collision in Mid-air

SO it was that, on July 6th, 1916, Dorme saw his wildest dreams come true—he had arrived at the front as a pilot in the most famous squadron of the French Flying Corps. His introduction to the great gamble of war was probably without precedent, for in his first fortnight he destroyed three enemy machines and survived a collision in mid-air. His first two victories brought him the Medaille Militaire, and his third gave him an early contempt for that grim spectre, Old Man Death.

On July 30th, he was patrolling the lines near Bapaume when he spotted a Roland Scout and began to stalk it. So intent was he on his prey that he failed to see an Aviatik that dived from a cloud directly across his line of flight. Dorme had just commenced his dive at the Roland and nothing could prevent a collision. The crash resounded even above the roar of the engines, and Dorme was knocked unconscious, luckily coming-to after his Nieuport had fallen five thousand feet. He recovered to find that his right wing was buckled up, half his controls smashed, and his undercarriage torn completely off. Fighting the wrecked machine across the French lines, he managed to make a crash landing, and walked thankfully away from the splintered mass of spruce and torn linen that had been an aeroplane. The two Germans had been less lucky, for Dorme's undercarriage had torn the Aviatik's top wing clean off, and they were killed instantly. When the wing was brought in one of Dorme's wheels was found wedged tightly between two rib-sections.

August brought him six more victories, and by that time he had become the most popular pilot in the squadron. The 23rd of the month brought him two victories and the Croix de Guerre, with palm. On that day he attacked five Roland Scouts, shot two down in flames, and expended only twenty-four bullets in doing so. It may be of interest at this stage to review the man himself and his methods of combat.

Dorme, although only twenty-three years of age, was known far and wide as "Père" Dorme, a title first conferred upon him by the fledglings who came to him for advice. He took a fatherly interest in all new pilots, and would spend hours demonstrating combat tactics to them, and even the older pilots came to him for help, for he was something of a philosopher.

A short, stocky figure of a man, he was shy and unassuming, gentle, and yet a winged devil when in action. It has been said, and rightly so, that he was the greatest Nieuport pilot on the Front, and like many other "aces," he was a great student of strategy. Brocard, his commander, considered him unequalled as a pilot, and Guynemer is quoted as saying, "We both have similar methods of attack, but Dorme is a more adroit manœuvrer than I." His favourite manœuvre was the side-slip, and many an unwary German was sent over the Great Divide by this skidding stunt. A complete master of the art of crazy flying, he was also a marvellous shot, and these combined virtues stood him in good stead when engaged in his favourite pastime of solo raids on German flying-fields.

Dorme—The Lone Raider

OFFICIALLY credited with twenty-three victories, Dorme's actual score must have been nearer fifty, but his long jaunts into German territory made observation of most of his fights impossible. One example of this is well shown

by the solo raid he made on a German scout squadron stationed at Laon. Setting off from his own field at Fismès, Dorme arrived over Laon with the first grey streaks of dawn and was lucky enough to catch the first German patrol before it could take-off. A burst from his gun split a Fokker's petrol-tank, which exploded and obligingly set fire to the machine next in line. Another Fokker dug its nose into a hedge, one ground-looped, and the lone survivor hurriedly taxied into a hangar. So suddenly had the Nieuport appeared that the damage was done before the startled enemy had time to reach their anti-aircraft guns. The whole affair had taken place too far from the French lines for Dorme to obtain the three witnesses required for confirmation, so that he never received credit for the machines he had destroyed.

Six weeks later, however, a French agent reported the attack, and Dorme received compensation in the shape of two more palms for his Croix de Guerre. To his comrades, Dorme's War Cross was known as his "Christmas Tree," on account of the nine palms that were hung on it before its owner passed on.

On August 31st, he shot down another Aviatik, his eighth victory, and entered into a friendly contest with Lieutenant Heurtaux as to who should secure the most victories before the year ended. Although they finished up on equal terms, with fifteen victories each, the contest acted like a spur on Dorme, for he secured four victories in September and another three in October, while his daring became famous all over the Front. Readers may be tempted to scoff at the idea of four victories in a month being a great score, but they must remember that this was 1916, and the noble art of dog-fighting and the era of six-a-day victories had not yet arrived.

One fight during September is typical of Dorme's utter contempt of death and his marvellous flying skill. Catching a Rumpler two-seater over the French lines, he managed to manœuvre his Nieuport beneath the Rumpler's tail—a perfect blind spot. One burst snuffed out the lives of both pilot and observer, and the machine leapt crazily, Dorme having to use all his skill to avoid a fatal collision.

When he landed at Fismès aerodrome, his comrades were amazed to find the top wing of his machine bespattered with blood. So close had he flown to the German machine that the unfortunate observer's blood had actually been blown down on to the man who had spilled it. A few days later Dorme returned with a piece of fabric caught in his tail-skid, fabric that had come from a German Scout when Dorme had again narrowly escaped death by collision. Not in the least shaken, Dorme went up again later and destroyed an Aviatik two-seater.

Death in the Blue

THE weather during the early part of 1917 prevented much aerial activity, and with the scouts tied to the ground, victories were the exception rather than the rule. Despite the adverse weather, Dorme and Heurtaux went out in every break of the rain clouds, each trying to pass the other's score. By March, Dorme had eighteen victories to his credit, one more than Heurtaux, but the latter staged a magnificent effort on March 16th, attacking five Albatros Scouts and destroying two in flames to place himself in the lead. Not to be outdone, Dorme roamed the sky over German territory for hours every day, and by May 1st was back in the lead with twenty-two confirmed victories. He had claimed fourteen in six weeks, but only four had been observed.

The 3rd of May saw Heurtaux score his twenty-first and last victory, for the following day he was shot down, seriously wounded. Dorme now cast aside his cloak of gentleness and went bersek, vowing vengeance on the squadron that had crippled his friend and rival. From dawn until dusk, he roamed the sky, seeking, but never finding, combat. By a strange coincidence, the Germans

seemed, at that time, to be avoiding his particular section of the sky. His comrades tried to pacify him, but all to no avail—he wanted to kill, kill, kill, and nothing else would satisfy him. After a fruitless patrol on the 24th, he asked Lieutenant Deullin to accompany him on an early patrol the following morning.

At 6.23 a.m. on the morning of May 25th, two Spads took-off from the "Storks'" field and headed for the lines. The only pilot who returned to tell of the events of that patrol was Deullin, who by a strange quirk of fate, was also destined to accompany Guynemer on his last flight. Far over the German lines, it seems, the two Spads had been attacked by nine enemy scouts, and both men prepared to sell their lives dearly. Deullin saw Dorme send one scout down in flames and then four machines attacked him, and he lost sight of his companion. When next he saw Dorme's machine, it was being forced farther into Germany, and he had to return, with both ammunition belts empty.

At ten o'clock a report came in that a Breguet squadron had reported a French machine burning on the ground, but could give no other information. Anxiously the "Storks" awaited the return of their beloved "Père" Dorme, but they waited in vain. Dorme had flown into the blue and the angels of war had claimed their own. Months later, a German pilot was shot down, and in his pocket was found Dorme's watch, but this afforded no positive clue, as the pilot stated that he had received the watch from a friend.

No better finale could be written than the words of Commander Brocard who, in a toast to Dorme's memory, gave: "To 'Père' Dorme, the Sorrowing Cigognes, who have often flown by your side, are gathered here to bid you good-bye. You are in good company, for many of us have preceded you. Adieu!"

THE STORY BEHIND THE COVER

A Mock Combat Between a Medium Bomber and a Bomber-Transport, Two of the Latest Types of R.A.F. Aircraft.

THIS month's cover depicts a mock combat between a Fairey "Battle" medium bomber and an Armstrong-Whitworth Type 23 Bomber Transport, two of the latest types of aircraft ordered by the Air Ministry for the re-equipment of the Royal Air Force.

The outcome of the combat between the two bomber types can hardly be in doubt, for, with its amazingly high speed, ease of manœuvrability and formidable armament, the "Battle" is an antagonist that even the fastest single-seater fighter could not hope to engage with any great chance of success.

A High-speed Bomber

PROBABLY the fastest single-engined bomber in the world to-day, the Fairey Battle is a two-seater, low-wing monoplane built entirely of metal with the exception of the rudder, ailerons and elevators, which are fabric-covered. The roomy cockpit, occupied by the pilot and observer-gunner, is enclosed by a glass-covering, sections of which can be slid back, as for the use of the rear gun during aerial combat.

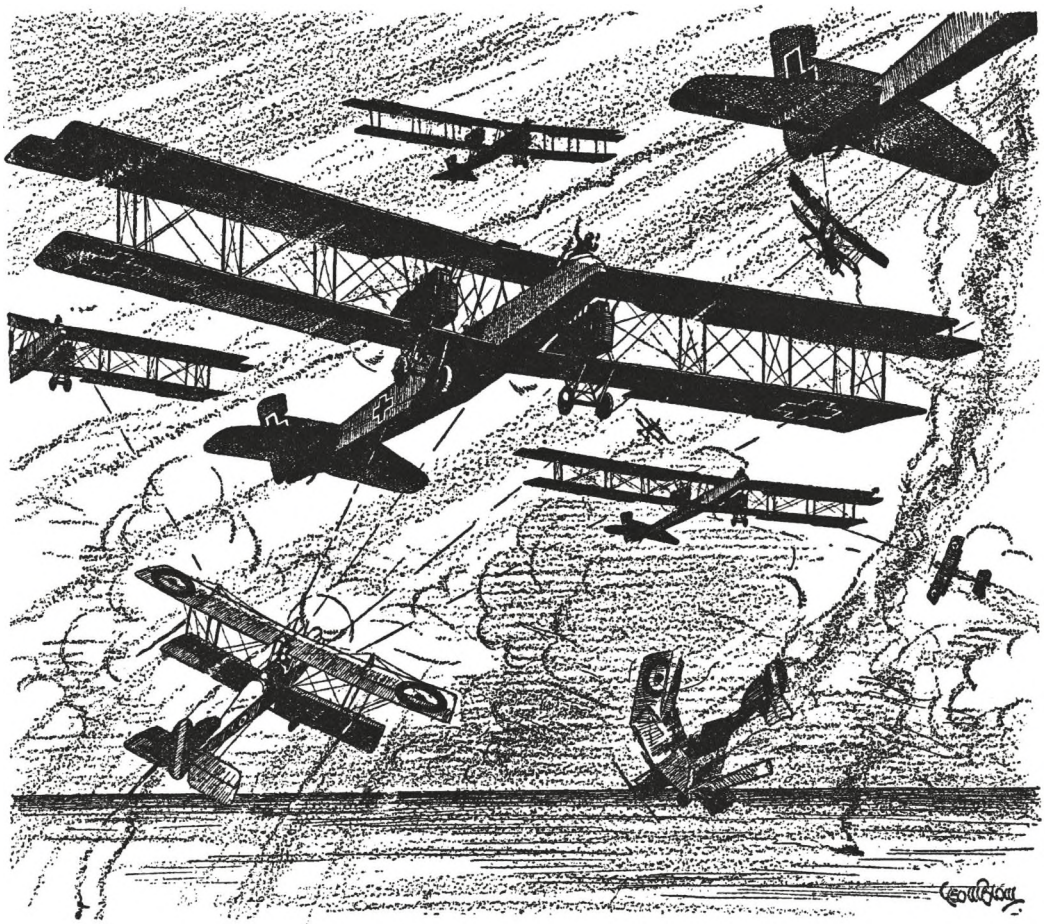
The under-carriage wheels can be withdrawn into cavities in the underside of the wing to lessen wind resistance when in flight. The necessary mechanism is hydraulically operated by an engine-driven pump and, to ensure that the pilot does not accidentally attempt to land with the wheels "up," an electric horn blows in the cockpit and a light signal appears on his dashboard if he should throttle back the engine before lowering his wheels.

The engine is a 12-cylinder V-shaped liquid-cooled Rolls-Royce Merlin which, though its exact horse-power may not be revealed, is known to be the most powerful engine yet built in this country. Principal dimensions are: span 54 ft., length 42 ft. 1¾ in., height 15 ft. 6 in. No speed figures may yet be divulged, though it is officially stated that the Battle is capable of "slightly under 300 m.p.h." By many experts, the appearance of a bomber type such as this, with a speed comparable to that of our very latest single-seater fighters, is regarded as marking the beginning of the end of the single-seater fighter type.

Transparent Gun-turrets

ONLY the tail-unit of the new Armstrong-Whitworth Bomber Transport monoplane (two Siddeley Tiger 800-h.p. engines) is visible in the picture, but it is of particular interest for its view of the transparent turret that protects the rear-gunner from the slipstream and facilitates the rapid manœuvring of his twin Lewises. There is a similar gun-turret in the extreme nose of the machine.

SOMEONE HAD BLUNDERED



The Gotha loomed enormously above him, seeming to spit fire from every part

Because Someone Had Blundered, Major Grimshaw's Squadron Set Out to Attempt the Utterly Impossible and Because the Squadron Had Its Pride as well as Its Obsolete Aircraft, the Result was the Most Glorious as well as the Most Tragic Aerial Combat Ever Recorded

By CAMPBELL HUGHES

ESPRIT DE CORPS is a curious thing and affects different people in different ways. Some squadrons were perfectly happy so long as they hung together, and they would not have cared if all the rest of the Royal Flying Corps had been shot down in a day. Others felt that the whole weight of responsibility for the entire allied forces was upon their shoulders. They felt almost personally responsible if there was a setback to allied air action. In this last group was the squadron which played its part in what must still

be regarded as the most tragic aerial combat ever recorded.

The squadron was not famous. It was equipped with B.E.2c's and it spent most of its time doing artillery observation. It had fairly heavy losses because it was so extraordinarily conscientious; but the members stuck together in a way that was genuinely notable. And they really believed in each other. Major Grimshaw believed that his pilots and mechanics were, without question, the finest in the service. Captain Jimmy Jones of "A" Flight believed that Captain Lloyd of "B" Flight was the finest flight commander in the R.F.C., with the sole exception perhaps of Captain Mooresby of "C" Flight, who was equally good.

The idea that any other squadron in the world could possibly have collected together so many excellent fellows was beyond their comprehension. The result was that, in the air, each pilot was so convinced of the unrivalled ability of the other pilots in the formation that he would not have bothered if the entire German air service had attacked him. Wallasey, a young Second Lieutenant, gave a good illustration of this during a shoot on a German battery position.

Our machines were being worried by enemy fighters, so the C.O. sent out another B.E. to accompany Wallasey as a sort of crude escort. Gunners who were doing the shoot still speak of that occasion. Young Wallasey toured up and down, giving his corrections in the face of really furious opposition. Fokkers fell on him from all directions, but he refused to take any notice of them. He knew that Jimmy Jones was there to look after him, so *that* would be all right.

Meanwhile Jimmy Jones fought his B.E. in a way that would have made the hair of the Farnborough experts stand on end. He clung to Wallasey as much as he could, and if a Fokker got near Wallasey's tail he went for it bald-headed, totally disregarding the assaults that were being made on him by other Fokkers.

One hundred and seventy-two bullet holes were counted in his machine when he returned. Wallasey's observer was shot through the leg, and his machine was a complete write-off with three bullet holes grouped quite closely together through one of the longerons. It was, of course, pure luck that they got away with it. In fact it was maddening for anyone with a sense of reason to talk to them about it afterwards, because they just would not see what a large part luck must have played. Wallasey simply said:

"Well, I knew Jimmy Jones was there so I just went on with the shoot and left the rest to him, only turning to have a quick poop off when I had time."

Jimmy Jones said:

"I had to stick to young Wallasey or else he would have been shot down."

No word of the possibility of their both being shot down during one of the most foolhardy exhibitions on record; no word of the enormous odds against them—nothing but a brief reference to the man who was doing the shoot and who had to be "protected." Nobody but a member of this particular squadron with its altogether exaggerated *esprit de corps* would have dreamed of trying to "protect" anybody against Fokkers with a B.E. Nobody but the luckiest devil in the world would have got away with it if he had.

MEMBERS of other squadrons on the same aerodrome were rather inclined to scoff at the whole business.

"*Esprit de corps*," one of them was fond of saying, "usually turns the corps into a corpse."

So the only squadron that did not complain that its B.E.'s were being outmatched by the new German machines was this one. It did not notice whether its machines were outmatched or not. It felt sublimely confident in being able to deal with any enemy that might come against it. But the other squadrons complained bitterly about their machines, and their B.E.'s were replaced by B.E.2e's and R.E.8's. Only Grimshaw's squadron remained unchanged.

