

TEST PILOTS ARE TOUGH : By G.M.Bowman

AIR 9^D

STORIES



AIRMEN AT WAR

MARCH

TRUE WAR-FLYING ADVENTURES : By Lt.Col. L.A. STRANGE, D.S.O., M.C., D.F.C.

BRISTOLS FOR TWO

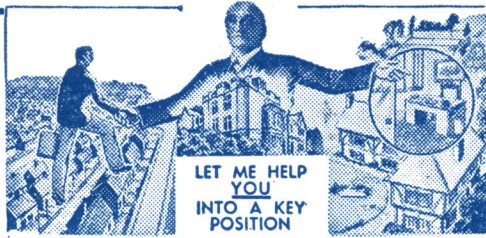
THE STOLEN FIGHTERS

BY O. P. F. LANDERS

BY HUGH STANDISH

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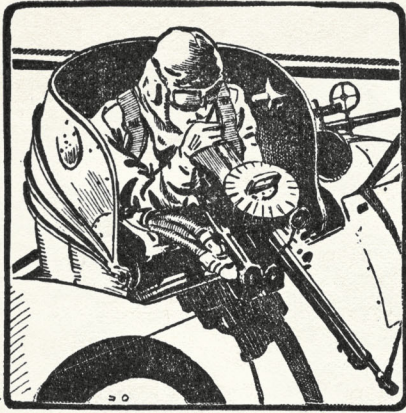
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AIR STORIES

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IN FACT AND FICTION

MARCH 1939.
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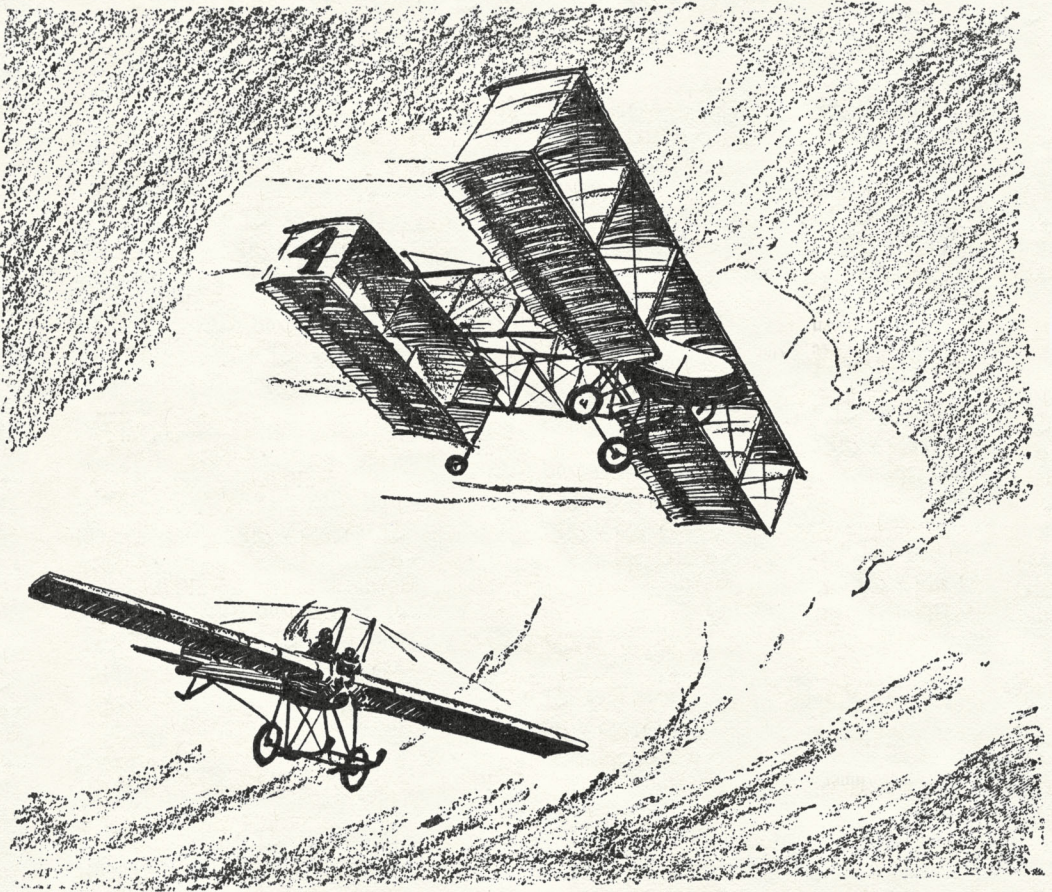
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A full two laps ahead of H. O. Glenn, the next man in line . . .

TEST PILOTS ARE TOUGH

Race Pilot, Air Fighter and Test Flier, Bill Bradley entered the War with a Contract for Office Furniture, Enlivened it with the "Bradley Bounce," and Left it from the Cockpit of a Disintegrating Camel Two Thousand Feet above the Plains of Wyoming

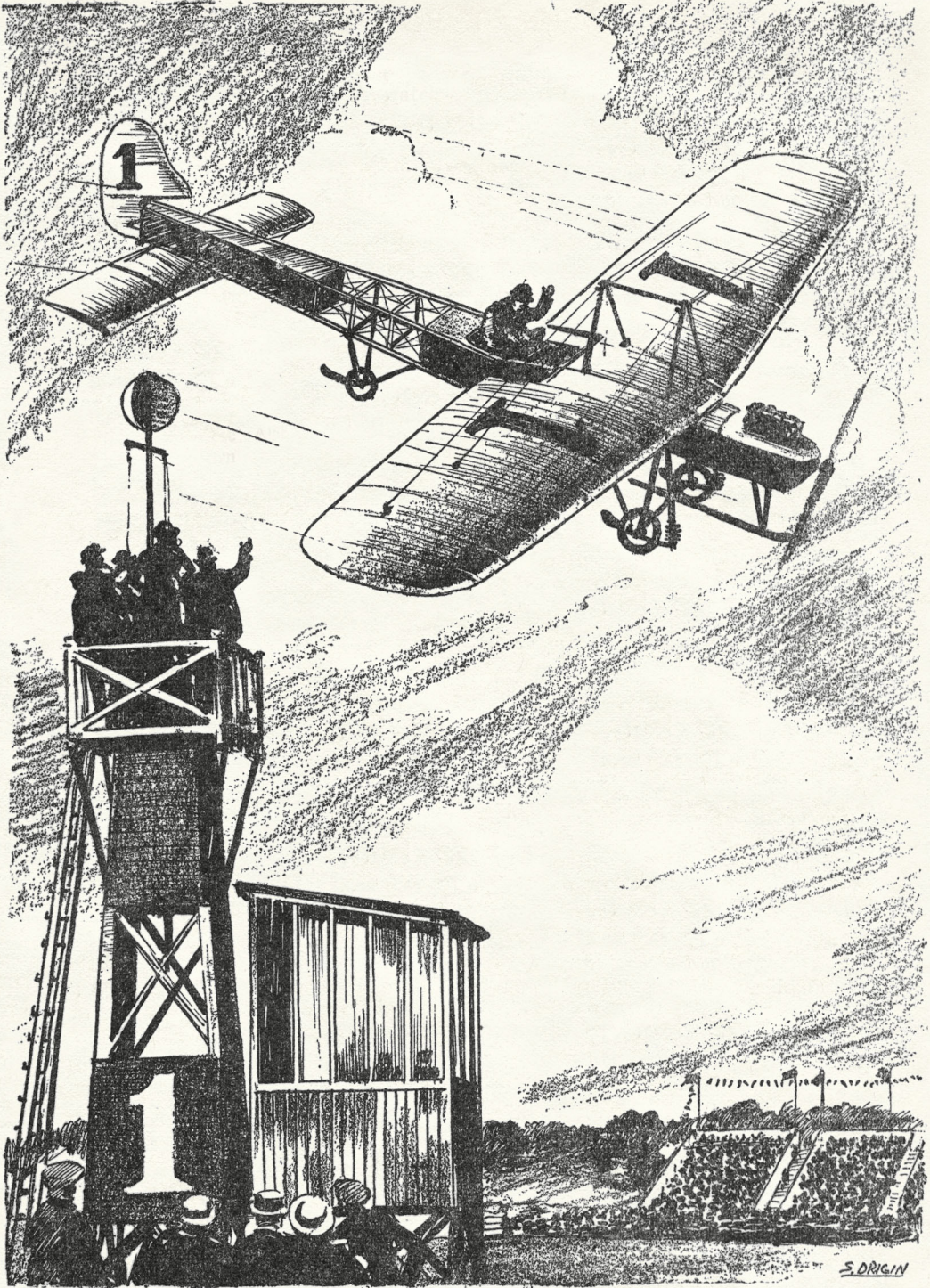
CHAPTER I

The £1,000 Cup Race

CAPTAIN MONTAGUE LYTHAM-GREENE, M.P., was not in the best of humours. Since there were no newspaper men present in the hangar, he let his temper go. Big, squarely-built and florid, he had a face which temper rather suited. To a keen observer, it was far more natural than the reckless, dare-devil smile he unfailingly turned upon Press photographers and election audiences.

"This is outrageous!" he blazed. "Glenn gave me no warning that he was entering a *new* machine for the Cup. He's kept me in the dark. The whole thing's a trick—and a low-down one at that."

Half-a-dozen mechanics in overalls, and a neatly-dressed, intelligent-looking young man wearing a woollen ear-cap, faced him in the gloom. Behind them were the dim outlines of two aircraft—one a monoplane with a cylindrical petrol-tank perched on a double tripod above the pilot's seat; the other a



. . . Bill Bradley came back over the aerodrome and swung down, open exhausts banging

A Story of Test-Flying Adventure in Peace and War
— By G. M. BOWMAN —

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machine of rather more advanced design.

One of the mechanics glanced down at a newspaper he was holding. It carried two photographs, one of the Captain himself, complete with smile, the other of a shrewd-looking, bald-headed man with goggles over his forehead.

"H. O. GLENN TO FLY MYSTERY AEROPLANE IN THE 'DAILY-GLOBE' £1,000 CUP RACE AT HENDON TO-DAY."

ran the first headline, followed by a second line in slightly smaller type :

"LYTHAM-GREENE, BIRDMAN M.P., ENTERS A SECOND 'STRING.'"

The article on the race, which included a long interview with Captain Lytham-Greene, concluded :—

"At 1.30 p.m. to-day, the following machines will line-up before the starter on the great Hendon Aerodrome :

LYTHAM-GREENE NO. 1 MONOPLANE.

Entrant : Captain Montague Lytham-Greene, M.P.

Pilot : W. BRADLEY.

LYTHAM-GREENE No. 2 MONOPLANE.

Entrant : Captain M. Lytham-Greene, M.P.

Piloted by entrant.

H.O.G. NO. 4 (Details not stated).

Entrant : H. O. Glenn. Piloted by entrant.

BLERIOT MONOPLANE.

Entrant : The Hon. Charles Willoughby.

Piloted by entrant.

VOISIN BIPLANE.

Entrant : Comte de Chaumbrinne.

Pilot : PAUL MINET.

Spectators travelling to the aerodrome should take "Vanguard" motor-omnibus to the Welsh Harp. . . ."

Captain Lytham-Greene angrily paced the hangar.

"There was nothing in the rules to stop Glenn doing it," said the young man in the woollen ear-cap quietly. "Entries are open until starting-time. And although no one could agree with his general control principle, he *has* got some good ideas on design . . ."

But it seemed that Captain Lytham-Greene did not hear.

"Well, you'll have to pace me, Bradley," he barked. "I bought my No. 2 'plane especially for this race—but she's disappointing. So keep as close as you can. If anything happens to me you'll have to go ahead and do your best. Anyway, I've got a 2 to 1 chance against Glenn. If only No. 1 didn't get

wing-shudder at about fifty, I'd take her myself. The fellow who designed her had more brains than luck. It seems as if she's got more speed—if only one dared use it ! Oh, well—all right—"

Young Mr. Bill Bradley pulled his woollen cap down round his chin and knotted a woollen scarf in place. As he did so, the mechanics dispersed among the two aircraft, and someone began rolling back the canvas door-flaps at the hangar opening.

BILL BRADLEY was looking deeply thoughtful. He had had No. 1, a re-built crash in which the designer had killed himself, off the ground seven times now. Certain modifications he had made to the setting of the tail and fin had greatly improved control, but the wing-shudder was certainly alarming.

In his own mind Bill was beginning to wonder if there was any analogy between engine and wing vibration at certain critical speeds—whether some common denominator for vibration characteristics could be found to cover such a complex structure of stresses and strains as an aeroplane.

For Bill Bradley was a scientist. A mathematical tripos at Oxford, an interest in practical mechanics, and a private income of £200 a year, were the three factors which had brought him into flying. When he had got all his ideas worked out, he intended to build a machine of his own. Meanwhile, it suited him to let a publicity-seeking M.P. exploit his flying skill.

Just now Captain Montague Lytham-Greene, shoulders squared, was smiling as he walked out into the brilliant June sunshine, with mechanics trundling the two machines out after him.

The grandstand was crowded ; from the swaying flower-garden of parasols, feathered hats and brilliant dresses came a warm fountain of rising cheers. Somewhere a band started playing, its music colourful and martial in the windless heat of the afternoon.

Over in the middle of the aerodrome was a gaily painted pylon, with a cluster of officials on the top platform. Away

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to one side three machines were already in place on the starting-line.

A *Times* contents bill on one of the enclosure-railings announced :

"GERMAN NAVY PROGRAMME FOR 1914. OFFICIAL."

And another, with black letters on a yellow background :

"GERMAN NAVY EQUALS BRITISH NEXT YEAR."

Captain Montague Lytham-Greene waved a check cap in the air and turned laughingly to speak to the undistinguished-looking man who was following a step behind. The crowd wondered what his reckless jest might be.

"Damn Glenn!" Captain Lytham-Greene had murmured. "He's got something. That new machine looks fast . . ."

CHAPTER II

The Man on the Flying Trapeze

BILL BRADLEY pulled gently at his elevator-control-stick. Nothing much happened. About four feet in front of him at the level of his knees, a four-cylinder Green engine with shining copper water-jackets was doing something over 1,000 revolutions a minute. Beyond it a thrashing, two-bladed propeller whirled a hurricane which battered at him from the waist upwards.

Bill reached down into the cockpit, groped for the petrol-tank tap, and opened it a shade wider. He eased back on the elevator stick again—and with a slight lurch the Lytham-Greene No. 1 left the ground, listing over towards the left.

Bill gave a grunt of satisfaction and grabbed for his left wing-warping stick. With a creaking of stringers, the trailing edge of the left wing-tip bent down under the pull of the wire. No. 1 levelled up, yawed wildly, then straightened as Bill kicked the rudder-bar. All the time, however, she had been climbing and as he cleared the aerodrome edge, he was satisfied with the comfortable height of nearly fifty feet that he had to play with.

Five miles away, in the direction of

Harrow, another scarlet-painted pylon, erected in a field, marked the turning-point where the racers would swing round on their return journey. Five times out to that pylon and back—five laps of a ten-mile course. A tough race in which anything might happen.

There was no trusting these mid-summer days of still, unruffled heat. The wind had a habit of springing up from any point of the compass, and with no chimneys smoking, it was the very devil to be able to tell which direction it might be coming from.

And engines which would run two hundred or three hundred miles at a time in motor-cars on the ground, were always problematical performers in the air—with pistons, connecting-rods and most other parts drilled-out and lightened.

At the moment, however, all was going well. Bill had the throttle-wire pulled three-parts open, and reckoned he was making a steady forty-five miles an hour. No. 1 was in a good mood and still climbing. He decided to climb for five hundred feet before levelling-up, and kept a fair hand-pressure on his middle elevator-stick.

Then for the first time he took his eyes off the view dead ahead, and looked out on either side. Slightly below him and about one hundred yards to the right, he saw H. O. Glenn's "dark horse." It was a biplane of unusual design; in general appearance, rather like two box-kites joined together by a narrow oblong of trellis-work. There was no stabilising fin, and the box-tail moved as a whole, instead of there being a separate rudder.

Bill noticed that the craft had lines, and it obviously had speed, too. It was gaining now, Bill judged, at a rate of somewhere between ten and fifteen miles an hour. Its wings were steady at the extremities, and its line of flight was as straight as an arrow.

A clever devil, H. O., Bill decided—but on the wrong lines with all those lateral plane surfaces. To Bill Bradley's way of thinking, it sacrificed control for the sake of stability. That swivelling box-tail would be necessary to get the

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thing to turn round at all. Still H. O. had wanted speed, and he was certainly getting it.

Lytham-Greene wasn't. Still further to the right, on the L.G. No. 2, he was in difficulties already. He was slightly ahead of Bill, but his engine was missing.

"Mixture's too rich," Bill told himself. "Why doesn't the trumpeting ass give her more air? Excited, as usual; he'll oil-up half his plugs if he goes on like that——"

Bill looked to the left and saw only one other machine, the Voisin. It was rising and falling uncertainly. The tail-rig clearly needed re-adjustment on the ground. But Paul Minet, the Frenchman, was reputed to be able to get anything into the air, no matter what happened afterwards. The first turn at the pylon would see him out of the race, Bill decided—quite rightly.

He looked for the fifth machine—but the Bleriot was still on the ground back at Hendon, firmly entangled with a border-fence, while excited crowds were feverishly trying to help a much-more-scared than hurt nobleman's son out of the wreckage.

BILL pulled his throttle-wire a little farther and went on climbing. He had an instinct for height. He believed in getting as much of it as he could while his engine was running well. Then if anything happened, you had a long glide in hand, which might make just the difference in finishing a course.

As the turn-ptylon came in sight, he was perhaps three hundred yards behind Glenn, a hundred in the rear of the Lytham-Greene No. 2 and level with the Voisin—only about three hundred feet higher than any of them. Then came the thrill of the first turn, at full speed. Bill pulled his left wing-warp lever, kicked-on hard right rudder and gripped the elevator stick between his knees.

It was the only way to do it, because he had to reach out with his right hand for the right wing-warp—and as No. 1 slid over to the left with a lurch, he

needed it. With the warp hard on, No. 1 adopted an angle of well over 40 degrees and had to be checked the other way. To Bill it seemed as though he was going to turn clean over. A terrific side-draught hit the left side of his face, and he knew he was slipping outwards. But out of the corner of his eye he saw the pylon almost directly underneath, and seeming to revolve slowly on its own axis.

It was a good turn—and a close one, although made at quite seven hundred feet from the ground. And as No. 1 unwillingly came back on to a level keel in the opposite direction, Bill saw a sight which nearly made him laugh aloud.

For Glenn on the mystery-machine, seemed to be carrying-on, catapulted helplessly by his own colossal speed. The box-kite was over on one wing, but hardly turning at all. It was making an enormous sweep on a radius of about a couple of miles! By the time it got round, it would be well behind the leaders.

Paul Minet had disappeared. Actually, in trying to make the turn, his badly-rigged Voisin had lurched down almost clean to the ground. Only Minet could have righted it at all, but in doing so he broke a wing-warping wire, and took the one chance of landing safely that was left to him.

Lytham-Greene was round. Bill saw his machine wobbling badly after a turn which had been wide and flat, as usual, since the Captain had a dislike of angular flying. As far as could be seen, his engine was running better now—and Bill grinned, for he guessed that the Captain, scared in the middle of an uncertain turn, had closed the throttle and thus unconsciously given his plugs a chance.

Meanwhile, Bill had gained the lead. Both the other machines still in the air had been cheated by that high, close turn, while Glenn was a floating match-box, far in the distance, but coming on fast.

"If Lytham-Greene doesn't run that engine properly, he won't have a

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chance!" Bill muttered to himself. "H. O.'ll pass him soon enough for his loss in turning not to matter. If only I could push this thing along hard, without the wings buckling-up——"

His observations although detailed, had been made while hands, feet and knees were busy over the machine's complicated control-system. Just a few hectic moments; yet the moments which followed were more hectic still.

FOR Bill, by some mischance, lost his grip of the elevator stick held between his knees. It sprang forward; he made a grab for it, and caught the throttle wire loop in a button on his coat-sleeve.

Whereupon the Lytham-Greene No. 1 seemed to stand clean up on its nose and proceed downwards in an ambitious effort to tunnel clean through the earth to Australia!

Bill recaptured the elevator-stick and wrenched back on it, but No. 1 had always been inclined to fly nose-heavy and she came up only by maddeningly slow degrees. With his free hand, he tried frantically to shake loose the jammed throttle-wire, which clung to his sleeve like a spider's web. Meanwhile, the Green engine was roaring full-out, and the hurricane of that dive was practically pushing Bill clean out of his seat.

Almost in the first second both wings shuddered madly. Bill could feel their struts and stringers straining and bending in colossal vibration; he could actually see the spreading fabric-ripple coming close up beside the control-seat.

If he had any thought at all, it was that the wings *must* buckle-up and break away before he could get the machine out of that dive—if he *could* get it out, before he hit the ground. . . .

He knew that the dive was taking him earthwards at well over fifty miles an hour. He saw that he was beginning to get the nose up, and that if the machine only held together long enough, he could straighten out before his landing wheels touched trees.

The throttle control-wire was bent

now, still sticking the throttle wide open, even though he had got it clear of his sleeve-button. Then Bill Bradley suddenly realised that the wings were no longer shuddering!

With his heart in his mouth, he jerked a glance out to either side, expecting to see the wings gone, although he had heard no noise. But, miraculously, the wings were still there. More amazing still, as No. 1 came up out of that dive at about sixty feet from ground-level and shot forward at around seventy miles an hour, the two wings were dead-flat, immovable, and smooth!

Bill was dazed. The thought flashed through his mind that possibly he was already dead—possibly the crash had happened, and this was some queer illusion while his soul was passing over the dividing-line.

But if so, it was strangely real. By some involuntary mental process, his left hand was still struggling frantically with the wire, bending and twisting and pushing it right down the guide in order to get that throttle shut. Right ahead of him he saw Hendon aerodrome. He saw the turning-pylon—positively hurtling towards him.

Then light flooded Bill Bradley's mind. It was a scientific mind; the mind of a trained mathematician.

A line from one of Kipling's books ran through his head—the remark of a dour, Scottish sea-engineer.

"Everything has its ain caractereestic modulus o' eelasteecity."

"That's it!" Bill almost shouted. "That's it! The characteristic modulus of elasticity as a whole—in any complex structure—it *would* reach a critical pitch of vibration. Beyond THAT, the vibration would damp-out! Beyond that, the whole thing would be as steady as a rock until the next-higher characteristic-pitch was reached! By GOLLY——"

He overshot the pylon badly—not daring to turn so low over that crowd of spectators. He pulled on the elevator-stick and climbed. To the eyes of the amazed, watching officials he climbed like a rocket. He made a clear five

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hundred feet before he dared warp-over and go into a slow turn.

"Between forty and fifty is the characteristic vibration-period of this machine!" he panted to himself. "Keep below that—or keep above it—and all's well! By golly, why didn't I think of this BEFORE? WHY——"

It is a matter of history that halfway out on his second lap, Mr. Bill Bradley actually passed a dumbfounded—and infuriated—Captain Lytham-Greene, who had not yet uncertainly completed his first! He also passed Mr. H. O. Glenn who thought he had been doing pretty well in overhauling the Captain.

It was a day of days. For some reason known only to the god of metals, the Green engine stood up to it. That engine ran practically full-out for a few seconds under the hour. At the end of that hour Bill Bradley had passed the outer pylon five times, and came back on to the aerodrome, swinging down with open exhausts banging, to complete fifty miles—a full two laps ahead of H. O. Glenn, the next man in line.

As he neared the aerodrome and throttled back, the spectators, already thrilled to the core, very nearly died with excitement. They saw his machine wobble, they saw its wings actually flutter and writhe as though they were breaking apart.

With his teeth set, Bill Bradley glided down below that critical forty miles-an-hour vibration period, breathed again as the wings steadied, and came down to land a few feet beyond the finishing-line, where yelling officials were waving a chequered winning-flag.

Bill Bradley climbed down from the cockpit and was almost swept off his feet by a maddened rush of newspaper men.

YOUNG Mr. Bradley was excited. He was excited because he had discovered something which he knew perfectly well would give him several years of hard and tortuous scientific work. It was work which would therefore carry no public recognition—and undoubtedly it would cost him all the

money he had. To Bill, such a prospect was almost too good to be true.

But Bill, as a scientist, had the great fault of his kind. He couldn't help talking sense.

The newspaper men asked him what the flight felt like; they asked him what he liked for breakfast; if he smoked; did he believe in Spiritualism? They asked him his opinion on German naval armaments; whether he liked riding on the flip-flap at Earls' Court Exhibition, and just why his machine had put up such a marvellous performance.

Bill thought that they were interested in just why his machine had put up such a marvellous performance.

"The whole thing was largely luck," he said. "The builder of this machine was a genius, poor chap. But even so he was working on practical guesses instead of laying the thing out first as a mathematical possibility, and then making modifications. Actually, we've discovered to-day more than the actual builder knew. I've discovered what I think is the basic analogy between an engine vibration-characteristic, and the elasticity-modulus of a complex structure——"

The reporters stopped writing and glanced at each other. They were immensely polite.

The crowd came milling round. Through the crowd came a heated Captain Lytham-Greene who had given up the race on the third lap, and who now fought his way to Bill's side. He had his photograph taken, smiling and wringing Bill's hand. In a trumpeting voice he told the whole crowd that he alone had realised Bill's genius, months beforehand, but had been keeping him in the background as a stunning answer to the mystery-machine which he knew another designer had been building.

In the papers that were on sale all over London that same evening, an interested public vaguely got the idea that Captain Montague Lytham-Greene, M.P., had won a colossal race.

There was something about a young pilot called Bradley. But the public was

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not yet quite certain as to what a pilot was—with the exception of those gentry who went about the river on tugs. Moreover, the young pilot, whoever he might be, had himself said that Captain Lytham-Greene was a genius who had built the world's fastest machine.

When Captain Lytham-Greene went to dine at the Savoy that evening with a beautiful actress friend, the entire population of the Grill rose up and cheered him to the echo. A Cabinet Minister came forward to shake hands with them both. The head chef appeared with a wonderful new creation in aspic which looked rather like a cross between a lawnmower and a parasol—and which the Press dutifully reported as a model aeroplane. . . .

At about the same time Bill Bradley was receiving an unexpected visitor in his modest rooms in Bloomsbury. The visitor was bald, shrewd-looking, and business-like.

"If you'll come and work with me on design, I'll pay you £400 a year and half all prize-money, Mr. Bradley," he said swiftly. "I'll be frank with you. I've worked mostly by instinct—by trial and error. I heard what you said to those newspaper men——"

He looked contemptuously down at a folded paper in his hand.

"It doesn't matter what they print. I need a scientist at my elbow. Well, will you come?"

"Yes," said Bill simply.

He had never met H. O. Glenn at close quarters before. At a distance he had rather disliked the man. But now in the space of a few seconds, for some extraordinary reason, his whole opinion had turned turtle.

Had he known it, the real reason was that he was talking to a clever man who wanted to achieve something, and who had never really been amused by circus clowns.

In fact, he was not talking to Captain Montague Lytham-Greene, M.P.

Really and truly that is the start of this story. Because this is a story of Bill Bradley, and because, six months later, the War broke out.

CHAPTER III

The War Office Regrets . . .

BILL'S entry into the War was entirely brought about by Sir Alliot Verdon Roe, although it has to be recorded that that brilliant designer was never aware of the fact.

In 1914, Mr. A. V. Roe, as he then was, perfected his "Avro 504," which mildly interested the Army authorities, but which sent Bill Bradley and H. O. Glenn into paroxysms of praise. When the 504 appeared, they were only just at the design and layout stage of their first, joint, machine. They watched the 504 in the air; they were amongst the crowd which examined it closely; and they went home together rather silent. And it was only by main force that Glenn prevented Bill from tearing up six months' work and drawings there and then.

"Don't be a fool, Bill!" he said heatedly. "I know that fellow's jumped ahead of all of us. I know he's got a basic design and proportion that is dead right, where most other machines are fumbling and wrong. But *we've* got something, too. That new type of aileron of yours—all that work on control-surface areas—that vibration-theory, and method of bracing the fuselage——"

Bill dropped an armful of plans and notebooks rather nervelessly, and sat down.

"We'll just have to start all over again," he said. "And I hate copies. That Avro is right. . . ."

"Well, we're not going to copy it," said Glenn grimly. "I agree with you that we've got to start again. And I tell you this, when we start to-morrow morning, it won't be on a biplane, it will be on a monoplane! We're going to do everything that fellow Roe has done, in monoplane form, only we're going to do it a whole lot better. Now pull yourself together, Bill."

It was characteristic of young Mr. Bradley that he had a habit of pulling himself together at necessary times. Promptly at nine o'clock next morning,

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he lit a pipe, sat down at a draughtsman's board and began to sketch and scribble while Glenn came to lean over his shoulder and spread out certain details he had prepared in the course of an all-night sitting.

The office in which they sat belonged to a cabinet-making works, and the cabinet-making works belonged to H. O. Glenn, who had inherited it from his father. It was quite a thriving cabinet-works, an ideal place at that period of the world's history for the production of experimental aeroplanes.

The workpeople were both amused and interested at their employer's hobby. The more highly-skilled craftsmen were delighted when the manufacture of aeroplane parts came their way, instead of the ordinary routine work of putting together wardrobes, chairs and tables.

All over England—and in a good many other parts of the world—the aircraft industry was being born and brought-up in much the same conditions.