They had their *esprit de corps;* but they also had their B.E.2c's. And the shame of it was that they were made to do as much work with these machines as the other squadrons with their newer types. Members of the squadron discussed the position in the mess.

"Obviously," said Wallasey, "the Wing know that *we* can look after ourselves, so they let the people who can't get the new machines first."

"Personally," remarked Jimmy Jones, "I'm quite happy with a 2c. If you know how to work it, it's all right."

"Undoubtedly," said the C.O., "the Wing is relying on us to keep our tails up even with these old tubs. The Wing put great faith in this squadron, and we shall probably get something really special when we do get a change."

Two months went by and they did get a change—to B.E.2e's. It did not seem to bother them overmuch.

"There's probably a shortage of new types," explained Wallasey, "and the Staff look to us to carry on with these machines until they can re-equip all round."

"It's really rather a compliment to the squadron," added Jimmy Jones.

The comments at other squadrons were very different.

"Those poor fish," was the contemptuous comment of one flight commander of a Sopwith Pup squadron, "they go on and on with their art. obs. in those wretched old hen-coops and never say a word about it. I'd raise hell if I were them."

"But they've got *esprit de corps*——" said his C.O. slyly.

"It's no good being full of *esprit de corps* and lead at the same time—lead's heavier."

"Without *esprit de corps* the big things would never have been done."

"For instance?"

"Well, er, for instance, the charge of the Light Brigade—you know, 'half-a-league, half-a-league, half-a-league onwards,' etc. . . ."

"All right, all right, Kamerad!"

"And anything more darned useless than the charge of the Light Brigade I've never heard of," remarked another flight commander.

"It'll be remembered when useful things have been forgotten," observed the C.O.

Whatever other squadrons thought about *esprit de corps*, Grimshaw's squadron had no doubt. Whether they had 2c's or 2e's or the original Wright biplane, they believed honestly and truly that they were without any exception the finest squadron in the service. Camel and Pup squadrons with long lists of victories to their credit might be spectacular and pretty; but they did the real work for which the Flying Corps was intended . . . at least that was how they saw it.

The curious thing was that when they lost men, the newcomers quickly absorbed the squadron tradition. They had some heavy losses; but it made no difference whatever to their sublime confidence in themselves. The months went by and the types of machines on the Western Front changed; but they still kept to their B.E.2e's. They had B.E.2e's when their supreme test came.

WHAT happened has never been fully explained, and it is, therefore, necessary not to mention the exact aerodrome at which the squadron was stationed at the time. But it may be said that the aerodrome was on the northern section of the front not far from Bray Dunes. The work of the squadron was still confined to artillery observation.

There may have been an error in the transmission of the messages. Or it may have been that the staff had their other machines engaged elsewhere and were, in reality, forced to do what they did by circumstances. All that need be set down here is the precise course of events.

It was the morning of a fine June day, with visibility good and only a slight haze in the air, an ideal day for flying. The kind of day to which most pilots had a rooted objection. It was obvious to every pilot as he rose that

morning and looked out of the window that there would be much aerial activity and that his services would be likely to be required.

On that section of the front there were numerous fighter squadrons equipped with Pups and Camels, and there were also the Sopwith triplanes belonging to the R.N.A.S. A little distance away the French had Spads, and there were F.E.'s in plenty. In fact, on the whole section, Grimshaw's squadron was the only one with machines that were completely and hopelessly obsolete. It was a daily miracle when they succeeded in doing their shoots without casualties.

It is the opinion of many who have had access to the squadron records that the only possible explanation of the way the whole thing was hushed up lies in the fact that Grimshaw's squadron was equipped with these hopelessly obsolete machines.

What happened up to the moment Grimshaw received the fatal message is quite simple. The Germans had formed up in the air somewhere beyond Ostend a formation of twenty-five Gothas loaded with bombs. With them, to accompany them to a point approximately ten miles out to sea, was a formation of sixteen Albatros V-Strutters. The objective of the Gothas was London. Their course was to lie along the coast but a few miles out to sea, to the kicking-off point for the English coast.

Flying Corps headquarters got wind of what was going forward and, being nervous about these raids owing to the tremendous disturbance that had occurred after a previous one in which a certain amount of damage had been done to London, they hastily considered what action to take.

What their deliberations were will never be known. It is to be presumed that the obvious course was to concentrate all fighters at some point along the coast and to launch them in a body at the German formation while keeping the normal work going so well as possible with the artillery observation and other machines left over. That would seem to have been the rational method. But in the stress of war, when messages are flashing through with bewildering rapidity and everything is in a state of extreme tension, the rational thing is not always done. It was not done in this case.

Major Grimshaw was quietly preparing his programme of artillery observation when he received a message giving substantially the information that has been outlined above and including an order which caused him to lean forward and examine the message rather more closely. The order was that he should send up his squadron and intercept the raiders and bar their passage to London "at all costs." The time at which the Germans had left their rendezvous was given, also the time they might be expected off the coast opposite where Grimshaw's squadron was stationed.

GRIMSHAW read the message three times, sitting immobile in his chair. Then he quickly rang through to the Pup and Camel aerodrome and made an inquiry. No; they had had no orders of any kind about raiders or anything else. They were doing their usual offensive patrols. Grimshaw did not say what were the orders he had received. He felt he must look at them again. He did so. There was not the slightest doubt about them. So he hastily summoned his three flight commanders, Jimmy Jones, Mooresby of "C" Flight, and Macintosh of "B" Flight, who had taken Lloyd's place when Lloyd had been shot down.

The flight commanders read the message. Jimmy Jones grinned.

"When do we start?" he asked.

The C.O. looked at him as if waiting for some further comment.

"We're going out alone," he said.

"O.K. When do we start?" repeated Jimmy Jones.

"We can't afford to let the beggars get a lead on us," said Macintosh, talking with a Scottish accent you could cut with a knife, "or we'll never see them."

All four men realised the utter impossibility of the order. Yet not one of

them voiced that opinion. The C.O. studied them for a moment. And then a curious light shone in his eyes.

"This time," he said, "they've given the squadron a real job of work."

"We haven't got more than twenty-five minutes to get off the ground," Jimmy Jones reminded him.

The C.O. jumped to his feet.

"Get your pilots ready. Tell 'em what we've got to do and get on to it as quick as you like. Mooresby, have my machine got out too, with streamers on the struts and tail. Jimmy, you'll sub-lead."

TURN now to the great Gotha formation whose activities had been so well watched by the Intelligence Department. Flying in diamond-shape, every machine loaded up to the limit with bombs, it moved according to programme. The escort of Albatros was flying high above the Gothas which, during the first part of their journey, could barely exceed four thousand feet in formation owing to their large overloads.

The power of that great body of aeroplanes was evident. It moved slowly but remorselessly towards London, stuffed full with death. The great machines roared and bellowed, their engines beating as they synchronised and sending huge waves of sound through the air on all sides. From positions in the nose, underneath and at the rear of the fuselage, German gunners peered through their goggles into the slight June haze, experiencing a wicked elation at the thought of the immense town which would shortly lie at their mercy.

Even to the German soldiers on the ground who saw it pass overhead, there was something terrible about that great armada. It moved relentlessly along the coast, then bore out a little when it came to the lines and flew along over the sea. It moved in a way that suggested that nothing could stop it, not even the latest fighters manned by the most skilful pilots in the Royal Flying Corps. Yet some extraordinary freak of chance, or error, had sent against that majestic and terrible formation, nineteen B.E.2e's.

Nineteen B.E.2e's, little spidery things with their top plane extensions and festoons of bracing wires making them look like the clowns at a circus. The contrast between those Gothas with their Albatros escort, pride of the German air force, the most heavily-armed formation ever put into the air, and those B.E.2e's would have been comical had it not held in it the grim omen of things to come.

Led by Grimshaw himself, who had next to him Hatherway, the pilot who had last joined the squadron, the B.E.'s gained height. Even they could reach four thousand feet, so there was no question that they could, if they chose, make an attempt to intercept the Gothas. But as they climbed, Grimshaw tried to reason out the events which had brought them there.

He looked back upon the moment he had received the extraordinary message from headquarters. He recalled how he had immediately jumped to the conclusion that they were to go up to act as bait to draw the German machines under Pups or Camels. He recalled how he had rung up the Pup and Camel squadrons and found that they were to take no part whatever in the business. He recalled how he had concluded that, for some totally inexplicable reason, the Staff had determined to send the B.E.2e's into that huge German formation alone. He recalled thinking that perhaps the staff had at last realised the merits of his pilots and entrusted them with the biggest task ever set the Royal Flying Corps. He believed that his pilots were the best in France; yet somehow he could not quite convince himself that the Staff knew that sufficiently well to entrust them alone with this tremendous task. The safety of London had been given into the hands of a single B.E.2e squadron. That was what it amounted to.

And as they climbed, Grimshaw told himself that it could not be true. He told himself that the Staff must have some plan as yet not revealed to him.

Then suddenly he thought of the R.N.A.S. triplanes. He had not rung up their squadron, and it was possible, more, it was probable, that the B.E.'s were being sent merely to keep the Gothas busy for a moment or two while the triplanes prepared to tackle the Albatros escort and then the Gothas. That must be the plan. It was the only plan that Grimshaw found himself able to regard as in the least likely.

So he scanned the sky above, looking for triplanes, as the B.E.'s climbed and moved towards the area over which, according to the information he had been given, the Gothas would pass. Long before, Grimshaw, and also his three flight commanders, had succeeded in rigging up entirely unofficial gun mountings on their top planes, which permitted fire to be brought to bear directly in the line of flight and also upwards. Their observers had simple swivel mountings, firing back past the pilot—who occupied the rear seat, and along at the side of the fuselage. It was not exactly an ideal arrangement for fighting ; but on artillery observation it had been known to work with some measure of success.

Grimshaw fired a few rounds from his front Lewis to warm it up, and almost as he did so he caught sight of the enemy formation, a group of black specks in the extreme distance, advancing towards them. Now that he saw it, the size of the enemy formation seemed even greater than his imagination had pictured it. The B.E.'s were about a thousand feet above the lowest Gotha. Grimshaw began to feel more anxious. He searched the sky for the triplanes ; but there was nothing in sight. They were now a good distance out over the sea, and Grimshaw could find nothing other than the enemy formation.

And now suddenly he was caught up by his responsibility. He looked round at his squadron of fantastic, spidery B.E.'s ; machines totally unfitted for fighting in any form. He looked at the great enemy formation, bristling with guns, protected by high-speed scouts. Then he thought of his pilots : men for whom he was, in a sense, responsible. He thought of the squadron, the finest in the Flying Corps, which he had built up and which never questioned the orders he gave them no matter how difficult and dangerous ; which had not questioned even to-day's orders.

It occurred to him that the Gothas were bound for London, and that neither they nor the Albatros scouts would engage any other machines if they were not themselves attacked. They had bigger objectives in view than nineteen obsolete aeroplanes of the Royal Flying Corps. It occurred with increasing force to Grimshaw that if he did not engage them, he would not be attacked. Then Jimmy Jones closed up to him in the formation and he saw his gloved hand waving towards the enemy, and he saw Jimmy Jones rocking his machine sideways saying, as plainly as it could be said, "There they are ! Let's have a smack at them and show them what the squadron is made of ! "

GRIMSHAW looked at Hatherway, the novice, who was close to him on the other side. He wished he had ordered him to stay behind. The weight of responsibility was heavy upon Grimshaw and he wavered. Yet the Gothas were coming on. They were on their way to London. No doubt they had already observed the B.E.'s and were regarding them with scorn. They had not so much as altered course by one degree. Again Jimmy Jones was signalling. Grimshaw looked round again. Still there were no triplanes. The order flashed itself before him again : "*to intercept the hostile formation at all costs.*" It was an order which had been sent to his squadron.

He pulled his B.E. gently round and set it in an easy, engine-on glide straight for the heart of the Gotha formation. As he went, with innumerable wires whistling, he looked and saw every man was with him, holding to their positions, nineteen B.E.'s against the world ! And the sight heartened him. Here was a

squadron that would stick together to the last. There would be no shirking, no hesitation. Every man would be for the squadron. He felt the squadron's *esprit de corps* inspiring it at that dreadful moment, and he turned his mind to the impossible task which had been set it.

THE ensuing scene is one which cannot be described in detail. Some of the incidents were such that no one would wish to dwell upon them. The B.E.'s held their fire, and so did the Gothas. It seemed to the B.E. pilots almost as if they were flying down into a mechanical trap which, once they were inside, would snap to and let none of them out again. Nor was that impression far from the truth. The Gothas held their fire even when Grimshaw, manipulating his Lewis gun as best he could in the awkward circumstances, had opened fire. The Gothas waited until that formation of B.E.'s had come among them. Then forty or fifty guns opened fire. The B.E.'s found themselves in the centre of an inferno of lead and flame, their wretched armament utterly outclassed.

The top plane extensions on one B.E. folded up like the leaves of a book, and it fluttered down to the sea. Grimshaw felt the bullets searing his squadron, and the continuous rattle of the guns drummed in his ears like some horrible dead march. He turned and went for the nearest Gotha. It loomed enormously above him and seemed to spit fire from every part. He emptied a drum into it and saw a goggled gunner fall back. But the reply was devastating. Grimshaw's machine was made the centre of a converging fire, and planes and struts were sieved with holes.

Jimmy Jones, determined to show the world what the squadron could do, went up to a Gotha's tail and, ignoring the hail of bullets directed upon him, sat there, his top speed being just sufficient for the reduced speed of the formation, and emptied two drums into it. The great machine began a lumbering turn. It was the first one to show any sign that it was being affected by the presence of the B.E.'s. It fired a red light. It turned over slowly on its port wing, and slowly it went down, still turning more and more steeply until it was spinning. Jimmy Jones saw it fall into the sea and was turning for another machine, when something crashed through his ribs ; a momentary blinding pain tore at him, and then he fell back dead.

Sergeant Matthews, his observer, who was facing back so as to work the swivel-mounted gun, saw what had happened, and as the aeroplane went into a steep side-slip, he climbed over and along the fuselage coaming to the pilot's cockpit. He tried to pull Jimmy Jones out, but could not move him. And the aeroplane still side-slipped towards the sea. So he wedged himself down in the dead pilot's lap, grasped the stick and put his feet on top of the dead pilot's feet and worked the rudder-bar. And so doing he regained control. He succeeded in turning the machine for the shore. But the red light from the falling Gotha had sent its message to the waiting Albatros scouts above.

In a terrific power dive they descended on the B.E.'s. Jimmy Jones's crippled machine, with Sergeant Matthews fighting to control it from the dead pilot's lap, was the first to occupy their attention. An Albatros came on to its tail and drilled dead pilot and living observer with bullets until the machine had plunged into the sea.

MACINTOSH, of "B" Flight, had wedged his B.E. under a Gotha and was pounding at it with his Lewis, when his aileron controls were shot away. Still he kept position with his rudder. An Albatros roared down upon him and his right arm was shot through. He hardly felt more than a sudden stab, but looked down to see a white and glistening spear of bone protruding through his flying kit. Even as consciousness faded, he turned to attempt to fight the Albatros in his fantastic old aeroplane. He lugged it round, and his observer sent a drum

off. But, so doing, they came under the starboard wing of a Gotha which was able to turn two guns on them and literally to shoot them to pieces.

Moorseby was engaged by three Albatros, and he turned and fought them. Flames began to pour from his machine, and still he fought, yelling to his observer to *shoot, shoot, shoot.* But the observer's clothing was on fire, and after two or three ineffectual bursts, he leaped from the machine, to fall like a human torch towards the sea. Mooresby, sitting in the midst of a flaming aeroplane, still turned and fought. When the flames tore into his throat he was still grasping the trigger of his gun, still attempting to wrench his B.E. round, still striving to pit the sheer force of his indomitable will against the technical superiority of the enemy. His machine fell with flames enshrouding it, but his right hand was still clinging to the gun trigger.

There is no need further to describe that dreadful shambles. Two Gothas and two only were brought down, but the formation was broken up and turned. But what of the cost? Nineteen B.E.'s went out. One returned. And it was the cruellest stroke of fate that that one machine was Grimshaw's. His observer was dead in the front seat, his machine was riddled with bullets. He had stayed in the fight until, with ammunition exhausted, petrol nearly gone, and not a machine of his squadron left, he could stay no longer, and had turned for home and crashed on the beach, not more than fifteen miles from his aerodrome.

An infantry officer saw the crash and came running up. Grimshaw had got out of the machine. He was deathly white. He spoke quite clearly and lucidly to the infantry officer.

"My squadron was ordered out to intercept the Gotha formation," he explained. "We have succeeded in obeying instructions. I should like you to convey that information to the Seventy-Eighth Wing as soon as possible, please. Meanwhile, the body of my observer, who was killed in the fight, is penned in the cockpit by the wires. If you could lend me your revolver I think I could shoot away the wire that is holding him and free him."

The infantry officer handed over his revolver.

Grimshaw took it, walked over to the wrecked machine and bent down. A shot rang out, and Grimshaw fell backwards and lay still on the sand, his hand still grasping the revolver.

"BUT what made 'em do it?" asked Air Mechanic Cruse, "that's what I can't understand. They could 'ave seen with half an eye there must have been some blooming error. Nobody expects a ruddy B.E. to take on the whole blinkin' German air force. What made 'em do it?"

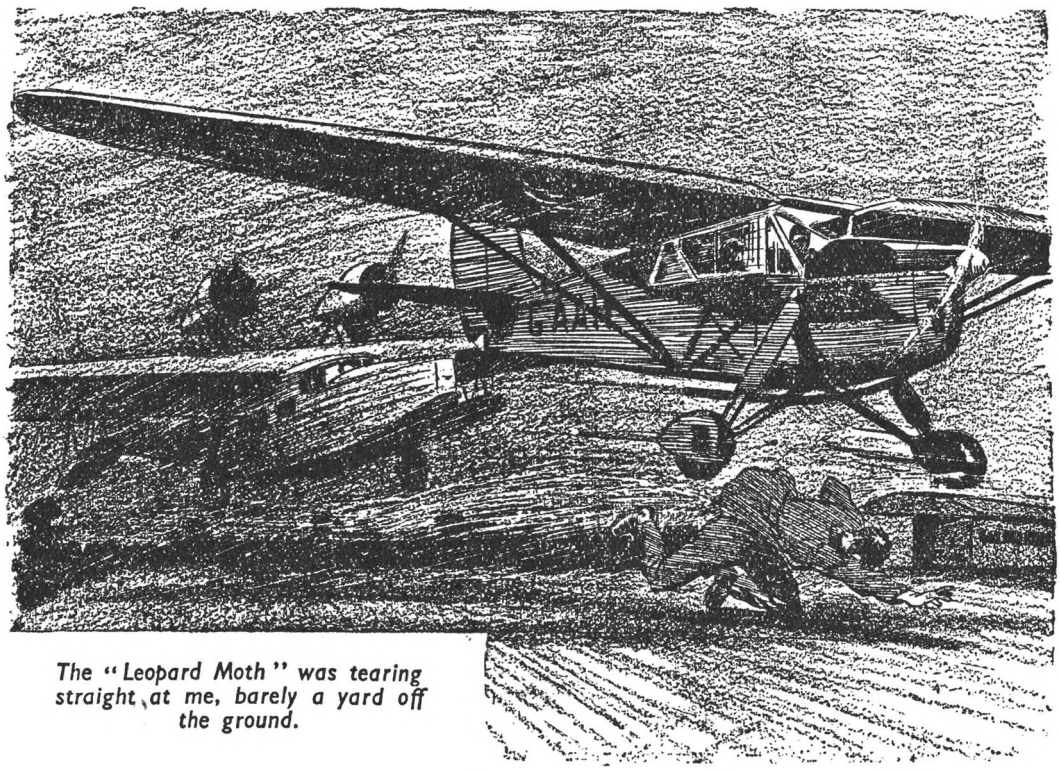
"You don't understand," said Corporal Meggs rather patronisingly.

"I don't understand going out just for the fun of being made mincemeat. What made 'em do it?"

"It was *esprit de corps,*" answered the Corporal, "that's what it was, *esprit de corps.*"

"Huh!" said Cruse contemptuously. "One of them ruddy French generals again."

THE FOUR DUMB MOUTHS



The "Leopard Moth" was tearing straight at me, barely a yard off the ground.

Four Dumb Mouths were Flight Lieutenant Kinley's Only Clues to the Mystery of a Bullet-riddled 'Plane—Grim Evidence of a Daring Attempt at Murder in Mid-air

By CAPTAIN J. E. GURDON, D.F.C.

CHAPTER I

The Flying Bodyguard

THE great little Cabinet Minister was writing furiously when Flight Lieutenant Kinley entered his library. He waved towards a chair, but spoke without looking up.

"If she is not assassinated within the next twenty-four hours she ought to be reasonably safe."

Kinley blinked as he sat down. Since being retired from the R.A.F. for "special duties" he had become well proofed against ordinary shocks, but even to him this opening seemed sensational. Absorbed once more in his work, the Minister wrote on while Kinley, contemplating his pink, plump countenance, paid tribute for the thousandth time to the unknown genius who had first dubbed him "The Cherubic Cham."

"And so," grunted the Cham, abruptly throwing down his pen, "I have sent for you to look after her."

"Look after who, sir?" wondered Kinley, utterly at sea.

"Princess Anna Theresa, of course. Don't you ever read the newspapers?"

"I've read that she's going to be married, but——"

The Cham gestured him to silence and leaned forward.

"Has it not occurred to you," he asked, "to consider the effect of this

marriage upon European politics? The bride is young, good-looking, royal and democratic. Her father lost his life and throne in tragic circumstances; her mother died when she was an infant. Perhaps it is for those very reasons that so many of her people are fervent royalists. Beauty, adversity and pathos make an almost irresistible combination. Moreover, this exceptionally romantic young woman is about to marry the heir to one of the few remaining crowns whose wearers may sleep easily at nights. A situation full of dangerous possibilities. So you—you, my good Kinley—you are going to become the Princess's private and personal body-guard until she is safely out of the country."

Kinley stirred uneasily.

"What have I got to do, sir?"

"Stick to her like a shadow."

"But she wouldn't put up with it! She——"

"Ah!" interjected the Cham, nodding wisely. "I see that you *have* been reading newspaper reports — reports which, to a discerning mind, reveal all too clearly that the Princess is not only intelligent and charming, but also what the educationists call 'a difficult child.'"

He broke off to draw diagrams on his blotter with an air of gloomy abstraction.

"WELL," he resumed, "you will be astounded to learn that for once I am not going to deny a newspaper report. Fantastic as it may seem, Fleet Street hardly even does justice to her waywardness—a fact you will appreciate when I tell you that she is in grave danger, yet refuses point-blank to take the slightest precaution."

"Anarchists?"

"Something of the sort. It was undoubtedly a political fanatic up to some devilry against her who shot down Police-Constable Stokes last Thursday, killed him, and got away! Hitherto she has been tolerably safe from such attentions, because the whole world knows that the British Government, while always ready to give sanctuary, never permits exiles to use this country as a base for conspiracies.

"Within a few days, however, all that will have changed. She will then be the wife of Archduke Paul. What more natural than that her sympathisers should be encouraged to attempt a *coup d'etat*, which might very easily succeed in such a moment of popular enthusiasm? But for the last ten years her country's Government has been of a peculiarly rabid republican red. Is it not reasonable, then, to fear that steps may be taken to prevent the marriage?"

"Only too reasonable!" Kinley murmured. "Where is she?"

"At Hallow Hall, in Lincolnshire," he replied. "And at Hallow Hall she means to stay until her uncle, Marshal Suvarrov, and his escorting aeroplanes arrive to-morrow morning to conduct her to the Continent for the wedding. She is entirely her own mistress and pays not the slightest heed to remonstrations. Apparently she wishes to enjoy a few more hours of seclusion in the home of her childhood before facing the weeks of ceremonial that lie ahead."

"Surely a very natural wish."

"The wish is natural enough, but not the manner of its gratification. It is not natural, for example, that she should refuse to countenance adequate police protection—refuse even to allow plain-clothes officers to patrol the grounds. And that, Kinley, brings me to the part which you are to play.

"I was inclined to wash my hands of the whole affair, and entrust Princess Anna Theresa to Providence, when one of our men informed me that she was thinking of buying a new type of amphibian aeroplane; that, in fact, she had already requested the makers to send one to Lincolnshire for her inspection. I immediately telephoned, and, after much argument, persuaded her to allow the machine to be flown by three officers of my selection. She insisted upon names then and there, and also particulars concerning the favoured three. I nominated yourself, your boon companion Carew and Major Ogilvie. The machine

is at Heston Airport ready for you to take over."

Kinley glanced at his watch.

"We shall be in Lincolnshire within two hours," he promised. "Are there any reports to pick up before we go?"

"None! We have been able to discover nothing except the general fact that an attempt upon her life is contemplated—how, when and where are problems to which not the slightest clue exists. A strict cordon has been drawn round Hallow Hall, but otherwise the police can only wait. You and the others will be alone to maintain security inside the cordon. I am therefore allowing you complete liberty of action."

He rose suddenly, hand outstretched, eyes twinkling, the plump little features alight with the smile of a new idea.

"Good luck, Kinley. Take care to guard yourself against the most probable source of danger."

"What's that, sir?"

"She's a very attractive little Princess," chuckled the Cham.

CHAPTER II

Attack from the Air

THAT his jest merely made a bare statement of fact became apparent to three slightly self-conscious young men within five minutes of their arrival. Even self-consciousness, however, vanished when their hands were grasped in turn by a small, warm hand, and a swift little husky voice bade them welcome.

"I am going to forestall you all by refusing here and now to allow any kind of formality whatever. Ceremony starts to-morrow. To-day we're just going to be natural and ourselves." The Princess turned to a tall, gaunt old lady who followed close behind. "Aren't we, darling?"

Of the three, only Kinley had kept his wits sufficiently about him to take stock of Anna Theresa's companion. Most probably her governess in bygone days, he decided, but now a trusted friend. A woman of striking personality, her wrinkled face was surprisingly tanned, her white hair shone like a halo round her head, and her fine lips were as firm as the lips of a Cæsar.

"This is Miss Simms," said the girl, slipping her fingers into the crook of the old lady's arm. "And this," she added, picking out the names after quick, darting glances from face to face, "this is Flight Lieutenant Kinley, this is Captain Carew, and this is Major Ogilvie."

By what miracle of association she had correctly coupled the names of three total strangers with descriptions only heard by telephone was a mystery which Kinley never hoped to solve, but the effect of that recognition was as immediate and as warming as a nip of old brandy.

Tony Carew, the slim and susceptible Tony, blushed like a schoolboy. Leather-faced, blue-jowled, gruff and jerky Ogilvie bowed to Miss Simms with a grace that was almost courtly. Even Kinley—and his pulse was of the steadiest—found himself thinking Ruritanian thoughts as he succumbed to a spell woven of black hair, brown cheeks and the swift little voice that rolled its r's.

"So this is the aeroplane that alights on both land and water. But how thrilling she looks, with a body just like a boat and little wheels as well! You must tell me all about her. Perhaps I shall buy one."

Ogilvie beat Tony by a short head as she made for the cabin door in the side of the great hull. Turning to follow them, Kinley was stopped by a touch on his arm.

"I wish to speak to you," whispered Miss Simms. "It is most important."

Although voice and eyes were steady, her fingers plucked incessantly at a lacy wisp of handkerchief, and the corners of the firm lips trembled.

"This morning," she went on without change of tone or expression, "another attempt was made on the life of Princess Anna Theresa."

Strangely it never occurred to Kinley to question the statement. She informed

him of a definite event. He accepted it as definitely.

Awhile she hesitated, as though marshalling facts. So tense was the silence that he could hear every word from within the cabin, where Ogilvie was pointing out its spaciousness, Tony extolling its comfort and Anna Theresa praising the artistic decorations.

"Well?" he prompted gently.

Miss Simms straightened her flat back as though shouldering a load.

"The mist is getting thicker," she said. "It will be foggy by this evening."

"What has that to do with an attempt to murder the Princess?"

"A very great deal perhaps. But first of all come with me. I wish to show you something."

TRAMPING across the sodden turf, Kinley eyed the mist and wondered. Already, indeed, it was little less than fog, for the fir trees surrounding three sides of the meadow loomed like a dim black wall.

They halted in front of a shed whose sliding doors were open, revealing in the gloom the shape of an aeroplane with wings folded back.

"The Princess's personal machine," explained Miss Simms, unexpectedly flashing an electric torch along the gleaming fabric. "She is an excellent pilot. This morning, before the mists began to rise, she went up for what she described as a farewell flight along the coast. When she came down I discovered—those!"

With the last word the beam from the torch steadied to a point on top of the fuselage less than a foot behind the cockpit. Like wounds, dark against the fabric, four tiny round mouths gaped in the pool of light.

Silently Kinley took the torch, knelt down and wriggled underneath the low-lying belly of the machine. For several seconds he worked with a knife. When he emerged he was carefully holding a square of fabric which, like its counterpart on top, was pierced in four places.

"Thank you," he murmured, handing back the torch. "Of course, you were quite right. These punctures were made by bullets."

"My nephew was an airman in the war," sighed Miss Simms, delicately touching one of the rents with a thin white finger. "He showed me some souvenirs—pieces of bullet-riddled wing from his machine. I thought I could not be mistaken. They are so like little dumb mouths, and the lip, which the bullet leaves as it passes through, is very characteristic."

"These mouths are not quite dumb," smiled Kinley, "for their lips tell us that the shots came from below. See? They open inwards on the under surface and outwards on the top. Has the Princess told you how it happened?"

"I feel sure she does not know anything about it, and, of course, I have not breathed a word."

The bony fingers tightened on Kinley's forearm, and for the first time the proud old face betrayed human weakness. There was terror in the faded eyes.

"You do not understand," she cried, "you cannot possibly understand the reckless courage, the indomitable pride, the incurable obstinacy of the Suvarrovs. I have served them forty years, so I know. Her father was the same. On the day of his assassination he received plain warning of the time and place of the outrage. Yet he rode out to his death! Anna Theresa——"

Completely now the barriers of formality were down. No longer was Miss Simms speaking to a stranger on matters touching the life of her Princess. She was an old woman fighting for the safety of the charge she loved.

"Anna Theresa knows all about that tragedy, yet she laughs when I plead with her. Although she denies it, I am sure that three times in the last fortnight attempts have been made on her life. And then that poor policeman whom they shot dead outside the gates on Thursday night! . . . The brutes! But it has only made Anna Theresa hold her head higher, made her more defiant, made her dare the devils. To-day, we are all but alone in this great barracks of a house! The staff she has sent on

before us, retaining only a handful of maids, a decrepit butler, and a man who looks after the aeroplane——"

"Who is that?" put in Kinley quickly.

"McGilloch, an ex-Army sergeant."

"Reliable?"

"Absolutely."

"Where is he?"

"I sent him up to the Hall on an errand. I wanted to talk to you alone."

"Has he seen these holes?"

"I don't think so. The Princess taxied the machine straight in here after she had landed, and it was rather dark. Almost immediately she despatched McGilloch for a car, as she wanted to go into Lincoln. He would not have had time to notice them. In fact, I should never have done so myself if I had not been looking for them."

"What on earth made you do that?"

Miss Simms eyed Kinley with the reproach of all old people who, while still possessing courage and the clearest of brains, like to relate events at their own pace and in their own chosen order.

"I was about to tell you," she rebuked gently. "I looked for them as soon as the Princess told me about the machine which she suddenly saw so close beneath her. She believes she was over the sea at the time, but there were a lot of clouds. She thinks, however, that the machine must have been dangerously near before she saw it."

"What was it doing?"

"A manœuvre which she described as 'a half roll away'—whatever that may mean."

KINLEY grunted perplexedly. A half roll seemed an odd manœuvre for a pilot to use if he wanted to get away quickly from such a position. A side-slip would meet the case far better. That the shots had not been heard was, however, understandable. After a patrol on active service he had often found portions of his machine riddled by unsuspected bullets.

"Did she happen to recognise the type?" he asked.

Miss Simms nodded slowly and proudly.

"Indeed she did. The Princess can recognise any aeroplane that has ever been built. She says it was a 'Leopard Moth' monoplane, but she doesn't know whether it contained one man or three. She suspects that it may have come from the big flying school which is only a few miles away, and I have no doubt that if she were remaining in England she would take steps to have the criminal, hunted down and punished."