THE first Glenn-Bradley monoplane was completed and ready for its first air test on September 12th, 1914. The test took place at Hendon aerodrome, in the presence of a lieutenant-general from the War Office who had been in charge of cavalry remounts during the South African war, two young *aides* who had left their respective universities less than three months previously, and a gentleman from the Ordnance Department who had once written a standard text-book on balloons.

Bill performed three circuits at a speed of 100 m.p.h., flew across the aerodrome upside down, and made half-a-dozen loops. In quite a high wind he swung down to land precisely in the middle of the sixty-foot taped square from which he had originally taken-off.

In fact, he demonstrated without the slightest shadow of doubt an aircraft which was as much in advance of anything known at that date as the Avro 504 had been six months previously.

The War Office party shook hands, accepted refreshment, and departed in large Daimler cars.

Six weeks later Glenn received notification that the Glenn-Bradley monoplane design had failed to come up to official requirements. It also reminded him that the large contracts already placed with his firm for the supply of office desks, forms and barrack furniture were of such an urgent nature that any form of experimenting in aerodynamics could not be countenanced. The authorities desired an assurance that the full capacity of the cabinet-making works, and the work and overtime of its personnel, were being exploited to the full.

In silence Glenn showed the remarkable document to Bill. Bill set his teeth.

"So we mustn't do any more flying?" he snapped. "Is that the way of it? This country needs aeroplanes now more than she'll ever need anything. She needs the finest machines that have yet been turned-out—in fact, she needs *ours!* But the War Office needs tables and chairs a whole lot more. Well, I don't know what *you're* going to do, H.O., but I'm going to fly, whether they like it or not. I'm going to do my little whack towards winning this war, even if the War Office *are* working hand-in-glove with the Kaiser. I'm not going to waste my time making chairs for fat generals to stick their sterns on—"

"Do you mean you're going to join-up?" asked Glenn.

Bill nodded.

"The Royal Flying Corps' howling for men," he said. "Heaven knows what machines they've got—but I've got my Aero Club ticket. I'll be more use out there, trying to make something fly, than at home here—"

"You're lucky," said Glenn grimly. "I'd be with you like a shot if they'd let me go. I never dreamt—why, Good Heavens, man, when we demonstrated the G.B. I thought we'd get a contract to build fifty, at least. I'd got it all mapped out. I was going to ask to take our own squadron out, and lead it into action. But now—"

He slapped the letter on the desk before him.

"Now I can't," he said helplessly.

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"As a War Office contractor, I've got to stick to my job. They won't let me out of it! I've got to stay here and do what they say."

Bill held out his hand.

"Well, I'm off, H.O.," he said. "I'll come and see you during the week and tell you what the Flying Corps' like."

But Bill Bradley did not, in the result, go to see Glenn. He couldn't—for the simple reason that within one week, after travelling twice the length of the British Isles in crowded railway-trains, he was flying a war machine over the German army in Northern Belgium.

It sounds incredible—it was incredible. But it was none the less true.

Which is a full and apt description of war, especially in its early stages.

CHAPTER IV

Bill Bradley Goes to War

BILL BRADLEY'S application for a commission went through in three days.

Being the fortunate possessor of an expensive education, with a bias towards the higher mathematics and no aptitude for military matters whatever, he was immediately made a second lieutenant. Which gave him authority even over regimental-sergeant-majors, who, as everyone knows, invented the Army, and clean their teeth with gunpowder.

When filling-in his application, Bill Bradley was asked which regiment he would like to join.

"The Flying Corps," said Bill, and produced his Aero Club certificate.

The major interviewing him looked at it with slightly puzzled interest.

"Quite so," he said. "Quite so. But the—er—Flying Corps is a conglomerate unit. What I mean is, officers are gazetted to it from their regiments. You will join a regiment, and be—er—seconded."

On the white-washed walls of the office there were several old and rather faded-looking recruiting posters. One of them caught Bill's quick glance. Not knowing one regiment from another, it

seemed as good as any.

"I should like to join Phumpherston's Horse," he said, and forthwith wrote it down.

"A Scottish regiment?" said the Major, somewhat surprised. "Are you a Scotsman?"

"No," said Bill, equally surprised. "Does it matter? It's all the British Army, isn't it?"

The Major shook his head.

"Well, there must be some kind of qualification," he said slowly, "if you wish to join that regiment. Have you any property in Scotland? That would do."

"I've a pair of trousers at the Perth Dye Works," Bill answered solemnly.

There were certain majors, even in 1914, who could see a joke. This one's face-muscles tightened, he eyed Bill for a second, then leant forward and appended his signature to the document.

"Phumpherston's Horse are stationed in Aberdeen," he said with equal solemnity. "You will report there directly you get your papers, and await notification of your transfer to the—er—Flying Corps. Better go and see about your uniform. This application has already received assent, so there won't be any delay. Good afternoon."

And the Major was already grinning broadly at his blotting-pad before the somewhat deflated Bill had quitted the office.

Bill Bradley's tailor supplied his uniform in two days—which was the first piece of efficiency he had struck yet. And all the more wonderful, had he known it, since that same tailor had had to telegraph a Scottish colleague for exact details.

Bill's papers, by one of which he learned that he was King George V.'s "trusty and well-beloved William Franklyn Bradley . . ." arrived by the same post as the uniform package. Both put him in something of a fever.

From the larger one he unpacked khaki shirts and ties, a khaki jacket with a cut-away front and silver badges, black-and-green tartan riding-breeches, black field-boots, and a Sam Browne

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belt. By way of armoury, he found himself the possessor of a large Colt revolver in a leather case, and a murderous-looking claymore with a leather tassel at the hilt.

From the smaller packet he gathered that the presence of Second Lieutenant Bradley was required by Phumpherston's Horse in Aberdeen forthwith, and a first-class railway warrant was enclosed.

Bill packed about one hundredweight and a half of engineering text-books, attired himself in his full war-paint and repaired to King's Cross station, where he delighted all observers by falling headlong over his sword as he got out of the cab.

It was only on the train itself that a friendly regular officer, who looked dangerously close to tears, advised him that a sword is usually worn on the left side instead of the right, and that the revolver is not usually carried at the same time, unless in the presence of the enemy.

Bill, by that time in a fever of self-consciousness, tried the feeble excuse that he was left-handed—without success—and put the revolver, in its holster, away in one of his pockets where it made a most uncomfortable bulge.

All things considered, however, his Glengarry cap was the worst enemy of his dignity. Unless examined carefully before being placed on the head, the Glengarry had an incurable habit of reversing itself, and obscuring the wearer's view by two long black ribbons which hung down on either side of the nose—thus causing uncontrollable mirth amongst young females and small boys on railway platforms. Worn in the correct fashion, the ribbons lightly caressed the back of the neck, and were conducive of a constant and unsoldierly habit of brushing away non-existent flies. . . .

Bill was getting his first experience of the horrors of war.

HE got his second, two days later. He met Major Montague Lytham-Greene, M.P., who was in charge of a newly-formed squadron stationed, at the

moment, just south of Louvain, in Belgium.

The transit had been breath-taking. For Bill had only just sat down to dinner in Phumpherston's mess, and was trying to learn the language, when telegraphed orders arrived for his immediate return to London, which he made on the night train. According to orders, he reported at an office in Whitehall, was handed a railway pass to Dover, and ordered to report to some strange place, or thing, called an R.T.O. at Calais.

During the next forty-eight hours Bill slept possibly three, came to the conclusion that the war on the Continent was being waged entirely from bicycles and transplanted motor-buses—and realised that the Germans, at least, were taking it seriously when, from a distance, he saw large portions of one of the world's finest cathedrals disappearing in clouds of grey dust.

"Good morning, Bradley, good morning," said Major Lytham-Greene. "First time I knew you were a Scotsman! Well, well. No need to worry about that, now. I tried to get hold of you through Glenn as soon as my own appointment was confirmed. We need all the good men we can get—precious few about—precious few. Heard you'd applied for the R.F.C., so I put through a special transfer-application. Nice work—hey? Well now, we've got four machines. My old No. 1, and a Breguet. I roped-in young Willoughby with his Bleriot—he's here—and there's one Army machine from Farnborough, an F.E. We've got to get to work quickly—"

To give the newly-created Major Lytham-Greene credit, his Territorial experience seemed to have taught him something at least about Army ways. He knew which channels to go through to get things done—and which could be short-circuited without incurring high wrath.

Bill still found him detestable.

Just after dawn the next day, Bill took-off the historical Lytham-Greene No. 1 which had made Hendon history in 1913, shuddered his way beyond fifty miles per hour, and turned towards

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what was generally supposed to be the position of the German army, at an invigorating mile-a-minute.

For armament he had a revolver, and one pocket-full of .45 cartridges. For directional instruments, he had his own head, and for the first few minutes, he had an almost insane burst of furious rage.

"Up here is where this thing's going to be settled!" he fulminated to himself. "And Lytham-Greene and his kind are equipping us with this kind of flying chicken-coop, whilst the Glenn-Bradley lies rotting in a Walthamstow cabinet-works! They haven't even got an Avro! They haven't—Oh, HELL!—"

IN the clear sunlight Bill saw what he thought to be troops. He came down from the giddy height of nearly a thousand feet to somewhere about a hundred. The grey masses, moving below, immediately seemed to turn white as thousands of faces were turned upwards towards him.

Some there were amongst that grey-coated throng who actually waved. It was rather like passing over the crowd at Hendon. Some others, Bill vaguely thought, were holding up sticks—but those sticks flashed faintly in the sunlight.

The German Army, it will be agreed by all who had dealings with it, was a good army. It was an army which could shoot.

Bill suddenly saw that his right wing was showing a peppering of tiny holes. Bits of fabric began to tear and flap about.

Then a wasp passed impudently close to his left ear, and the petrol-tank low down in front of him rang sharply.

At first, Bill thought it had started to rain—that was until his eyes began to sting and smart with that agony that only petrol can produce.

"Good Heavens!" said Bill. "Good—why good Heavens—"

With blurred and stinging eyes, he looked down to see a neatly-punched hole

in the petrol-tank, from which a colourless stream was spraying back in the propeller draught.

Bill turned the L.-G. with a drunken movement and side-slipped so badly that he very nearly removed the grey field-caps of half-a-dozen scuttling Bavarians. With one arm protecting his eyes, he got the machine straight and flew back towards Louvain.

Then the Green engine began to splutter and bang.

Second Lieutenant Bradley of Phumpherston's Horse looked frantically about him for indications of wind-direction. There were none. The Green suddenly stopped altogether, and the Lytham-Greene lurched into a glide.

Ahead were broad fields of standing corn, the silver ribbon of a canal, and a bridge which a scarlet-painted London motor omnibus was slowly approaching. The front of the motor-bus still bore the inscription, "33. Barnes (Red Lion)."

Soldiers, packed closely, were standing up on the top deck. One was actually straddling the bonnet.

Bill made for the field nearest the bridge and prepared for any kind of a landing. One thing he had to be thankful for; he was obviously clear of the German Army. But another thing was all-important; these soldiers must be told that they were closer to the Germans than they evidently knew. If only he could get down safely, his warning would be a first-class example of the use of aeroplanes in war, of the need for really good aeroplanes like the Glenn-Bradley, now lying disused and forgotten at home.

Bill landed. He got his tail down first amongst the corn. Fortunately, his propeller broke as the front of the machine jerked down—because he left his seat and catapulted clean through where its blades should have been whirling. He landed heavily and staggered up, half-stunned, with the thunder of a roaring explosion in his ears. Dazedly he pulled himself together and made for that motor-bus which had been approaching.

But the motor-bus was no longer there.

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Nor was the bridge.

Things seemed to be falling all round, and the waters of that placid canal were torn and plunging, and shrouded with smoke and dust.

In the road there was an ugly-looking crater wherein shattered things—unrecognisable and unnameable things—lay reddening the dust. And there was a macabre shrieking in the fringes of the golden wheat. . . .

CHAPTER V

Departure of a Test Pilot

BY the end of that day the German heavy battery which had registered on the canal had removed all other bridges in sight. Stolidly, at the heels of a wild, scrambling retreat, the German Army tramped on. It crossed the shattered canal with pontoons. Louvain Cathedral turned from a cool vault of mediæval artistry to a vast rubble-heap of shattered stone and explosive-fumes. Bill reached Lytham-Greene's headquarters feeling as though all his teeth were loosened and jangling.

The house in which he had slept the night before was a blazing ruin. The stark remains of an Army F.E. biplane were blackened and burnt-out on the shell-torn ground.

A couple of miles farther back he found the Hon. Charles Willoughby, in a much-muddied Guards uniform, sitting under the wing of his Bleriot and eating warm bullybeef-hash out of a biscuit-tin. Young Mr. Willoughby rubbed a muddied monocle between a dirty thumb and fore-finger, fixed it in place, and recognised the newcomer with a bland smile.

"Bit of a set-back, old boy!" he said. "They put a shell slap into our mess. The Farnborough bloke was killed outright, and three of the mechanics were caught in the building when it came down. Major got something through his arm—they carted him off—"

With a hospitable wave of the hand he invited Bill to share the feast.

"I was shot down, myself," said Bill. "You mean Lytham-Greene's wounded?"

"Through the arm," repeated the Honourable Charles, with a grin that spoke volumes. "Quite a nasty one. They carted him off to hospital, somewhere. And the poor beggar hasn't been off the ground once, yet! You know, we only arrived the day before yesterday. I had a fly-round just after you'd gone off this morning, but the old Gnome was having tantrums. Had to come back—"

He waved a stewy spoon.

"Found the whole show burning, so thought I'd better land a good way away," he went on. "Went back there on foot. Major told me to contact you if I could, and report to Battalion Headquarters."

He smiled more engagingly still.

"Don't know where it is," he finished. "So here I am. Got the feed-bag from a local crowd of engineers. Bet you the Major gets a decoration for all this!"

He laughed outright.

Bill took a turn with the stew-spoon. His mind was in a state of chaos, and he felt it needed steadying. From behind, as the summer dusk began to deepen, ominous light flickered, and the earth trembled and shuddered.

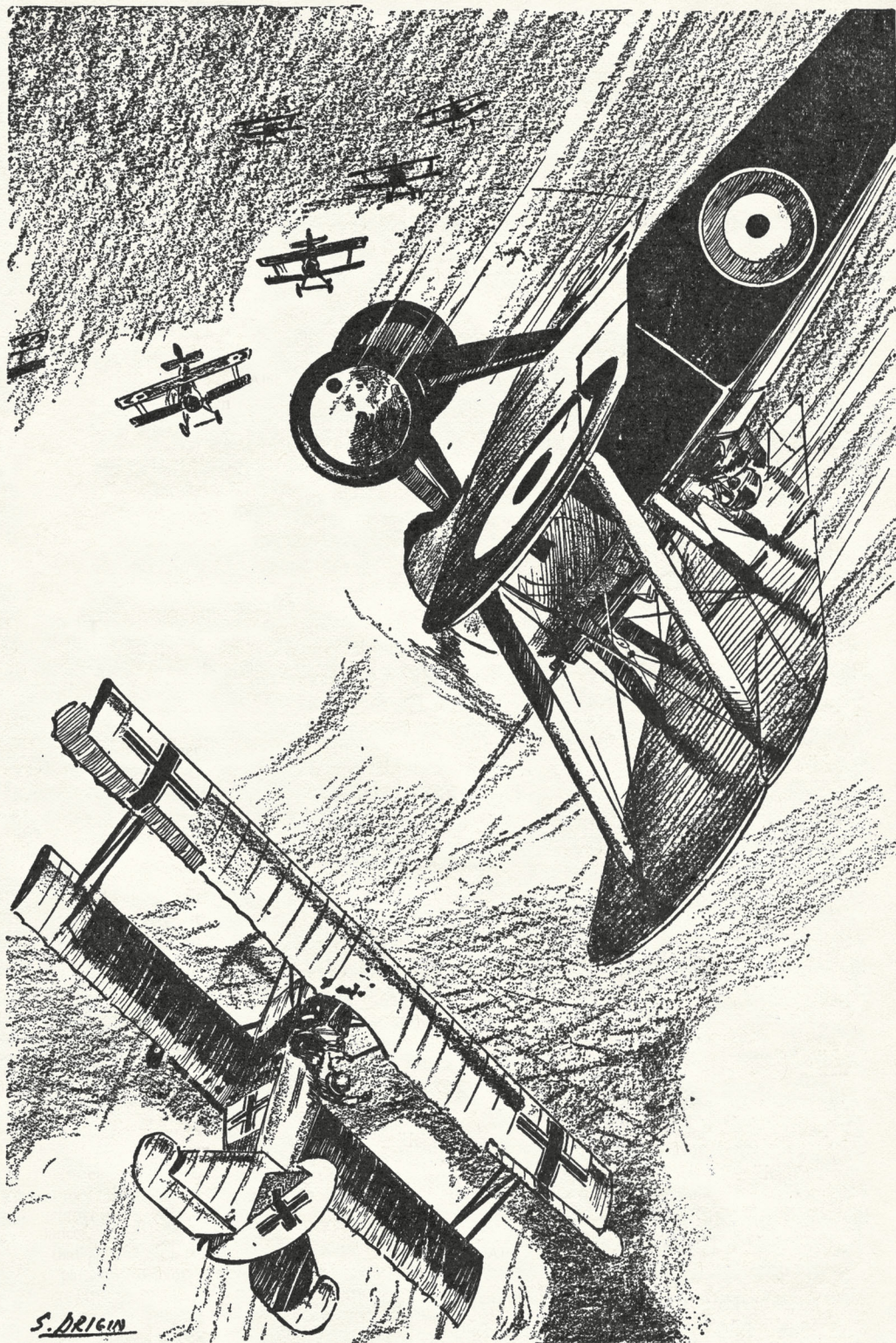
"Battalion Headquarters are at Thiepville," he said as he scraped the tin. "A bus-driver told me that as I was coming in. It's only about five miles south-west of here. Shall I have a go at your engine—that Bleriot'll take both of us?"

"I was going to suggest it," said the Honourable Charles, rising. "Never knew anything about that part of the works—and they wouldn't let Fletcher, my chap from Hendon, come out with me. But you always were a demon for 'innards.'"

Bill tinkered with the Gnome. The Honourable Charles brushed mud from his beloved uniform, and softly hummed "Hitchy Coo."

In a very bad light they arrived at the Thiepville field which constituted Bat-

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S. DRIGIN

. . . an upside-down, dead-close shot at the cockpit bracketed within his sights

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talion Headquarters. That night they slept in good beds, but by dawn next morning they were in the air again, proceeding westwards and searching for likely-looking ground in the region of the Somme River. Their orders were to find a place that would be suitable as a meeting-ground for incoming machines—a place far enough remote from any German advance to admit of reorganisation being started.

By nightfall they had found what, in a few weeks, was to become the most forward aerodrome in the British lines—and remain so, during the next four years.

And on the following morning the London newspapers splashed the heroic news about Major Montague Lytham-Greene, M.P., whom some appreciative general had cited for decoration with the Distinguished Service Order.

BILL BRADLEY flew Bleriot's and F.E.'s for six months. Three times he had spirited encounters with German machines, during which both he and his enemies expended a large amount of revolver-ammunition—and killed one man who was carrying a rum-ration along a furrowed trench, eight hundred feet below, with a wandering, spent bullet.

But Bill was not really thinking about the enemy; he was thinking about F.E.'s. First of all, he rigged his favourite machine so that it would turn when he required it, instead of when the wind dictated it. He not only did the same for other machines of his squadron—but he also sent in a long and detailed technical report which actually reached a new Government aircraft factory and was largely instrumental in producing the F.E.2b.

Then he got typhoid, spent four months in a British hospital without being clearly aware of the fact, and finally, very white and shaky, reported at the new Royal Flying Corps headquarters in London. There he found, slightly to his astonishment, that he was a full lieutenant.

He also found that the Government

factory wanted to have a chat with him about certain technical matters, which included first-hand information of the behaviour of machines in the presence of the enemy. The chat was a long one.

After a couple of months at a place where any new, even if mathematically-proven, idea seemed to be taken as a personal affront, he found he preferred the hospital and typhoid. Bill went so far, finally, as to tell the Powers that Were that their latest machine (which shall be nameless) would fall apart if anyone tried to loop it. He was laughed at.

As angry as only an aggrieved scientist can be, he took the first machine up, entirely without orders, but with an early type bucket-parachute wired to the centre-section struts in front of him.

At a height of six thousand feet he looped the machine.

The wings folded up.

Bill undid his safety-belt and dived out head-first, relying perfectly safely (as he knew) on the strong wind carrying the larger structure away from him. The combined forces of the fall caused the parachute to open freely, which also confirmed his previous calculations.

He arrived back on the ground about seven minutes after the proof of his argument had very nearly demolished an erection-shed, and even more nearly frightened a technical lieutenant-colonel to death.

Next day Bill found himself under orders for France.

But neither he nor the machine-type which he had criticised arrived there.

That same evening he called upon H. O. Glenn, the one man whom he really liked, and with whom he had kept regularly in touch.

H. O. Glenn, grinning almost from ear to ear, showed him a Government contract for the construction of 500 aeroplanes.

"So they've done it at last?" Bill gasped. "They're going to use the Glenn-Bradley? H. O., we'll have to get moving! A lot of things have happened since we laid out that machine.

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I've found out a lot, myself——"

"No, my lad, the contract's not for the G.B.," Glenn answered. "You can't expect the War Office to go so far as to accept a really good new idea. The machines I'm to build are Sopwiths. I shall be building them under licence. And although they are not our own—they're good! What's more, my young warrior, I now need your special talents, and I've got you transferred to my staff."

He threw back his head and laughed uproariously.

"What a job I had!" he almost wept. "I heard all about your little effort yesterday. I had a confidential report saying that you were a thoroughly bad hat, unruly, insubordinate and unreliable in the carrying out of orders! They told me that you had only missed a court-martial by the skin of your teeth—although as a matter of fact, you really only avoided it because it would have meant full publicity about that murderous design you were so impolite as to break-up! In fact, I only got you at last because the R.F.C. indicated that it was thoroughly glad to be rid of you! At the first word from me of any further nonsense, I was told, you would be forthwith cashiered!"

His laughter now began to break rather wildly.

Bill gulped and chuckled.

"All right, you ruddy civilian," he gasped out. "Any funny business from YOU, and I'll have you clapped in the Tower——"

H. O. Glenn collapsed in his chair.

"I'm not a civilian," he moaned. "I'm a very imp—important pup—person! Pup—pup—persons like me have to have authority——"

He covered his face with his hands.

"I've been made—I've been made a—mum—mum—major!" he wept.

Bill held his sides and wailed in unison.

CHAPTER VI

The "Bradley Bounce"

THE progress of aircraft design during the War—a normal century of development crammed into four years—

was the result of two factors. Two things cut a hundred years down to four—vital need, and unlimited money.

Moreover, as the War settled into its stride, and Christmas dinners in Berlin were forgotten together with waving flags and charging cavalry squadrons, some sort of reasonable organisation began to develop, too.

The British military flying forces, conceived in the pre-War Air Battalion and delivered in the Royal Flying Corps, were weaned and brought up by a brilliant and pugnacious little brigadier-general who badly startled all kinds of authorities. He asked for a return of all skilled tradesmen in the new Army, put them through qualifying tests, and then drafted them into the new R.F.C.

Gone were the days of pilots who regarded their engines as something mysterious, only to be understood by oily geniuses. Gone, unfortunately, were the days of the Honourable Charles Willoughby, who in one of the new Sopwith Pups, took on five Fokkers single-handed, shot down three, but was overcome by the remaining two.

Charles crashed blazing amidst the pit-wheels of Loos, to earn a well-deserved posthumous V.C. That was late in 1916.

The machine in which the charming, ignorant, but courageous Charles ended his life had actually been flown and tested by Bill Bradley, as was every machine which came out of the Glenn-Bradley factory.

It was a fine machine, fast and perfectly balanced. To Charles it was a wonder and a revelation. He felt it was equal to anything, and he said so in a letter he wrote home on the morning of that fatal day—which letter helped Bill Bradley's peace of mind a lot.

Bill was pleased, too, when Paul Minet, a French ace and veteran of fifty-seven victories, asked for a Sopwith Pup, and came to the Glenn works to take delivery.

By that time Bill was influencing aircraft design and development to a greater extent than he imagined. The Glenn-Bradley monoplane No. 1,

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wreathed in cobwebs, still resided in its hangar. But certain basic principles of its design were still at the back of his mind, although the design itself was long since obsolete.

Aircraft design was and always will be the result of co-operation between three people—the designer, the test-pilot, and the pilot who handles the machine in the field. In varying degrees Bill was a bit of all three.

His reports and suggestions on the Pup were important links in the chain which finally produced the famous Camel. From the very earliest days, when he first decided to break-up a machine in the air, he was the keenest exponent of the much-despised parachute—and certainly the first man to perform delayed openings as a regular practice. As a tester, Bill passed no machine without subjecting it to maximum strain in every possible way, having it re-rigged afterwards, and doing a normal second flight, just to make sure.

The almost inevitable result was that through 1916 and 1917 he took to his parachute eight times.

Quite without realising it, Bill now had a remarkable reputation. And he was genuinely surprised—and rather amused—when one morning official notification came through, informing him that he had been promoted to Captain. By that time, it should be explained, there was a new kind of Army authority in command.

Bill Bradley took the first of the Camels to France by special arrangement, to give squadrons expert advice on their handling. During his three months there, he brought down seven enemy machines, because, as he explained to several stunned squadron leaders, he hadn't been able to do anything else. It was because of a manoeuvre, he said, specially suitable to the Camel, which he had worked out mathematically before ever putting it into effect.

The first occasion on which he tried it was noteworthy.

Bill landed his Camel at the advanced aerodrome which he had been ordered to visit first, explained its features to

the resident major and his gentlemen, and conducted quite a long lecture. After the lecture he took his own Camel up and flew round the aerodrome at about three hundred feet, demonstrating. He made a speciality of a half-roll from a sharp, right-hand turn.

The squadron grinned at each other. They mistrusted experts, even though this one was a charming and serious young man who had been out right at the beginning. His evolutions were pretty, but otherwise neither new nor inspiring.

NEXT morning, by arrangement, Bill flew out ahead of the dawn patrol, and inside the first half hour sighted a smallish squadron of Fokker D.7's.

Only one Fokker stayed to give battle. The squadron Bill was flying with were well-known cracks, easily recognisable by their identification numbers. The Fokkers dived away, seeking a less spiny foe.

The one who remained, couldn't help it. He couldn't help it because Bill had cut him off in the first, attacking dive, as neatly as a well-trained sheep-dog working with a flock.

The squadron, swinging back to regain formation, returned to watch the fun. They saw the German fighting rather desperately, trying to get down within close range of his own guns, trying to edge back farther into his own territory.

They saw Bill forcing him back and back towards the British lines, and they decided that Bill was good enough after all.

Then they got a shock.

For Bill seemed to make a mistake which the enemy took advantage of in a flash. There came a chance for a dive home—and the German took it. In an instant Bill was up, over and down on his tail. As yet the pace was too swift for deadly shooting—but the Camel was faster, and the German knew it. He also knew, like any other Fokker pilot, that the Camel's worst danger is in a diving, right-hand turn, when it is apt to spin.

He swerved to the right.

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Bill's machine did not spin.

It didn't spin because of a special aileron-setting of his own devising, which he unofficially recommended wherever he went. He came close up on the German, forcing him to keep in that right-hand turn—to pull it tighter and tighter, with a nasty cold feeling in the small of his back. To pull out was to fly into Bill's gun-arc.

"STILL he won't do it!" muttered the squadron commander, diving after that plunging fight. "Those things can turn tighter than a Camel any day! Bradley'll lose him—Great snakes—"

His last remark was echoed by every man in that diving, watchful flight, all of whom had been thinking precisely the same thing.

For in the middle of that hard, right turn, Bill suddenly half-rolled. He went up and over on to his back—he pulled the nose down . . .

And as his gun spluttered through the whirling propeller, he had an upside-down, dead-close shot at that German, whose cockpit was bracketed within his sights.

Thereafter, the manoeuvre became known as the "Bradley Bounce." And in the last days of the War, when a desperate German Air Service were fighting madly to uphold a beaten and foundering country, the "Bradley Bounce" became a new and valuable weapon in the hands of the British single-seater fighters.

BUT before that happened, Bill had finished his expert advice trip and gone home.

At special request he was drafted, in turn, to all the leading British aircraft factories, to advise on the use of a certain vibration-calibrator for testing wing structures and propellers which he had invented as the result of a certain flight at Hendon in 1913.

Advances in design had made an accurate vibration-indicator urgently necessary. To most designers the hope of finding anything that would record accurate effects in a propeller-tip proceeding at upwards of seven thousand

feet-per-second periphery speed was a dream. Bill made it a reality with a tiny electrical resistance, a spring and a plunger, all of which was embedded in the propeller. Even at the highest speeds, the flex and warp of the blade caused corresponding movements in the resistance-plunger. And a thin wire leading down to the propeller-boss—and from there to a tell-tale dial—showed immediate and accurate results, according to the resistance variations.

It became talked about amongst engineers. It came under Government notice, and—since the shrewd H. O. Glenn had been thoughtful enough to file the patent in Bill's name—it suddenly brought young Mr. Bradley a lot of official notice and an amount of money that fairly made him gasp.