The soft voice went on, but Kinley scarcely listened. He had remembered that Flight Training Limited had their vast aerodrome barely twenty miles from Hallow Hall; that the place was always packed with resident pupils, including scores of foreigners; that Lorrimer, one of his oldest friends, was the Chief Instructor.

"... So I persuaded the Princess that she ought to have an amphibian aeroplane, and induced her to send for one, thinking that at any rate we should get some men to protect us, and now——"

"Forgive me," begged Kinley. "Did you say that you are responsible for our being here?"

"I suppose I am. At any rate, I am responsible for the aeroplane. And now, as I was saying, with the mist rising and a moonless night ahead, I am terrified—just terrified——"

She stopped with a gasp. Kinley placed his hand on hers.

"What do you fear?" he asked.

"Murder! Abduction! Particularly abduction! I had thought out a plan, but I can see you are in no mood to listen to an old woman's fears and foolish schemes."

"Miss Simms," returned Kinley earnestly, "if my thoughts appeared to wander I most humbly apologise. Please believe that I am now listening with the closest attention."

Not a word did he speak until the old lady's diffident ending, but his eyes narrowed and brightened as he listened.

"It shall be done," he promised. From out of the mist filtered the sounds of men's voices and a peal of feminine laughter. "I must get to the flying

school without a moment's delay," Kinley continued. "Is there a car I can use, or a motor-cycle?"

"There's a car in the garage. Take it. McGilloch will not be there. Slip out by this side door before the Princess and your friends see you. I will tell them that you have gone to telephone for something you need for your machine."

"Do. And tell Captain Carew, privately and urgently, to ring me up at the Chief Instructor's office, Flight Training, in forty minutes' time. I'll make all arrangements with him then."

Three shadows loomed through the mists of the meadow. It was plain that Anna Theresa and her escort were on the best of terms. Half-way through the side door Kinley looked back.

"Don't worry," he whispered. "Your Princess shall be neither murdered nor kidnapped to-night."

CHAPTER III

Abduction of a Princess

HE spoke unwarily.

Two hours later McGilloch and a police sergeant arrived at the aerodrome with the news. They found Kinley and the Chief Instructor sitting at a table in the office, playing, so it seemed, with a large scale model of an aeroplane. The air in the room was blue and thick with smoke.

One glance Kinley flashed at McGilloch's white face, then rose so abruptly that the chair legs chattered on the floor.

"What is it?"

McGilloch would have spoken eagerly had not the sergeant silenced him with a gesture, looking doubtfully at Lorrimer.

"It's all right," snapped Kinley impatiently. "Mr. Lorrimer knows. I've told him. Now get on with it. What's happened?"

"The Princess!" gasped McGilloch. "She's gone! She's gone! She's been taken! She's——"

"Steady, man, steady! Don't fluster."

The pallor of McGilloch's face changed to the dull red of a man shamed by a fleeting loss of self-control.

"It happened about an hour ago," he began, evenly enough. "I was in the hangar giving the rigging a check-up. The Princess, Miss Simms and the two gentlemen from London had gone out to the big machine. I heard one of the gentlemen say that he would take her up for a circuit or two, and if the mist didn't seem too bad they could all go for a joy-ride."

"How thick was the mist?"

"Well, sir, it wasn't so thick as to make flying impossible or even really dangerous, but it was thick enough for taking-off and landing to be tricky. One couldn't really see the boundaries of the landing-ground, and from where I was the big machine only looked like a shadow. But I heard the engines start up—and then it happened! Something swished over the hangar roof, and I ran out in time to see a monoplane landing——"

"Notice the type?"

"A Leopard Moth monoplane."

"Good. Carry on."

"It landed far out in the field close to the big 'un and swung round quickly, nose down wind. I'm not quite certain what did happen next, because it was all so confused, but I sort of glimpsed figures running about, then shouting began, and a couple of shots, and the next thing I knew the Leopard Moth was tearing straight at me barely a yard off the floor. Down I flopped and it missed me by a foot. Just as I was getting up, along came the other one, and I had to flop again. Off they went into the mist, sir, the big 'un chasing the little 'un. Then I shouted and no one answered, so I ran and told the police sergeant."

"Did you hear anything of all this, sergeant?"

"Yes, sir. All except the shots. Also I saw the two machines just as described. Heading east they were and climbing steeply. They very soon disappeared into the mist."

"Humph!" Kinley swung back to McGilloch. "What d'you think happened?" he demanded.

"I think that the man in the Leopard Moth was a kidnapper, sir, that he got—got what he wanted, and that the big machine chased after him so as not to waste a second."

"So do I," agreed Kinley. "So will anyone who knows the facts. That is why no one's going to be allowed to know 'em. Understand? No one. McGilloch, you will stay here for the night. Sergeant, will you please see that nobody either enters or leaves Hallow Hall? Also send out a general call for information concerning the course taken by the two machines. That's all we can do at present."

ALONE once more, Kinley and his friend looked at one another long and unwinkingly.

"If this news leaks out," muttered Lorrimer at last, "there's going to be the devil to pay! And we've only got twelve hours!"

"I know, old man, I know. For the moment it's Tony's and Ogilvie's show. We're out of it. Our job"—he picked up the bullet-marked square of fabric—"is to find out what these four 'dumb mouths' would say if they could only speak. Now let's have another look at that model. What was the point you were going to make?"

A man of iron nerve himself, Bill Lorrimer exalted imperturbability almost above all other qualities. No action of theirs could possibly affect the issue of what was happening somewhere out in the mists. Very well. Get on with the job in hand. His freckled face shed its frown of desperate worry as he reached across the table to take the model from Kinley's hands.

"This," he began, "is an absolutely accurate scale model of a Leopard Moth, and is pretty nearly perfect in every detail except, of course, the engine. I mean, for example, the controls function properly from the little rudder-bar and joystick inside the cockpit. The door in the fuselage opens and shuts, and the 'sunshine roof' of the cabin slides to and fro exactly as it does in a full-size machine. Incidentally, the sunshine roof is a brand new feature, and I have a hunch that it played a mighty big part in this show of ours. Also, I thought that having the model would help us to reconstruct what happened. We can see what we're doing, so to speak, instead of simply guessing."

"Sound scheme. Right-o. Let's have the reconstruction."

Lorrimer slid back the little panel in the roof of the model cabin.

"Since no Leopard ever has been fitted with a machine-gun or synchronising gear," he said, "and since it's plumb impossible to fire a rifle from a closed cockpit, we know that the blighter must have used an ordinary revolver or automatic."

"Or," murmured Kinley, "a long-barrelled Mauser or Luger. However, very likely the point's immaterial. Carry on, Bill. You're doing fine."

"At any rate, I'm trying, instead of sitting dumb and looking superior," retorted Lorrimer. "There's not much more to say, though. My idea is that the fellow slid back his roof, crept up close underneath the target, and pooped away at point-blank range until he'd emptied his gun and had to sheer off."

Regretfully Kinley shook his head.

"No bon, I fear," he sighed. "I had the same happy thought until I went and sat in a Leopard's cockpit and tried it out. Do you realise, brother, that the roof is so low and the cockpit so narrow that one would have to hold the gun pretty nearly at arm's length and fire straight up?"

"What about it?"

KINLEY pointed to the bullet-riddled square of fabric which lay on the table. The holes were all contained within a circle a foot across.

"Could you shoot like that," he asked, "with your arm vertical and a hundred and twenty miles an hour wind blowing against it?"

Lorrimer scratched his head and pondered.

"What about a gun-mounting," he suggested. "It ought not to be difficult to design some sort of mounting that

one could attach after leaving the ground, something that'd grip each side of the roof when the panel's slid open, and hold the gun rigid in the middle."

"I'm sorry to say I thought of that also, and I'm pretty sure it's the wrong answer. Remember, the mounting would have to be very rigid indeed to keep the aim true for a sequence of shots."

"But he could take fresh aim each time."

"Not if the weapon were clamped in a mounting. It'd be a lengthy business, and this show had to be all over inside a few seconds. Assuming then that the mounting was strong and particularly firm, it must inevitably leave tell-tale marks where it was fixed, whether to the sides of the roof or the walls of the cockpit.

"Now, while you were polishing off your last batch of pupils, I went all over the cockpits of each one of the seventeen Leopard Moths that were in the air at the time that the shots were fired. In fact, I went over 'em with a lens in pukka Sherlock Holmes style. There wasn't a mark to be seen.

"Another point. If a gun were fired just outside the cockpit—as it would have to be in this case—the slip-stream from the prop. would whip off the smoke and gases from the muzzle and leave a longish black streak of deposit on the roof. I know that's a fact, because I once fooled about with a shot-gun from the back of a Bristol Fighter. It left marks all along the fuselage. But there wasn't a trace or a shadow of a mark anywhere on those Leopard roofs."

"Then hang it all!" exploded Lorrimer, "if the blighter didn't, and couldn't fire through the roof, what did he do? Take a pot shot through the floor?"

Kinley stiffened to sit very still, then reached out, took the model, and turned it upside down. In the belly of the machine, running fore and aft and immediately above the cockpit, was a narrow slot which could be closed or opened by a sliding plate.

He drew a deep, ecstatic breath.

"What's this for, Bill?"

"Inspection of aileron and elevator controls. Saves no end of trouble. Surely you're not suggesting——"

"Sssssh, you fool! The brain's begun to work! Tell me—are these particular Leopards fitted with pilot's harness and special tanks for sustained inverted flying?"

"Of course they are. They're used in the advanced aerobatics course."

CHAPTER IV

The Joystick Murderer

LORRIMER had no need to ask more questions. He already knew that Kinley was on the right track. Quite unconsciously, the two men had risen and were standing so close that their heads almost touched. Between them Kinley held the model nicely balanced upside down on the palm of his left hand, while with his right forefinger he flicked open the tiny sliding plate in the cockpit's floor.

"Eureka!" he exulted softly. "Behold the aperture through which our friend discharged his shooting iron. Observe also the mounting which held it rigid for him—I refer, of course, to the joystick."

"He's a clever devil!" breathed Lorrimer.

"Distinctly intelligent, as you say. I think we can now reconstruct the actual shooting fairly accurately. Having donned his inverted flying harness and parked his Luger—or whatever it was—in a convenient place, our gunman took the air, attached his shooting iron to the stick, barrel downwards, flipped open the inspection panel, stalked his quarry, and having got close up underneath her, executed a neat half roll.

"What did he then see? Hanging there all nice and comfy in its snug little harness, and peering up through the open panel between his legs, he saw the target only a few feet away—and by using the whole stick to aim with he very nearly put four of his bullets where he wanted 'em. Very nearly, but not quite. Having emptied his magazine, he had to sheer off after doing another

half roll to get the right way up again. Incidentally, that's an interesting point, because the Princess actually saw the second half roll, and when I was told about it I couldn't imagine what the fellow was up to."

"Whoever he is, he must be a first-class pilot," observed Lorrimer thoughtfully.

"Good, I agree, but nothing superlative. There are at least forty men in England who can fly upside down in formation, wing-tip to wing-tip, and then proceed to do stunts with the precision of troops on parade—which is a goodish bit more difficult than pressing a trigger. As to the attitude itself—well, aiming between the knees and feet gives one of the steadiest stances known. They do it at Bisley."

Lorrimer joyfully pounded fist into palm.

"You've walloped the coconut, rung the bell and got your money back," he gloated. "Next job is to find out who——"

"Owns a Luger or something similar."

"Why the deuce do you keep harping on Lugers? How do you know it was a Luger?"

Kinley picked up the square of fabric to reveal a sheet of tissue paper underneath.

"Have a look at this," he invited. "See those four semi-transparent rings? They're grease marks. When I looked at the fabric closely I saw that each of the holes was surrounded by a faint discoloration, such as is left by a greased bullet. While waiting for you I therefore got one of your mess stewards to produce tissue paper and a hot iron. This is the result.

"Since no one ever uses greased bullets in British firearms, whereas they're almost always used in long-barrelled types like the Luger or the Austrian military automatic, I'm now prepared to lay a level sixpence that the bloke we want packs a gat—is that the technical phrase?—of a continental pattern.

"Which reminds me," he continued, stowing away paper and fabric in an envelope with meticulous care, "out of the seventeen Leopards that were aloft this morning, fourteen are beyond suspicion because of the men who flew them. The remaining three were flown respectively by a Mr. Gorgas, a Mr. Blavatsky, and a Herr Ledermann. Perhaps, Bill, you will make it a personal care to see that none of these gentlemen gets lost during the night."

"Where are you off to?"

"London. I'm taking down the inspection panels from those three machines. All of 'em, of course, will be covered with oil from the valves and carbon from the exhaust. But one of 'em, Brother Bill, and only one, will also show traces of the carbonates and sulphides and other smelly substances that are scattered about the neighbourhood when a gun is fired. And by those traces, quite infallibly, shall we spot the sinner."

Almost before Lorrimer realised it, Kinley was in a borrowed machine thundering southward. He returned at dawn with two quietly efficient officers from Scotland Yard, who inquired for the room of Mr. Gorgas and entered without knocking.

Standing outside in the corridor, Kinley and Lorrimer heard muffled sounds of a scuffle, then a terror-stricken guttural voice:

"But vot is der charge?"

"You are charged with the murder of Police-Constable Stokes by shooting, on the night of Thursday the thirteenth, in the vicinity of Hallow Hall, Lincolnshire, and it is my duty to warn you——"

They walked away.

As one of the Yard men remarked to Kinley later:

"The Princess, of course, would never have brought a charge; but if a fellow goes about England murdering policemen and shooting up people with greased bullets—well, he might as well leave his card and be done with it!"

FROM the steps of Hallow Hall, the Cherubic Cham watched Marshal Suvarrov's squadron dwindling to specks in the distance. Close behind him Tony

also strained for a final glimpse, sighing deeply.

In one of those specks the loveliest Princess—in fact, the only Princess that he had ever known—was going out of his life for ever. Somehow the pathos of it all reminded him of a girl he had loved years ago in Lincoln. Most probably she lived there still. Supposing he buzzed back to Town by road and called in at Lincoln——?

He felt better.

"NOW," said the Cham suddenly, turning to Kinley, "before I return to my aeroplane and my duties in London I shall be obliged if you three young men will explain what the devil you mean by kidnapping your own protégé, vanishing with her for the entire night, ruining my work in the House by worry, and then producing her again in the morning like a trio of confounded conjurors!"

To the culprits it was plain enough that the Cham's spirits had never been higher, but Miss Simms had yet to learn his capacity for banter. Hastily she stepped forward.

"Oh, please do not be vexed with them," she begged; "it was all my fault."

The Cham stared at her.

"Bless my soul!" he gasped.

"It was I who persuaded the Princess to send for an aeroplane that would also land on water so that we could get her out to sea for the night. It was the only plan I could think of. You see she—she *is* so difficult. And it was I who persuaded these gentlemen to kidnap her. But, of course," added Miss Simms, much embarrassed, "they kidnapped me as well, to act as chaperon."

"Bless my soul!" croaked the Cham.

"It really seemed the best thing to do, sir," put in Kinley, coming to Miss Simms' rescue. "Four attempts had already been made on her life, and a policeman had been murdered. There was no knowing what might happen during the night. The mist made the scheme child's play to carry out, and I only had to let one other man into the secret—the Chief Instructor at Flight Training. He lent me a machine and I staged a sort of raid, complete with blank shots, to give Ogilvie an excuse for racing off. Naturally then I sneaked away in the clouds and returned to Flight Training while Ogilvie faked engine trouble and sat down on the sea out of sight until dawn.

"And she loved it," insisted Miss Simms earnestly; "she simply loved it. She thought it was all real—that an attempt really had been made to kidnap her, and that we had frightened him off and were chasing him. And then the night at sea was just like a picnic to her—like the old times we used to have together. She wouldn't have left me Hallow Hall to look after if she had been angry, now would she?"

"Bless my——" began the Cham, then did a very peculiar thing. He took Miss Simms' withered hand in his and lifted her fingers to his lips.

"If she ever gets angry with you," he said, "she ought to be slapped."

NEXT MONTH: "The Brotherhood of Sin"—Another Great Air Mystery Story Featuring Flight Lieutenant Kinley, R.A.F.

THESE READERS WANT CORRESPONDENTS

The following readers of AIR STORIES have asked to be put into touch with correspondents, and interested readers are invited to write to them:—

R. Thompson, 29 Holbrooks Road, Underdale, S. Australia, who is anxious to exchange news of air developments in various countries.

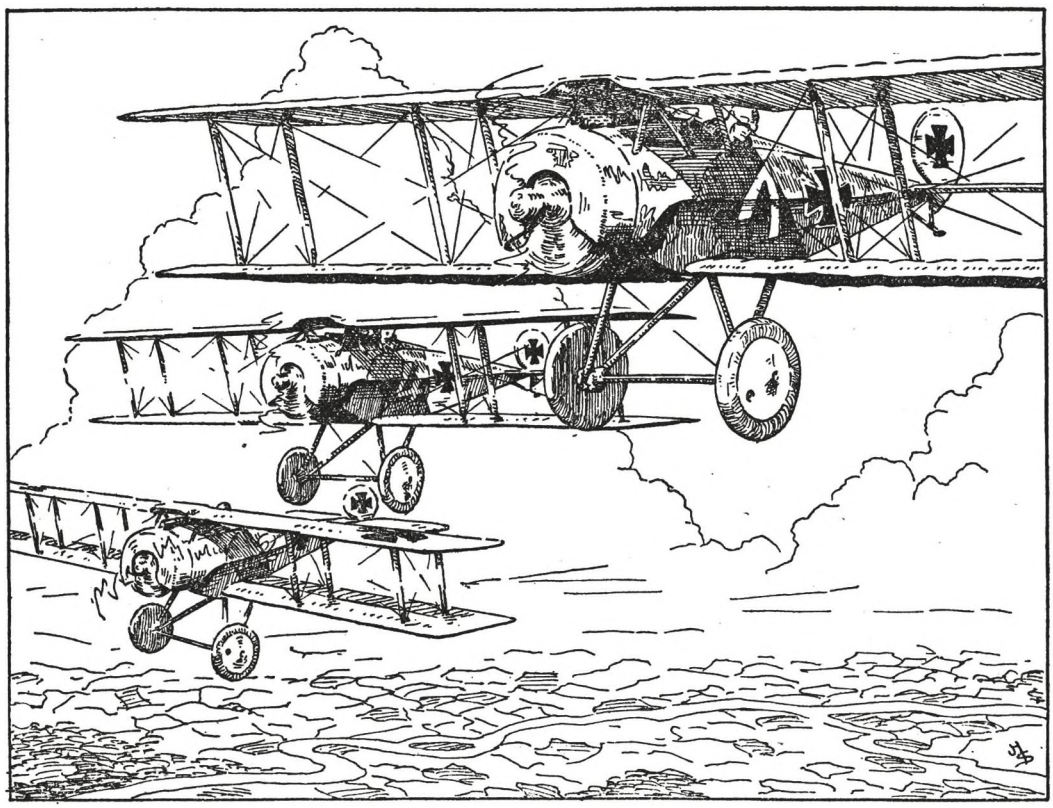
R. Hayes, 22 East Lancs Road, Hazelhurst, Worsley, Manchester, who seeks a German correspondent, preferably over 20, and able to read and write English.

Arthur Burgess, 6 Hewitt Street, Hyde, Cheshire, who intends to join the R.A.F.

K. C. Guest, 27 Hillingdon Road, Stretford, near Manchester, seeks correspondents overseas.

Herbert Atkins, 142 Grange Road, Ramsgate, Kent, who is particularly interested in rocket-flying developments.

S. L. Osborn, 27 Ivor Place, London, N.W.1, who is a keen builder of solid-scale models and willing to exchange air-war photos.



A SCOUT OF THE WAR DAYS

The History of a Famous German Single-Seater Fighter with Full Instructions for Building a Scale Model

By JAMES HAY STEVENS

THE subject of this month's article is the 1916 version of the range of famous fighters produced by the brain of Mijnheer Anthony Fokker.

The Fokker E.1 monoplane of 1914 is, of course, world famous as the first fighting aeroplane of history, and it was followed in 1915 by a series of biplanes, the D.1, D.2, D.3 and D.4, all similar in general appearance and lay-out. They reached the front during 1915, 1916 and early 1917, and were variously fitted with rotary air-cooled and stationary six-cylinder in-line engines. All four aeroplanes were two-bay biplanes with the upper plane sitting low on top of the fuselage, and had the familiar Fokker "comma-shaped" rudder. The profile of the fuselage was similar in each case, except that the D.1 and D.4 had water-cooled engines. The D.2 had a rotary engine with a large round spinner, and the fuselage was well-rounded where it met the cowling.

The D.3 biplane bore very distinct signs of its descent from the monoplane. The fuselage shape was similar, and the cowling over the rotary engine also followed the lines of that on the earlier machine. Although two wings were used instead of one, the early wing-warping lateral control was retained instead of the more conventional ailerons.

The wings were of the normal wooden construction of that day. Two wooden spars were employed with ordinary ribs. From the leading-edge to the front spar

there were three former-riblets between each pair of camber ribs. No trailing-edge strip was fitted ; instead, the fabric was allowed to tauten by the dope between the ribs, thus giving the serrated effect shown in the G.A. drawings. As may be seen from the same source, the planes were fairly heavily staggered, but there was no dihedral angle. The two-bay bracing system was noteworthy.

One of the features of this machine, and of the other early Fokker biplanes, was the curiously-raised centre-section. The top plane was placed so close to the top of the fuselage that the leading-edge had to be raised and the trailing-edge given a large cut-out to provide clearance for the guns and a forward view for the pilot. As already mentioned, lateral control was obtained by wing-warping (as was done in the original Wright Biplane) instead of by aileron.

Speed and Armament

THE fuselage had a rather curious cross-section. Just behind the engine cowling it was circular with a flat bottom, and then it became hexagonal, gradually developing into a horizontal knife-edge at the tail. The pilot's cockpit, situated beneath the cut-out in the trailing-edge of the centre-section, gave its occupant a good upward view, but not a very extensive forward one. A single Spandau machine-gun, using a Fokker interrupter gear, was mounted on top of the fuselage slightly to starboard of the centre-line. The engine was a 100-h.p. Oberursal rotary air-cooled, and practically a German copy of the Gnôme rotary. The speed of the machine was about 105 m.p.h.

There were no fixed tail surfaces ; that is, there was no fin or tail-plane. Instead, the rudder and elevators were balanced and mounted on single tube king-posts. Naturally, as the whole elevator was moveable, it had to be a cantilever structure without wire bracing.

The undercarriage was a plain wire-braced "vee" unit with a cross-axle. The earlier monoplane had a very complicated steel tube affair, which must have had a very high drag, but all the biplanes had quite neat "underworks." A rather tall tailskid was used.

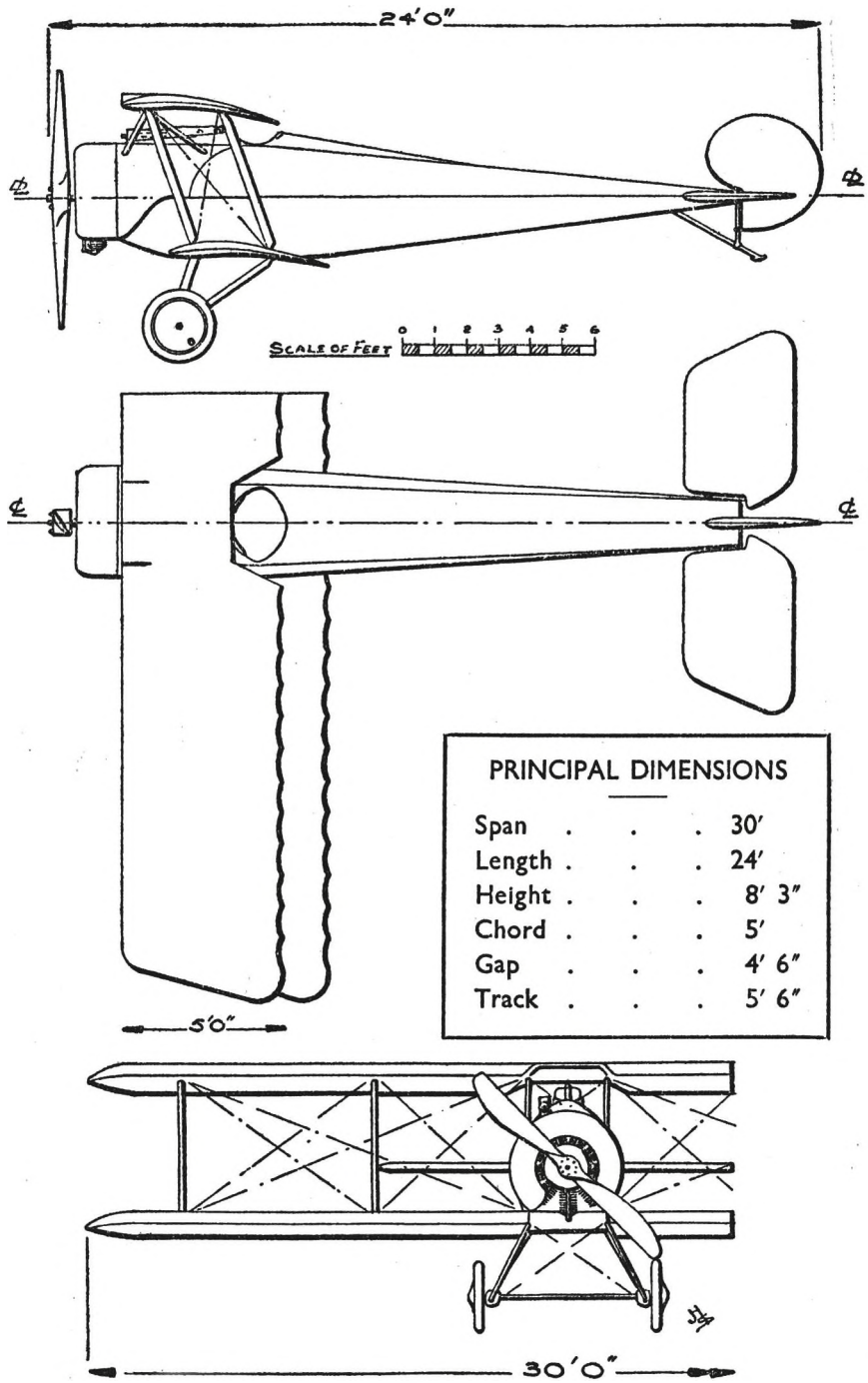
The D.3 was largely used on the Western Front by the German *Jagdstaffeln* during 1916 and early 1917. The machines were usually painted dark brown or dark green with light-coloured undersurfaces. These undersurfaces were either left natural fabric colour and covered with clear dope, or were painted pale blue or cream. Some of the machines were painted with clear dope all over and had silver engine cowlings. Black Maltese crosses were painted on wings, fuselage and rudder. Hauptmann Oswald Boelcke is generally stated to have flown an all-black biplane, painted with white crosses, at one time in his career.

BUILDING THE SCALE MODEL

Details of Tools, Materials and Method of Construction

UNIFORM with the other aeroplanes described in this series, the drawings in this article are for a model to a scale of $\frac{1}{72}$nd. Perhaps some of those who read these articles have been stirred with the ambition to collect a series of aeroplane models, in which case they should realise the advantage of keeping to one scale, so that each model may be directly compared with the others in their collections. The scale chosen is very handy, as it enables one to acquire a collection of twenty or thirty and still be able to house it without inconvenience (the writer knows from bitter experience how awkward it can be to keep some thirty-odd $\frac{1}{36}$th scale models). At the same time, the models are large enough to permit the inclusion of nearly all details such as pitot tubes, gun-sights, etc., without too much finicky and delicate work. In model making the

THE FOKKER D.3.



PRINCIPAL DIMENSIONS	
Span	30′
Length	24′
Height	8′ 3″
Chord	5′
Gap	4′ 6″
Track	5′ 6″

A General Arrangement Drawing, showing Dimensions and Three-view Plans of the Fokker D.3. Single-Seater Scout

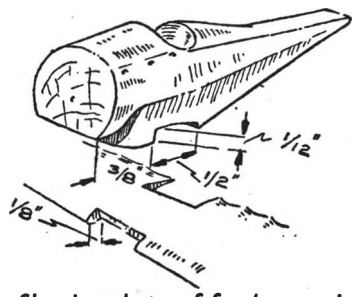


Fig. 1.—Showing shape of fuselage and method of mounting on lower plane.

old saw about " patience being a virtue " is particularly apt, and many modellers, some of them experienced enough to know better, are so anxious to complete their models that they do not pay enough attention to smoothing down their parts or to putting paint on thinly and evenly, with the result that an otherwise well-made model is completely ruined. Once again, the writer tenders his apologies to regular readers and expert modellers to whom the necessary repetition of elementary instructions may seem tedious.

Tools and Materials

THE following materials will be necessary : Block of wood $3\frac{1}{4} \times \frac{3}{4} \times \frac{5}{8}$ in. for the fuselage ; sheet of wood $5 \times 2 \times \frac{1}{12}$ in. for the main planes ; sheet of celluloid or fibre $3 \times 1 \times \frac{1}{16}$ in. for the tail unit ; 18 in. of 20-gauge wire for the wing and undercarriage struts ; a coil of very fine florists' wire, if it is intended to fit bracing wires to the model.

Wheels, engine, Spandau and airscrew are made from pieces of scrap, as will be described in the appropriate place. An alternative method is to buy the excellent cast $\frac{1}{72}$nd scale models of these accessories, which may be obtained from most model or toy dealers.

The essential tools are as follows : $\frac{1}{4}$-in. chisel ; small plane ; penknife ; oilstone (not a tool, but nevertheless an essential if those already mentioned are to remain efficient) ; small file (flat or, better still, half-round) ; $\frac{1}{16}$-in. bradawl ; fretsaw ; small long-nosed pliers ; plastic wood ; tube of liquid glue (cellulose will be found to be the best) ; a penny ruler measuring in $\frac{1}{16}$ths, $\frac{1}{12}$ths and $\frac{1}{10}$ths of an inch.

Method of Construction

FIRST, make a tracing of the side elevation of the fuselage from the three-view General Arrangement Drawings. This tracing should only include the fuselage as far forward as the rear of the engine cowling ; it should also have marked upon it the cut-out for the lower plane, as shown in Fig. 1.

Place the tracing on the fuselage block, pin-prick the outline and line-in with a pencil. Cut out the side elevation of the fuselage with saw and chisel. Draw a centre-line down the top and bottom surfaces of the block, mark the outline of the plan and cut away the surplus wood. Now proceed to the shaping of the fuselage. The bottom is flat throughout its length. The top is rounded slightly at the front, merging into a flat surface about midway between the cockpit and the tail. The sides are rounded to join the engine cowling, but half-way between the nose and the cockpit they merge into two-faced convex surfaces. Hollow the cockpit and make the holes for the centre-section struts, front undercarriage legs and tailskid.

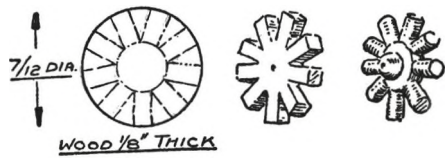


Fig. 2.—Successive stages in building up the engine from a wood disc.

Either cut the engine from a piece of scrap wood and shape it as shown in Fig. 2, or buy a cast model. In either case, it should be mounted on the front of the fuselage and allowed to revolve freely by fixing it with a $\frac{1}{32}$-in. metal washer behind it. The airscrew should be firmly glued to the engine—the method of carving the airscrew is shown in Fig. 3. Fig. 4 shows the engine cowling, which requires careful, neat work, but is not really as difficult to make as would at first appear. Glue a piece of thin,

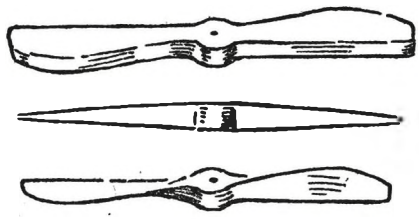


Fig. 3.—Method of carving out the airscrew, showing (top) blank, in front elevation, (centre) tapered, in side elevation, and (bottom) showing blades cambered.

but fairly stiff, paper round the nose of the fuselage. A piece of fibre or celluloid is cut to the outline of the front of the cowling and glued carefully in place. Round the edge (A in Fig. 4) by rubbing very gently with fine glasspaper. Care must be taken to ensure that there is enough clearance to permit the engine to revolve freely.