"But how——" said Bill, staring at an extremely fat cheque one morning. "H.O., what on earth—WHY on earth?——"

"There's more to come yet," said Glenn cheerfully. "I've just signed a contract for 500 of the things, and we're rushing-up a small subsidiary factory to make 'em. As a partner in this business you'll get your profit on those, quite apart from that patent you sold to the Government.

"And now, Bill, I've been wanting to say this to you for a long time. What you need is a rest. For Heaven's sake knock-off and become human for a while. Take that cheque you've got there—take a girl out—go crazy—go away for a month—do all kinds of reprehensible but pleasant things——"

His voice dropped solemnly and he leant forward, tapping Bill on the chest.

"You've been catching flies again, lately!" he said. "You used to do it when you first got over that typhoid. Now you've started again. Take your holiday before you start looking for green elephants!"

Bill was gasping. He shrugged one shoulder and raised a hand as though to brush at the back of his neck, caught himself in the act and laughed, round-eyed and a little hysterical.

"Did I—do I—oh, don't talk non-

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sense!" he said. "It used to be the ribbons on my uniform cap. And I suppose—a habit—but what absolute nonsense! Are you trying to say I'm ill?"

"I'm trying to say," said Mr. Glenn, "that if I catch you in this office, or around the works at any time during the next month, I'll punch you right on top of the nose and cancel our partnership, forthwith. Now, will you do me the favour of hooking it?"

Bill hooked it. At the door he stood, slightly dazed, still gripping his cheque. He looked back over his shoulder.

"I say, H.O.," he said, "I say, you know, I can't take all this money! I mean I didn't realise—I mean, hang it all——"

He ducked as a heavy ledger came flying at him. He ran. The door slammed behind him, and the key turned.

From within the door came a sound of stifled laughter.

At the end of that week, Bill Bradley went to America.

CHAPTER VII

Aircraft à la Mode

BILL did not go to America because he wanted to. He went because H. O. Glenn went out to dinner that same night, and met a certain very brilliant brigadier from the War Office.

Now there was one thing that H. O. Glenn already knew. America, by that time, had made a decision. Since she had entirely financed a war, she felt she might as well collect a little of the glory, too, and incidentally insure at least one syndicate of her debtors, so that there might be some chance of their eventually paying-up.

The historical fact that America failed dismally in both of these laudable objects is incidental.

The point which interested H. O. Glenn, as explained to him by the very brilliant brigadier, was that America had already got to work with typical live-wire hustle and was forming and equipping the largest air service the world had ever seen. With typical

American efficiency, all her main motor-car manufacturing companies had been turned over to the mass-production of aircraft. In order that mass-production might proceed on really colossal lines, the aircraft were, for the most part, reproductions of one model.

This is also historical.

That one model was the only aeroplane which the American authorities of that time knew anything much about.

It was the Curtiss.

Not until Curtisses were being turned-out like peas out of shucks were the British technical authorities informed of what was taking place. Fortunately, one or two of them knew the Curtiss—knew it as a good machine, only slightly inferior to the Avro 504K which was doing such magnificent work at training aerodromes all over the British Isles.

But they also knew that as the vehicle of a fighting air force the Curtiss would have about as much chance against a Fokker or a Halberstadt as a celluloid cat in hell.

Transatlantic cables thereafter began raising the temperature of the Gulf Stream. Official America was definitely annoyed at this impertinent criticism of their beautiful mass-production which was going along so nicely. Only very grudgingly did they halt their factories and accept blue-prints and designs of the Bristol Fighter, the D.H.9a and some of the Sopwith tribe, which were then put on to the mass-production lines in place of the hen-like Curtisses.

As the very brilliant brigadier unfolded the story, half in amusement and half in fury, H. O. Glenn understood only too well the colossal diplomatic task there must have been in getting such an alteration made. He sighed in sympathy. But then he heard something that made him prick his ears up.

The Brigadier added the information that he, personally, was off to America at the end of the week. Having organised the Royal Flying Corps, he was being sent over as a special expert to help organise the American air force. His big worry was the supply of those new machines.

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"I feel it in my bones," he said, staring grimly at a brandy glass. "I just KNOW that those Yanks are going to smart badly about their original mistake. They're going to hate building British designs. They'll need over-looking, and from somewhere or other I've got to find a mechanical genius who won't be either over-impressed by American efficiency or frightened by bombast. I want a mixture of a test-pilot, a designer and a diplomat——"

"Permit me," said H. O. Glenn rather breathlessly. "Permit me to solve your problem. I know the man!"

A FEW days later, Major Bill Bradley, R.A.F., was on board the "Mauretania" *en route* for New York.

The fact that he was a major was due, in the first place, to the need for him to have rank and authority, and in the second place to the gasping unbelief of that very brilliant brigadier when he examined Bill's papers. The Brigadier realised his record, and sat back for some time saying pointed and uncomplimentary things about certain types of army obfuscation.

But, at first, Bill's newly-won majority caused him considerable mental anguish. Once again—this time supported by H. O. Glenn—he made a diving-attack upon his tailor. He emerged upon the morning of sailing, in a bright, sky-blue suit. (Those who see it nowadays cannot imagine how enthusiastically blue the original R.A.F. uniform was.)

And he had hat trouble all over again.

This time, the hat had evidently started-out as an ordinary Army pattern cap, taken on to itself that heavenly blue, and—because it was a major's cap—added on to itself a beautiful fringe of shining gold leaves all round the peak. There was more gold on Bill's cuffs. There was gold on his shoulder-straps. His buttons were like five-guinea pieces.

Self-consciously he strolled the decks of the "Mauretania," feeling that he only needed a banjo and a black face to complete the full effect.

At dinner—in sacred memory of Bill's

feelings, it is only humane not to describe the mess-kit of the period—at dinner, he found himself sitting next to the most beautiful girl he had ever seen in his life. There were introductions. She was, it appeared, a Miss Peggy Easton, and she had a tinge of Western American drawl which was the most lethal thing Bill had yet struck.

In two days Bill was wildly in love with Peggy Easton.

In three days, having reached the firm opinion that he couldn't possibly hope to win such a wonderful girl, he was in the depths of almost suicidal gloom.

In four days he had received a pressing invitation from her to visit her home in Wyoming. Miss Easton wrote down the address, the long-distance telephone-number and minute details as to train-services. But being Bill Bradley, and a scientist to boot, he regarded this forward behaviour merely as normal, friendly politeness on Miss Easton's part.

In eight days he had practically forgotten Miss Peggy Easton.

That is, she only entered his mind on those rare occasions when he managed to get to bed—and when, as a holy rite, he opened his suitcase and took therefrom a framed and signed photograph of her, which he placed on his bed-table, after having decently arrayed himself in pyjamas.

During the rest of the time, and for several months afterwards, Bill Bradley was fighting the most incredible and farcical battle which has ever been recorded as solid, historical fact. He was fighting American manufacturers who were building British-designed machines—and altering and "improving" those designs as they went, according to their own personal tastes and ideas!

BILL worked approximately eighteen hours a day. He worked amongst the finest production engineers he had ever met in his life, and in surroundings of factory organisation more magnificent and efficient than he had ever dreamed of.

But he worked against a stone wall of prejudice and obstruction.

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Fortunately, he had at his command some of the best parachutes then made. At seven separate factories he took up seven "improved design" machines, and broke them up before seven different crowds of Government officials.

He pleaded, he argued, and finally got his own way by a mixture of cold, blind courage which impressed even the most prejudiced—and by the threat that if the designs weren't rigidly adhered to, he would go outside all military rules and regulations, and "spill" the whole story to the public Press. He even threatened to give out the whole list of his break-ups, and let the authorities face Press and public with the daily list of American pilots killed in training, thereafter—and to explain it away if they could.

Since he was a British officer, he could not be de-moted and pushed quietly away out of sight by any of the powerful and very-much-annoyed interests concerned. Even a Press campaign of laughing him to derision could not be started—because of the unanswerable Press campaign he threatened in his own turn.

The Government moved. All design alterations were officially forbidden, and at last the correct, sound machines started to come off the delivery lines.

That took six months. During the latter part of it, Bill went to work on the famous Liberty engine which, at that time, was having its teething troubles, although it certainly put up a magnificent enough performance later on and was a tribute to the skill and craftsmanship America can find when she chooses.

At the end of that six months Bill was catching flies again—lots of them.

Now that airworthy machines were coming to life he made it his self-imposed duty to go from works to works, or from aerodrome to aerodrome where they had been delivered, and pick any machine for a test flight. He had to be sure in his own mind that all was going well.

Had H. O. Glenn, at home, had the faintest idea of just how Bill's "holiday" was panning-out he would, failing any other means of transport, have dug-out

the old Glenn-Bradley monoplane from amongst the spider's webs and started off across the Atlantic, with the intention of getting young Mr. Bradley into (a) the nearest hospital and (b) the nearest strait-jacket.

As it was, he fondly imagined that Bill was doing the usual cocktail-party-and-theatre rounds which made British officers speak so highly of American hospitality. He knew Bill couldn't leave work alone, but he imagined he was getting just enough of it to keep him interested.

At the end of six months, Bill was well on the way to a complete nervous breakdown, but being Bill, he didn't know it. He thought that his trembling hands, his bad attacks of breathing difficulty, and the awful, secret feeling that he was going to burst into tears whenever an engine backfired unexpectedly—was because he was in love!

In fact, he would have punched heavily on the nose any man who had told him that what he most needed was a biscuit-tin full of Sanatogen and three months' complete and utter rest.

IT was in this mood, and by the dictates of his self-imposed work, that Bill Bradley came at length to Wyoming. And found that the aerodrome he was visiting was in the same town as Miss Easton's home.

Here, the first of the American-produced Camels had been delivered. The delivery was before time; so Bill had wired ahead, arranging his own test-flight before any of the inexperienced pilots should trust their lives to the machine.

It was a long time since he had had anything to do with single-seaters, but now he was getting almost fanatical in the detailed efficiency of his work. From the old days he remembered the great difficulty in all single-seater test-piloting—that of getting accurate instrument-readings and noting them down during high-speed aerobatics.

A recent visit to a great camera-factory, producing apparatus for the air forces, had given him a new idea.

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He had asked for a specially-designed cinematograph camera, automatically driven by spring mechanism, and small enough to be strapped to his chest. Like every mechanical device Bill Bradley thought of, it was neat, effective and super-efficient. With the camera working, a constant motion-picture was automatically taken of all instrument-readings at all times and positions during flight! A clock screwed into the dashboard synchronised the whole thing. And the film, after development by any local aerodrome photography-section, could be thrown on a screen the same evening, so that he could watch it and make out his detailed report.

On the train to Wyoming, the first person Bill met was a British officer of high degree. The officer stared first at his uniform, then at Bill's face.

"Good Heavens—Barton—Brandon—what's your name! It's YOU!" said the high officer. "What on earth are you doing HERE?"

Lying across his knees, as yet unopened, were two or three local newspapers. On the front page of each was a large picture of the officer himself. Beneath each picture, a news story told of the visit of Major-General Sir Montague Lytham-Greene, a "senator" of the British Parliament, and a War-flying hero, who was travelling America to help in the recruiting drive and to lecture on the World situation.

Bill recognised his former employer with a shock. In his present condition of nerves, anything unusual was a shock. Modern doctors will not be at all surprised to learn that Bill felt violently sick for a few minutes, and sat down with perspiration breaking out over his face.

"Well, well, if you're going to be at the aerodrome, you must come and see me," said Sir Montague after explanations. "I'm staying at Senator Easton's place—millionaire oil-man. Got a wonderful show a few miles out of the town. So come along. I'll introduce you—my dear fellow, you know this American hospitality! Easton will probably invite you to stay in the house and make it your home while you are at

the aerodrome. Millionaires can be valuable friends. I sometimes think you don't realise——"

Bill excused himself, went into retirement, and was actually and violently sick.

CHAPTER VIII

Bill Bradley Bails Out

BILL found the plains of Wyoming soothing and restful. The pearl-grey of far morning skies, the herds of antelope, like grey ghosts of Indian paintings against the skyline, were beauties that he savoured alone from the observation-car in the rear of the train. Such air he had never breathed before; air from one of the world's most magnificent plateaus, more than six thousand feet above sea level, with hundreds upon hundreds of miles of clean, undefiled prairie on all sides.

From the station, an Army car and driver took him to the aerodrome, while an opulent-looking limousine whisked Major-General Sir Montague away to the distant big house beyond the clustered town.

By now Bill, slowly recovering from the first shock of hearing of Peggy Easton's proximity, had decided to get out of Wyoming as soon as he could. If he saw Peggy in his present state of nerves, he thought it quite probable that he might burst into tears.

Shakily, he climbed into his flying suit and when the Camel was wheeled out of its hangar, he buckled his recording ciné-camera across his chest. He climbed into the cockpit, ran the engine up against the chocks, and finally waved the mechanics away.

Directly he had her moving, with the ear-splitting blast of the exhaust beating around his head, he felt curiously better—which was because he was thinking about his job and not about himself, that demon bugbear of all nervous sufferers.

The Camel took a long time to come off the ground. Bill frowned and glanced out at either wing-bay in puzzlement. At first sight of the machine, he had seen

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it was true to design and cleanly built. The prop. was the regulation one, and the engine sounded healthy enough. At last he got her climbing, and swung round in a wide circle, passing the town to his left—and a great, isolated house with magnificent grounds, a mile or so away to his right at the crest of a hill.

At the sight of the house his heart missed a beat rather badly—but he jerked his eyes away and concentrated on work. He turned the small, plated lever which set the ciné-camera working. He "felt" the controls for a second—and then plied rudder and stick, proceeding forward in a tight, spiral roll which caused admiring eyebrows to rise on the aerodrome, far below.

Bill dropped out of the second roll into a vertical dive, and then wrenched the stick back, "flicking" a loop which brought out every stress and strain in the machine in one sharp squeal. Out of the loop he dived again, spun, and then righted, switched his engine on when looking vertically downwards, and pulling out of a power-dive which would have turned any normal pilot's hair white with horror.

Leaning back against his folded parachute as he came out of the dive, he took a quick glance across the dashboard. And then his heart gave one of its unaccountable palpitations when he saw his recorded height.

It was lower—far, far lower than it had any right to be. Up to now the machine had been handling perfectly. Even a martinet of detail such as himself had found no fault. But this height-business was all wrong! More, it was a puzzle.

Bill pushed the stick forward at about two thousand feet, opened his engine up and went down like a fury. This time his eyes were glued on the height indicator.

The needle fell, but its actual rate of falling seemed to be normal. He began to think that possibly the instrument itself was at fault, and with something under eight hundred feet to spare—plenty to get a Camel on to a level keel—he eased the stick back, in order to pull out.

Then Bill's heart suddenly went very jumpy indeed, for he realised two things: that the ground was fairly rushing up to meet him, and that the Camel was only sluggishly pulling its nose up. Probably a fifth of a second passed—and in that instant of time Bill Bradley saw that the Camel was going to hit the ground. Already he had instinctively cut his engine; now he had the stick strained full back, and his knuckles on the spade-grip were white.

FOR any pilot it would have been a horrible moment. For Bill in his nerve-ragged condition it was a nightmare of horror. He had a mad impression that he was over Hendon in a plunging, shuddering monoplane of antiquated design.

The impression was so vivid that, in his wild, over-strained nervous state, Bill couldn't separate memory from reality. He realised that he was diving straight down at an aerodrome; that men were scattering towards a line of hangars at his falling-rocket approach. The ground was racing up to meet him. He eased the stick instinctively, jerked it back, saw that the nose of the machine was rising in a long, gentle curve.

But even then he knew it was not enough. He visualised an appalling, sliding crash along the surface of the ground, in which he would be mangled up with the engine and breaking fuselage.

There was a crash.

It was not the ghastly crash Bill had expected, but it was a beastly, shuddering jar. In actual fact, his undercarriage wheels struck the tarmac, just as he was passing the lowest curve of that dive.

They struck at something well over 100 miles an hour; and by the luck which must be part of any test-pilot, the whole undercarriage was wiped clean off by the force of the impact! It buckled-up like paper, but the machine, carried forward by its colossal impetus, had just enough lift to avoid rolling over in a ghastly tangle.

Hands and feet juggling the controls by frantic instinct, Bill also had just

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enough masterly skill to help the machine over its millionth chance and to send it rocketing up in a long climb.

If you want to impress Americans, you must do something spectacular. Bill impressed the Americans so much that, for very nearly two seconds, there was complete silence on that aerodrome save for the diminishing whine of his exhausts.

Then a mechanic swore vividly.

“That guy can sure handle a ship!” he gasped. “I don’t like taking orders from no johnny-come-lately—but when he comes back, what HE says goes with me!”

Young Mr. Bradley had once again made a reputation.

At the moment, however, he was making an alarming discovery.

It took him perhaps fifteen seconds after that bump to realise that he was still alive and in the executive compartment of a flying-machine still all in one piece. Sheer instinct made him climb as hard as the machine would go. Then, an alarming crack and an extremely unpleasant lurch on the part of the speeding Camel make him take a keener interest in the proceedings.

At some two thousand five hundred feet, the Camel was breaking up!

The reason was simple. One of the undercarriage supports, before breaking, had been driven clean up through the main spar. That spar, hanging together only by a ragged edge, now parted—which removed most of the lateral support of both wing-bays. All landing-wires had snapped incontinently at the moment of the crash. One longeron had split, and the fuselage was twisting.

Another crack followed as Bill was knocking undone his safety-belt, with a vague impression that the Easton mansion was somewhere below his right ear. The left wing-bay shuddered frantically; one of the outer struts buckled, and a ferocious shriek rose as the wires curled and tangled. . . .

Bill went out head-first. He counted five before pulling his release-ring, and then saw the collapsing wreck of his Camel whirl drunkenly in the air, lose

one wing-bay entirely, and spin earthwards.

An enormous velvet hand seemed to take hold of his body and lift it back up into the sky again—which meant, in clear and simple language, that his parachute had opened.

But it hadn’t opened any too soon. Bill saw a house approaching him. It was a very large house, with a great number of windows open to the summer sunshine. It was approaching him far too closely, and far too fast. In fact he was bound to hit it, and he judged his ground-speed as somewhere in the region of fifteen miles an hour!

Altogether it was a very trying morning.

THOSE who hold that there is any justice in this world, will be pleased to learn that it had been a trying morning for Miss Peggy Easton, also.

Miss Easton did not take kindly to Major-General Sir Montague Lytham-Greene, who talked patronisingly about America in general, and the new American armies in particular, from the first moment of arrival. He patronised Senator Easton, he became heavily playful with Miss Easton, he insulted the coloured butler by talking bad pidgeon English. And he annoyed everyone by braying with laughter.

Then he mentioned Major Bill Bradley. The General was always out for glory. Reflected glory was quite good enough, and the General knew the size of Bill’s reputation much better than Bill, himself.

Senator Easton knew it, too, and forthwith sent a car down to the aerodrome with a request for Bill’s company at lunch.

And while the car was on its way, Miss Peggy Easton was taking the stairs to her bedroom, four at a time. She was flushed, and her heart was beating unduly fast.

And she had just two desires that filled her whole life: to change her frock and put her hair straight.

In a big, airy bedroom with open windows fronting the house, she fairly

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tumbled out of her morning frock, tossed it aside, and wrenched open the door of a large wardrobe.

It is interesting to note, as an experiment in time, that Major Bradley parted from his machine half a mile away at the instant that Miss Easton parted with her frock. His parachute opened as she opened the wardrobe.

Miss Easton had many frocks. They came out of that wardrobe in an explosive manner, were considered briefly, and tossed aside.

Bill approached the grey wall of that house, and had a very strong desire to hunch his knees up and put his arms across his face. He resisted that desire since his scientific mind was still very much alive. He could see he had one chance. If only he could steer the damned parachute a bit, he might swing through one of those open windows and avoid broken bones. He dragged the parachute lines, "spilled" the air, and tried to stop penduluming . . .

Miss Easton had got to the point of stamping and declaiming to high Heaven that she didn't own a decent rag. Then a shadow flickered across the window. It was a shadow as though of some very large bird, and Miss Peggy Easton half-turned with a stifled shriek.

Major Bradley's scientific experiment came off. He swung his feet up as he approached a large window. He only let go of the parachute-lines and flung his arms over his eyes as he shot clean through the window.

He landed in a sitting position on a soft carpet—shot clean across the room—split the flat end of a rosewood bed with his boots. Then he collapsed flat on his back as the parachute-lines checked him, while the parachute itself deflated and fell billowing about the roof-gutter above.

Bill Bradley sat up. His helmet had come off, and his face and fair hair were clearly to be recognised.

"Bill Bradley!" almost shrieked Miss Easton.

She made a plunge towards him, and knelt, her mind full of fears.

But then she remembered—and grab-

bed up the nearest frock.

"Lie still!" she panted. "Lie STILL! I'll telephone for the doctor. I'll be back in a second! Lie still—don't move——"

During which orders and directions, Miss Easton backed staggeringly to the door, wrenched it open, and disappeared.

CHAPTER IX

Test Pilots are Lucky

BILL unlinked himself from his parachute only just in time to avoid being pulled back out of the window again as the heavy folds of the parachute fell down outside. He was trembling from head to foot. But, incredibly, he was unhurt.

The whole thing was a nightmare. To have crashed into this house was bad enough; but to have plunged slap into Peggy's bedroom was appalling. As he was staggering across towards the door, Senator Easton and General Montague Lytham-Greene, alarmed by Peggy's frantic shouts, came rushing in. Miss Easton herself followed, jerking and pulling a frock into place.

And it was only by main force that Bill prevented the three of them from lifting him on to the bed, even though he could not prevent a doctor being telephoned for. A large glass of American hospitality, brought by a pop-eyed negro butler, had some steadying effect upon his chaotic nerves.

"I must get along and get my films developed," he said gaspingly. "I'm frightfully sorry—most awfully sorry, but there was something up with that machine. There's something radically wrong! Look here, Lytham-Greene, no one's got to touch any of those machines until I've got this thing straightened-out. You must give express orders—over the telephone—IMMEDIATELY——"

The General blinked at this stream of orders from a subordinate.

But Bill was almost in a fever by now. He did not even realise that Peggy had sat down half behind him on the bed, and was gripping one of his elbows. The doctor appeared as though by magic;

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as a matter of fact, he had come racing out in that direction on an ambulance, from the aerodrome, directly the break-up had been seen. The ambulance driver had seen the parachute hanging from the mansion window. . . .

"All right, son," he said, "all right! Now lie down—lie down just for a minute whilst I check you over. Don't worry. Everything you say shall be done. Now what's this gadget you've got across your chest?"

Peggy withdrew while buckles and buttons were undone. For five minutes the four men were alone in the room.

But at the end of it three of them walked out, and the doctor was holding a mass of harness and apparatus in his hands.

"Listen, Senator," he said quietly to Easton, "the one thing you've got to do is to humour that kid in anything he wants. I'll get this stuff straight down to the aerodrome and have his queer film, or whatever it is, developed. It must be done and rushed back here as quickly as possible. Meanwhile, keep him as quiet as you can. Give him a drink—and I'll give you something to put in it."

"But is he hurt?" asked the Senator.

"This seems to be going a little far," began General Sir Montague.

"That boy's gone so far," snapped the doctor, "that he'll jitter himself clean out of this world in another few days unless he's taken in hand! Land-sakes, man, he's as far gone in a nervous breakdown as ever I've seen anyone! He's only just on the verge of sanity! For a while, until I've got a sedative into him and slowed his heart down, he'll have to be humoured just as if he was a looney. Then he's got to drop all work—he's got to have no excitement—he's got to have absolute rest for the next three or four months. And listen to this——"

He faced both men with rather a grim expression.

"He's not to be told that he's got nervous trouble," rasped the doctor. "Let him think he's displaced muscles—bones—anything you like. But don't

tell him the truth, or I won't be answerable for the consequences. I know his type."

And the doctor stamped downstairs, leaving two extremely startled middle-aged gentlemen, unable to find words.

Sitting on the bed with Peggy beside him, Bill felt that he was going to be sick. The room itself didn't seem any too steady.

"I must get downstairs," he said. "I'm all right. The doctor said I'd only jarred myself up a bit. I must get out of here—downstairs. I must pull myself together——"

"You're going to stay here until you're well, Bill," said Miss Easton. "Shucks! I thought you were never coming. But it was so nice of you to drop in at last."

And she laughed a little uncertainly.

The Senator and the General came back into the room; the General looking at the patient as though he might bite at any moment. Bill's request to go downstairs was granted with quite strange alacrity. He was given another drink which the Senator went and fetched, and in which he dropped a powder which the doctor had left with the butler.

About a quarter of an hour after taking that drink, Bill began to feel a lot better.

A LITTLE later an Army van arrived with a can containing films, and a small cinema projector apparatus. Bill, who by then was feeling unaccountably tired, roused himself to action. He became all efficiency.

"If you'll let me have a room," he said, "I must have that film run-off. I must make out my report. I'm really terribly sorry to be such a nuisance——"

He was annoyed when the General decided to come and look at that film, too; and rather worried that the Senator and Peggy also decided to see it. Bill explained that it was only a technical matter of noting readings as against time. They would only see pictures of a lot of instruments.

Then he settled down to work, and he

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worked as only he could. For about seven minutes the film ran through on a sheet hung across the end of the room, as a couple of mechanics worked the projector. Bill sat at a table, surrounded by papers. He jotted down notes in the reflected light of the screen, which merely showed a Camel's instrument-board, and a vague blur of a moving horizon beyond the centre-section. The needles on the instrument dials moved, the horizon whirled, rose up, and reappeared again, giddily.

Miss Easton, sitting at Bill's side, was not looking at the screen. She was looking at his intense, strained face with its ugly, nervous furrow between the brows, as he concentrated. Her eyes were very bright.

Then, on the screen, the instrument-board disappeared with curious suddenness. There was a long blank of indistinct, glaring white—then a picture of a distant house which came nearer and nearer.

"Shucks, that's interesting!" said the Senator's voice from the chair immediately behind. "That's when you bailed-out, boy!"

"Why, of course!" said General Sir Montague. "Well, well, this is a most interesting record. I doubt if a parachute jump has ever been filmed before——"

Bill was sweating as he watched that picture. It had forced his mind away from technicalities. It had brought him back to a highly unpleasant few seconds. The house raced nearer—one window seemed to become a target—it grew larger and larger——

Bill Bradley suddenly realised something, and jumped to his feet.

"Stop!" he gasped. "Stop the film——"

But he was too late.

There was a curious kind of blackening as the window grew vast and engulfed the screen. Then there was a picture of Miss Peggy Easton.

An extremely pretty picture of Miss Easton.

Miss Easton flashed into a full-length close-up on the screen, and was shown

in the act of leaping aside. Her attire, it seemed, would have been adequate for the purposes of bathing. If lace ever became a fashion for bathing-costumes. And if the fashion was for extremely brief bathing-costumes.

General Sir Montague Lytham-Greene let out a sudden and braying laugh.

"Charming!" he shouted, clapping his hands. "Absolutely charming! Why, you lucky young dog, that's worth any parachute jump!"

Bill turned round like a man suddenly awake. The furrow came back between his eyes, and his teeth showed. He breathed sharply.

Then he hit General Sir Montague Lytham-Greene, M.P., D.S.O., very hard and very squarely on the nose.

ALTOGETHER it was a difficult day for Senator Easton. It took him an hour to calm the General. There were all kinds of penalties, including shooting at dawn, the Senator learnt, for majors who smote the noses of generals.

Bill Bradley went to bed. He was carried to bed because he collapsed, more because of the powder the doctor had left than anything else. He was in delirium for two days; which were days of exceptional strain for Miss Easton, who sat at his side practically throughout.

To General Sir Montague, those two days of delirium were something of a salve to outraged dignity. He announced that he could take no action against a man who was obviously out of his senses—and departed. Miss Easton did not bid him good-bye.

Three weeks later, the Armistice was signed.

In those three weeks, Bill discovered something. He discovered the exact height above sea level of the Wyoming Plains—six thousand feet. Curiously enough, this assisted his nervous recovery tremendously. It explained the strange behaviour of an otherwise perfect machine.

For every scientist knows that air diminishes in pressure and density with every thousand feet above sea level that a machine may fly.

TEST PILOTS ARE TOUGH

The net result of which was that Bill's Camel had been "squashing" badly—entirely unknown to him—in that spectacular dive which had gained him such a reputation amongst American airmen, and in which he had broken his undercarriage.

There were two other results.

The first was that Bill, defying an almost hysterical doctor, insisted on taking up another Camel and securing

a second set of film records to confirm his discovery. The resultant flight, which is still remembered in Wyoming, showed that Bill Bradley's nerves had staged a remarkable come-back.

Test pilots are tough.

The second was that Major William Franklyn Bradley was well and truly married and the United States of America lost one of its most charming citizens.

Test pilots are also lucky. . . .

HERE'S THE ANSWER

Readers' Questions are invited and should be addressed to AIR STORIES, Tower House, Southampton Street, London, W.C.2. A stamped, addressed envelope must accompany ALL enquiries and no letter should contain more than three separate questions

TO CATCH C.A.G.'S ? (R. J. Weston, Glasgow, C.5). The "Cagnet" is a new type of two-seater low-wing pusher monoplane which is shortly to be produced by General Aircraft Ltd. for civil training purposes. Power-plant will be a 50 h.p. Pixie four-cylinder engine with fan cooling.

SOLD ABROAD (Giles Carter, Durban, South Africa). Yes, Bristol Blenheims have been supplied to Turkey and a Handley-Page Hampden bomber was recently sold to Sweden. No, the R.A.F. has not yet by any means got all the bombers it needs—but how these two statements can be reconciled defeats us. Perhaps it's an official secret! The Hampden was delivered by a Swedish crew and flew non-stop from England to Sweden, a distance of 1,100 miles in five hours.

AERIAL TORPEDOES (L. Jacques, Paris, XIV). (1) The two chief types of torpedoes now used by the German Naval Air Service are a 16 inch and 17.7 inch. The former carries 330 lb. of T.N.T. and the latter has 396 lb. of a new explosive, Novit. Both are normally dropped from heights between 20 feet and 50 feet and have a range of over 2,000 yards travelling at 45 knots. (2) Principal types of bombs for use at sea range from a 24½ lb. fragmentation bomb for use against exposed personnel to a 1,100-pounder containing 622 lb of T.N.T. Armour-piercing bombs, gas and phosphorus bombs between 33 lb. and 55 lb., and 110 lb. anti-submarine bombs with delayed-action fuses which fire them at a depth of 50 ft., are also standard types.

WRITE-OFF (George Laston, Ipswich, Suffolk). The Empire flying-boat recently lost in Australia was the "Coorong," one of six Short Empire Boats owned by Qantas Empire Airways and used in the operation of the Singapore-Australian section of the England-Australia air service. The boat broke adrift from her moorings in Port Darwin harbour in an 80 m.p.h. gale, drove onto the rocks and, except for the engines, was a total loss.

SPEED RECORD BIDS (M. G. G. Lawson, Dundee, Scotland). You are confusing two different projects. The R.A.F. are preparing a specially-boosted Supermarine Spitfire for an early attack on the German-held World's landplane speed record of 380 m.p.h. The British attempt on the

World's absolute speed record, held by the Italian Macchi seaplane with 440.67 m.p.h., may be made by a specially designed low-wing monoplane which Heston Aircraft Ltd. are building, reputedly to the order of Lord Nuffield. A new type of liquid-cooled engine is to be fitted and a speed of over 500 m.p.h. is anticipated.

HARVARD (Eric Simpson, Hampstead, N.W.3). The North American BT-9 trainers, a number of which have been ordered for the use of the R.A.F., are to be given the type name of "Harvard."

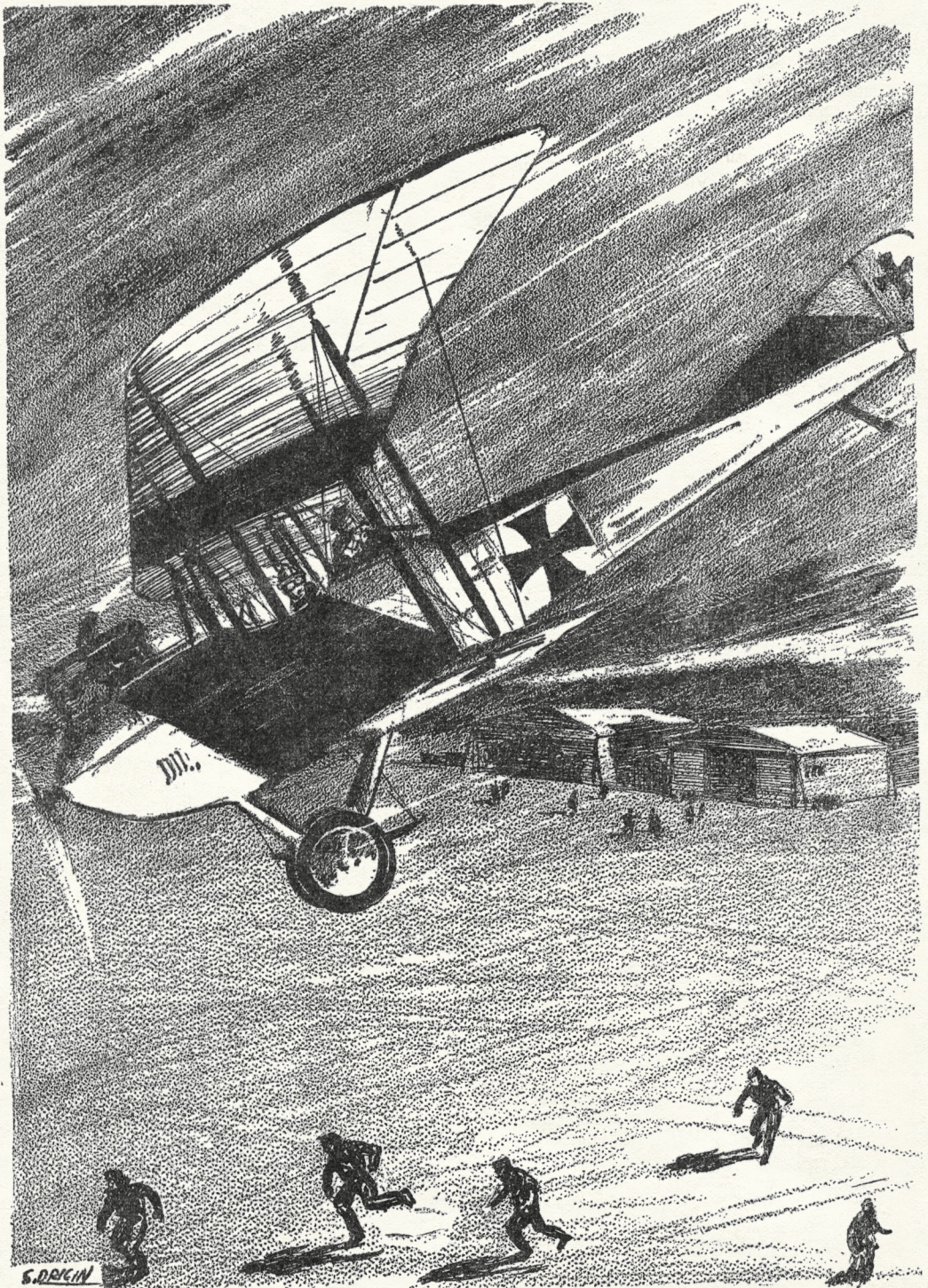
A FOKKER FIGHTER (Arthur Lewis, Cardiff). The Fokker D.23 is a new type single-seater fighter driven by two 520 h.p. Walter engines arranged in tandem with the pilot seated in between. Armament comprises two synchronised 7.9 mm. Browning machine-guns in the fuselage with a rate of fire of 1,300 r.p.m., and two 13.2 mm. Browning shell-firing guns in the forward end of each tail boom, firing up to 1,000 rounds per minute. Top speed is 326 m.p.h., though using the more powerful Rolls-Royce Merlins it is claimed that 385 m.p.h. would be easily attainable.

NEW AIRCRAFT-CARRIERS (G. A. Wilkins, Bootle, Liverpool). The recently-completed "Ark Royal" is the first of six new carriers, all of about 23,000 tons, on order. Succeeding craft will be named "Illustrious," "Victorious," "Formidable," and "Indomitable." Name of the sixth has not yet been chosen. The Navy's present carrier fleet comprises "Ark Royal," "Glorious," "Furious," "Courageous," "Hermes," and "Eagle," and the seaplane-carrier "Albatross."

STRATOSPHERE FLYING (Ken Lawrence, Romford, Essex). Yes, the new Fairey F.C.I. monoplane air liner, the prototype of which is now being built for the Air Ministry, has been specially designed for high altitude flying. It will be powered with four 1,000 h.p. engines, will weigh 19 tons fully loaded, and will carry 30 passengers. Top speed will be about 275 m.p.h., and cruising speed, on 80 per cent. of full power, will be 250 m.p.h. Passengers will be accommodated in a "pressure" cabin supplied with conditioned air from a supercharger, which will maintain low-level atmospheric pressure when the aeroplane is flying high.

(More Replies to Readers on page 285)

AIRMEN AT WAR



At dusk, a German machine came over very low and dropped three bombs . . .

Continuing an Enthralling Personal Narrative of the War in the Air from First to Last—a Vivid Account of Four Eventful Years in which the R.F.C. Grew from a Small Band of Ill-Armed Airmen to the Greatest Aerial Fighting Force the World has Ever Known

By Lt.-Col. L. A. STRANGE

D.S.O., M.C., A.F.C.

PART TWO

An Error in Aerodromes

A SERIOUS obstacle to the slow old machines the R.F.C. flew in the winter of 1914-15 was the prevailing westerly wind which helped the Germans to slip back over their lines when pursued. How greatly these westerly winds handicapped our efforts and added to the hazards of flying is illustrated by the following incident.

When coming back from a dawn reconnaissance which my observer, Arkwright, and I had undertaken against our better judgment (as for the three

previous days the wind had been too bad for any serious flying and for the half-hour before dawn the sky was clear, with very little wind low down—a bad sign), we turned down wind and in a little while found ourselves over Courtrai. An hour later we were somewhere south-east of Lille, flying at five thousand feet in a wind which I estimated at from fifty to sixty miles an hour, with a great, black snowstorm sweeping down on us from the north-west.

The top of this storm was at least twenty thousand feet high, and a line of driven snow had just reached the



. . . ammunition in the building went off and Very lights shot through the windows

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trenches, but as it looked a bit lighter northwards I edged up towards Menin. When we got there it looked much worse ; on the other hand, it seemed clearer southward, and so we turned and went back until at last we reached the locality we had left twenty minutes previously.

The snow line was now sweeping up to the northern outskirts of Lille ; obviously we had no time for further shilly-shallying. "The longer you look at it, the less you like it," I said to myself, thinking of some of the big doubles in the Blackmore Vale in my hunting days.

I crammed my helmet down on my head, pushed the throttle wide open, and headed straight into that nasty black cloud, hoping that it was not more than a passing storm which I could push the Avro through fairly quickly. But in less time than it takes me to write these words, I found myself surrounded by pitch blackness, in which the bumps were terrific.

It was hopeless trying to keep control of the machine ; we were completely at the mercy of the storm-centre into which I had headed. I just took advantage of every chance opportunity allowed me by the elements ; when the wires screamed I throttled back, and when I encountered a momentary lull I pushed the stick forward. Sometimes I felt as though I was sitting on air, while all the weight of my body was thrown on to my belt ; then I could do nothing but try to think out how best to roll the machine the right way up. When I side-slipped, I felt a howling draught on the side of my face.

We were literally hurled about hither and thither in the middle of that great black devil of a storm. When an ear-splitting crash and a terrific bump made the Avro shudder all over, I realised that it was a thunderstorm as well, although I saw no lightning.

Scraping the Housetops

I KNEW we were rapidly losing height, and therefore throttled right down and waited for the ground to show up through

the whirl of snow, although I did not know at what angle above or below me it would appear, because for all I knew we might be flying sideways or upside down.

Suddenly it got quite light, and I saw snowflakes all around me. Then a church spire, upside down, hove into sight just up over my top left-hand wing-tip. My instinct told me to put it the right side up, and somehow I managed to do it. The church spire flicked out of sight and then appeared on my right in a more reasonable attitude.

I had just flattened the machine out when the wheels hit the ground lightly. Up we bounced as I opened the engine full out, and then I saw straight ahead of me a line of hangars, into which men were wheeling machines that I recognised as German by the black crosses on their wings. Our Avro sailed over the top of them, but not a sound of gunfire was heard anywhere except that which came from our own machine-gun. Whatever Arkwright's feelings were during the storm, they had not impaired his presence of mind, for he had slung our gun up and was ready to tackle anything that came his way.

I knew that we were probably over Fives Aerodrome at Lille, and so scraped over the housetops. Our Lewis gun made a deafening row when we passed over a large building that I judged to be the Town Hall because of the large German flag flying on it, but I held on until I found the canal and then flew along it northward at a height of about a hundred feet, until I reached the junction with the canal from Comines at Warneton. It was a trying business, because Arkwright let fly at all sorts of targets with the Lewis gun, and the row nearly cracked my eardrums.

Arkwright also marked down accurately some gun emplacements which came into sight on our left before we scraped over the trenches, to the accompaniment of a few stray shots, and landed at Bailleul in the falling snow.

I forget Arkwright's regiment, but he was certainly one of the best observers

AIRMEN AT WAR

supplied by the cavalry to the R.F.C.—though I wonder whether our Staff thought much of his reconnaissance report on that occasion. But, of course, they could have no conception of the weather we encountered when it was made, and they certainly knew nothing of the misgivings with which we set out on those dawn reconnaissances.

That night a most curious incident occurred. Just at dusk a German machine flew over, very low, and dropped three bombs, one of which hit a small building on the edge of the aerodrome that served as a combination of bomb store, watch hut, and guardroom. I saw the machine quite plainly when it came over and recognised it as exactly like those I had observed in the hangars in the morning.

I think one of the bombs must have been a petrol one, as it started a fire immediately. When it fell, "Little Tich," the sentry by the gate close to the guardroom, leapt or was blown up high into the air, but came down safely, while the guard turned out none the worse for their disturbance.

Anyhow, there was a good old blaze, and when the rifle ammunition in the building went off and Very lights of all colours started to shoot through the windows, we voted it a very fine sight. The news soon spread, and in a little while the Bailleul Fire Brigade turned up.

I only wish I could draw a picture of them; I suppose they were good citizens performing a praiseworthy act, but the spectacle of their weird brass helmets, which looked as if they had been presented to the municipality by some disbanded cuirassier regiment, was too much for us, while their funny old pump, with its handles that went up and down, shooting out water everywhere except on to the fire, was enough to make a corpse laugh. Anyhow, we took the whole business as a joke devised by Providence to enliven the monotony of trench warfare, and were all enjoying ourselves most hilariously, when Major Higgins, our commanding officer, turned up and took exception to our levity.

Aerodrome to Let

WE kept up the bombing of Fives Aerodrome for ten days, and from the entries in my diary I find that I dropped a total of 336 bombs during that time. I do not know the total dropped by our Flight, but evidently we made things hot for our opposite numbers.

One of them who knew English must have had a sense of humour, for one day we saw that other letters had been added to their landing "T," so that across the ground ran the phrase, "To Let." We sought out other targets after that, although I do not think we were deluded into imagining that Hauptmann von Leutzer and his merry men had cleared out. Just to show them that we appreciated their humour, we dropped an old boot on the end of a string which was attached to a much patched football bladder filled with gas from a jet in our billet. On this bladder we painted a funny face, with a ribald message underneath it.

Curiously enough, von Leutzer and I are now great friends, while another opposite number whom I have the privilege of knowing well is Hauptmann Bolle, who led the famous Böelcke Staffel during the last year of the War. I have been lucky enough to meet quite a number of old German war pilots; they are the best of good fellows and marvellous hosts.

Not so long ago von Leutzer and I were yarning into the small hours of the morning about those early days and later ones, when he and I commanded our respective wings as opposite numbers. He told me that observers in the German Air Force had to direct their pilots on to a target they had selected before they could get their observers' badges. One of the candidates for this distinction was responsible for the hit on our bomb store at Bailleul, having chosen this target because he deduced our aerodrome to be the one from which the machine came that landed on Fives during the snowstorm. This observer also wanted to get his revenge for a slight but very painful wound on the top of his thumb inflicted by a bullet from

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Arkwright's machine-gun.

To return to the winter of 1914-15, it was not long after that business that Major Higgins was wounded while out on a reconnaissance. I cannot recall any squadron that had a better commanding officer than ours, for he flew himself, and so understood our difficulties. If any one of us failed to do his job, our C.O. seldom asked why, but whenever he did so, you may be sure that there was a good reason. When he took his eye-glass and started polishing it or poking at something on the ground with his stick while trying to find words to express himself, you might be sure that all was well, but if his deportment and eye-glass assumed certain other attitudes, he found no hesitation at all in expressing himself, and then you might be sure that you were in for a bad time.

Victory in the Air

ON November 22nd I started a reconnaissance one morning at 7.30 a.m., with Lieutenant Small as my observer, and after we had dropped some fifteen bombs on promising targets round Lille, Quesnoy, Aubers, and other places, we climbed to seven thousand five hundred feet over Armentières, as we thought we had spotted a German machine heading from the east towards Bailleul. As it approached at full throttle, we made it out to be a brand-new Aviatik. It was flying at seven thousand feet, and there was a strong east wind blowing, which meant that he would find great difficulty in getting home if we pounced on him at the right moment. Altogether things looked very rosy, provided that the Lewis gun did its bit.

I turned in front of the Aviatik and about two hundred feet above it, signalling to Small to hold his fire until I was ready. As we waited a little while before attacking, so as to get farther in front of our quarry, it so happened that we were bang over our own aerodrome when the right moment came. The stage could not have been better set.

I turned half left, kept my eye on the Aviatik, and dived across his front just

as hard as I could drive my old Avro. When I was in position, I nodded to Small, who replied with a good long burst from the Lewis gun. All my faculties were alert; by keeping my eyes fixed on the Aviatik's left top aileron, I managed to maintain my position and correct distance. After a second burst I came up closer, being then about fifty feet below the enemy, but the German pilot must have gone into a slight turn without banking, for I suddenly saw his observer lean out and fire a clip of cartridges from his Loeber pistol. Then the Aviatik slipped across, and a few moments later that observer was potting at me from the other side.

Small was changing a drum at the time. I saw a look of surprise and pain come over his face and then noticed that his glove was covered with blood. All the same, Freddy Small worked feverishly at his drum, and was ready to open fire again as soon as I had manœuvred the Avro into position. He had shot away about half another drum when suddenly the Aviatik pulled up, stalled, and side-slipped away at a vertical angle.

I was desperately afraid he was going to escape me, but I dived ahead, and both machines went down at a terrific speed. The Hun observer was firing off Very lights all the time he dropped, and as his own trenches and ours were not far off, I had to hustle ahead of him to cut him off from his own lines.

I just managed to head him off, but he doubled back to the left, and for a moment I thought he was bound to crash in some reserve trenches. We were down to five hundred feet at the time, but only a mile from the front line. I dived ahead again, but the Aviatik flattened out to land, and I cursed fiercely when I thought that I had lost him. A stream of black exhaust came out from his Mercedes engine, and it looked as if he was just going to streak over the trenches a few feet above the ground, but with a last effort I shot in front of him again.

Down went the Aviatik's nose; it flattened out over a hedge and made a bumpy landing in a ploughed field just

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behind a wood where the Cornwalls and Devons occupied some reserve trenches. I knew they would do their share of the business, and as it was too close to the firing line for me to land and I had a wounded observer to get home, I headed full speed for Bailleul.

My last view of the Aviatik showed me its observer standing over the pilot, whom I judged to have been wounded, while our troops were running towards the pair of them.

Prisoners of the R.F.C.

AS soon as I had seen Small in the right hands, I dashed off on a motorcycle to see what had happened to the Aviatik. When I arrived at the scene of its capture, I found it undamaged except for some twenty bullet-holes, two of which were in the instrument board. Having rescued some instruments and arms which the Cornwalls had removed from the machine, I listened to the tale of the landing.

The observer, who was a Prussian Guard officer, could not understand why his pilot, an N.C.O., had landed where he did, because the engine was good enough to take the machine over the last hedge. They would have had a good chance of escape if they had made just the extra bit before landing, and the officer thought his pilot must have come down because he was wounded. When he found him uninjured, his rage knew no bounds; he broke away from his captors, knocked the pilot down, and kicked him unmercifully. At last he was overpowered, whereupon he begged the officer in charge of the Cornwalls' detachment who captured him to be allowed to report the matter to the German Flying Headquarters. I am afraid this request was not granted, and after all, the pilot had received quite enough punishment for his lack of pluck.

The men in the German trenches had seen the fight in the air, and as soon as they realised their machine was captured, they must have sent back word to their artillery, for they shelled us heavily when we tried to get the Aviatik back. We managed to bring it along somehow,

and that evening we had a grand party in the mess to celebrate its capture. It was subsequently patched up and flown by our fellows on sundry unlawful occasions before being sent off across the Channel.

Shortly afterwards we had a new commanding officer, when Major Higgins got a step up. No. 5 Squadron was taken over by Major A. C. H. Maclean.

On November 27th, Captain Arkwright was shot through the foot while out on a reconnaissance; we missed him badly in the Squadron, which by now was greatly changed from the time it left Gosport in August. In "B" Flight, Creed and I were the only two officers left who went out with the original batch.

There was very little fighting about that time, but in addition to our reconnaissance work we used to drop masses of literature on the other side of the lines for the benefit of the inhabitants in the occupied territory. Then it occurred to the local French padre to have news bulletins printed, informing these people how their relations were going on in his part of the world; he sent me a lot of these to drop, and I still have a nice little note of thanks which he wrote me.

The west winds seemed to be going on for ever, which meant that we always had our speed slowed down on the homeward flight. This gave the German Archies their chance, and they shelled us unmercifully; but we got our own back sometimes when we were able to drop a few bombs to tickle them up. But they were not our only enemies when we returned home after a long reconnaissance, for the French Archies generally had a shot at us, too. Often enough one could not tell whether the French or the Germans were after one's blood, but one evening I got clear evidence of our unfriendly allies' misdeeds, because I spotted a gun of theirs by its flash when I knew I was too far behind our lines for any German Archie to reach me. I promptly landed and had a word in season with those Frenchmen.

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December 2nd was a red-letter day for us, as H.M. King George V. inspected the R.F.C. squadrons in the field and shook hands and chatted with us all.

Three days later came another red-letter day, for I left Bailleul at 6.30 a.m., and caught the 11.30 boat from Boulogne to Folkestone. At 3.30 I was in London, and at ten that night I was home again, with the joyous prospect of eight days' leave after three and a half months of war, in the course of which I had put in 150 hours' flying. This may not seem much, but it was quite enough for a beginner like me, and I could proudly assert that the only damage sustained by the machines I flew was done by enemy gun-fire.

Photographic Experiments

ON December 15th I reported at Farnborough, and on the following morning I flew a Maurice Farman machine, No. 742, to St. Omer. I found all well with the Squadron when I returned, but just as I was settling down to teamwork with my new observer, Lieutenant Gladstone, I got a further holiday of sorts, as I was sent to Paris with a party of men from the Squadron to learn all there was to be learnt about Voisin machines and Salmson engines at Vincennes Aerodrome. I found out our course was to last at least a fortnight, which meant we would be in Paris over Christmas.

I fancy that all of us learnt a good many things that had no connection with aeroplanes or their engines. In fact, some of us might have been tempted to neglect the studies for which we had been withdrawn from the Squadron but for the diplomacy of Major Brooke-Popham, who came round the Salmson works to inspect our progress. He asked me to explain the oil system of the Salmson engine, and I had to invent that system in a great hurry. Nothing more was said at the time, and young officers might be tempted to think that I had got away with it nicely, but something in B.-P.'s tone made me spend a few sleepless nights wondering

how much he knew about that oil system and whether my time in Paris was likely to be cut short on account of my ignorance. As a matter of fact, he knew all there was to be known, but he also knew the effect his visitation would have on me.

During the next twenty-four hours I learnt more about the Salmson engine than I have ever learnt about any other engine, and as my new-found zeal spurred me on to acquire all the knowledge I could glean about the Voisin machine, I was not suddenly recalled to my Squadron as I gloomily anticipated. Those who have had the privilege of serving under Air Chief Marshal Sir H. R. M. Brooke-Popham,* as he now is, will understand this, and I imagine his visit that day enabled me to write a report which at least saved me from being compelled to fly those Voisins. No, we did not love Voisins!

During the early days of 1915 I spent a lot of time on photography, in company with Lieutenant Gladstone. I was greatly interested in the work, but its drawback was that it did not give us many chances of chasing Huns. We used to come in for many attentions from Archies during our work, and our familiarity with the German gunners was of the type that breeds contempt, but at last they landed us with what must have been very nearly a direct hit. At any rate, a great piece of metal came up through the floor of our machine, passing through the petrol-tank that formed the front seat and taking its departure through the top plane. It was a miracle that neither of us was hit, for the beastly thing carried away a bit of my boot and a bit of Gladstone's coat, in addition to drenching us with petrol from the punctured tank.

That was the end of poor old Avro No. 683, and incidentally my last flight in No. 5 Squadron.

* Air Chief Marshal Sir H. R. M. Brooke-Popham, K.C.B., C.M.G., D.S.O., A.F.C., joined the Air Battalion of the R. Engineers in 1912 and, after a long and distinguished career in the R.A.F., his last post being that of Inspector General of the Royal Air Force, retired from the Service in 1937. He is now Governor of Kenya.—EDITOR'S NOTE.

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Transferred to No. 6

I DID not have far to go for my transfer, as I was posted to No. 6 Squadron as a Flight Commander, my commanding officer being Major J. H. W. Becke, who reigned at the other Bailleul Aerodrome situated behind the asylum. I definitely did not like the B.E.2's flown by this squadron anything, as well as No. 5's Avros until I got to know their ways.

I was not, however, destined to remain much longer at Bailleul, as on March 8th we were moved to Poperinghe, where Major Gordon Shepherd took command of the Squadron. The weather was bad, as it always seemed to be whenever heavy fighting took place (just at that time the battle of Neuve Chapelle was in full swing), and so we did not get many opportunities to distinguish ourselves, but entries in my diary show that a certain Captain L. G. Hawker in our No. 6 Squadron had already begun to attract notice.

He put up a very good show in attacking the airship sheds at Cognelée. Hawker was the first airman to gain the V.C. in actual air fighting, which was awarded him for shooting down two German machines and driving down another on July 25th, 1915, when he flew a Bristol Scout that carried a Lewis gun.

At the time we were in No. 6 Squadron, he had the habit of waiting on the ground until he received signals from ground observation stations or our machines in the air. When he was thus informed of the presence of enemy aircraft, he took-off and went hunting, using our B.E.2c's as decoys, because we had no machine-guns on them. Afterwards Hawker was posted home to form and command No. 24 Squadron, while I was entrusted with the organisation of No. 23 Squadron. His number of victories amounted to fifty-five before he was killed at the end of a duel with von Richthofen that lasted over half an hour.

But to return to our work at Poperinghe, the greater part of the next three weeks was devoted to fitting up our machines for photography and wireless

purposes. The wireless signalling from aeroplanes to artillery is a form of co-operation largely due to the efforts of Captain B. T. James and Lieutenant D. S. Lewis, both of the R.E., who had been working at this problem for some time. They installed wireless sets in their own machines and spent a lot of time experimenting with receivers on the ground before they perfected their system, but it was of inestimable value to our artillery when they got it in working order.

Captain Cherry and Lieutenant Awcock, two of our observers who were gunners, became very enthusiastic about this innovation, and whenever we could be spared from long reconnaissances or photography work, we devoted our time to artillery observation. There was not so much of this work done as we should have liked, as this was the period of the munition shortage.

If we wanted to go out spotting for the artillery we had first to persuade the battery commanders to allow their guns to fire the few extra rounds that were needed for our experiments. To such a pitch were we reduced by the shell shortage that caused such a sensation when it was exposed.

Victory Unconfirmed

IT was out of the question to think of trying to mount Lewis guns on our B.E.2c's, and as the German anti-aircraft guns had grown more numerous and many German pilots became more daring when their aeroplanes were equipped with machine-guns, we did not often fly without excitement of some sort or other. Many duels were fought in the air above Houthulst Forest, Menin, and Hollebeck, usually without any definite results, but one day Lieutenant Awcock and I managed to account for an Aviatik which had attacked us six times.

It was getting late in the evening when we fought this Hun machine, and the setting sun sent out dazzling rays. After a certain amount of manœuvring I managed to get our machine between

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the sun and the enemy, meaning to have a shot at him when he came close enough. My patience was rewarded, for I was able to pounce on him when he had the sun in his eyes, and I do not think he saw me at all, for he let me fly under him at so close a range that it was impossible to miss. Awcock needed to fire only one shot from the old, stripped rifle, and when we got clear we saw the Aviatik roll over and shoot down out of the sky in a vertical spin.

We watched it until it disappeared in the hazy dusk over Houthulst Forest. We followed our vanquished foeman down, but failed to discover the wreckage of his machine; in all probability it crashed in the wood itself, which at that time was a veritable armed camp. It was unhealthy for us to drop low, and so we were never able to get confirmation of this lucky hit.

Not long afterwards the gunner of a German Archie did his best to avenge our victory over his fellow-countryman, for a spent piece of one of his shells hit me in the leg. It made a nasty wound, which was not very deep, and so I did not report it when I got back to the aerodrome, but merely dosed it with iodine and bandaged it myself. My leg was stiff for some days afterwards, but otherwise I was none the worse for this amateur doctoring and achieved my main object, which was to avoid being sent back to the base for treatment and then posted to some other squadron when discharged. I was greatly attached to No. 6 Squadron and would have done anything to avoid a transfer.

One day an incident occurred which seemed to shock me far more than any of the greater and grimmer tragedies of the War I had witnessed. The field next to the one that formed our aerodrome belonged to an old farmer, who refused to let the War prevent his customary routine, and we often saw him ploughing with a mule and an ox. I listened to him calling to the animals, and it struck me that the sounds proceeding from his mouth were very much the same as those used by our Dorsetshire ploughmen when they address

their horses. But his field was never finished, because a stray bomb from a German machine on its way to have a shot at our aerodrome fell right on the plough, killing both the farmer and his two animals.