The outline of the main planes should now be marked on the wood, and both planes cut out. The convex upper surface is cambered by using a plane or file and glasspaper. The curiously-raised centre-section is obtained by channelling away the undersurface of the wing before cambering it. The wing is not reduced in thickness throughout the chord ; it is thinned very greatly at the leading-edge and is its full thickness at the trailing-edge by the cut-out. Fig. 5A should give a good idea of the shape of the centre-section when finished. The undersurface of the wing is concave, and is obtained by scraping with a penknife (see Fig. 5B). The serrated trailing-edge effect is most easily procured by first marking the rib positions in pencil and then filing both lower and upper surfaces carefully with a half-round ward-file ; the directions of the strokes are shown in Fig. 5C. Make the holes for interplane and centre-section struts.

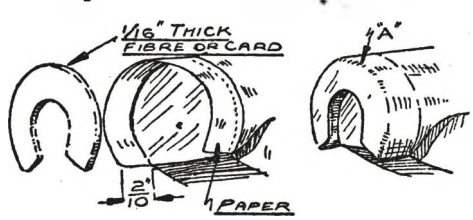


Fig. 4.—Showing method of making the engine cowling.

The rudder (made from fibre or celluloid) is made to drawing and cambered with file or glasspaper. The elevator should really be made in two pieces, but it will be found to be stronger and easier to assemble if made in one piece and let into the top of the fuselage.

Interplane and centre-section struts are plain lengths of wire. Each undercarriage vee is made from brass wire turned into a loop to take the axle. The tailskid is also a length of wire. Wheels may be made from $\frac{3}{8}$-in. dia. linen buttons, slit open and stuffed with plastic wood.

Method of Assembly

GLUE the lower plane to the bottom of the fuselage, taking pains to see that it is square both laterally and in plan. When it is firmly set, make the holes for

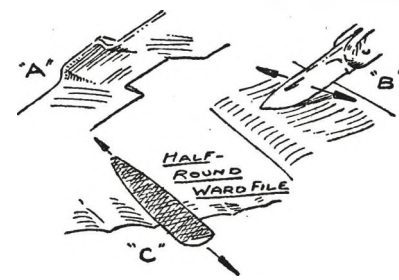


Fig. 5.—Method of shaping the wings. (A) shows top centre-section ; (B) concave under-surface ; and (C) the serrated trailing edge. The arrows indicate the direction in which the tools are moved.

the rear undercarriage legs. Fit the interplane and centre-section struts, put the top plane in place and adjust it for correct alignment, gap and stagger. When correctly adjusted, dismantle and re-assemble with glue.

Adjust the undercarriage vees and glue them in place. Thread the wheels and axle ; the wheels are kept in place by burring the ends of the axle with pliers.

Glue the tail-plane, rudder and wire tailskid in place, taking care to fix them squarely both to the fuselage and to each other.

Wing-bracing on this aeroplane is rather unusual. Incidence-wires between the interplane struts are normal. Flying-wires run from the root ends of the

lower plane spars to the top of the inner interplane struts, from the root end of the lower front spar to the top of the *rear outer* interplane strut (this is really a drag wire) and from the bottom of the front inner interplane strut to the top of the front outer one.

Landing-wires extend from the centre-section struts to the lower ends of the inner interplane struts, from the front centre-section strut to the bottom of the *outer rear* interplane strut (again this is in reality a drag wire) and from the top of the front inner interplane strut to the bottom of the outer front one.

Colour Scheme

THE usual colour scheme has been given in the general description of this machine. The following notes are concerned with the actual work.

Use 2d. or 3d. pots of good quality enamel, a No. 5 camelhair brush and a small liner's brush. Apply two or three coats evenly and thinly. Brush each coat well into the wood ; finish the first one with the brush marks *along* the grain and the second *across* it. If possible, rub down between coats with a piece of worn-out glasspaper. Allow plenty of time for one coat to dry before applying the next.

NEXT MONTH: The Armstrong-Whitworth "Scimitar" Fighter

HERE'S THE ANSWER

Readers' Questions are invited and should be addressed to AIR STORIES, 8-11 Southampton Street, London, W.C.2. A stamped, addressed envelope must accompany ALL enquiries.

BALL'S BURIAL-PLACE (S. Burgess, Wimbledon, S.W.19). Captain Albert Ball, V.C., was buried in the military cemetery at Annoeulin, near La Bassee.

BOELKE'S ALBATROS (J. E. Bowden, Highgate, N.6). (1) Oswald Boelke's Albatros was all-black in colour and carried, in addition to the type and factory numbers, black Maltese crosses heavily outlined in white. (2) The Roland and "Walfische" two-seaters were one and the same machine, the latter description being a nickname for the Roland, just as we referred to the R.E.8 as a "Harry Tate." (3) Yes, the Hawker Demon is a two-seater fighter version of the Hart light bomber ; the principal differences being in the type of engine used and the style of rear-gun mounting.

AIR MACHINE-GUNS (F. C. Morrish, Cricklewood, N.W.2). Briefly, a synchronised machine-gun's fire is regulated by a series of pulsations in an oil system. A trigger in the spade-grip of the pilot's control-stick sets these pulsations into action and they are so timed by the engine that each time a bullet leaves the gun the muzzle is momentarily clear of the revolving airscrew. An article, fully describing the working principle of synchronised machine-guns, will shortly be published in AIR STORIES.

AIR AUTHORS (J. Holbrook, Kingston, Portsmouth). Yes, Elliot White Springs, the American who served with Bishop's squadron in France, is the same man who wrote "War Birds" and other books descriptive of war-time flying. (2) For similar books by English authors try and get hold of "R.F.C. H.Q.," by Maurice Baring, and "Fine Fellows," by Laurie York Erskine, both of which are among the best British air-war books.

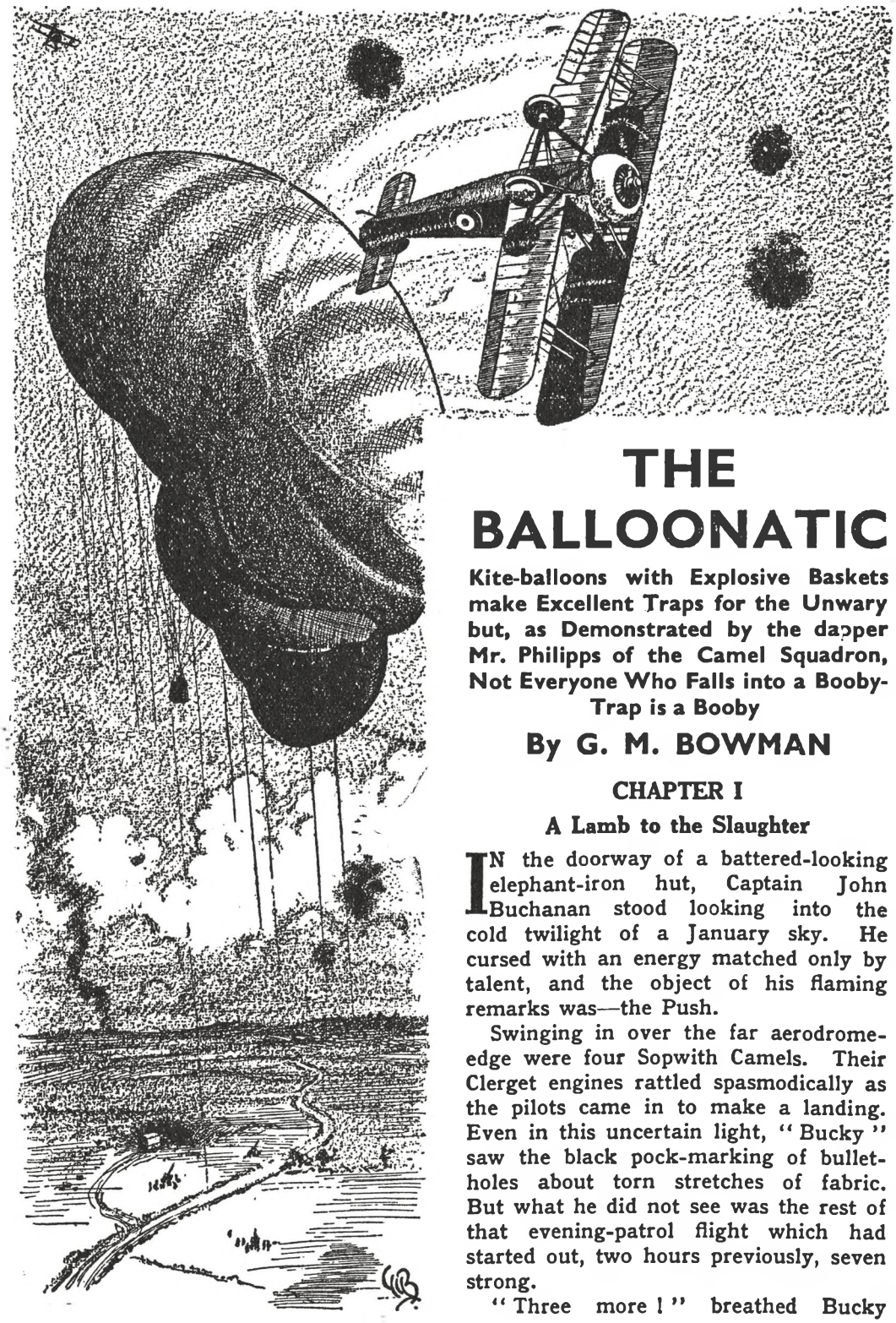
WAR SCORES (R. I. Martin, Brough, E. Yorks.). (1) The following "Aces" each brought down six enemy machines in one day : Woolett, Trollope, Claxton and Fonck. (2) Major Charles J. Biddle of the U.S. Air Service was credited with seven confirmed victories. (3) The first bombing-raid on London was carried out on November 28th, 1916, by Lieutenant Walther Ilges and Paul Brandt. Flying an old L.V.G. two-seater, they flew from Mariakere to London, bombed Waterloo Station, but were brought down on the return journey by A.A. gunfire over Dunkirk and taken prisoners.

BELGIAN WARPLANES (P. Matthews, Woodford Green). Fairey Fireflies used by the Belgian Air Force are painted silver grey, as in the R.A.F., and carry national markings on wings, fuselage and rudder. Please note that a stamped addressed envelope must accompany your future requests for information.

JOY RIDES (B. Armari, London, E.C.1). (1) Short joy-rides may be obtained any day from Surrey Flying Services at the London Terminal Airport of Croydon at prices ranging from 5s. upwards. (2) Letters addressed to Captains J. E. Gurdon and W. MacLanachan, c/o AIR STORIES, will be forwarded.

BOMB LOADS (D. Williams, Caterham, Surrey). The normal bomb-load of single-engined light bombers, such as the Hart and Gordon types, totals approximately 500 lbs. This load may be made up, according to the nature of the raid, of two 230-lb., two 250-lb. bombs, four 112-lb. and four 20-lb. bombs, or sixteen 20-lb. bombs. Heavy bombers, such as the Heyfords and Virginias, normally carry two 520-pounders, or two 550-pounders, or, as a third alternative, eight 112-pounders.

AUXILIARY AIR FORCE (L. Lineker, Tipton, Staffs.). Only commissioned ranks in the Auxiliary Air Force are trained as pilots, other ranks serving in various trades such as those of armourer (gunner), fitter, clerk, or aircraft-hand. The Royal Air Force Reserve has vacancies for non-commissioned pilots, known as Airmen-Pilots, and accepts suitable candidates for training between the ages of eighteen and twenty-five.



THE BALLOONATIC

Kite-balloons with Explosive Baskets make Excellent Traps for the Unwary but, as Demonstrated by the dapper Mr. Philipps of the Camel Squadron, Not Everyone Who Falls into a Booby-Trap is a Booby

By G. M. BOWMAN

CHAPTER I

A Lamb to the Slaughter

IN the doorway of a battered-looking elephant-iron hut, Captain John Buchanan stood looking into the cold twilight of a January sky. He cursed with an energy matched only by talent, and the object of his flaming remarks was—the Push.

Swinging in over the far aerodrome-edge were four Sopwith Camels. Their Clerget engines rattled spasmodically as the pilots came in to make a landing. Even in this uncertain light, "Bucky" saw the black pock-marking of bullet-holes about torn stretches of fabric. But what he did not see was the rest of that evening-patrol flight which had started out, two hours previously, seven strong.

"Three more!" breathed Bucky

furiously, whilst air mechanics in drab overalls ran out to take charge of the newcomers, and whilst a motor-cycle and side-car pulled up close to the hut which a notice somewhat portentously labelled "Squadron Office." From the side-car an extremely neat young officer heaved himself out with some difficulty, and smoothed an immaculate tunic.

But Bucky's attention was all for the incoming flight, so sadly depleted in number. He fell to cursing the Push again as he ran out towards the pilots who were now scrambling down and unbuttoning Sidcot suits as they fumbled for cigarettes.

"Young Paton!" said the flight leader grimly, as Bucky reached him. "Howell, too. Both in flames! We bumped into a circus of about forty D.7's—and it wasn't a bit funny. In the end we had to do a bunk, and one of the swine got Sergeant Williams clean through the back of the head. Poor beggar just went into a spin—never pulled out of it——"

"Williams?" breathed Bucky. "He was my rigger, too, last year when I was with No. 6. Knew more about an aeroplane than any other——"

He turned round, to fall in step with the other.

"Why the hell don't they start the Push and have done with it?" he snapped in a cracking voice. "If those brass-hats up at headquarters go on much longer with their infernal 'preparations,' there won't be any Flying Corps left! It's sheer murder for the youngsters—this double-work of morning and evening patrols, with no rest for anybody. Those poor devils, Paton and Howell—they ought not to have been serving in a service squadron for months yet. They didn't know the tricks, and we hadn't time to teach 'em. Now we'll be getting another couple of plucky but half-trained kids sent along to take their places, and get butchered by the first Fokker circus they meet."

"Got a match?" asked the flight leader coolly. "You know, Bucky, you've got to simmer down! You're doing all the ground-work of this outfit as well as two shows daily. I was glad the Major kept you on the ground this afternoon—but now come and have a drink and try and forget there's war on, for five minutes."

Captain Buchanan laughed shortly, but turned aside towards the squadron office where the extremely neat young officer was lounging gracefully with a fold of papers in his hand.

"Don't be a damned fool," he said impolitely. "I'm not a nervous wreck yet, or anything like it. But I'm sick of seeing men and machines chucked away in this senseless patrolling, whilst the fashion-experts at headquarters stick pins in maps and prepare for paper 'pushes' which the Hun knows perfectly well are coming."

And, still fuming, he strode back to the squadron office, banging the door open and gesturing the waiting young officer to follow him inside.

ANGRILY, Buchanan sat down at his desk, paying not the slightest attention to the papers which the young officer put down before him, after a smart salute.

Bucky glared. He glared at the neat figure, about which there was much of which he disapproved instantly. The young man's fair hair was parted in the middle and brushed back shiningly. His expression was vacuous, his pale blue eyes sleepy and his nose somewhat prominent. Beneath it was a stylish wisp of fair moustache. For the rest, his uniform was speckless, his buttons shone like those of a guardsman, and his attitude was one of bored attention.

"Another lamb led to the slaughter," said Bucky with a sigh. "Well, the flying-schools at home are certainly getting toney. They'll soon be sending their products out, wrapped in cellophane. What's your name?"

Bucky's mood was over-strained, or his words would undoubtedly have been more kindly. Also he might have remembered Napoleon's shrewd remark: "Give me a man with a good allowance of nose." And he might also have noticed

a sudden, dangerous gleam in a pair of sleepy eyes.

"Philipps, sir," said the newcomer in a slow drawl.

Bucky jerked a memo-pad towards him and began to scribble. "How many P's ?" he asked.

"Three, sir," said young Mr. Philipps blandly, but he seemed to stiffen. "There're two in the middle—one of those quaint old customs !"

Bucky stiffened too. By nature he had an objection to dandyism, but he had an even greater objection to impudence.

"Thank you," he said acidly, "we have a quaint, old-fashioned custom here too—of putting people in their places."

"Charmin' thought, sir," drawled Mr. Philipps. "I'm only too anxious for promotion, of course."