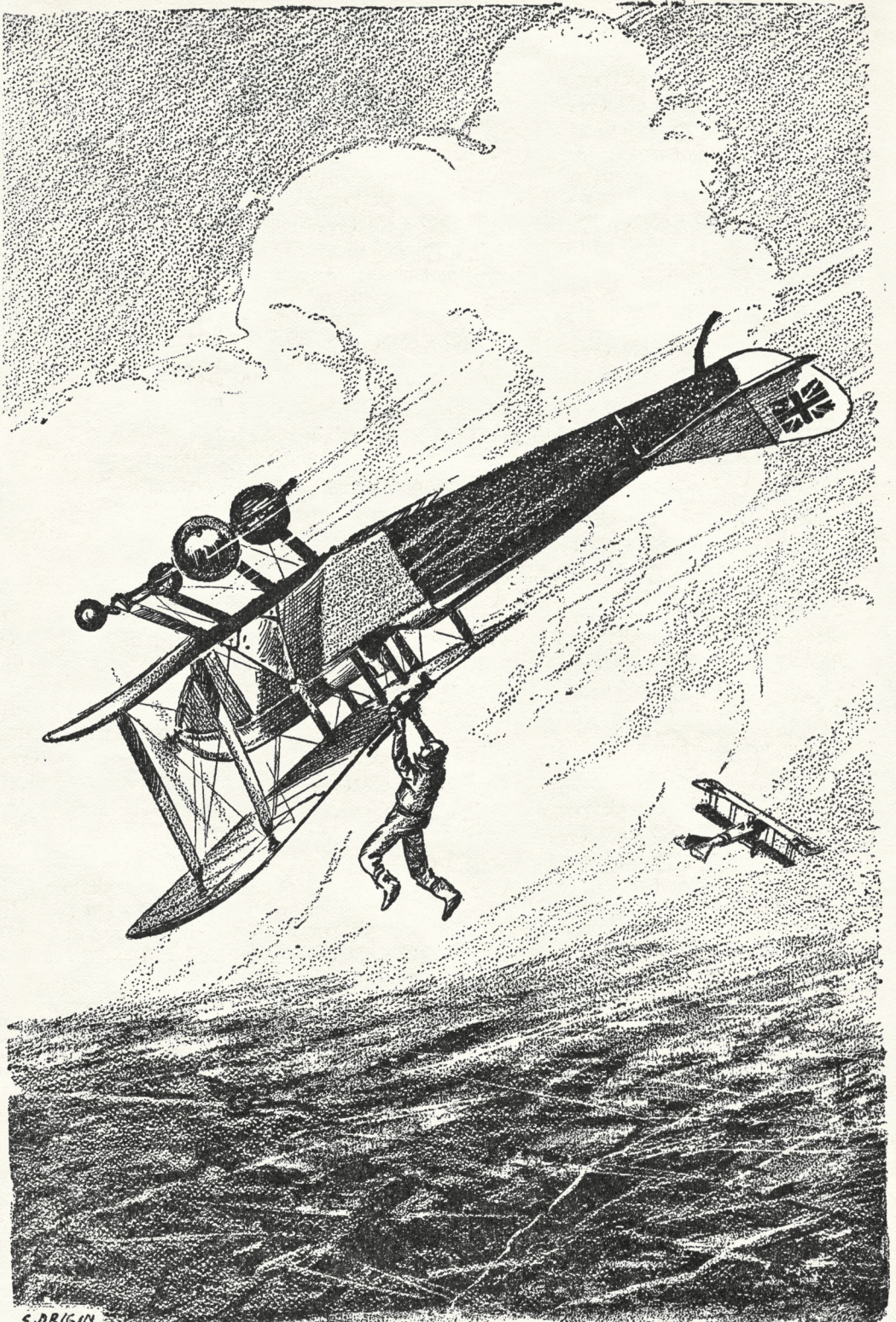
A Narrow Escape

I GREATLY missed the Lewis gun of my old Avro in No. 5 Squadron, but after dint of much pleading I was given a scout machine like Hawker's. It was a Martinsyde, with an 80 h.p. Gnome engine, and experience showed it to be a very unstable machine both fore and aft, with not much aileron control. Curiously enough, its undercarriage had four wheels—two large ones to land with and two small ones to prevent it turning over on to its nose when it touched the ground. Although a single-seater, it was hardly superior in speed and climbing power to the Avro which carried two men, but in my eyes all these defects were outweighed by the fact that it had a Lewis gun mounted on its top plane, which could be fired forwards and upwards.

On the very first day it was delivered to the Squadron I went out in it and was spotted high up over Ypres by an Albatros, which began to shoot at me while I was still a long distance off and far below. I felt quite pleased at the idea of the Hun wasting his ammunition at such long range, but the laugh was on the other side when a lucky bullet of his hit the Martinsyde in a vulnerable spot, to wit, the oil-tank. The bullet cut a furrow down one side of the tank, which let all the oil out. I heard a big thump in the machine at the time and knew that it must have been hit, but as the controls behaved all right and the engine kept on going, I did not bother to find out what the damage was, but climbed up after the Hun.

In a very short time, however, my machine grew tail-heavy, and although I used my full elevator, I was unable to prevent it stalling. It did a tail slide and the half-turn of a spin before I could get control again, and that was

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The spin threw me clear of the machine. but I still kept both hands on the drum of the Lewis gun

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the end of the fight as far as I was concerned. The Albatros came down with the intention of finishing me off, but I did not take much interest in his little attentions as I had my hands full with the job of trying to keep control of the Martinsyde.

The elevator control was none too good at the best of times, but now it seemed to be completely non-existent. If the machine's nose dropped, I was unable to pull out of the dive, and when at last, after pushing her over on to her back and rolling her out of it in some way or other, I got her nose up again, it was too high, and she promptly stalled again.

Things looked bad for me, but at last I got her on to an even keel again, and kept her gingerly in position. Then I noticed castor oil all over the floor of the cockpit, and suddenly, just as I was wondering how I was going to get down without letting the nose drop too far, the engine seized and stopped dead. The next three thousand feet were a perfect nightmare to me, as in those days we had little notion of aerobatics and considered a sideslip as something too dangerous to contemplate. But as I dared not let the machine's nose drop and my propeller had stopped, while I was bound to stall if the tail went down, there was nothing left for me but to manage a sideslip of sorts.

My arrival on *terra firma* can hardly be called a forced landing. I experienced a couple of very hectic minutes, although I cannot exactly recollect what happened in them, but the main thing I remember is the sight of the ground rushing up at me sideways in the last fifty feet or so of my descent. There seemed to be a solid mass of something or other rising out of it; in reality it was a hopfield, full of high Belgian hop-poles, which I missed by a matter of inches, for somehow or other I jammed the controls over and flopped down on to a narrow trackway between the hop plantations.

The complicated old undercarriage sustained hardly any damage. When we came to investigate matters afterwards, the only feasible explanation seemed to

be that the ten gallons of castor oil floating about in the fuselage must have upset the machine's centre of gravity, as all the controls were found to be in perfect order. But I still cannot understand why the Albatros failed to finish me off; whether its pilot thought I was bound to crash anyway or whether he sportingly refrained from bothering me when I was too busy to hit back at him, I cannot tell, but anyway he let me off.

Guests of the Squadron

ONE day one of our pilots forced a German machine to come down in the French lines. As both the pilot and observer were unhurt, the French marched their—or rather our—prisoners into Poperinghe between two big Zouaves, accompanied by a crowd of noisy French civilians. Someone came into our mess with this news about lunch time, and we promptly decided that it was not good enough, and so a tender full of indignant pilots and observers rushed off and caught the party just as they were entering the town.

We held the procession up and explained carefully in our best French that these aviators were our prisoners and that we wished to take charge of them. When this kind offer was turned down, we declared in plain, unvarnished language that we were going to take the Germans in the tender to our Squadron.

We did so, but we had to take along the Zouaves, as well as a few other Frenchmen, whose high sense of duty prevented them from relinquishing their captives. In fact, there was rather a sharp conflict of opinion, which was only forgotten later in the day after much good cheer in the various flight and squadron messes.

The upshot of our different views about the disposition of the prisoners was a general *mêlée*, but at last we were all loaded up in the tender, our contingent having been greatly assisted by the personal efforts of the two Germans, who thoroughly appreciated the situation and

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were most grateful to us for our timely interference on their behalf. Anyhow we saved them from the ignominious procession in which they had taken part most unwillingly ; they also enjoyed themselves thoroughly at the subsequent celebration of our victory.

We generally got on well with our opposite numbers on the rare occasions that we met them face to face, and I am sure that this little incident did much to cheer up the men who had to face the prospect of being prisoners for the rest of the War.

Shot Down

ALTHOUGH Hawker and I flew Martinsyde and Bristol Scout machines on many occasions, the specialisation of airmen into fighters, bombers, scouts, etc., had not then taken place. An airman was still in that April of 1915 more or less the same "maid of all work" that he had been in August, 1914, and I had to do my share of long reconnaissances in a B.E.2c.

I remember one very uncomfortable trip with De Halpert as my observer. It started badly, because an anti-aircraft gunner got in a good shot, and a piece of H.E., which caught me in the neck, made a painful scratch. It smarted just like a sting from an extra vicious wasp, but I grinned and bore it until we were at the far end of our area, when we were attacked by two German aircraft which carried machine-guns.

One of them looked most formidable ; I forget its name, but it was a twin-engined type with a double fuselage. In the middle of the fight one cylinder of the Renault engine carried by our B.E.2c cut out altogether, and as we were flying at only four thousand feet, I knew it would need very careful handling if we were to get back across the fifty odd miles of airway that separated us from our lines. I imagine that we ought to have been fairly easy victims for those Germans, but when they saw us turn back they evidently thought

their honour satisfied by forcing us to retreat, and so they let us have a shot for home unmolested.

We struggled painfully back, until we reached Menin, where we were literally smothered in shellfire from the Archies there. The black and white bursts around us looked a solid mass, and the din was terrific, but we could do nothing but plod steadily onwards as we were now down to two thousand feet and still losing height. Holes began to appear in the fabric of our wings, while the oil-pressure gauge went down to nil and the engine started vibrating badly. Then I suddenly saw a tear appear on the shoulder of De Halpert's flying jacket and thought he must have been wounded.

Our next bit of trouble occurred when a lump of shrapnel smashed the rev. counter in my cockpit, but I suppose I ought to have looked on it as a blessing in disguise, because it mercifully put me out of the agony of watching the engine revs. gradually drop back. But all bad times come to some sort of end at last, and so we scraped over the trenches at about eight hundred feet, and were thankful to land behind a small wood just out of range of any serious shelling. To my relief I found that De Halpert was unwounded, a splinter of shell having torn his coat without grazing his skin ; but we were both annoyed to have had such a rotten trip to no purpose, as it was too misty on the ground for us to see enough to make out any sort of report.

I also took part in sundry bombing operations. We now had a supply of French bombs, 25-pounders, which seemed nice little presents for the enemy, and one day I managed to drop three of these on Courtrai railway station. I dropped down to a hundred feet to be sure of my target and managed to hit a train. I could not be sure of the extent of the damage, but later reports came in from secret agents stating that I had hit a troop train, and that the subsequent mess I had made of the station had held up all traffic for the next three days.

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The First Gas Attack

ON April 22nd I was cruising up and down over the Salient with Lieutenant Hawkins. We were watching out for gun flashes in the fading light when suddenly my attention was attracted by what appeared to be streams of yellowish-green smoke coming from the German front line trenches.

This was such a strange phenomenon that we promptly dropped down to two thousand feet to have a good look at it. At first I was completely puzzled, but finally my brain connected it with the rumours we had heard about the German preparations for using poison gas. About ten days previously a German soldier, captured by the French prior to the attack on Hill 60, had told his captors about a big attack planned for the Ypres area, when a deadly gas was to be used. The information duly reached British headquarters, and one day our No. 6 Squadron had received orders to search for signs of preparation for this attack. We had discovered nothing, and were inclined to look upon the rumour as something that had originated in the aforesaid prisoner's brain.

But now we thought otherwise, and, as a matter of fact, we had seen the beginning of the first German gas attack which nearly gave the game into the enemy's hands. We did not bother about our job any more, but raced back full throttle to Poperinghe, where we were hustled into a tender and taken straight to the Fifth Corps Headquarters to report personally to General Plumer. He questioned us very closely about what we had seen, and we realised that things were going to be serious.

The Spy Droppers

IN those early months of 1915, the R.F.C. played its part to the best of its ability ; but it must be remembered that flying was in its infancy, while the trenches running from the sea to the Swiss frontier were a novelty in warfare. Looking back on those days, one realises that a great deal more might have been done to assist the hard-pressed troops

in the Salient, if only we had had a little more experience of this type of fighting. But after all, we had our difficulties to master, as well as many special jobs, such as dropping baskets of carrier-pigeons to secret agents at selected spots, and landing the agents themselves behind the enemy lines, which was a very ticklish business. No. 6 lost Captain Mulcahy Morgan, who was taken prisoner on one of these jobs.

Although we had to carry out long-distance reconnaissances every day, and had a lot of photography and wireless work, fights in the air gradually became more frequent. My diary records the fact that we drove down six enemy aircraft between April 26th and May 8th.

But it was still difficult to engage the Germans in the air, as their pilots declined combat whenever they could. In his masterly work, "Deutschlands Krieg in der Luft" ("Germany's War in the Air"), General Hoepfner complains of the inferiority of German machines, both as regards arms and flying speed, and says that their losses were so great that the pilots received orders to retreat when an Allied machine came into sight. The Germans had, however, one great advantage over us, as the height at which their machines flew was gradually increased. In the spring of 1915 they seldom crossed the lines at anything lower than eight thousand feet, which was two or three thousand above our usual height.

Whenever I encountered a Hun when flying my Martinsyde, I always had a frightful struggle to force myself up to eight thousand feet. Meanwhile, the enemy would be steadily climbing, and although I found that our respective positions in the air generally suited the Martinsyde's angle of fire, I never got a chance of a surprise attack on an unsuspecting foe.

The German machines gained their height behind their own lines, and then came across somewhere near the top of their "ceiling," which was about as high as our own, or maybe a bit higher. Consequently they had plenty of chances to spot any attacks we planned on them,

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with the result that they were usually well behind their own lines again before we could get near them. Then they just dived for their aerodromes ; we dived too, as soon as we saw them begin to go down, so as to try and cut them off when they had to cross our level, but generally their extra height gave them an extra speed that took them safely down.

The Pilot Who Fell Out

ON May 10th, 1915, I reached eight thousand five hundred feet when going after an Aviatik belonging to von Leutzer's squadron from Lille Aerodrome. We were somewhere over Menin, and the Hun was still gaining height, though we were both near the tops of our respective ceilings. Not all the enemy aircraft were equipped with machine-guns in those early days, but the German observer potted at me from the rear cockpit with a Parabellum pistol, and as some of his bullets came unpleasantly close, I thought it high time to retaliate and gave him a drum from my Lewis gun without much effect. But when I wanted to take off the empty drum and replace it with a full one, it seemed to jam, and as I was unable to remove it with one hand, I wedged the stick between my knees and tugged at the obstinate thing with both hands.

After one or two fruitless efforts, I raised myself up out of my seat in order to get a better grip, and I suppose that my safety-belt must have slipped down at the critical moment. Anyhow, my knees loosened their grip on the stick just as the Martinsyde, which was already climbing at its maximum angle, stalled and flicked over into a spin.

As I was more than half out of the cockpit at the time, the spin threw me clear of the machine, but I still kept both my hands on the drum of the Lewis gun. Only a few seconds previously I had been cursing because I could not get that drum off, but now I prayed fervently that it would stay on for ever.

I knew it might come off any moment,

however, and as its edge was cutting my fingers badly, I had to get a firmer hold of something more reliable. The first thing I thought of was the top of the centre-section strut, which at that time was behind and below the Lewis gun, but as the machine was now flying upside down, I had sufficient wits left to realise that it was behind and above me, though where it was exactly I could not tell.

Dare I let go the drum with one hand and make a grab for it? Well, there was nothing else for it but to take the risk. I let go and found the strut all right, and then I released my other hand and gripped the strut on the other side. I was then in a more comfortable position, and at least I felt rather more part of my machine than I had done in my original attitude.

My chin was rammed against the top plane beside the gun, while my legs were waving about in empty air. The Martinsyde was upside down in a flat spin, and from my precarious position the only thing I could see was the propeller (which seemed unpleasantly close to my face), the town of Menin, and the adjacent countryside. Menin and its environs were revolving at an impossible angle—apparently above me—and getting larger with every turn. I began to wonder what sort of a spot I was going to crash on.

Then I got angry and cursed myself for a fool for wasting time on such idle speculations, while at the same time it dawned on me that my only chance of righting the machine lay in getting my feet into the cockpit. If I could manage it, I knew that I was bound to fall automatically into the cockpit when the machine came over.

Flying "Blind"

I KEPT on kicking upwards behind me until at last I got first one foot and then the other hooked inside the cockpit. Somehow I got the stick between my legs again, and jammed on full aileron and elevator ; I do not know exactly what happened then, but somehow the trick

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was done. The machine came over the right way up, and I fell off the top plane into my seat with a bump.

I grabbed at the stick with both hands and thanked my lucky stars when I got hold of it. Then to my surprise I found myself unable to move it.

I suddenly realised that I was sitting much lower than usual inside the cockpit ; in fact, I was so low down that I could not see over the edge at all. On investigation I found that the bump of my fall had sent me right through my seat, with the result that I was sitting on the floor of the machine as well as on the controls, which I was jamming. The cushion had fallen out when the machine turned upside down, along with everything else that was loose or had been kicked loose when I was trying to find the stick with my feet.

Something had to be done quickly, as although the engine had stopped through lack of petrol when the machine was upside down, it was now roaring away merrily and taking me down in a dive which looked likely to end in the wood to the north of Menin. So I throttled back and braced my shoulders against the top of the fuselage and my feet against the rudder-bar ; then I pulled out the broken bits of seat and freed the controls. Luckily I found them working all right, so that I was able to pull the machine's nose up and open the throttle again. I rose and cleared the trees on the Menin road with very little to spare.

I did not trouble to climb any more, but just flew back along the Menin road. In my efforts to find the control-stick with my feet, I had smashed all the instruments on the dashboard, and as I gazed at the damage, I wondered if I could ever make anyone realise how it had been done. I had only a very hazy idea myself as to what had really happened, but I felt happy to be alive, and thought it simply marvellous that I was still able to control the machine.

I hurried back to Abeele, without worrying about the increasing strain on the small of my back or the futile shots that the Germans on the ground were

sending after me. I went to bed early that night and slept for a good solid twelve hours ; but, Lord, how stiff I was the next day ! It took a long time before I was able to move about with any comfort.

During the recent trip to Germany which enabled me to make the acquaintance of von Leutzer, my opposite number, I told him the story of this incident. In reply he stated that one of their observers had returned that day with a report of a victory over a British machine, which went down in a spin into the wood on the north side of Menin. This observer was positive that he had seen the pilot thrown out of the machine, although he did not fall clear of it, and on the strength of his evidence the Germans spent half a day vainly searching the wood for the wreckage of the machine. Von Leutzer added that the observer, who was known to be reliable and accurate in his statements, got very much ragged about the business for some time afterwards.

Curiously enough, this observer and his pilot were the couple who had bombed us in Bailleul Aerodrome.

Enter the F.E.2b

ALTHOUGH Major Gordon Shepherd, the new commander of No. 6 Squadron, never spared his pilots when there was urgent work to be done, he always showed us as much consideration as he could. After the incident just related, he evidently thought I could do with a few days' rest from our daily work over the enemy's lines, and therefore assigned me to a job which took me to England for a few days.

One of No. 6's original B.E.2c's had been presented to the Squadron by the City of Liverpool, and bore the word "LIVERPOOL," written in bold, black letters on the fuselage. This machine easily held the record for the number of hours flown in the Squadron, but she was now feeling the effects of her war service to such an extent that it was necessary for her to undergo a complete overhaul if she was to remain in use.

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Major Shepherd detailed me to fly her back to England and return her to a squadron in training near Liverpool, after which I handed over her log-book to the Mayor of the city, amid much pomp and ceremony.

He asked me what kind of machine we should like in her place, and I replied, "Anything that is twice as fast and can carry a machine-gun." I flew another Bristol Scout back to St. Omer, where I found a kind of general conference going on as to what would be the best type of fighting aircraft to request the Home Establishment to produce. When asked for my opinion, I stuck to the points I had emphasised in Liverpool, namely, that speed and good machine-guns were all that really mattered, but that if speed could be obtained from pushers, so much the better. I characterised the Bristol Scout as the best machine turned out at the moment, but the time was evidently not yet ripe for the formation of purely scouting squadrons. The authorities insisted on our No. 6 Squadron continuing to fly two-seaters, whereupon I took the F.E.2b as the next best alternative in preference to the Vickers Fighter.

The F.E.2b was destined to do wonderful service in the next year of the War, and proved to be the only type produced by the Royal Aircraft Factory at Farnborough that was better than any similar type turned out by private firms. I am sure, however, that we should have done much better as regards the aviation side of the War if we had gone in for a mass production of Bristol and Sopwith Scouts about this period, instead of waiting until the S.E.5 was brought into general use. Our casualty lists in 1915 and 1916 would have certainly been lighter, but our authorities had to learn their lesson by bitter experience when the Germans introduced the Fokker with its synchronised machine-gun. They reaped their reward, and Immelmann's successes forced us to make use of the Scout type.

With the example of Hawker's V.C. before us, all we pilots of No. 6 were longing to fly scout machines, but the

Powers that Were decreed otherwise. As a reward for our good work we were re-equipped with the new F.E.2b's, the first of which I flew to Abeele on May 20th.

We grew to like our new F.E.2b's. Hunting up my diary, I came across a note I made concerning them after we had given them a fair trial:—

"The F.E. is a fine machine," it states, "and would be ideal if it were only a little faster. As it is, the Hun always seems to see us in time and avoids us like the plague, so that we seldom catch him. It is, however, a splendid reconnaissance and photographic machine."

"Archie" Scores a Hit

FROM further reference to this diary I see that in one week I did eighteen hours' flying and over fifty hours in the month of June, which probably meant a total of something like 600 or 700 for the ten or twelve serviceable machines in the Squadron. The height at which we patrolled when looking for a Hun to dive on had now risen to eleven thousand feet, and at the finish of my last bit of work with No. 6, my engine went dead at that height when over Menin. The German Archies got me (even at this height) with a piece of H.E. in the sump; I heard and felt their long shot go home, but could not see the oil pouring out as the engine was behind me.

The oil pressure suddenly dropped to nil, and I thought the instrument must have failed, but nevertheless I headed for home. I had not gone far before an awful jarring shock set the machine shaking and quivering like a jelly, and then came an ominous silence.

The engine had seized, and the propeller was stationary. My only chance of salvation lay in a glide home; as I was still the wrong side of Menin, I knew that the distance to our lines was one that could only be covered on exceptional days when wind conditions were favourable to it.

I yelled to my observer, Lieutenant Bradyll, to throw overboard everything

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he could lay hands on, so as to lighten the machine, and cursed heartily when I saw that he persisted in sticking to his wireless. Bradyll, however, was determined to see the business through in his own sweet way, and so he kept on sending our position and height and a lot of other details to the Squadron's wireless station in code, and as he was a linguist, he interpolated a few rude remarks in German for the benefit of the Huns whom he knew would be listening-in at Menin.

I thanked my stars that for once in a way the wind, although a light one, was in the east, but I did not realise that it was north-west up at eleven thousand feet. So I could not fathom why we made such poor progress, and as the altimeter dropped relentlessly, Bradyll's messages grew more and more despondent. When we were down to three thousand feet he actually wirelessed home the map square on which he intended to land as he knew that a particular battery had the exact range of it, his idea being that after giving us time to get clear, the gunners could proceed to shoot up all the Huns who would be certain to have collected round our machine.

Just as I was thinking that our share in the War was likely to be over in a few minutes and wondering what *pièce de résistance* we could put up to make a good finish to my eleven months' work at the Front, a lower easterly breeze came to our rescue, and the ground below us began to slide away more rapidly. But it still seemed odds against our getting home, and I thought that the cavalry camp behind Messines would be as good a place as any to shoot-up in our expiring effort. We let it go, however, and then a kite balloon on the ground looked tempting, but we decided to

reserve our fire for some even closer target.

Even as we searched the ground for this, we caught sight of some gun emplacements that bore a most familiar aspect, and when the altimeter showed only one thousand five hundred feet, we were covering a marvellous lot of ground. Everywhere below us there seemed to be trenches; Bradyll put his Lewis gun down and dosed them.

At last the fire that replied to his efforts seemed to be coming from behind us, and so we knew that we had passed the German front line. From other trenches ahead of us we saw tin hats hoisted up on rifles to divert the German fire from us and welcome us home once more after a very narrow escape from a German prison.

I FOUND the F.E.2b a very easy machine to fly at night, owing to the good all-round view one obtained, but it must be remembered that night flying was not a novelty to me because I had done a certain amount of it at Hendon before the War. We got quite used to landing after dark by the aid of flares when we had been out in the dusk to spot gunflashes, but I was sadly let down one night when I went off on a voluntary show, with Lieutenant Payne as my observer, to look for a Zeppelin which had been rumoured to be in the neighbourhood. We found an airship all right, and were chuckling at the thought of the big bag we were about to make, when, lo and behold, it turned out to be a French one that no one had heard anything about. We discovered the mistake just in time and much to our disgust, and, if I remember rightly, for a few moments we cherished the idea of declaring war on France all on our own, in order to tackle the monster.

(To be Continued)

Next Month's Instalment of "Airmen at War" Recounts how the Author's First Command, No. 23 Squadron, was Created out of an Office, Four Men and the Bits and Pieces of two Henri Farmans, and Describes Adventures on the Home Front, first at the newly-formed School of Aerial Gunnery and, Later, at the R.F.C.'s famous Central Flying School

WINGED RIVALS

A Short Story

By

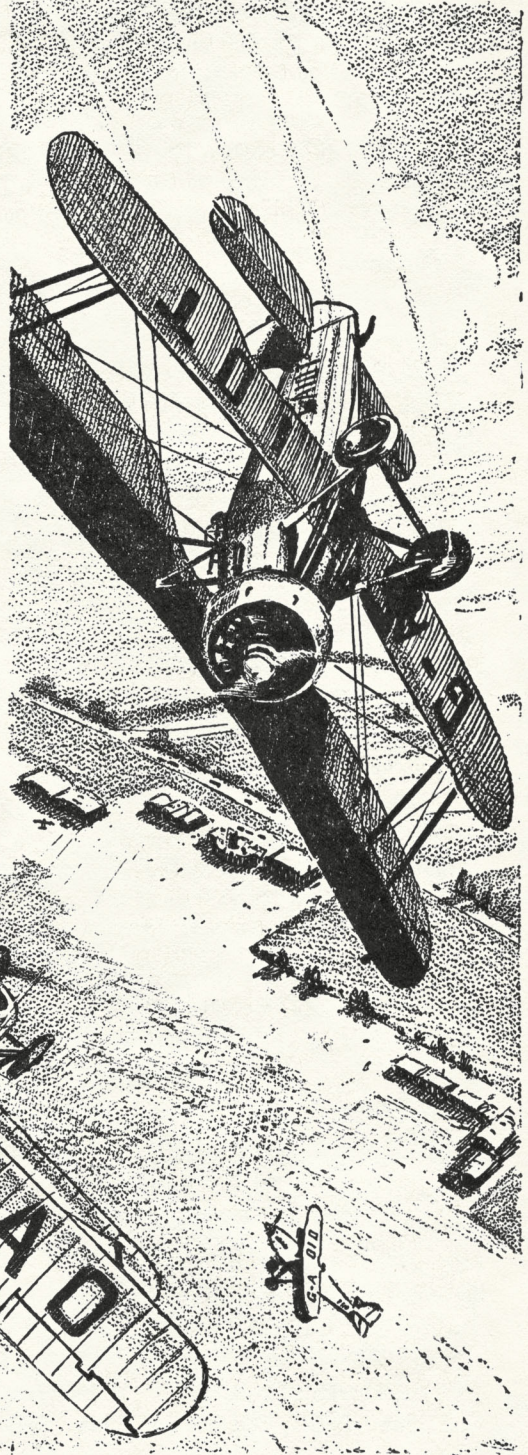
WILFRID TREMELLEN

The Stalbridge Flying School was Like the League of Nations—except that Stalbridge had Effective Methods of Stopping Wars

YOU find representatives from most countries at the Stalbridge School of Aeronautics. True, there are no Zulus there, and no Eskimos up to date, but Lexley, the Chief Instructor, has learnt to expect anything. He treats them all alike, Chinese, Spaniards, Scandinavians, Egyptians, Japanese, Italians, Dutchmen, and Plain English. But he has learnt to thank his stars for those Plain Englishmen as a leavening of common-sense and mental stability in what might otherwise be a miniature cockpit of Europe.

For the League of Nations' spirit is not always manifest at Stalbridge. It happens sometimes that a Chinaman working alongside a Japanese in the parachute room remembers that their

... he pressed the trigger lever as Borbo, sliding over from his back, came yowling down at him



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two countries are at war, and an instructor comes in to find the two using a 100-guinea silken parachute for a wrestling mat. Or a Frenchman may fall out with a Hitlerite, or two Spaniards may come to blows, a Government man with a Rebel.

On all these occasions the remedy is the same: call in the Plain English. Then there are shouts of "Naughty! Naughty!" or "Temper! Temper!" the combatants are separated, and the whole affair becomes a joke. Sometimes, even, the delinquents are induced to grin. The scheme acts fairly well, and by working his students like niggers, insisting on courtesy in the mess, and keeping the key of the armoury under his pillow, Lexley manages to sleep sound o' nights.