Bucky gulped, and his ideas about this young man underwent a violent change. That drawling, affected tongue had dangerous barbs. With an irritated motion he jerked the bundle of papers towards him and flicked them over. His eyes centred upon a very old and much-thumbed attestation-form which Mr. Philipps had evidently filled up when first joining His Majesty's forces. The details on the form made Bucky blink.

Name : PHILIPPS. Edwin Percival. "George."

Age : 6 (Born in a Leap Year).

Height : Much admired.

Weight : 7 lb. at birth.

Colour of eyes : Fiery.

Colour of hair : Pale marmalade. (Keiller's ninepenny.)

Any special distinguishing-marks : Spots before the eyes.

Next of kin : Johnnie Walker.

As those idiotic answers almost danced before his eyes, Bucky actually found that he wanted to laugh. And that, in itself, made him angrier than ever. He controlled his face muscles with an effort and heaved up to his feet.

"Mr. Philipps," he said in a biting tone, "you will please do us the favour of not being funny here."

Mr. Philipps gave a slight bow.

"Always willin' to do a favour, sir, even to the meanest of creatures," he said politely. "I promised Mother——"

Bucky's instinct for laughter faded. This youth needed taking down—and taking down with a bang !

"We should of course appreciate little tips about military fashions and the cut of our clothes," he said with grim sarcasm. But Mr. Philipps actually smiled.

"You'll find me ready for any task, sir, however impossible it may seem," he said. "Mother always made a special point——"

But it was at that point that Bucky's rising temper burst.

"My young friend," he spluttered. "My dear young friend, if this war could be won by funny back-chat, I should be glad to welcome any second-rate amateur comedian who liked to mince around in a real soldier's uniform. As it is, I do not welcome any raw, impudent youngster who's never yet heard a gun fired in anger."

He sat down, feeling his rage evaporating as quickly as it had arisen.

"Oh for heaven's sake !" he said. "Now that you've reached a real war, take my advice and sing small for a bit——"

He found that the young man's eyes were upon him with a curious intensity. Somehow it was a gaze which he avoided. He had the impression that he was being ridiculous. Young Mr. Philipps was a person of peculiar powers.

LESS than a second later, Captain John Buchanan was at some pains to repress a real start. For, agitatedly flicking those papers over, he came upon a record-sheet which announced two facts which, in the circumstances, were distinctly startling.

First, Mr. Philipps' seniority dated a full month earlier than his own—back to October, 1914.

Second, the interesting detail that Lieutenant Philipps had completed two years on active service in the trenches, with one of the most famous regiments of the line, before being seconded to the

Royal Flying Corps in England for aerial training !

Bucky slowly looked up at this veteran, senior to himself, whom he had just addressed as a "raw kid" who had never heard a gun fired in anger.

"You——" he said.

And stopped. In the circumstances words were a little difficult.

"Dear old sir," said Mr. Philipps, "I've got an idea that we may have been workin' at cross-purposes, as it were. But if—if everythin' is in order, have I your permission to go and find my quarters ?"

He shrugged his shoulders, but his sleepy eyes were inscrutable.

"Awful fag, gettin' fixed-up and bedded-down—and all that," he explained. "Shades of evenin' fallin' fast, if you take my meanin'. An' a spot of aviation to be done at six o'clock to-morrow mornin', so I'm told."

"Go to hell !" said Bucky rather faintly. It was the only remark he could think of at the time.

But as Lieutenant Edwin Percival Philipps — self-styled "George" — saluted and departed, Bucky's mind was warring within itself.

About "George," in spite of other failings, there was one good point. One shining point. He had not made a single remark about his own excellent war record. He had not taken advantage of Bucky's own humiliating mistake, and rubbed anything in. That was gentlemanly—more, it was manly.

But the bland, infernal impudence of the beggar and his polished repartee. . . .

CHAPTER II

George Gets into Trouble

CAPTAIN BUCHANAN'S temper was sharp rather than bad. But at six o'clock of a January morning, when the dawn is as yet within the frozen womb of darkness, when war takes on its most insane, wasteful and murderous aspect, any man's mood is inclined to be edgy.

In front of Bucky as he buttoned up his leather flying-coat, the members of the flight were walking out to their machines. There was the usual asthmatic clatter of cold and unwilling Clerget engines, the fog-horn voices of rigger- and engine-sergeants.

But, miraculously, on this morning, there was laughter.

Bucky caught sight of a long nose jutting out from the fur fringe of a passing flying-helmet. He heard a drawling voice—and a sudden burst of laughter from the two or three men who were lounging by with the new "hand" in their midst.

George had gone down well with his new friends. Last night there had been junketing in the ante-room. At the piano, Lieutenant Edwin Percival Philipps had shown considerable skill, together with a repertoire of witty but uproariously unprintable lyrics.

Bucky, who was a friendly soul, and willing to forget all matters of rank and discipline in off-hours, had attended the early part of the proceedings. But after the first song of the already popular George, he had departed.

Bucky, in short, had never in his life wanted to dislike anyone quite so vividly. It was a feeling that fairly got him by the neck. And the worst of it was—he couldn't ! The drawling, immaculate, creased-and-polished George had an impish, unexpected humour that made you laugh, even when you most definitely didn't want to.

Something about the peculiar, sleepy eyes of Lieutenant "George" Philipps spoke mutely of a balance and a courage far from usual. Bucky knew from long experience that the pilots of a line squadron didn't "cotton" instinctively to a man who hasn't got what it needs. But those barbed, politely-insulting replies at their first meeting were still vivid. And his own idiotic slip still rankled in his memory.

"Mr. Philipps !" barked Bucky. His tone was harsher than he intended it to be, but amongst the little group of pilots, George made some unheard remark, and there was a stifled burst of laughter which made Captain Buchanan's nostrils quiver.

"You will be flying number three, on my left," he said as the young man stopped and turned about politely. "Close formation will be kept throughout the whole patrol unless I signal otherwise. But if we do have to break up in anything like a big scrap, don't forget that there's probably someone making for your tail, just when you think you're dead on a man in front. You'll need eyes in the back of your head for this game."

"Thank you, sir," said George in a tired voice. "I'll have a drivin'-mirror fitted."

Bucky's teeth showed.

"My duty," he said acidly, "is to keep my men alive as long as possible, no matter who or what they are! If formation has to be broken, it will be re-made behind me as soon as possible. You will not fly further from the scene of action than can be helped. And you will not turn for home until whoever remains in command of the flight signals you to do so."

"Dear old sir," said George, his eyes opening slightly. "I can't imagine that there was any intended insult behind that last remark?"

In actual truth there had been, for Bucky's six-o'clock temper was getting the better of him. But, humiliatingly, it had to be retracted, since he was speaking to an untried man.

"We need not indulge in heroics," he said. "I am merely giving you orders, as a newcomer. And you will pay especial attention to this. In no circumstances will you attack enemy kite-balloons. They are always surrounded with Ack-Ack guns which have the range laid dead to an inch. A lot of them carry dummy pilots in a basket filled with T.N.T. which will blow you clean out of the sky, directly one of your bullets goes home. In short, they are now well known as being booby-traps for any damned inexperienced young fool who thinks he's on an easy target. That's all."

Bucky hesitated, and then his real nature got the better of him, and he added:

"Good luck! The start's always the worst part. But don't worry. Now get going."

"Personally, I should have thought that the worst part would be the finish," said George judicially. "Still, dear old sir, I bow to your greater experience. An' I thank you for your kind thought."

With which he turned away, leaving Bucky boiling.

THREE minutes later, in the lead of an arrow-head formation of thundering Camels, Bucky yanked up his Constantinesco-pump with unnecessary violence and set a course due east. George—everyone in the squadron was calling him by that name—was frankly impossible! Moreover, he was a reckless, if skilful, young fool. As the squadron took-off he delighted everyone but Bucky by zooming his machine almost vertically from the ground, and then letting it topple down on to a level keel at full flying speed after a hair-raising "stall." The confident control with which he performed this difficult and almost uncontrollable "show" manœuvre branded him straightway as a first-class aerobatic-pilot. Heaven alone knew that the squadron needed such pilots—but they did not need recklessness and foolhardiness, or anything that smelt even faintly of swank!

In his real and righteous wrath, Bucky felt slightly better as he led the flight, climbing steeply, to about six thousand feet above the bitter gloom which surrounded the frosty blood-tub of the Passchendaele area. He glanced at his oil- and air-pressures, noted the rev. indicator with satisfaction and thumbed the gun controls in the centre of his spade-grip, letting loose a couple of "tenners" to warm up the half-frozen oil in his Vickers mechanism.

By now the eastern horizon was as grey as a winding-sheet with the first approach of dawn. Bucky gave his map-roller a twist and prepared for the serious object of the patrol—careful observation and checking of all enemy movements, preparatory to that long-rumoured Push which headquarters were plotting so carefully.

Not that it was any secret to the enemy, who was fully alive to the fact that big trouble was in the wind, owing to the doubly increased activities of the British R.F.C. during the last ten days. Moreover, two could play at that game, and friend Fritz had started to play with his usual entirely humourless efficiency. Double patrols each day on the part of the German Imperial Air Service had started to make things really hot and sticky over the lines.

Ten seconds later, just when Bucky was beginning to think that he was going to get some really useful work done, the trouble started.

The first sign of it was provided by No. 3 machine, which stood clean up on its nose and then half-rolled down out of a loop, as it disappeared behind the flight.

Bucky swore viciously and "Immelmanned" too, catching sight of flames darting and spitting from George's guns, whilst he was still hanging upside-down with a shrieking side-draught trying to knock his head off.

Bucky's first thought had been that the newcomer was playing the fool in a moment of rank and unforgivable insubordination. But his next thought was that young George must actually be provided with eyes in the back of his head.

For a nine-strong flight of Fokker D.8's which had come diving down out of the blue of the western heights, were only just within shooting range.

George had made the correct, indeed the only possible move in thus signalling danger to his comrades. It was an irony of fate that it should have been left to him of all the flight flatly to disobey the usual orders—and be perfectly right in doing so.

At such a moment as this, flight-control was not only decentralised, but it had to go by the board altogether. There was no need for any signal from Bucky. It was a case of every man for himself, as the formation broke wildly, fanning and swerving out to dodge that first, diving attack, and then plunging back again in a wild, free-for-all battle.

A whining burst of bullets shrieked past Bucky's left side, and he raised a shoulder instinctively as he heard them jarring and clattering their way through the tail-end of his fuselage. He saw the green Fokker which had fired them, and yanked up, banking steeply as one of its wing-tips slid into his gun-sights—and out again before he could return the compliment.

Then his right wing-bay shuddered, and fabric flew in strips. One strut split as though a hatchet had struck it. As Bucky slammed his stick forward, he saw a burst of flame and smoke away to his right, where a red-white-and-blue-striped tail was disappearing into eternity.

First blood to Fritz! No telling who had gone. For a moment Bucky was all keyed-up and flummoxed. But then as he dived and came curving up again with the smooth belly of a Fokker sliding dead across his sights above, all his old calmness and cold fighting dash returned.

Bucky evened the score in that moment—and brought his own private tally to fourteen into the bargain. Everything was very much clearer now as the creeping dawn blossomed into its winter brilliance. He lined-up, swerving skilfully on to a black-crossed fuselage, and fired two ten-bursts which made a spinning propeller dissolve in a shower.

Then a Fokker, disappearing in the red-and-black burst of its own petrol-tank, swept by beneath him and a Camel zoomed up in triumph. Bucky grunted. It was George! The back-chat expert had broken his duck. And now, even as Bucky swerved over to forestall a diving German attack, he saw young Mr. Philipps streaking away wide to the left of the flight, after a diving, scarlet enemy.

THE whole dog-fight, from first to last, had the swift and furtive effect of a tussle at the corner of a dark alley. Bucky downed a second "flamer" and saw the poor devil of a German trying to kick-up out of his cockpit as he spun. Then a bullet, coming from behind,

actually slit his cheek, and he ducked convulsively, hearing his centre-section struts departing in matchwood. But even as he whirled down and round, shadows flickered over him from above and he saw Whalen, his second-in-command, plunging in vengeance upon the Fokker which had come within a hair's breadth of closing his own career.

After which, with a suddenness that was almost numbing—as is usually the case at such times—Bucky found the sky clear. Far away eastward, three Fokkers were like tiny silver minnows diving for home. Where the rest were Bucky didn't know, but he couldn't believe that they were all down. Somewhat dazedly he stared around him and counted three Camels. Then far away to the right he spotted the unmistakable George, who had either got his second Fokker or lost it altogether. Anyway it was not on the stage.

But what made Bucky suddenly jerk up in his seat and fairly gobble with wrath, was the sight of a bulbous, grey kite-balloon floating in serene loneliness four thousand feet below—and the sight of George diving dead towards it !

It was too much ! Up to now, Bucky had been feeling slightly better-disposed towards George, who had been flying magnificently, and had shown himself to be just as good a fighting-pilot as a crack line-squadron could wish for. Cheek or no cheek, George was definitely one of the boys.

But now Bucky put his nose down, set his teeth, and proceeded towards the distant kite-balloon very much in the manner of an avenging angel from Heaven. He saw George swing round that balloon, and saw an immediate, splashing pattern of anti-aircraft shells blossoming and ragging-out in the sky all about his machine.

" The young FOOL ! " gasped Bucky. " The damned, impudent, insubordinate, suicidal——"

If he had been able to analyse his feelings at that moment, he would have found himself more furious at the idea of losing a first-class fighting-man, than at the flagrant disobedience to his own orders. But he was not in the mood to analyse anything. Quivering with rage, he plunged after the distant George, intending to head that young man off and force him back home. After which, Bucky promised himself a blistering interview in the squadron office. Always supposing, of course, that both of them got home.

MEANWHILE, George, if the truth were known, was having quite an interesting time. As he swung round the balloon he suddenly altered course in a shrieking, full-banked turn. The air quivered around him, and a hail of ack-ack shrapnel proceeded through his wings with a noise like a kettle-drum. Then he went up and over in a loop. But by way of putting the ground-gunners off their range, he stuck on the top of it and fell out into a giddy sideslip. And all the time he watched a certain hole in the ground, just to the left of a clearly-defined road. It was that hole which had caught his attention and brought him down from the heights. Now, quite clearly, he could see the end of a line of lorries disappearing into the burrow-like opening.

His sleepy eyes were quite wide open behind their goggles, and very much awake. A rattle of machine-gun fire from below disturbed his tailplane, and he climbed steeply, at the same time pushing-over in a flat turn in order to keep the gunners interested.

Whereupon a vicious rattle of bullets from immediately behind passed through his right wing-bay !

George jerked round rather convulsively, to see the ferocious Bucky dead on his tail and waving an imperative arm for him to turn towards home !

George laughed. In the first second of that bullet-burst, a cold feeling had shot through his heart. Vividly he imagined a Fokker waiting to put the next burst clean through his back with smashing impact.

Now, however, he turned obediently, but jerked his machine up and down, altering its range as he departed from the attentions of the ack-ack crews at

the balloon-moorings. Still grinning, he turned and looked back behind again.

But then the grin faded from his face, for he saw that Bucky was bending down, working furiously in his cockpit, whilst his stocky little Camel was actually wavering at the point of losing flying-speed. Its nose dropped abruptly and the machine took up a gliding angle even as George watched. A few bursts of smoke came from its engine exhaust, and the propeller slowed so that its spinning blades became visible.

CHAPTER III

The Menace of the Mine

WITH a bullet-shattered magneto, to say nothing of an instrument-board completely removed by shrapnel, the luckless Bucky was gliding helplessly down towards the German back area.

He had got beyond cursing now. He had got beyond rage. Fortunately, there were large stretches of deserted ground in this part of the line, less than half a mile from the German support-trenches. British batteries had the range laid to a nicety, and as a matter of fact, even now H.E. shells were arriving with their usual, spectacular results.

Bucky knew he had got to land, but there was at least the advantage that he wouldn't be greeted by a fierce machine-gun fire as he did so. Even so, the British shells would give him plenty to think about . . .

Bucky landed. He got his machine to the ground and knocked his safety-belt undone, scrambling up and swinging a leg over the side before he had come to a standstill. A howling, thundering shriek, rather like three or four express-trains crazily careering through the sky, sounded from somewhere near at hand. He dropped down to the ground face-first, rammed his hands over his ears and wondered if you felt anything at all if a shell landed clean on top of you.