FOR months everything had been running fairly smoothly at the School when a fly suddenly forced-landed in the Stalbridge ointment and bogged itself deep. That fly was of a South American species.

It happened that the army chiefs of the warring state of Buenaguaya had decided in conclave that for wiping out the maximum number of those Santomasian devils with the minimum of expenditure nothing could be more suitable than a first-rate bombing pilot—preferably a Stalbridge-trained man.

At about the same time, the big shots of the army of Santomas were also in solemn conclave, and the result of their deliberations was that to bring the war against those Buenaguayan devils to a rapid and successful conclusion something really up-to-date in the way of fighting 'planes was needed—a machine that could patrol the Chaco Jungle and make its presence felt.

The machine to order, they decided, must be something quite unique. It must carry at least half a ton of bombs, mount six machine-guns firing nothing but explosive bullets, and be fitted with a device for dropping showers of poisoned darts. In any space left over a flame-thrower could be installed. They worked out the specification of a machine such

as never was on land or sea. And as for the pilot who was to fly this wonder 'plane?

"There is in England," began the general with the longest whiskers, "a school for the air, is it not so, *amigo*?"

"Stalbreedge," he was told.

"*Si! Si!* Stalbreedge! Ha!"

And so it was that Ignacio Borbo (of Buenaguaya) and Fernando Caldera (of Santomas) arrived on the Chief Instructor's doorstep at the same moment.

Lexley, knowing that they were due to arrive, had, in his dearly-acquired wisdom, taken more care than usual with his precautions. At mess, for instance, Borbo was to sit at table "A" and Caldera at table "F." Caldera was to have his room in the Old Building, Borbo in the New. In the Lecture Theatre, Caldera was allotted a place on floor level, Borbo a seat high up in the back row. The Games Captain was told that if ever the two were found playing the same game on the same field at the same time, there would be trouble.

The Chief had taken every possible precaution against causing a South American crisis. So that it was with a perfectly clear conscience that he sat working at his desk that morning.

There came a knock at the door.

"Come in!" called the Chief Instructor.

Nothing happened about the door, but there was every indication that an excited conversation in voluble Spanish was taking place on the other side of it.

"Come in!" the C.I. repeated.

Again nothing happened, and the C.I. rose impatiently to his feet and flung the door wide. At first he blinked, then he coughed gently to indicate his presence. Even that was not successful.

"Ah! But what a happy fortune to hear good Spanish in this cold land!"

"*Si, si, amigo!* I rejoice at the prospect of a happy companionship!"

The C.I. stood there gaping. The two South Americans, though not actually embracing, were certainly very near to it. He passed a weary hand across his brow. "Will you come in?" he suggested, and suddenly sniffed and took out his

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handkerchief.

Of the two new students, Borbo was short and fat, Caldera tall and thin, but there the difference ended. Both wore elegant pin-stripe suits of American cut, both had lace-edged handkerchiefs peeping from their breast-pockets, and both were, seemingly, enthusiastic advocates of the same brand of strongly-scented hair cream. Olive complexions, dark eyes, and little black Hitler moustaches were common to both.

"So you two know each other already? That's great!"

Fat little Borbo reached up to put his arm round Caldera's waist and smiled like a tooth-paste advertisement.

"But no, *señor!* Only upon your threshold do we make the acquaintance."

Caldera flung a long arm across Borbo's shoulder.

"Is it not a happy thing, *señor*, to find so soon a friend in a foreign land?"

And the C.I., his eyes flickering a little in spite of himself, was forced to agree that it was.

He gave the necessary directions to the two new students and watched the door close behind them. Then he flung himself back in his chair and ran his fingers through his hair.

"By Jumbo! And to think that in a few months those two turtle-doves will be scrapping together over the Chaco Jungle!"

IN the following three weeks there was no more inseparable pair of friends in the whole school than Ignacio Borbo and Fernando Caldera.

"You guessed wrong this time, Chief," grinned Hayling, the instructor in aerodynamics. "Little Borbo came to me in the theatre after lecture this morning, and asked could he come down to the front row so that he could sit next to his dear friend Caldera!" He chuckled. "Most of 'em like sitting up there in the back row—they say they learn more, because hot air always rises to the top! You don't object to 'em sitting together?"

Lexley looked up wearily from his accounts.

"They can share the same tooth-brush for all I care. As a matter of fact, Hayling, you're the third who has been on to me this morning on that subject. The House Manageress and the Head Steward have just been in; 'Mr. Borbo and Mr. Caldera would like to have rooms adjoining and sit next to each other at table.' Can you beat it?"

As the days passed, Lexley's suspicions subsided altogether, and he watched the doings of the two South Americans with growing satisfaction and approval. They walked into Stalbridge village together; they went for gay nights to Westbourne together; they wrote up their lectures in the Silence Room together; they worked side by side at the benches together; and where possible they flew together. At games they played with the greatest zeal—but only if they were drawn on the same side; to have Borbo on one side and Caldera on the other was to play a man short on each side.

Then came a sudden change. At breakfast one morning all were astonished to see big Caldera in heated argument with fat little Borbo.

The two had spent the previous evening at Westbourne-on-Sea, a resort much favoured as a night haunt by roysterers from the School, and now it seemed to be a question as to which of them should return there that night. For some unknown reason it was unsuitable that both should go.

"I had imagined," observed Caldera coldly, "that only I would be welcome to a Certain Person in Westbourne to-night."

"Then thou hast grossly mis-read the signs, *amigo mio*," retorted the fiery little Borbo. "To me it was quite plain that I alone would be expected to present myself."

"Why not both stay at home and write up notes?" suggested a neighbour helpfully. But no answering smile could be drawn from either Caldera or Borbo. Suddenly, with a muttered apology, Caldera rose to his feet and, leaving his second cup of coffee untasted, slipped out of the mess.

The sequel to his sudden departure

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was that the unfortunate little Borbo spent the whole of that morning tinkering with an engine on the test bench, vainly trying to locate a fault which old Jock McIntock, the engines expert, had set up for him. The lunch bugle found him still beaten.

"Señor, I am unable," he confessed to old Jock.

"Ye'll no go off duty until that engine's runnin' sweet," the dour Scot told him. "Awa with ye noo, and return after lunch."

At five o'clock old Jock was back again, hands on hips, watching the unfortunate Borbo with a sardonic grin on his face. The bench, covered with magneto parts, had taken on the appearance of a watchmaker's shop. Together they assembled the magneto and replaced it.

"Now watch me, ye loon," old Jock adjured. He took down a section of the petrol feed, blew through it, and replaced it. "Did it no occur-r-r to ye—a simple obstr-r-uction in the petrol supply system?"

They swung the prop then, first Borbo, then Jock; then Borbo, then Jock again. Until Jock McIntock, his sweating face suddenly dark with suspicion, dipped an end of string in the petrol tank and smelt it.

"Who's been fillin' yer petrol tank with water?" he roared. "Can ye answer me that, hey?"

Little Borbo's eyes were glittering; his olive complexion had turned grey with passion.

"Si, señor. I know well," was all he could get out through his clenched teeth. And he did not leave the punishment entirely to the authorities. He walked straight up to Caldera sitting at tea, and before the whole mess, and without a word of warning, dealt him a five-fingered slap across the face that would have rocked a statue. Uproar! Then the Plain English piled in as usual, and in a few minutes the delinquents were swallowing their tea four tables apart.

That night the eyes of a Certain Person in Westbourne were gladdened by the appearance of neither Borbo nor

Caldera. For the two South Americans remained at the School, though there was no attempt to write up notes, as the helpful one had suggested. Their quarrel had become an affair of honour.

IT was Anstey, the P.T. man, who prevented a tragedy. Happening to glance out of the window of the Instructors' Common Room, he noticed lights in his gymnasium, and strolled over to find out what was afoot. He pushed open the door to find the two South Americans, armed with fencing foils but wearing no helmets, fighting like furies. Blood was dripping from Caldera's neck.

"Hi! Stop the fight, you!" roared Anstey.

He might as well have shouted to the tigers at Whipsnade. He snatched down a single-stick from the wall and made a rush at the combatants, but before he could beat down their weapons Caldera made a savage lunge and a growing patch of red showed itself on Borbo's shirt near the shoulder.

"You young devils!" Anstey stormed at them, as the two enemies stood breathing hard and glaring at each other. He had just noticed that from both foils the protective buttons had been deliberately snapped off.

"Peon from Santomas," hissed Borbo, "my vengeance is but delayed!"

"At any time, in any place, I am ready, *hijo de puta!*"

When told of the incident, Lexley waxed wrathful. "Another show like that, by Jumbo! and back they both go to Dago-land!" he vowed. "I thought it was too good to last," he said later. "Does anyone know the cause of the quarrel, by the way?"

He was told of a fluffy blonde with scarlet finger-nails who dispensed cigarettes from three to eleven at a kiosk on Westbourne Promenade. "Can't they put her on the morning shift?" he growled.

During the next three days the quarrel between Borbo and Caldera was almost forgotten; the proximity of the principal event in the session drove every other

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thought from people's minds. This was the competition for the silver cup presented by the Governors for supremacy in aerial combat. The camera-gun was the "weapon" used and the competition was run on American tournament lines. The contestant who could show the largest number of vital hits on his strip of film was the winner in each bout.

Borbo was drawn against a Greek, Caldera against a South African in the first round. Lexley, megaphone in hand, glanced at the two suspiciously before the start. Sidcot-suited and parachuted, they were standing side by side, though without exchanging a word.

An instructor rang a bell for silence.

"Each pair of competitors," Lexley called through the megaphone, "will meet over the places appointed, and will commence hostilities within fifteen minutes from now. Get over to the hangars now."

He set down the megaphone. Had he, or had he not, seen Caldera address a cold word to Borbo and Borbo nod curtly? He sat back in his chair frowning. In any case nothing unpleasant could happen until the bout when these two were drawn together. He was wrong.

THE Greek and the South African might not have existed. As though by previous arrangement, Borbo and Caldera ignored them entirely, and from opposite directions came streaking towards each other to meet two thousand feet above the landing T. Lexley sat forward in his chair frowning. "The young idiots! Fancy itching to get at a man with a camera-gun!" He was wrong again.

An excited hand grasped his arm. It was Hewlett, the machine-gun instructor, with beads of perspiration on his white face.

"D'you know what, Chief?" he exclaimed. "I've just found two Vickers missing, and I'm pretty damn sure——!"

As though to confirm his unuttered accusation there came from the two machines circling high above the aerodrome the staccato crackle of machine-gun fire. The two South Americans,

instead of taking-off with camera-guns on their Bristol Bulldogs, had raided the armoury and mounted the machine-guns used in the aerial gunnery course for target practice out at sea.

In a second Lexley was on his feet, running with long, loping strides in the direction of the hangars.

"The Fury!" he snapped to the astonished mechanics. "Run her out on the tarmac! Quick as you can!" He ran on into the Mechanics' Canteen.

Meanwhile every student and every instructor on the aerodrome was gazing up into the blue in blank astonishment as the whirling combatants dosed each other with burst after burst of machine-gun fire. Mostly the two were tail-chasing in a tight circle, eyes glued to the telescopic sight, fingers quivering over the trigger-lever, ready to put in a burst at the merest glimpse of a tail skid. But the machines were evenly matched; and the pilots also. Neither seemed able to get the other full in his sights.

"Why couldn't they wait till they got back to their blasted Chaco?" growled an instructor. "Hello! Is that Lexley taking off in the Fury? What the deuce does he think he's going to do about it?"

There was a scream of engine power as the Fury, guided by the Chief Instructor's expert hand, went racing tail-high across the aerodrome, slid smoothly into the air, and rose thundering to clear the further hangars. Climbing steadily, the C.I. made for the two duellists. He was out to stop that fight.

On the ground there was a hush of anticipation, as when a play is about to begin. Every neck was craned upwards.

"Bet the old C.I. will put some salt on their tails!" breathed a student.

Meanwhile, up at two thousand feet the two duellists had broken circle, and Caldera was hot on the tail of Borbo, his Vickers spurting tracer. To escape him, Borbo went howling over in a wide loop. Whereupon Caldera pulled up his nose and, hanging from his prop, sat waiting directly in his path. He pressed the trigger-lever for a long burst, as Borbo, sliding over from his back,

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came yowling down full pelt at him. The spectators held their breath; a collision seemed so certain. But the climbing machine and the diving machine flashed harmlessly past each other and for the moment lost contact.

"Look at old Lexley! What's he up to?"

It was then that the Chief Instructor, with a grim smile on his face, made his presence felt. Selecting the nearest of the wrongdoers, Caldera, he manoeuvred his Fury until it was flying only a few feet above the Bulldog.

Caldera, astonished at this great shadow so close above his head, gave an exclamation as a hand appeared over the side of the Fury's cockpit. The hand was holding by its neck a bottle that had once contained beer of a very familiar brand. The hand was drawn back to its owner's shoulder. Then—*Madre de Dios!*—the bottle went hurtling through the air slap through the arc of the Bulldog's propeller. One blade of the prop was broken off short. With a curse Caldera shut down his throttle to ease his juddering engine and glided down.

CALDERA landed in the middle of the aerodrome, and, pushing up his goggles, turned to see Borbo, who had been similarly served by the Chief Instructor, gliding down on him with engine shut off and propeller in splinters.

A sudden thought occurred to Caldera, sending a prickly sensation down his spine, as the rival Bulldog, swaying gently, came sweeping down on him. Would Borbo seize this opportunity of putting a burst into him while he was helpless on the ground? Surely not; Ignacio, though a Buenaguayan, was undoubtedly a *caballero*. Even so, thought Caldera, as the gliding wings swept nearer, he had been very angry indeed about the doctored engine. Would he—?

But no; now Borbo was gliding over his head with no sound but the soft whistle of wires. Certainly Ignacio was a *caballero*. Caldera relaxed. And now they would both have to face the anger of the *Señor* Chief Instructor. He sighed; they had been so happy in their friendship,

he and Ignacio, before the meeting with the blonde, and now—"Ah! *Dios!*"

A sudden hideous crash followed by a splintering of wood disturbed his reverie. Standing up in his cockpit to see the cause, he found that the other Bulldog, having landed too steeply and pitched over on its back, was gradually becoming a mass of flame. *Madonna mia!* Caldera leapt to the ground and raced forward.

Fat little Borbo was unconscious, fortunately—he had bumped his head hard against the instrument board—and was hanging upside down in the overturned machine, suspended by his safety-belt. His cockpit was shrouded in leaping flames.

There was no time to lose. Tying a handkerchief across his face as he ran, Caldera dived under the fuselage, and, choking and frantic, felt for the catch of the safety-belt. Flames licked round his kneeling form. After what seemed ages of torture from the blasting furnace, he ripped the belt loose and, catching hold of one hand of the body that tumbled to the ground, he dragged it from beneath the flames, and collapsed.

Racing feet brought dozens of spectators to the spot in no time. They hurled themselves on the two South Americans and, long before the School fire engine came streaking across the aerodrome, there were only blackened patches on the Sidcot suits to show where the flames had eaten. On stretchers, the two were carried into the sanatorium.

THEN, for a space, peace descended on Stalbridge while Borbo and Caldera were under treatment for their burns. It was confidently expected that they would now speedily make up their quarrel and be as firm friends as ever. Not a bit of it. Nurses reported that nothing but furious words were exchanged between the patients. Borbo, it seemed, bitterly resented that his life had been saved by his enemy, and Caldera, on his part, swore that if he had known that it was Borbo who was perishing in the flames he would have hastened the process with

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machine-gun bullets. At this time both were assiduous in writing letters, though neither seemed to receive any in return.

Then a roysterer returned one night from Westbourne with certain information which roused peals of laughter among his fellow students, and on the following day the door of the ward was opened a crack and the information imparted to the patients. It made a difference.

For a long time the two lay staring up at the ceiling, bludgeoned into silence by the astounding news. Then Caldera raised his head.

"Amigo, it would seem that since—this news from Westbourne, there is no more cause for quarrel between us."

"As for me," snorted fiery little Borbo, "I kick myself that ever I was friends with a dog of a Santomasian!"

Caldera sighed. "Then with me it is different. I saved thee from the fire because I loved thee, Ignacio."

They came out of hospital four days later and astonished everyone by walking

into the ante-room arm in arm. Nor did the sentence of expulsion from the School affect their appetites in the least, for their last meal in the mess they ate as cheerily as crickets.

"I had to sack 'em," the C.I. confessed rather regretfully to Anstey. "Couldn't do otherwise. I'm sorry for them but—"

"Don't you worry, Chief! They don't care a hoot!"

"Eh?"

"Haven't you heard, Chief? Those two have both thrown up their contracts with their respective governments and are talking of starting an airline in South America!"

Lexley sat back wearily in his chair. "But why this sudden change? They've been scrapping like tom-cats for weeks now!"

"Chief, you're badly served by your Intelligence Department," reproved Anstey. "Didn't you hear? The girl at the kiosk has got married to the hair-dresser!"

THE STORY BEHIND THE COVER:

A NEW HIGH-SPEED DIVE-BOMBER FOR THE NAVY

The Blackburn Skua, the Navy's First Monoplane Design, is now being built in Quantity for the Fleet Air Arm

AN early morning take-off by a Blackburn Skua from the deck of an aircraft-carrier at sea is the subject of this month's striking cover painting by S. R. Drigin.

The first monoplane ever to be adopted for Naval use, the Skua Dive-Bomber is the newest type of aircraft to go into service with the Fleet Air Arm. A two-seater low-wing cantilever monoplane, it is of all-metal construction and has a watertight fuselage which provides sufficient buoyancy to float the aeroplane for a long period, even if the two cockpits are flooded. The wings fold to facilitate storage on shipboard and have special flaps, set forward of the trailing edge, for limiting the diving speed when bombing as well as for improving take-off and landing conditions.

The undercarriage is retractile, the wheels swinging upwards and outwards into cavities in the wings. The power-plant is a 9-cylinder Bristol Perseus sleeve-valve air-cooled radial, driving a three-bladed D.H. controllable-pitch airscrew.

The tandem cockpits are enclosed by a sliding coupé top with a hinged portion over the observer's seat to allow sheltered and free use of the rear gun.

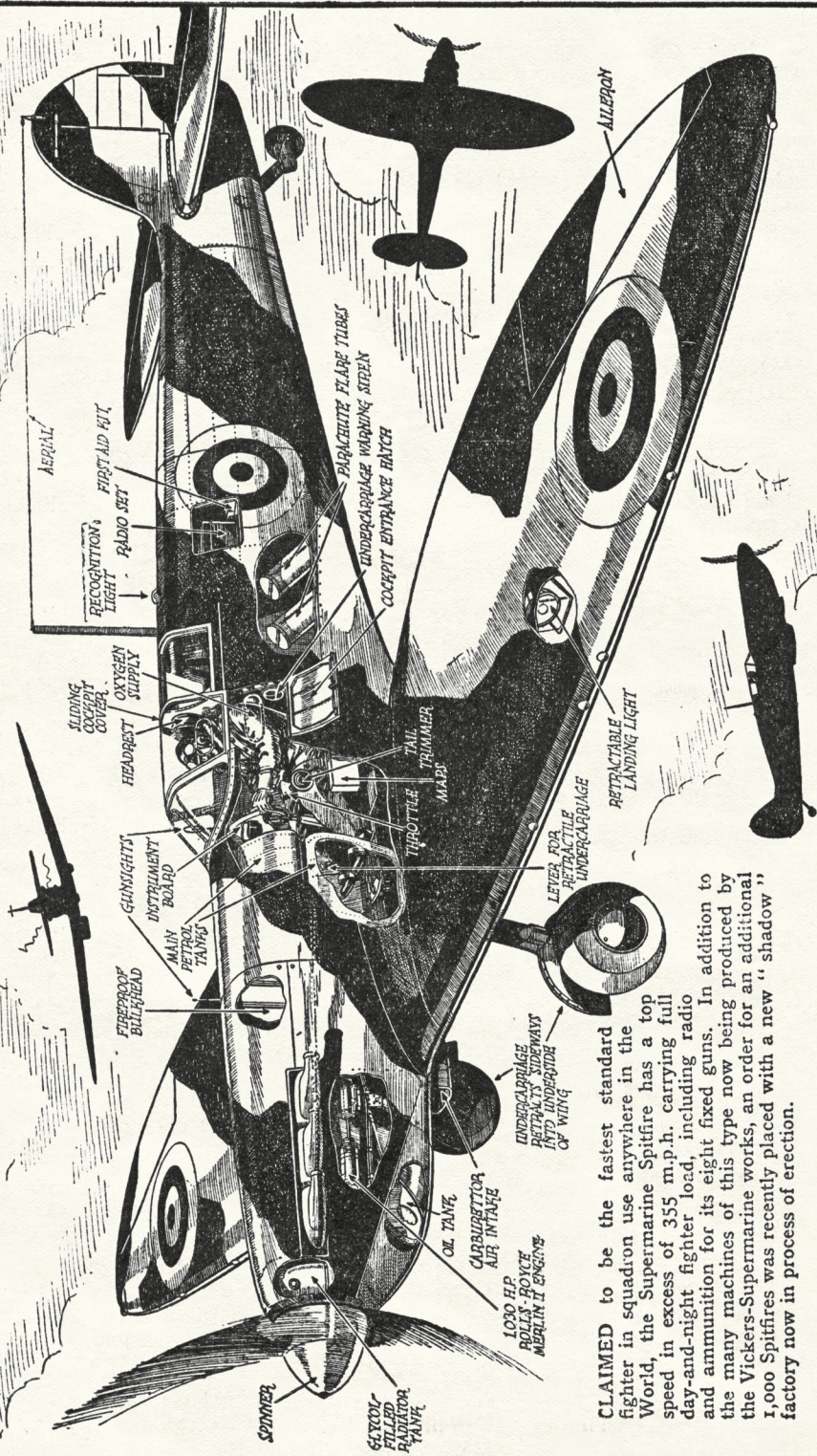
Details of armament and performance are official secrets. Principal dimensions are a span of 46 ft. 2 in., a length of 35 ft. 7 in., and a height of 14 ft. 2 in.

Deck Recognition Signal

IN the cover-painting, the Skua is depicted passing out over the bows of the carrier from whose flight-deck she has just taken-off. The plume of steam at the point of the bows indicates that the carrier is heading directly into wind; while the red, white and blue panel painted on the deck is the recognition signal which all British warships now have to wear when cruising in or near Mediterranean waters.

Re-equipment and expansion of the Fleet Air Arm is now proceeding apace, and when the six new aircraft-carriers which have been authorised are in commission, the first-line strength of the Fleet Air Arm—comprising aeroplanes in carriers as well as those launched by catapult from battleships and cruisers—will amount to some 700 aircraft, or considerably more than the strength of all Home Defence squadrons of the R.A.F. in pre-expansion days.

The SUPERMARINE "SPITFIRE" Eight-Gun Fighter



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CLAIMED to be the fastest standard fighter in squadron use anywhere in the World, the Supermarine Spitfire has a top speed in excess of 355 m.p.h. carrying full day-and-night fighter load, including radio and ammunition for its eight fixed guns. In addition to the many machines of this type now being produced by the Vickers-Supermarine works, an order for an additional 1,000 Spitfires was recently placed with a new "shadow" factory now in process of erection.

- 61700V FILLER PANDOLIN TANK
- SPINNER
- FIREPROOF BULLHEAD
- MAIN PETROL TANKS
- INSTRUMENT BOARD
- GAUGES
- HEADREST
- SLIDING COCKPIT COVER
- RECOGNITION LIGHT
- RADIO SET
- FIRST AID KIT
- AERIAL
- PARACHUTE FLARE TUBES
- UNDERCARRIAGE WARNING SIREN
- COCKPIT ENTRANCE HATCH
- TAIL TRIMMER
- THROTTLE
- MAP
- LETTER FOR UNDERCARRIAGE
- RETRACTABLE LANDING LIGHT
- UNDERCARRIAGE RETRACTS SIDEWAYS INTO UNDERSIDE OF WING
- 1030 H.P. ROYAL ENGLISH MERLIN II ENGINE
- CLUBBING AIR INTAKE
- OIL TANK
- ALLENBY
- ALLENBY

Ace of The Iron Guard

Twice Shot Down Wounded
in Air Combat, Rudolf
Berthold, Leader of a
Famous Scout Staffel and
Victor in Forty-four Air
Fights, Survived the War
only to Fall Victim to the
Terror of Revolution

By

A. H. PRITCHARD



Rudolf Berthold, Ace and Politician

IN a recent issue we published the story of Hermann Göering, "The Ace who rebuilt an Air Force." This month we present the biography of a man who, had he lived, would, in all probability, have filled Göering's present place at the head of the new German Air Service. That man was Rudolf Berthold, victor in forty-four air fights, knight of the *Pour le Merite*, and leader of the "Iron Troops" in the grim days of the German upheaval of 1920.

Born on March 24th, 1891, the son of a head-forester on one of the great estates of Southern Germany, the young Berthold attended an elementary school at Ditterswind between 1897 and 1901, and from there he won a scholarship to the Grammar School at Bemberg. He proved a keen scholar and won several certificates, but in 1910 he tired of books and, on July 14th, joined the 20th Prussian Infantry Regiment at Wittenberg as a cadet.

Here he won some small fame among his fellow cadets as a political orator, and some of his outbursts were sufficiently strong to call for a severe reprimand from his commanding officer. Berthold never forgot that reprimand

and, with regimental feelings running high, it was not surprising that he was among the first dozen Prussian officers to be transferred to the newly-formed Air Service.

Berthold was trained as an observer at the Halberstadt school and, on August 1st, 1914, was posted to Flying Section 23. Soon afterwards, in a letter to his sister, he wrote :

"My pilot, with whom I once flew in peace time, is a good man, but his nerves are bad since he sustained a heavy crash, and I do not feel safe when flying with him. I intend to do all in my power to become a pilot."

He does not seem to have fared too badly, however, for on September 13th he was awarded the Iron Cross for information obtained on a particularly dangerous reconnaissance. But still he was not satisfied with his pilot and, eventually, he managed to persuade his C.O. to let him take a pilot's course. He took his certificate on October 18th, 1914, but good observers were so scarce that it was not until mid-1915 that he was able to obtain a machine of his own and so get rid of his nervy companion.

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Shot Down by the French

FLYING with, instead of as, an observer, Berthold now felt invincible, but he was due for a rude awakening. While flying low over the French lines on October 2nd, he was caught napping by a Caudron, and after firing one short burst, his rear gun lapsed into silence. Glancing over his shoulder, Berthold was horror-stricken to find his observer hanging over the side of the cockpit, blood streaming from his forehead.

Holding the stick between his knees, he managed to haul the unconscious man back into his seat, but even as he did so, the French gunner got home a burst which shattered Berthold's engine. The machine immediately dived beyond the vertical and, for a few horribly long seconds, Berthold saw map-cases, ammunition, and the observer's drawing-board go falling *over* his head.

Fortunately, the German machine was well endowed with inherent stability, and righted itself after falling several hundred feet. The fall had thrown the Caudron well in the rear, and Berthold was able to put his battered machine down near a field-dressing station, where the medicos pronounced that his observer was still alive, having suffered nothing worse than a deep gash just above the eyes.

After this defeat, Berthold decided that it was time he did some shooting on his own account, and the opportunity presented itself when he was chosen to pilot one of the new single-seater Fokkers. Shortly after daybreak on February 2nd, 1916, Berthold was flying alone near Perrone when he saw several shell-bursts appear in the sky about half-a-mile away. A B.E.2c was heading for the German reserve area, and its occupants failed to see the Fokker, which came diving down with the sun at its back. Berthold fired about eighty rounds before the British machine fell off in a steep right-hand turn, then plunged earthwards with a long streak of yellow flame pouring from its engine.

He failed to score again until March 14th, when he destroyed what he describes as a "Big Vickers," and he

repeated his success exactly one week later, both occupants being captured, the pilot having been shot through both arms.

April 2nd brought him victory number four, but the crew of the British machine he chose as his victim gave Berthold his hardest fight to date. It was while flying over Hollebeve that he was attacked by two machines of the R.E. type, but one of them had to break off and turn towards its own lines, apparently because of engine trouble. The other stayed to fight, and the observer put several bullets through the Fokker's wings and fuselage before Berthold succeeded in putting the pilot out of action. Even as the British machine plunged earthwards, the Fokker's engine ceased and Berthold was indeed fortunate to bring off a "dead-stick" landing in his own lines.

A B.E.2e, north of Perrone, on April 15th, brought him on level terms with Leffers and Pilthaus, who were doing well farther south, and this success also brought him one of the new 160-h.p.-engined Pfalz Scouts, of which much was expected. The new machine was very badly finished, however, and Berthold had a narrow escape when the fabric tore off his left wing. Mechanics re-covered the whole machine, and on April 30th Berthold took the machine up for a test. At a thousand feet, the engine suddenly ran amok, tore loose from its bearings, and Berthold woke up in hospital, where he was told that he owed his life to the fact that the shock of the crash had been taken by the left wing. Fortunately, his injuries were not serious, and he was back in harness by the end of June.

Knight of the Golden Eagle

BERTHOLD quickly showed that his nerve was as good as ever, and his victories grew daily; in fact, he was so successful that he was awarded the *Pour le Merite*, on October 10th, 1916, and shortly afterwards was appointed to the command of *Jagdstaffel* 18. Immediately after his appointment, he had a

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golden eagle painted on the fuselage of his Albatros, and every subsequent machine that he flew bore a similar insignia—one which many a British pilot had good cause to curse.

Under his able leadership Staffel 18 began to pile up a useful score, he and Veltjens doing particularly well. In May the Staffel had many fights with the new Sopwith Camels, and on the 10th of the month Berthold destroyed two in flames, a feat which he repeated four days later.

On the 23rd one of his pilots was killed when a squadron of F.E.2b's raided the aerodrome, but he avenged this loss on the following morning. Another group of bombers was reported to have crossed the lines, so Berthold and five of his men waited for them just above the cloud line. No sooner had the "Fees" begun to drop their visiting-cards than they were assailed from all sides, two of the six falling in flames. Berthold's victim plunged through the roof of a hangar, and a mechanic was wounded in the head by an exploding Lewis drum while trying to extricate the British observer from the blazing wreckage. Berthold's day's work was not over, however, for after lunch he went out alone and forced down a French Nieuport which had strayed far from its own hunting-ground.

By the end of August, Berthold's score had reached twenty, and the following month saw him scoring with greater rapidity than ever before. The morning of September 3rd brought him two victims, both scouts, and a D.H.5 and R.E.8 fell to him on the 13th. On the 24th he shot the propeller off a French fighter and had the unusual experience of seeing his victim land on his own aerodrome.

Within the next eight days, three more machines fell to his guns, and early in October he received a telegram announcing his promotion to Hauptmann—a great honour, for such a rank was high for a twenty-seven-years-old flying officer, according to the strict German promotion regulations. Unfortunately, it was some time before he could celebrate his

promotion, for two days later he was cornered in a big dog-fight and shot down with three bullets which so shattered his right arm that the doctors were in two minds as to the advisability of amputation. This was found unnecessary, however, and Berthold was able to return to the Front early in April, 1918.

Berthold's Last Air Combat

BERTHOLD'S return to action coincided with the death of his greatest friend, Oberleutnant Buddecke. Despite the advice of his men to take things steady for a while, Berthold wished for nothing more than to avenge his friend, and, though still a sick man, he insisted on making three flights a day. Even his subsequent appointment to the command of the second "Circus" group of *Jagdschwader* 5, made vacant by the death of Tutschek, did not appease his fury for revenge.

A Camel on May 30th gave him his twenty-sixth victory, and June brought him another eight, seven of which were single-seaters. Illness and trouble with his arm kept him out of the air for the first two weeks in July, but he refused to go on leave, and convinced the authorities of his fitness by shooting the wings off a Bristol Fighter on July 18th, and repeating the process at the expense of a D.H.4 on the 20th.

Such a pace was asking for trouble, and although he had accounted for three more machines during the previous week, he was far from fit when he was helped into his Fokker on the morning of August 10th. Over Ablaincourt, the "Circus" engaged a large group of British Camels and Berthold managed to hit one of the pilots, whose machine at once tore earthwards with its engine wide open. He was then engaged by a Camel whose pilot appeared to be leading the enemy formation, but after a brief bout of tail-chasing it made off and disappeared into the general *mêlée*.

As the fight drifted towards Perrone, Berthold shot another Camel down in flames, only to be attacked from behind by his previous opponent, who had

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evidently been awaiting this chance. A hail of bullets tore the Fokker's engine to scrap iron, something struck Berthold in the back of the head, and his right arm went limp as two more bullets ripped through the old wounds. Flying with his left hand, Berthold turned the Fokker on its side and, with a last desperate effort, flung himself out to the tender mercy of his parachute.

German infantrymen picked him up and rushed him to hospital, but his leg had been hurt when the 'chute dragged him over the rough ground and he heard the Armistice bugler from a hospital bed.

Victim of the Revolution

RECOVERING from his wounds, Berthold returned home and soon began dabbling in his old line—politics. With revolution spreading like fire across the Fatherland, he took up active resistance against the Communists and organised the "Berthold Iron Guard" at Munich—a force which formed the nucleus of the Nazi Party of to-day.

Berthold had many encounters with the anti-Nazi factions, but on March 13th, 1920, his men were attacked in Harburg by a vastly superior force and made a desperate stand in a school-house.

For two days, during which Berthold was twice wounded, the "Iron Guard" held out, but on the 15th the men were forced to capitulate owing to lack of ammunition. But their infuriated opponents outside the school refused to accept their surrender, and as Berthold stepped out to discuss terms, he was attacked and killed.

So died Rudolf Berthold, whose death is mourned each year by the Nazi Party, which has kept fresh his memory by placing over his last resting-place in the Invalidenfriedhof, Berlin, a bronze plaque inscribed :

"Rudolf Berthold, Captain in the 20th Regiment Graf Tauentzien of Wittenberg, Commander of Jagdgeschwader 2, and of the Iron Guard. Berthold, Victor in 44 air fights, Knight of Le Pour le Merite, slain in the civil war for Germany's liberty 15-3-1920 at Harburg, on the Elbe."

AIR ADVENTURE AT TWO BOB A MILE

Britain's No. 1 Air-Taxi Pilot Describes his Adventures

A MILLIONAIRE financier who had his own fleet of eight air-liners and one amphibian, gave his pilot *carte-blanche* to build the finest aerodrome in Europe, and who once had his entire staff of secretaries, managers, and valets flown in battle formation from Biarritz to Barcelona at an hour's notice, is one of the many strange "fares" recalled by Captain G. P. Olley in an article, "Adventuring by Sky Taxi," which appears in the current issue of "Pearson's Magazine."

Captain Olley, one of the veteran pilots of British Civil Aviation with over a million miles of flying to his credit, is Britain's No. 1 Air-Taxi Pilot, and a trip to Gretna Green with an infuriated father or a big-game hunting expedition into the wilds of Africa are all part of the day's work to the charter company of which he is the head.

"All we want to know is the type of machine required and the mileage," he says, "then I just sketch out our route, estimate the distance, and work out the fare at two bob a mile, the standard rate. The total sum involved in a charter may be merely a pound or thirty shillings. On one occasion I can remember quoting £3,000, and hearing the sum accepted then and there."

One of the bigger jobs he describes was when two unknown girls came to him at Croydon and said they wished to charter a six-seater machine to take a party to the Canary Isles. They were

quoted £1,000, and one of the girls, opening her bag, negligently peeled ten hundred-pound notes off a roll several times as big.

Their Dragon Rapide duly arrived at Las Palmas the next day, whereupon the girls handed over their charter to two middle-aged men, and instructed the pilot to fly them to a town in Spanish Morocco. When the machine landed there, out stepped, not the two civilians who had climbed in at Las Palmas, but two soldiers in resplendent uniforms—General Franco and General Mola, arrived on the eve of the rebellion to lead the insurgent forces to war.

Beating the Clock by Air

OLLEY records a number of other unusual charters—trans-Continental dashes with famous financiers like Lowenstein and Lorang, an archaeological expedition to Egypt, and a filming trip to the Transjordan desert. But the trips he likes best are those such as when he flew two jockeys from London to Scotland and landed them on the course with only minutes to spare before the start of the race. "That is where we pilots of the sky taxis get our biggest kick," he concludes, "when we 'beat the clock' and land our passengers at their destination promptly to a time which they could not possibly have achieved by any other means of transport."

THE STOLEN FIGHTERS

A Story of Ireland in the Time of "The Trouble" and of a Child's Strange Toy that Ruined a Village's Reputation but Saved a Squadron Leader from Court-Martial

By HUGH STANDISH

CHAPTER I

At The Time of "The Trouble"

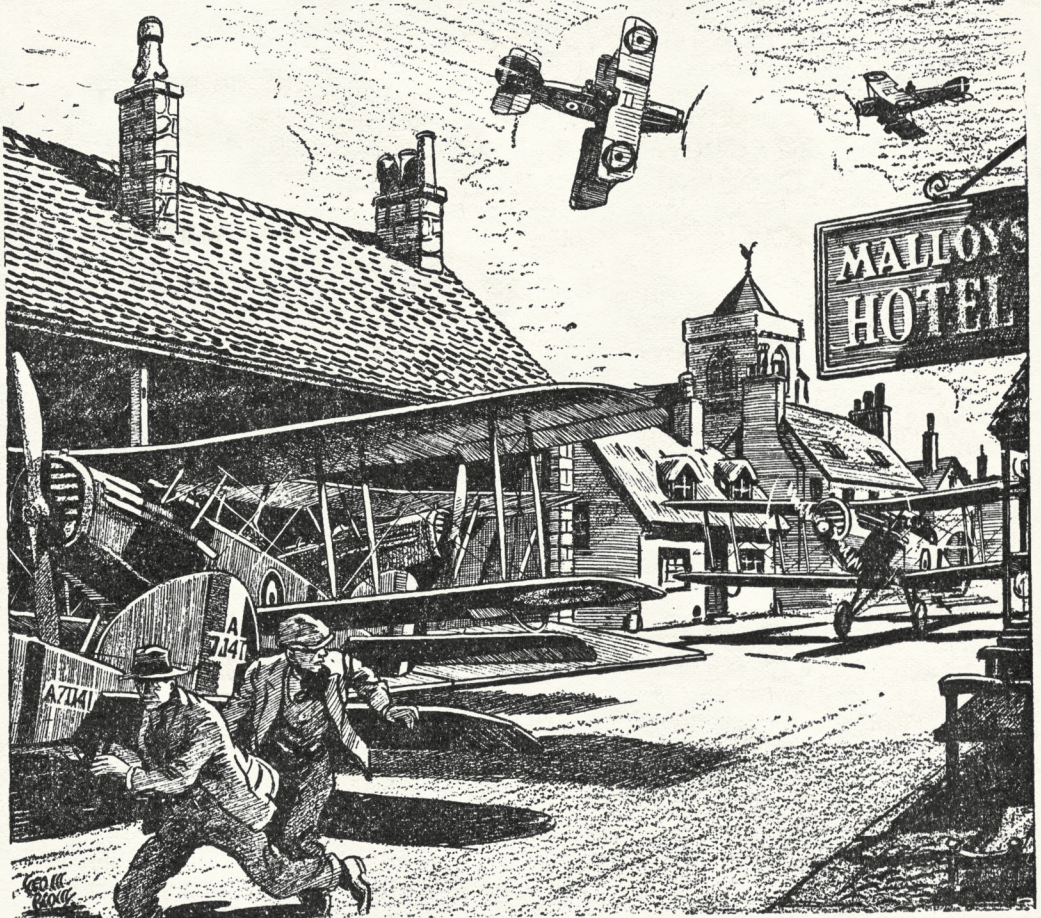
TO my mind, fishing and flying seem to have a lot in common—the attraction of opposites I suppose.

I remember during the Messines show, when our squadron was having a pretty hot time, the banks of the canal bordering our temporary landing-ground used

to be lined with pilots attached to the safe ends of makeshift rods. They must have been incurable optimists, for I never saw even a tiddler landed.

In my own case, a taste for fishing certainly saved me from an awkward situation when I was commanding a squadron after the War.

I had come to the R.F.C. from the infantry with some reputation for originality in trench warfare, and, whatever



The leading Bristol flattened out and, landing, ran up the village street

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the twist of mind was that had earned me that reputation, it served me also in air fighting. The result was that when the Armistice came I had been promoted to command a wing, and on being granted a permanent commission in the Air Force I was reduced no lower in rank than that of squadron leader.

For the first year or two of the post-War period things were rather at sixes and sevens in our Service. I was given command of a rather scratch lot of Bristol Fighters, and then, in 1920, much to our disgust, we were sent to Ireland, where there was going on the sort of war that no one could enjoy.

We were dumped at an aerodrome a mile or two outside the town of Storveen (that is not its real name) in the west of Ireland, in a district where several of the "enemy columns" were supposed to be operating. English troops had been pouring into the country, and in addition to them (to whom there was singularly little real hostility) there was sent one of the less bright notions of our Government—a gang of ill-disciplined armed police who went by the names of "The Black and Tans" on account of their heterogeneous uniform.

The Air Force, fortunately, were not considered as genuine "enemy" by the inhabitants, and we experienced little or nothing of the unpleasant side of that unhappy affair.

Our job was to scout ahead of the armoured-cars and troop-filled lorries when they went out to clean up a village. This process usually consisted of our flying ahead a few miles and then returning and dropping a message to the effect that the road ahead was very thoroughly blocked by felled trees and trenches; for the "Sinn Feiners"—that was the name our enemy went by—had the whole countryside to a man with them, and consequently their intelligence service was as near perfect as could be, whereas ours was hampered to an unbelievable degree.

However, in between times, things were as peaceful as anyone could wish, and after I had been there a few weeks I determined to fish some of the local

rivers, which I knew by repute should give me good sport.

I finally decided on one, the Inishmore River, about ten miles to the west of Storveen.

SO one fine day off I drove in the Crossley with Simmons, my Cockney driver. I was in civvies, of course, and I took the precaution to make Simmons wear an old raincoat over his uniform and to throw his service cap into the back of the car.

We arrived at the Inishmore River without incident, and there by a bridge I left Simmons in charge of the car while I went down to a likely-looking pool on the upstream side.

Scarcely had I finished rigging my rod when I became aware of a bare-footed child coming down the bank of the river, very purposeful in her gait as if she had been sent on a message. Abreast of me she paused, regarding my operations with serious grey eyes.

Then she gave me the usual greeting: "It's a grand day, the day, praise be to God," said she.

"It is that," I assented.

A sea trout leaped, a gleaming arc of silver.

"Them ones," commented my visitor, "will lep like a young horse when it's upstream they'd be minded to be going."

She watched me selecting my flies with interest.

"Not the Black Turkey, your Honour," said she, "not on Inishmore."

"Thanks," I replied. "Then how about the Teal and Silver?"

"The waters, of Inishmore," she answered gravely, "would be lashed into foaming storm with the power of fish that 'ud be lepping at that one."

This I rightly interpreted to mean that with the Teal and Silver at the end of my cast I'd be likely to get a rise, and possibly a fish.

I acknowledged my indebtedness to this small fishing oracle of the river and sorted my cast accordingly.

Then I asked this most intelligent and opportune child her name and where she lived.

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She replied with her unblinking gravity :

"Bridget Mary—Killybeg."

Killybeg—Killybeg? Wasn't that the one village in the district which never gave trouble to the British authorities?

"Is it upstream your Honour would be fishing?" the child asked with studied unconcern.

"It is so, Bridget Mary," I replied and sent my line sailing out across the pool.

The cast settled light as thistledown on the surface and began to swirl downstream in the eddies.

Came a flash of silver, the thrill of a tightening line, and when next I looked around for Bridget Mary she was far away upstream running like a hare.

For an hour or more I fished upstream under ideal conditions; the sea trout were fresh run and very game, and I caught half-a-dozen between one and three pounds.

Then, as I climbed over the side of a little fall to where lay a big pool I found I was not the only fisherman out on Inishmore that day.

There came the screech of a reel, and at the far end of the pool I saw a man handling a rod bent nearly double. I saw at once that he was into a salmon, so, laying down my own rod, I sat down well out of the way of any of his future operations and watched the performance with keen delight.

AFTER twenty minutes of skilful playing the man had the fish tired out. I went over to where he was standing, picked up his gaff, removed the cork protecting the sharp point, and slipping it under the belly of the salmon now being drawn motionless to the bank, I jerked it upwards and landed the fish on the bank.

"Thanks, Major," said the fisherman.

The new R.A.F. titles were not yet in common use, and my corresponding title was, of course, Major. I wondered how he knew who I was.

"Nice fish," I said, "and, if I may say so, nicely handled. I've been watch-

ing you from the bottom of the pool."

The fisherman did not reply.

He had the unmistakable look of an officer, and I put him down as one of the "demobbed."

We talked for a while about fishing, and he gave me quite a lot of useful information about the Inishmore and other rivers in the neighbourhood.

Then I said :

"Seeing that you know who I am, may I ask your name?"

There was an infinitesimal pause before he answered, looking me squarely in the eyes, his own holding a certain humorous audacity.

"I am John MacIrish."

The name was faintly familiar to me, but in what connection I could not say.

"Well, Mr. MacIrish, it has been a lucky meeting for me; you've told me a lot about fishing in these parts."

Into his eyes, which were now fixed on me with a certain wariness, came a surprised look.

"You'll like our country—for fishing," he answered, "and you'll be welcome enough whenever you come out with rod and line."

At that moment I became aware of something on a gorse-covered bank above us; it was the head of Bridget Mary, eyes wide with alert interest as she watched us.

I waved to her, indicating MacIrish's fine fish.

"And what do you think of that, Bridget Mary?" I called.

"Away home with you this instant, Bridgy," said MacIrish in an even voice.

The little head disappeared behind the bank like a rabbit into a burrow.

"Always out on the heather, that bit of a girl," said MacIrish severely as he unshipped his rod, "instead of at home helping her mother."

I also had had enough, so I went back to my own gear and packed up.

Presently I was joined by MacIrish, and together we strolled down the bank of the river to the bridge.

There was no sign of Simmons in the car, but from the other side of the road,

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below a stone wall, came a murmur of voices.

As we came into view I saw Simmons with two other men sitting on the grass verge. As they saw us, something that looked suspiciously like a crown and anchor board was bundled out of sight, and a stone jar was slipped behind the wall.

They scrambled to their feet as we came up.

The two men were civil enough, though rather tongue-tied, which is unlike the average Irish countryman, but they exchanged the usual greeting with me.

Simmons took my gear and put it in the back of the car. I offered the others a lift, but they declined, saying that they were bound the other way.

Simmons started the car which he had already turned, and after a friendly farewell from MacIrish we drove off.

"Who were your friends, Simmons?" I asked.

My driver was sitting very upright, looking straight ahead.

"Two coves as what came up just after you left, sir."

"H'mm. Friendly sort, weren't they?"

A reminiscent smile hovered around Simmons' lips.

The car drifted gently to the off side of the road and was brought back to the centre just as the off wheel grazed the edge.

I became aware of a certain odour.

"Simmons," said I firmly, "you can stop this car. I'm going to drive."

I had heard of the potency of illicit whisky stored in stone jars.

CHAPTER II

Raiders of The Night

THE General commanding our district dined that night (a moonlit one, by the way) in our mess along with his S.O. One.

He was a decent chap, trying to do his best under most trying circumstances, fighting a kind of war for which there was no precedent, hampered by political orders that bade him treat the enemy as

civilian murderers to be shot outright if captured, whereas his own experience told him that they were, though operating in small bodies, highly-disciplined men who were thoroughly experienced in the guerilla tactics which they employed.

Over the port I was telling him about my fishing experiences, at which both of them pricked up their ears and began to question me about the appearance of the chap I had met fishing on Inishmore, and also about the men who had entertained Simmons.

Then the General laughed shortly :

"Sinn Feiners! You've been entertained by the enemy, Lerrantay. Of course, they knew who you were, and were scrounging for information. They didn't give their names by any chance?"

I protested, saying that the fisherman had been a very decent chap and had in fact given me his name, which was John MacIrish.

A dead silence followed my announcement.

Then the S.O. One took a photograph from his pocket and flicked it across the table to me.

"That him?" he queried shortly.

It was.

"Well, for the love of Mike!" said the General.

Across the foot of the photograph was written quite a lot, beginning with the words: "*Five thousand pounds reward alive or dead . . .*"

So then my two guests proceeded to enlighten me.

MacIrish, they told me, was generally supposed to have left the country after his "column" had been badly mauled some months back. His re-appearance in the district could only mean that he was operating again.

"You'd better double your guards, Lerrantay," said the General.

But he said it too late.

At that moment there came a fusillade of shots followed by the shrill whistle of the N.C.O. of the guard.

The orderly dog for the day shot from his chair as if from a catapult and out through the door, closely followed by

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my only flight commander, Macrae, an old hand who knew his way around all right.

"You must excuse me, sir," I said grimly to the General. "Try our port—it is supposed to be good."

And I left them to it—and their thoughts.

Now in our depleted squadron we had only six machines, and of these I always kept three in readiness, guns and all, in "A" hangar. The raid now in progress, I naturally assumed, would be an attempt to set our hangars and machines on fire, so it was to "A" hangar that I ran.

Provision had, of course, been made for such an eventuality, and as I ran, the fire waggon was already clanging up the road and the men were streaming from their huts.

The firing seemed to come from the aerodrome beyond the hangars.

To the small door at the back of the hangar I ran, and flinging it open, I dashed in.

There I came to a full stop, and then slowly raised my hands over my head.

THE interior of the hangar, instead of being plunged in darkness, was flooded with the reflected light of the full moon streaming through the great doors, which were wide open. To my surprise, and momentary relief, there were no aircraft there, but close to me were standing two men clad in raincoats and slouch hats, each holding a rifle aimed unwaveringly at my head.

By the great doors other figures were kneeling and exchanging shots with our guard somewhere farther up the tarmac. Motionless in the centre of the doors stood someone obviously in command, whose figure somehow seemed vaguely familiar to me.

Now these two fellows had me stone cold; by surrendering temporarily to them I was immobilising them from more destructive work, and also it gave me a chance to think. Presently there came the devastating din of machine-gun fire close to the buildings.

The men kneeling near the doors flung themselves on the ground and

crawled quickly under cover of the walls, with one exception, who slumped forward and lay still.

The fellow in command did not budge; he must have known that where he stood was under cover.

"Good man, Macrae," I thought grimly, listening to the comforting stutter of the Vickers, and recognising my flight commander's handiwork from my knowledge of our arrangements. Then through the din came a sound from far out on the aerodrome that gave me a sudden and devastating suspicion of the truth—the roar and high-pitched gear whine of Rolls-Royce engines. Three grey ghosts came thundering across the grass and floated off into the night.

That was too much for my self-control; I was about to take a foolhardy and unjustifiable chance when a shrill whistle came from the motionless figure near the great doors.

The men who were returning our fire now slung their rifles, ran to their fallen comrade, whom they picked up, not forgetting his rifle, and with incredible speed ran up the hangar, past me and my two guards, and disappeared through the small door. Their commander followed close at their heels, but stopped as he came abreast of where I was standing.

"I am sorry to have to meet you professionally, Major," said he, "but I hope it will not stop your fishing any day you feel like it."

It was John MacIrish.

Then he turned to my guards:

"Hold him for fifteen seconds," he said, "then beat it. Clear him of his gun before you do so."

The next instant he was off. One of the men took my gun while the other held me covered, and immediately afterwards they, too, had disappeared through the small door.

Of course, I was after them like a shot, but I only got a glimpse of their dim shadows flying around a hutment towards the aerodrome boundary.

Once again our machine-guns stammered, but with no effect in the poor light.

The raid was over, and I was facing a

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nasty court of enquiry if not a court martial, unless by some miracle I recovered my three Bristols intact. For, of course, by this time I knew that the purpose of the raid had been to seize the aircraft.

This opened up all kinds of ugly possibilities for the General, for it was known that among the Sinn Feiners there were pilots and gunners.

I made a round of our posts, got Macrae's report and made such dispositions as were necessary to protect us against the quite unlikely event of another attack.

Then I returned to the mess.

"Sir," said I to the General, "I regret to have to report the capture of fifty per cent. of my aircraft by the enemy, and I have the honour to ask you to leave their recovery entirely in my hands."

The General looked at me sourly, but I think he knew my record.

"I'll give you one week to get them back, Lerrantay," he said shortly.

CHAPTER III

The Village that was Good

DURING the night our information came dribbling in from all over the country wherever the British forces were stationed. From it we learnt that the three Bristols must have landed within a radius of thirty miles of our aerodrome, but beyond that we learnt nothing.

Our next step was to spot possible landing-grounds within that radius. This we did by consulting the six-inch Ordnance maps, and at dawn I had our three remaining aircraft in the air with instructions to inspect the large fields we had spotted on the maps, but on no account to fly low or give any other indication of their purpose. The mere locating of my missing aircraft was the least part of my job—I had to get them back intact, and the slightest sign of our having spotted them would lead to their instant destruction. Something much more subtle than one of the General's cleaning-up parties would be required.

The search went on for two days, and yielded nothing. Those fields which were

big enough for a Brisfit to take-off from showed on aerial survey to have no possible hiding-place close to them.

Then the third day broke with clouds ten-tenths* at five hundred feet, and bad visibility.

My aircraft were, of course, grounded. At noon one of the General's columns was badly shot up from the air by three Brisfits carrying the Sinn Fein tricolour, and was even more badly ambushed on the ground—altogether a bad show.

I got quite a chatty little chit from the General about it that made me pretty hot under the collar. But it served one good purpose—it convinced me that direct action was useless. Chaps like this John MacIrnish were as cute as the Devil himself, and absolutely unembarrassed by text-book military tactics.

I realised that my only hope was to pit my wits against John MacIrnish's; as you know, I came to the R.F.C. from the trenches with some small reputation for originality in warfare.

So I sat me down and thought long and deeply.

At the end of that brain manifestation I arose and forthwith stormed about the squadron office and the mess raving about the absurd fuss made about a mere matter of three old Brisfits; that there were hundreds of them lying around depôts in England; that replacements were coming immediately; and that I was fed to the back teeth with the whole business and was going off fishing. I made this backchat as picturesque as possible—the sort of thing that would be sure to penetrate to all ranks.

As I've told you, the R.A.F. were considered by the inhabitants of the town of Storveen to be more or less outside the war; the raid had been quite a shock to them as well as to us, and it did not prevent our men mixing easily with the townfolk.

The next day, once more clad in civvies, I went off in the Crossley with Simmons, our outfit registering "fishing" in every conceivable way.

I think I've mentioned that Killybeg,

* "Ten-tenths": meteorological term indicating a completely overcast sky.—EDITOR'S NOTE.

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Three grey ghosts thundered across the grass and floated off into the night

the village which lay a mile or two beyond the Inishmore Bridge, and the home of the child, Bridget Mary, had been the Good Boy of the district for many months; in it no trouble ever occurred now. So to Killybeg we drove, and in due course drew up outside Molloy's, the pub-cum-store-cum-alleged hotel of that metropolis of the West.

It was a very quiet spot; in fact so quiet as to be remarkable.

In plain truth, I argued, it was the only place where I might get amongst the people, and even though they were in no apparent touch with the enemy, I might glean some information that might be of help to me. It was useless trying to get anything from our own Intelligence, who were hopelessly outwitted in this particular sort of war; the Irish seem to have a flair for underground things where quick wits and perception are at a premium.

Then, again, here in this village, I felt sure I would make some sort of contact with MacIrish.

I BEGAN by going into Molloy's shop, where, after buying some tobacco, I announced that I intended to stay in the hotel for a few days in order to fish the neighbouring rivers.

"Now, is that so, your Honour?" said Molloy heartily, "and glad we'll be to have you.

"Not but that we do be re-decorating the hotel," he added casually, "this being the off season, so to speak. But there now, your Honour wouldn't be minding the wall paper being off the walls of your room, and maybe a bit of whitewash lying around, for Jim Delany, the plasterer, has been working here all the day. Sure and aren't you the fine gentleman who wouldn't be minding the likes of that?"

"I'll put up with it for the sake of the fishing," I answered cautiously.

"Then I'll be telling Herself that your Honour will be coming to stay in two, or maybe three weeks' time?"

"Molloy," said I sternly, "I'm staying here for several days right now, and well

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you know that was in my mind when I spoke."

"Your Honour, sir," he cried passionately, "it's not a pig I'd be putting into the rooms as they are now. In one week maybe, but not this day."

"Now it has to be, Molloy," I said cheerfully. "I've got my leave and I mean to use it."

Well, he argued this way and that, but I stuck to my point, and in the end he sent off a message ostensibly to "Herself," but I misdoubt that it was to some other quarter.

I STROLLED out to the street to get a breath of fresh air, for the inside of the shop smelt—well, like the inside of any other general store in Ireland.

The village of Killybeg consisted of one wide, straight street, the metalled part of the road in the centre and a wide verge on each side between it and the building line. There was the usual quota of hucksters and pubs, the latter predominating. A few of the houses had been gutted during the earlier stages of the "trouble," when Killybeg had not been on such good behaviour as it had shown for the last few months; others were deserted, judging by the boarded-up windows and smokeless chimneys. Indeed, immediately opposite the hotel was a row of such cottages presenting a uniform blank face to the street. There were no police, the barracks being long since evacuated or destroyed.

Many people would have said that I was doing a dangerous thing, going about like this; but, first of all, I knew that the Air Force were not considered strictly as "the enemy," and secondly, this village for some reason appeared to be determined to keep clear of trouble.

Beyond a certain constrained wariness in the men and a scared look about the women there was nothing I could complain of. They exchanged the time of day with me civilly enough as I strolled back to Molloy's, whom I found behind his counter looking a bit uneasy.

"Well, Major," said he, "since you won't be warned, I'll just have to take

you. But don't blame me if you find things not at all what a gentleman like you would be accustomed to."

"Don't worry about me, Molloy," I answered heartily, "if the fish will only rise I'll be content."

"Ah, sure, why wouldn't they now?" he demanded absently, his thoughts obviously elsewhere.

Then I saw his glance go beyond me to the street behind my back, and his eyes widened ever so slightly.

"Michael Doherty," he shouted severely, "quit you playing with them toys in the street, and away home with you."

I turned to look, but Molloy, with an easy speed remarkable in so fat a man, had come between me and the door as he struggled to lift a case of tinned goods from floor to counter.

I got just a glimpse of a small boy dragging something that might have been a toy horse at the end of a rope.

The next moment Mrs. Molloy appeared from the door that led from that portion of the building which constituted the hotel.

"Will your Honour come now?" she asked. "And it's more than ashamed I am to have to offer a gentleman such a room. But, what with that blackguard of a plasterer and the scoundrel of a builder, I'm fair moidered to know what to do."