With true British sportsmanship, however, the shell landed a hundred yards away, giving the general effect of St. Paul's Cathedral collapsing in the middle of an earthquake. Bucky felt as though the bones of his head were actually shaking and grating together at their joints. He was stunned, deafened, and felt bruised in every bone. Only after a numbed minute did he try and heave himself up—whereupon he heard a noise that he frankly didn't believe.

It was the noise of an idling Clerget engine, only about five yards away from where he was crouching. At the same time there was a voice—and the voice was the drawling voice of George!

"Dear old officer," it bellowed. "Don't think I'm buttin' in or anything—but can I give you a lift, or are you waitin' for a 'bus?"

Under the impression that the shell had hit him, and that he was dead or suffering from delusions, Bucky slowly swung round.

George, smiling politely from the cockpit of his landed Camel, was no more than five yards away and his engine was still running. German soldiery at a distance of about five hundred yards were now taking an interest in the proceedings, and sharp, unpleasant shrieking-whistles were passing.

"I'll break your neck for this!" said the shaken and ungrateful Bucky, plunging forward. "I'll—I'll—what the devil do you mean by flatly disobeying my orders and going for that balloon?"

His words came gaspingly, as he heaved himself up the side of the Camel.

George slammed the engine throttle almost full-open in the same second, but above its roar he was still chatty.

"You'll have to sit on my knee," he announced. "There's so little room in these sports-cars, and your weight will put everything cock-eyed if you hang on to the side. Besides which, you'll probably get a bullet straight up the—sleeve of your jacket! Now then——"

Once again Bucky felt that unwelcome urge to laughter. Bullets were whistling round him. The machine was lurching and rattling forward, with the howling draught of the propeller lashing against his back as he climbed awkwardly over

into the narrow cockpit. He sat down, as best he could, on George's knee.

"Mind the gear-lever," said the irrepressible George, reaching awkwardly round to hold the stick. "Oh, golly—dear old sir, could you shift your foundations a little south of my pantry? Oops, that's better!"

As he spoke, he eased the stick back. The thundering, overloaded Camel wobbled up from the ground, and then zoomed for a few feet as it was hauled into the air. Bucky was sitting in indescribable awkwardness. He had spread his legs as wide as possible to try and give play to the stick. His head was ducked forward, bumping painfully on the levers of the two Vickers guns in front, while all the assorted scrap-iron in France seemed to be passing in mass-formation just over the back of his neck.

But George kept that overloaded machine going and climbed as steeply as he dared. He passed over the support-lines, and made straight for the German front line and the battered area of No Man's Land beyond it. Twice the wings of the Camel shuddered violently as they were caught by shrapnel and machine-gun fire. Once a bullet twanged with an ugly noise on the engine-cowling and altered course, to pass Bucky's head, taking a small but painful portion of his ear with it.

YET, despite his unenviable predicament, Bucky's heart was beating high with hope. They were reaching the German front line. Beyond them was only a five hundred yards stretch of No Man's Land, and then the British lines—and safety!

It was a suicidal attempt. Never before had he or anyone else dared fly over enemy trenches in broad daylight with wheels almost scraping the barbed-wire entanglements. And because of that unique fact, Bucky suddenly noticed something about the German front line which no patrolling flight had been able to see during the past week.

The front line was empty! No man moved in the trenches. But all along it, *picklehaubers* on sticks gave the appearance of a large number of inhabitants. From any kind of height, those empty hats would certainly have been taken for soldiery. Bucky drew a sharp breath and craned over the side to see better. He realised that George was doing the same.

Whereupon the engine banged once or twice asthmatically, "hunted"—and then died out altogether in an uncanny silence!

Immediately the machine lost flying speed. It lurched down with the stretch of No Man's Land only a few feet beneath its wheels. George feverishly waggled the engine controls and gave a gasp.

"Dear old officer," he gasped, "forgive the question—but do you happen to have your feet up the induction-pipe?"

To save a "pancake" crash, he had to ease the stick forward, and Bucky saw the ground, pitted with shell-holes, come perilously near. But at the same time, the petrol-lever on the dashboard caught his eye. It was marking "empty."

"No juice," he shouted. "You'll have to land. Now then—get yourself down in a shell-hole as soon as I've jumped clear——"

The explanation was obvious. One of those crashing bullet-bursts had knocked best part of the bottom out of the petrol-tank.

"If you'll be good enough to pin your ears back, so that I can see!" requested George, craning out over the side. "Oh, my hat—*look out*——"

In the next moment Bucky not only looked out, but went out! He departed from his place head-over-heels as the pilot, forced to land at last, headed the machine straight into an unseen shell-crater. There was an uproar of splitting struts, tearing fabric and buckling metal. As the machine landed, its tail came up in the air, wavered uncertainly, and then the entire airframe collapsed.

Down in the bottom of the crater, George climbed out of the wreckage with a bleeding nose, and shook his

head more in sorrow than anger as he faced his half-stunned superior.

"Mother always told me not to go out with strange men!" he announced rather thickly.

But Bucky's head had cleared by now, and his eyes were dancing with excitement.

"Did you see that the German front line was *empty*?" he breathed. "Did you see it—a lot of empty tin-hats stuck up on sticks. There isn't a soul there! I'm betting there isn't a single German soldier nearer to us than the support line, five hundred yards back! By golly, we've got to report this. It means some kind of a trick. Why, you young idiot, I can almost forgive you for diving on that balloon."

"Go *hon*!" said George, not in the least abashed. "Well listen, *mon capitaine*, I, too, noticed somethin' funny goin' on below that balloon, just after I'd put a flea in the ear of my second Fritz. There was a nice, big hole in the ground leading straight towards our lines. And into that hole, ammunition-lorries were goin' just like a lot of merry little rabbits poppin' into their burrows! See the idea? The Hun has been buildin' a whackin' great mine. But he's made its openin' a long way back, at the base of that balloon. You see, he knows perfectly well that the cautious commanders of the Flying Corps on our side keep their dashin' young men away from all balloons! It was the finest protection the Hun could have thought of. No airman would dive near that balloon—and no one would be likely to see the mine-openin'. Now, wasn't that pretty bright an' intelligent of your little ray of sunshine—or was it?"

"You're not stringing me a yarn?" asked Bucky, tensely. "Look here, George, I may have been a bit tough with you, but you were darned cheeky——"

A slightly different expression came over George's face. He looked actually pleased at hearing his nickname used by Captain Buchanan.

"I apologise, dear old sir," he said. "Most sincerely. Always did let the old tongue rather run away with me."

But Bucky suddenly stood up.

"Before you burst into tears on my shoulder, we've got a little work to do," he said excitedly. "Why, the whole thing's as plain as a pikestaff now. That mine-opening which you saw—these deserted front-line trenches, mean that Fritz has built a whacking great mine under his *own* front line! He knows we're going to push. He's going to let our chaps swarm over, and when they're right in the middle of his deserted line, he's going to send 'em all sky high! When all the dust's cleared, he can simply sweep his men over from the support, charge right through our depleted trenches and pinch heaven-knows how-much ground!"

He turned to scramble up the side of the crater. By way of a test, he ripped off his flying-helmet and waved it up above the edge. Had there been a single rifleman in the German front-line trenches, that flying-helmet would immediately have been turned into a sieve. But as it was, only one or two bullets, obviously coming from a long way off—doubtless from a sniper with a telescopic sight, in the German support-lines—whined near it.

So Bucky and George departed. Dodging, and running almost bent-double, they plunged for the English trenches whilst only a few bullets kicked up the mud about their feet. Headlong they rolled down amongst startled, khaki-clad men who talked to them pointedly on the subject of attempted suicide. But Bucky was listening to no talk. He plunged for the nearest Headquarters dugout and grabbed the telephone without so much as by-your-leave. For a hectic ten minutes he swore himself through to connection with General Headquarters.

And, during the ten minutes that followed, the gentlemen at Headquarters held a perfect orgy with maps and pins!

THE Major was in a cheerful mood. He was benign, indeed genial.

Throughout a hectic day, cheering news had been coming through from Headquarters. First of all, the great Push had started at last. But it started with a false attack and a lot of shouting behind a gas-cloud.

Three minutes later, one of the greatest mines ever known in Northern France went-up with cataclysmic effect, destroying an enormous stretch of the empty, German front-line.

But, much to the annoyance of the German High Command, that line *was* empty. It was filled only with drifting gas-clouds, for not a single British Tommy had been allowed to come forward.

The result was that when the massed German troops came charging out from their support with the cheerful idea of winning a new position without opposition—well, in the words of George, "they got a nasty jar!"

In the middle of that vast, smoking mine-crater there was a terrific, hand-to-hand fight which resulted in a hopeless German rout. The British Push went forward. It went forward even more successfully than it had been planned by the pin-experts. And all its details were carefully observed and reported by mass-work on the part of the Royal Flying Corps.

AND now, two newly-returned and grinning members of that famous Corps stood before the Major, who was laughing happily.

"Bucky," he said. "Headquarters have just sent, asking you to tea. You've got to go and get a pat on the back, and what's more, I can tell you definitely that you're getting your squadron."

He turned to George.

"You've been overdue for promotion on seniority for some time, Mr. Philipps," he said. "And you can put up three stars as from to-day. Captain Buchanan has recommended you——"

But before George could answer, Bucky spoke quickly.

"If I'm going to get my squadron, sir," he said, "do you think they could stretch a point and give me a second-in-command of my own choice?"

He turned and grinned towards George. The Major grinned too.

"Well, I daresay that could be arranged," he said, and tactfully wandered away as the most recently promoted Major and Captain in the R.F.C. shook hands for the first time.

"IF YOU ARE TAKEN PRISONER . . ."

A war-time notice which hung in the officers' mess of No. 20 Squadron R.F.C., in France, reproduced by courtesy of an AIR STORIES' reader, Mr. J. L. Smith of Stockport.

Editorial Offices: 8-11 Southampton Street, Strand, London, W.C.2

FEW contributions to AIR STORIES have proved more popular, or produced a greater number of interesting letters, than "Winged Warriors," the recently-concluded account of life in an R.F.C. two-seater fighter squadron, by Captain J. E. Gurdon, late of No. 22 Squadron, R.F.C. A number of readers, however, whilst recording their great enjoyment of the story, expressed a doubt as to whether it really was, as we stated, founded on fact. We think they will find interest, and enlightenment, in the following letter from Kenneth J. McKelvie of Marlborough, Wilts :

"I must first congratulate you," he very kindly writes, "on your marvellous magazine as a whole and then, in particular, on that wonderful story 'Winged Warriors' in which, incidentally, my father is 'the Major.'

"My father is Major J. A. McKelvie, R.F.C. (retired), who commanded No. 22 Squadron in France and was there with 'Warton' and 'Lastor,' whom he recognises. Incidentally, I rather think that your correspondent, Mr. T. Gadd (see 'Contact' for April), is confusing either dates or squadrons when he says that Major A. E. McKeever, the two-seater ace, was with 22 Squadron until January, 1918. Certainly, my father never met McKeever throughout the time he was with 22 Squadron, and as their names have been confused several times before, perhaps this is another case of mistaken identity ?"

Then, to add further to the mystery, comes a letter on the same subject from Mr. M. Coates of Handsworth, Birmingham, who, referring to Mr. Gadd's letter, writes :

"I have evidence to prove that Captain J. E. Gurdon, author of that great story 'Winged Warriors,' did, in fact, meet Major McKeever, the ace of two-seaters, as your correspondent Mr. T. Gadd suggests.

"The 'evidence' is a photograph of 'A' Flight, 22 Squadron, taken in France, and shows a group which includes Major McKeever and Captain Gurdon. My authority for the names of the men in the group is Mr. A. J. H. Thornton, ex-R.A.F., who, curiously enough, was formerly Captain Gurdon's observer."

To settle the mystery finally, we invited our correspondent to send us the photograph of "A" Flight and, on referring it to Captain J. E. Gurdon, he definitely identified "McKeever" as Major J. A. McKelvie. Further, since McKeever did not transfer to the R.F.C. until December, 1916, and Captain Gurdon confirms that there was no McKeever with 22 from 1916 onwards, there is now little doubt that McKeever never was, in fact, with 22 Squadron. His great record was actually achieved as a member of 11 Squadron, which he joined on May 16th, 1917, and as this squadron was stationed near No. 22 and was also equipped with "Brisfits" it is fairly obvious how, aided by a similarity of names, the great McKeever-McKelvie controversy has arisen.

"A Modest Birdman"

ANOTHER contributor to AIR STORIES, Lieutenant W. MacLanachan, whose brief histories of famous squadrons are a popular feature of this

magazine, is referred to in a letter from Mr. L. H. Rogers of Nottingham.

"When AIR STORIES first appeared," he writes, "I bought it (I have to buy anything that has an aeroplane on it) fearing that it was only another American magazine introduced into England. It wasn't, and I need say no more except that you can count on me as a reader for life.

"All your writers are top-notchers, but it is the true articles about air fighters and squadrons that I like best. Mr. Pritchard and Lieutenant MacLanachan are the goods and, incidentally, I wonder you have not written about the latter in 'Contact.' Whilst serving in 40 Squadron with Mannock, MacLanachan accounted for 21 E.A. Tell him to write about his own famous squadron, soon."

Lieutenant MacLanachan, we regret to say, is a prominent member of the ancient order of "modest birdmen" and has threatened us with direful consequences at the first hint of an editorial bouquet. We have, however, at last persuaded him to write a brief history of No. 40 Squadron, which will be published next month, and we hope eventually to induce him to contribute his own reminiscences to AIR STORIES.

A Letter from America

THE demand for an air-war story featuring a German pilot as the hero, first voiced by Mr. E. White in our April issue, is growing apace, and the latest request comes from a reader in America who, incidentally, has something to say on the subject of American air magazines. Our correspondent is Mr. McDowell Hosley, Jnr. of New York City, and he writes :

"I think your magazine is excellent and particularly enjoy the articles by Mr. Pritchard and Mr. Stevens. But I would like to see a story written about a German pilot in a German squadron. Not a Baron So-and-So who is the Big Shot of the squadron, but a plain, ordinary German officer who has to make out reports to his C.O. and who does not go around beating up helpless subordinates. Such a story about a fighter who gave of his best for the Imperial Air Service—which, after all, was, in its way, just as great an organisation as the R.F.C. or R.A.F.—would be welcomed by me and perhaps by others.

"Finally, a word in defence of American air magazines which, I see, have been taking a knock from several of your correspondents lately. I will freely admit that some awful trash is being published under the name of aviation stories, but, all the same, we have got *some* good air writers over here who know what they are writing about and at least one really good air fiction magazine.

"Meanwhile, here's to the continued success of AIR STORIES, its writers and artists and the editor who consolidates it into the finished product we welcome each month on the news-stand."

Many thanks for your good wishes, M. H., and so long as you have air writers of the calibre of Elliott White Springs—to mention only one outstanding example—American air literature will stand in no need of apologies. As for that German hero, he's already warming up his Spandaus and will be taking-off, under the leadership of one of AIR STORIES' most popular authors, in the very near future.

A "forgotten air ace" is recalled by another correspondent, Mr. T. Watt of Grimsby, and we wonder how many of our readers have ever even heard of the name of the distinguished airman he mentions :

"Here is the record of Grimsby's air ace, Lieutenant Albert Wood, M.C. and bar," writes our correspondent. "Wood was the victor in 36 combats. He shot down 17 E.A. in flames, drove 18 more down out of control and shot down one kite-balloon, all within three months of front-line service—a mighty effort indeed. He flew a Nieuport Baby and met his death in a simple accident while on Home Defence Work. Now then, Mr. Pritchard, how about some details for posterity of those three gallant months of a brave man's life ?"

Next Month's Issue

NEXT month's issue will be noticeable for another fine coloured cover by S. Drigin, depicting another of the latest types of aircraft that are now being built for the re-equipment of the Royal Air Force. This temporary departure from our usual practice of depicting an incident from a story on the cover will, we think, be welcomed by all readers as affording them an opportunity of seeing the latest equipment of the R.A.F. in full colour.

Inside the cover, our usual standard of contents will be well maintained in stories of fact and fiction. The second, and concluding, part of "Wings of the Black Eagle" will provide an enthralling and authoritative record of the most eventful stages of the war in the air, Captain J. E. Gurdon contributes another great mystery story featuring Flight Lieutenant Kinley, R.A.F., and a host of other favourite AIR STORIES' authors give of their best to make the July issue (out on June 10th) a memorable one.

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