She led me through the door, up a narrow rickety staircase, and showed me into a bedroom.

I must confess my heart sank (in spite of a certain joyous hope anent another matter that had just been born in my mind). The wall-paper was hanging in great swathes from the walls; only that day someone had apparently been trying to colour the ceiling, for whitewash had been liberally splashed over the entire room and its dingy, sparse furniture. The bed looked damp, and my subsequent investigations fully confirmed it, not to speak of the unbelievable lumps in the mattress.

"Well now," said Mrs. Molloy hopefully, "maybe it's not so bad as it looks."

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That woman was the world's finest optimist.

At last I managed to articulate a suggestion that a fire might be lit in the wretchedly small fireplace.

"Sure it can, your Honour," she agreed cordially. "Not but that the chimley does be smoking terrible. But sure a gentleman like you wouldn't be minding the likes of that."

I then suggested that the hotel might now give me some luncheon. To this she agreed cheerfully, and led me down to the dining-room. Here things were a little better. It was the typical, horsehair-upholstered, commercial room of Irish hotels, but at least the wallpaper was still clinging, if reluctantly, to the walls, and there was no whitewash flung around.

I spent an hour reading dingy, food-stained magazines of ancient vintage before the meal appeared.

Now in Ireland, at that time at any rate, there was little electrification, and the standard illumination was derived from paraffin, a liquid which had an unhappy way of permeating everything in a house.

I gathered that my bacon and eggs were cooked in it, and the bread raised by it instead of by yeast.

In short, the food was practically uneatable.

But all this hardly impinged on my mind, for, you see, I had seen the "toy" the child, Michael Doherty, had been playing with when Molloy had scolded him off the street. He had been dragging, as a child does a wooden horse, the wheel chock of an aeroplane.

AFTER I had smoked a pipe in an endeavour to obliterate the all-pervading taste of paraffin, and to help me marshal my thoughts, I rang the bell. Mrs. Molloy answered in person; apparently I was too important a person to be served by the hotel slavey.

"Tell Simmons," I said, "that I'm going to fish the Inishbeg river" (another river which ran from the hills some miles to the west and of which I had heard good reports).

Off she went, whether pleased or not I could not say, for these people can keep amazingly straight faces when necessary. Nevertheless, I felt that my absence from the village that day would serve my purpose better than my presence.

My first glimpse of Simmons in the car led me to banish him promptly to the passenger's seat. I was glad the car was open. Poteen has a most corrosive and penetrating odour.

Well, believe it or not, in spite of my anxieties, I had a grand day and returned with a good basket.

As I drove along the deserted bog road, the country seemed so peaceful, I could hardly believe that it was torn by a murderous and revolting type of war.

For a mile or so outside the village the road ran due west, dead straight and level, save for one place where it dipped into a gully where lay a stream.

The village was quite normal as I drew up outside Molloy's. There was the usual group of loafers supporting the blank wall of the four cottages opposite, but they scarcely glanced at me.

I dismissed Simmons, after warning him to be more careful about the hospitality he accepted in the kitchen, and went up to my room.

A fire burnt brightly in the grate and vastly improved the appearance of the room.

Much more hopefully than I had expected, I proceeded to change into dry clothes. But hardly had I done so than the wretched "chimley" justified Mrs. Molloy's worst foreboding and began to smoke abominably. I hurried through my toilet and went down to the dining-room.

Here a better, and non-smoking, fire burnt.

Shortly, my supper appeared. It was all but uneatable with the reek of paraffin. And then, to clinch my discomfort, if that darned fire didn't begin to smoke.

I bore it as long as I could, and then made my way to the kitchen, where I could hear voices, including Simmons' cockney speech, conversing with great amity.

AIR STORIES

As I entered a silence fell, broken only by Simmons springing to attention.

"As you were, Simmons," I said. "Good evening, Molloy. There seems to be a curse on your fires. Do you mind if I sit here for a while with you?"

"—and welcome," said Molloy cordially. "Ah, sure, them fires do be terrible things."

A chorus of confirmation arose.

"They are so. Ah, sure, the Devil does be in them chimleys. Be the Saints, they'd smoke a herring red in six or maybe eight minutes."

They were a friendly crowd and made room for me around the fire.

The talk inevitably turned to fishing and all manner of sport, and I was amazed at the profound and accurate knowledge of these people. They talked animatedly and with entire sincerity, so that for a space I was so interested that I forgot all about the fact that these very people almost certainly knew the whereabouts of my Brisfits, and most certainly were in touch with MacIrnish.

They were mostly elderly people with a sprinkling of children, with the exception of one alert-looking young fellow about whose bearing there was something that attracted me.

Presently, the child, Bridget Mary, slid unobtrusively into the room and came to rest near the fire, warming her bare toes while her serious little eyes, bright with intelligence, roved from one speaker to another as she took in everything that was said.

Then the young chap to whom I've just referred said something that brought me back to my problem with a jar.

He was describing a day's fishing: ". . . and a grand day altogether it'd have been, save for the engine of our car going terrible wonky."

Wonky! A War-time aviation term.

In a flash I saw what had intrigued me about the man; he was a pilot.

I wondered if my face had betrayed anything, for I caught Molloy looking at me curiously.

Presently Bridget Mary drifted away from the fire and I heard the door close behind her.

". . . they do say that a drop of paraffin on a dry fly——"

"That," I interposed drily, "should not be difficult in these parts."

With an absolutely straight face the speaker went on with what he was saying.

Then the kitchen fire began to smoke; thick acrid fumes filled the room, setting us all coughing.

Molloy sighed.

"There now," he said, "didn't I say that the wind would change? Be damn!" he continued fiercely to no one in particular, "if I don't wring Mulvaney's neck the next time I see him. Calling himself a builder, indeed."

And the party had perforce to break up.

CHAPTER IV

The Curious Cottages

NOW I need scarcely remind you that never since I had seen the child, Michael Doherty, playing with the wheel chock I had been thinking furiously.

Yet it led me no further, except to convince me that in this village there was some close connection with my Brisfits.

The only snag was the fact that there was no possible landing-ground within miles.

Then, that night while shifting my body sorely amidst the rocky protuberances of the mattress, illumination came to me.

A wide straight street that ran due west in the *direction of the prevailing wind*, on which aircraft could take-off and land and quickly be wheeled away into some unsuspected building!

No wonder Killybeg had been so assiduously acquiring a good reputation for months.

But how was I to recover my Brisfits intact?

A raid by one of the General's columns would have been worse than useless. No, I must use my wits to discover where the aircraft were housed, and that without anyone suspecting that I had discovered the secret.

THE STOLEN FIGHTERS

I racked my memory, as I lay in my uncomfortable bed, trying to remember any building of sufficient size, and not one could I think of. At length, I fell into an uneasy sleep from which I woke the next morning to find a howling rainstorm blotting out the sky.

This at least would remove suspicion from my staying in the village, I thought, and after a miserable breakfast in the commercial room I settled down there with a pipe.

The room was cold, and the damp air from outside had penetrated to it, for I had given orders not to light the fire.

When Mrs. Molloy had cleared away and I was left to myself, I brought out my field glasses, and, taking what care I could not to be seen, peered through the window up and down the street, examining every house.

At last I came to the four empty cottages opposite; not that I considered them in the least seriously, for on the face of it there could be no possible ingress—not to speak of interior room—for one Brisfit, let alone three.

I went over the wall carefully, my powerful glasses showing up every detail. Then, with rising excitement, I gave them the once over again. I had detected certain regular, faint lines, like small gaps, in the interstices of which I saw the fibre of timber.

Timber on the face of a masonry wall!

In a flash I saw the whole thing; I was looking at a false front to the four cottages, a front that could be removed quickly in sections. The eaves, which were high, would doubtless be supported by a long beam; the interior walls would have been removed.

"So! Commandant John Mac-Irinish," I chuckled to myself.

It was so darned clever. Who would ever have thought of searching for the Brisfits in the tumbled-down cottages of a trouble-free village miles from any obvious landing-ground? Who, for that matter, would have thought of using a wide street as a runway?

I should have liked to have had a peep into those cottages to confirm my deductions, but knowing the cunning of the

fellows I was up against I knew that I daren't show the slightest curiosity. I must, in fact, depend entirely on my skimpy evidence of a small boy dragging an aeroplane chock and certain suspicious details observed on the walls opposite.

I had also to make prompt plans to recover my Brisfits intact. No sudden raid by the General's forces would do; my aircraft would go up in smoke before they were regained.

BY degrees I began to see my way, and as the hours passed in the cold, damp commercial room of Molloy's Hotel I saw it clearly.

I rang the bell and when Mrs. Molloy answered it I told her to send Simmons to me as I wanted him to help sort my fishing gear.

When he appeared I had rod, lines, and casts strewn over the room. I directed him to change some flies on a cast, and as he did so we exchanged remarks about fishing. Our conversation, I anticipated, would be heard by whoever was moving stealthily in the hall, and would very certainly be heard by two men strolling down the street, who paused outside the open window.

In between our talk I whispered Simmons his instructions—they were much too dangerous to write.

When I was sure that he had them I changed the subject of our ostensible conversation from fishing to the discomfort of my bed, and announced that, it being an off day for fishing, he had better go back to the aerodrome and collect my camp bed.

I then recalled Mrs. Molloy and, registering embarrassment—I think I did it rather well—explained what I was about to do.

She registered a good lot of distress at the condition of my bedroom, but in the end Simmons went off in the Crossley to Storveen.

There was nothing for me to do now but to wait and endure the discomfort that was being forced upon me; indeed all I hoped was that my opponents would not feel compelled to take extreme measures to drive me from the village

AIR STORIES

before my plan materialised. For it now needed only the weather to be kind to ensure at least a fifty-fifty chance of my recovering the Brisfits.

The instructions I had given to Simmons were as follows :

Unconcealed preparations for a raid the next day were to be put in hand forthwith ; a raid not on this village of Killybeg, but on one a few miles to the north. But at the aerodrome everything possible should be registered to indicate that all machines were to be grounded for the whole of the next day.

At 9.00 hours the raiding column was to move off.

What was to follow will appear in due course.

That night the fires smoked terribly and, in addition to my paraffin-soaked food, the eggs were bad ; also a mysterious leak had appeared over my bed. In view of this added activity I decided to visit the kitchen again to try to learn something. Anyway, odd as it may sound, I enjoyed being with these people.

As I sat by the fire (not yet smoking) I sensed an almost imperceptible air of constraint. I guessed that news of the impending raid had already come through and they were on tenterhooks as to how to get rid of me. To allay their anxiety was, in fact, one of my reasons for joining them.

Bridget Mary was there, that child of sound understanding about fishing.

"It'll be a grand day for the Inishbeg waters to-morrow, your Honour," she said.

Here was my cue.

"Faith," I replied to the company at large, "that'll suit me fine, for to that very river I'm going at half-past eight sharp. And I'll trouble you, Mrs. Molloy, to let me have one of your excellent breakfasts well before that time."

The relief the company must have felt at the first part of my statement must have obliterated their consciousness of the irony of the second.

There arose a chorus of fervent belief in the weather for the next day, a chorus

that betrayed relief to my ears tuned to perceive it.

I drank some of their whisky, good stuff it was, and bade them good-night.

The morning broke just what the doctor ordered—a fresh wind from the west, good for fishing Inishbeg—and for aeroplanes taking-off.

CHAPTER V

Raid of Retaliation

I HAD an early breakfast and was standing ready with my gear when Simmons drove up in the Crossley from the direction of Storveen.

The bed, which was his alleged reason for his journey (we couldn't afford to miss the slightest detail dealing with MacInish), was bundled out promptly. I clambered in with my fishing gear, and we were off with scarcely a delay of half a minute ; short enough, at any rate, to foil the curiosity of two men who were strolling across the road towards us.

A half mile out, on the straight stretch from the village, we came to the place where the road dipped into the gully.

"Now !" said I to Simmons, pulling a revolver from my pocket and firing a single shot through the floor of the car. Immediately Simmons did a most realistic swerve and brought the car to a halt in the bottom of the dip.

From the floor of the back seat arose the figure of my equipment officer, a man of about my own height and build. Swiftly, for there was no time to lose if I knew the people to whom we were opposed, he and I collected the gear for a field wireless set, while Simmons set about changing the wheel supposed to have a burst tyre.

The equipment officer and I hurried away from the road and up the gully, which concealed us from view. I found a suitable place for my purpose in a clump of gorse. It was near the top of the bank on the side nearest the village, and commanded a view down the road and right along the street itself.

Dumping our load I took off my

THE STOLEN FIGHTERS

greatcoat and felt hat and gave them to my companion.

"Good fishing, Bill," I grinned at him.

"Sez you, sir," he replied, disgruntled, as he struggled into my discarded coat. "I've never held a rod in my life!"

He hurried down the gully to rejoin the car. I saw him scramble into the passenger's seat, pull my hat well down over his face, turn up the collar of the coat and generally register angry impatience at the delay.

He was only just in time. Transferring my attention to the road leading from the village I now saw, as indeed I had anticipated, a fellow riding a bicycle furiously towards us. He slowed up as he came to the dip, and on seeing the car he dismounted. From the gesticulations that followed I gathered that he was offering Simmons assistance. My driver apparently declined, indicating that the job was finished as he was just bolting the discarded wheel to its place on the running-board.

Then I saw the fellow place his hand on the tyre.

But I could have trusted the foresight of Simmons—the tyre had been deflated.

The next instant the Crossley had re-started on its journey and the cyclist, after a long look at the vanishing car, remounted and cycled slowly back to the village.

Now, I had to get on with my job, and that at top speed.

THE aerial I stretched across the gully, and, after rigging my gear, I sent out our call sign and, to my immense relief, picked up our wireless officer right away.

From him I learnt that all was going according to plan. Macrae had three aircraft behind the closed doors of the hangar, with their engines warming up and crews in their places.

Keeping headphones on my ears and hand on the key (this was before telephony had generally come into force) I kept a sharp watch on the village street.

For a while nothing unusual occurred.

Molloy appeared at the door of the hotel, lit his pipe, and surveyed the scene. Then I saw Bridget Mary run like a hare up the street and disappear into a door near the empty cottages. A group of men, obviously acting with set purpose, appeared from nowhere.

And then, just as I had surmised, the walls of the cottages came down.

Immediately the airscrew, followed by the nose of a Brisfit, appeared through the gap.

I waited no longer and tapped my signal.

From now on was going to be, to say the least of it, an anxious time for me.

If my estimate of the working of John MacIrnish's mind should prove inaccurate, not only would I have sacrificed the lives of my best flying officers, but I would have done it in vain. For I had argued that MacIrnish, anxious to keep Killybeg trouble-free, would have no active members of his forces in the village; none but the scratch crews for the Brisfits would be there.

If I was wrong, and armed men lay in the houses fronting the street, my officers were as good as dead.

Even then, unless everything occurred strictly to time, I might well lose the machines.

With watch in hand I kept a sharp look-out on the horizon beyond the village.

The two other stolen machines were wheeled out. Then—again just as I had hoped—there was delay. The inexperienced crews failed to get the engines started, and the pilots were not even in their cockpits.

Then I saw what I had been waiting for so anxiously—a flight of three machines tearing up wind, and very low, so that the sound of their approach did not warn the men in the village, until at last someone shouted and pointed.

Even as he did so the leading machine sank, flattened out, and, landing, ran up the street into the village.

From its gunner's cockpit leapt three men, my smallest pilots, and glad I was to see them for I had had my doubts

AIR STORIES

about their squeezing in.

They were good men. Unencumbered by flying kit of any sort they raced for the three machines, closely followed by Macrae, the pilot of the landed machine.

In the meantime the two machines remaining in the air zoomed upwards, and diving, opened fire on the street, their observers maintaining the fusillade as the machines zoomed again to regain height.

On the ground, working in pairs, Macrae and his merry men got the engines going in double quick time, and, acting to my orders of the previous day, taxied the machines immediately down the street and out on to the long straight road beyond the houses ; they could not of course, take-off right away with cold engines.

At that I wiped the sweat from my forehead. Now, at last, my officers were safe from the danger of fire at close quarters from the houses.

The street had emptied like magic under the machine-gun fire from the air.

Macrae ran back to his own machine, jumped in, and took-off right away down the street, getting airborne well before he had reached the three machines now with engines being warmed up outside the village far along the road towards where I lay.

The machines in the air had, of course, ceased fire when the street emptied.

In a minute or two the stolen aircraft took-off and rejoined Macrae circling overhead, whereupon the whole squadron of six machines set off for their aerodrome.

I SANK down into the moss between the gorse, and taking out my pipe lit it contentedly. I had another quarter of an hour to wait.

I took another look at the village. There were no signs of any casualties, for which I was glad, though I had warned Macrae that unless armed men were seen, our gunners were only to fire warning bursts at the people, who were sure to be non-combatants.

Excited groups were swarming ;

Bridget Mary was hovering from one to another ; Molloy was much in evidence.

Then I heard the welcome sound of the Crossley returning. Abandoning my wireless gear, which I could retrieve later, I went down the gully to the road to meet it.

Simmons stopped at the dip and I got in.

A minute later we drew up outside Molloy's.

"There now !" I exclaimed in a vexed tone to Molloy, who was watching me carefully. "Didn't I go off without my landing net and gaff !"

"Oh, your Honour !" he cried, "and the day's fishing spoilt for you. Sure if I had but known I could have sent a gossoon with them on a bicycle after you. You'll be going back to Inishbeg River then ?"

"I will not, Molloy," I said, a bit too cheerfully, I fear, "for what with spoilt fishing and smoking chimneys I'm just not in heart for any more fishing."

Molloy eyed me calculatingly. Then he said evenly :

"Your Honour, I'm thinking you know well that fishing is not the only thing that has been spoilt this day."

At that moment, Bridget Mary appeared at my feet from nowhere, and handed me a scrap of paper.

I unfolded it and read :

"Anyway, Major, Inishmore and Inishbeg waters will always be free to you. Thanks for the wireless set.—J. MacI."

Darn the fellow ! he would have the last word.

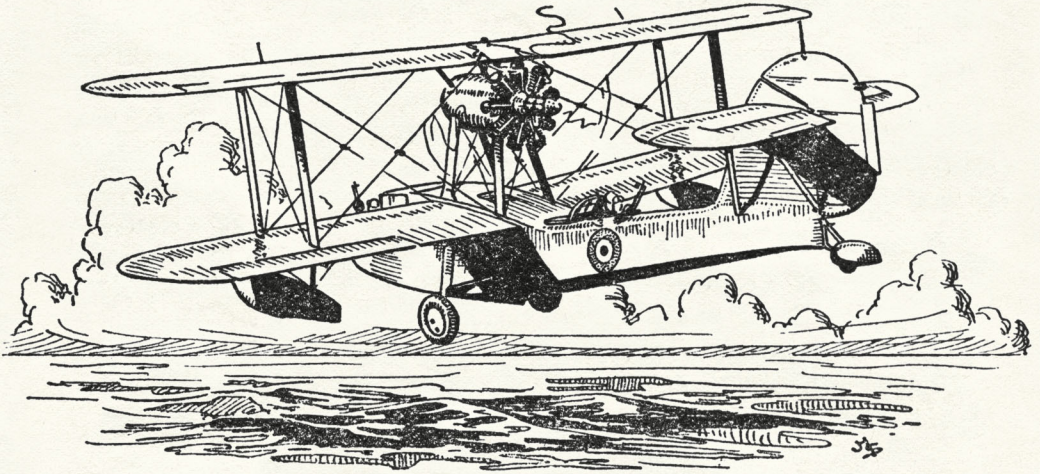
I eyed the small messenger.

"Bridget Mary," I said severely. "The paraffin I can understand, and the bad eggs. But how, in the name of all the saints, were the chimneys made to smoke whenever I came into a room ?"

The child's bare toes curled thoughtfully around a smooth cobble stone. Then she looked up at me, her bright eyes serious and searching.

"And why wouldn't they ?" she demanded, "and me up on the thatch with a bag as big as a donkey for to cover the chimley with ?"

Britain's Latest Amphibian Warplane



A Description of the Supermarine Walrus Amphibian, together with Full Instructions for Building a Solid Scale Model

By JAMES HAY STEVENS

THE Supermarine Walrus—or, as it was originally known, the Seagull V.—is as unlike the Supermarine Spitfire* as any aeroplane designed by the same man and produced in the same factory could conceivably be. The Spitfire is probably the most beautiful aeroplane ever built. The Walrus is as homely in appearance as its namesake. Yet, though it lacks fineness of line, there is no doubt that the machine is well suited to its job as a general-purpose fleet aeroplane.

It is no easy matter to design a machine to be an amphibian, to be strong enough for catapulting, have folding wings for stowage in the restricted spaces aboard ship, give good defensive gun positions for the crew, and at the same time have a reasonable performance. It is to be feared that in its insistence upon an "all-purpose" aircraft the Navy set the designer a task which could only be accomplished at the expense of performance.

The Walrus is intended to carry a crew of three or four. There is a gun and handling position in the extreme bow. The pilot's cabin is enclosed, and the pilot sits on the port side with a second seat on his right. Underneath the planes there is a combined wireless and navigator's cabin. Aft of the main planes is the rear gunner's cockpit, fitted with a sliding hatch, half of which can be raised to act as a wind shield. The guns in both cockpits are carried on special mountings which allow them to be swung completely inside the hull when not in use.

The main planes are arranged to fold so that the maximum width of the machine is represented by the span of the tail plane. From this it can be seen that the whole aeroplane can be stowed in about as small a space as any three-seater of its class.

Weights and Performance

THE engine of the Walrus is a nine-cylinder Bristol Pegasus VI. air-cooled radial of 800 h.p. The weights

* Described in this series in the January, 1939, issue of *Air Stories*.

AIR STORIES

and performance figures with this engine are as follows :

Weight empty	4,900 lb.
Weight loaded	7,200 lb.
Max. speed, sea level	124 m.p.h.
Max. speed, 4,750 ft.	135 m.p.h.
Cruising speed, 3,500 ft.	95 m.p.h.
Landing speed	57 m.p.h.
Initial rate of climb	1,050 ft./sec.
Climb to 10,000 ft.	12.5 min.
Service ceiling	18,500 ft.
Range (95 m.p.h. at 3,500 ft.)	600 miles

The Walrus is extensively used in the

Fleet Air Arm, both from aircraft-carriers and from cruisers and capital ships. In addition to general reconnaissance duties it is used as a fast tender between various vessels and the shore bases. A number of Walruses have also been supplied to the Royal Australian Air Force under their original name of Seagull V. These machines are used for coastal patrols from land and sea bases, as well as for duties with the ships of the Australian Navy.

HOW TO BUILD THE SCALE MODEL

Details of Materials, Tools and Constructional Methods

THE following instructions apply particularly to a $\frac{1}{72}$ -nd scale model—i.e., uniform with the other aeroplanes dealt with in the series—but the same methods apply in general to other scales, although, of course, all the dimensions for materials will be different. Considerations of space allow only the side elevation reproduced on page 268 to be reproduced actually to the $\frac{1}{72}$ -nd scale, the G.A. drawing on the opposite page having been considerably reduced. The side elevation, however, gives all necessary details of the hull, engine nacelle, rudder and fin, and the sizes of the other parts may be conveniently scaled off from the G.A. Drawing.

Materials and Tools

THE table below gives the materials required for a $\frac{1}{72}$ -nd scale model.

Main planes : $8 \times 4 \times \frac{5}{8}$ in. birch or satin-walnut fretwood.

Hull : $6 \times 1\frac{1}{4} \times 1$ in. block of whitewood.

Tail Unit : $6 \times 6 \times \frac{1}{10}$ in. piece of fibre.

Struts, undercarriage, etc. : 2 ft. of 20-gauge brass wire.

Nacelle : $1 \times \frac{1}{2} \times \frac{1}{2}$ in. block of whitewood.

Engine, wheels and airscrew : Shop-bought models or waste wood from the main planes.

Cabin : About 2×2 in. of stout cellophane.

Of these parts, the wood is usually easy to obtain at a joiner's or "hobbies" shop, the fibre from a service garage, and the cast $\frac{1}{72}$ -nd scale parts from a toy or model dealer's.

The most useful tools for this model are : $\frac{1}{4}$ in. chisel ; small plane ; pen-knife ; oilstone ; small half-round file ; $\frac{1}{16}$ in. bradawl ; archimedean drill ;

fretsaw ; small long-nosed pliers ; plastic wood ; tube of cellulose glue, and penny ruler measuring in $\frac{1}{10}$ ths, $\frac{1}{12}$ ths and $\frac{1}{16}$ ths in.

Method of Construction

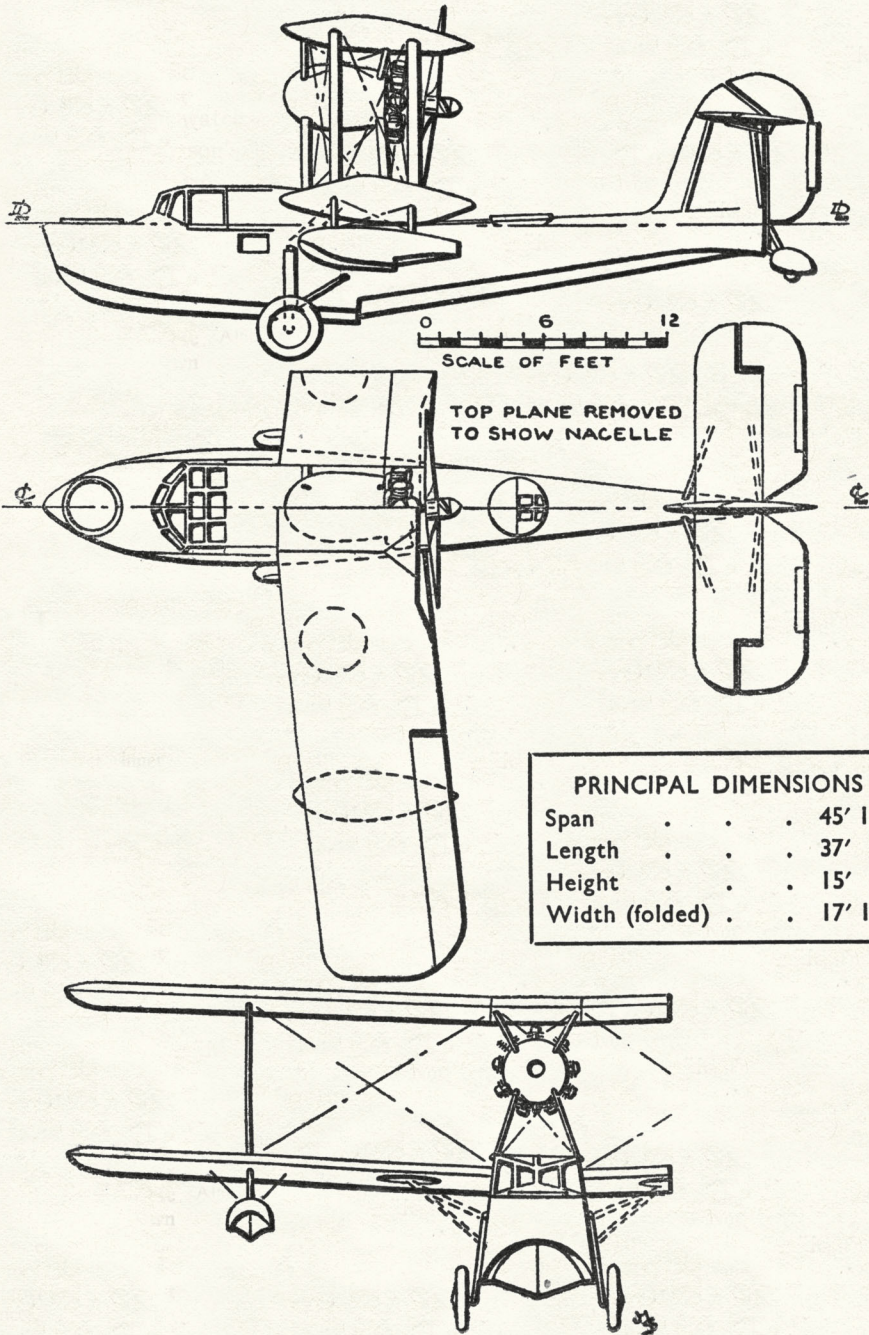
THE first and easiest step is to trace the $\frac{1}{72}$ -nd scale side elevation of the hull on page 268, omitting all details except the bare outline, and, for the moment, ignoring the two gun-rings. Then, cut away the surplus wood with saw and chisel. Next, draw a centre-line along the exact middle of both the top and bottom surfaces of the block. On the top of the block draw the full width of the fuselage and the outline of the top forward decking and the cabin top.

Now, cut away to the full outline of the hull, and, afterwards, carefully mark the lines of the chine on each side of the hull, i.e., where the "vee" bottom meets the side. Cut away the "vee," with plane and chisel, noting that, forward of the step, there is a flat ledge at the top of the "vee" and that aft of it the "vee" is straight to the chine. The "tumblehome" sides are next formed by planing from the top decking lines already drawn, down to the chines ; the hull sides aft of the main planes are vertical. The top decking of the hull between the trailing edge of the lower plane and the stern post is slightly rounded. Fig. 1 A shows the hull at this stage.

Heat a piece of fairly heavy cellophane in water (on no account use a flame)

BRITAIN'S LATEST AMPHIBIAN WARPLANE

THE SUPERMARINE WALRUS AMPHIBIAN

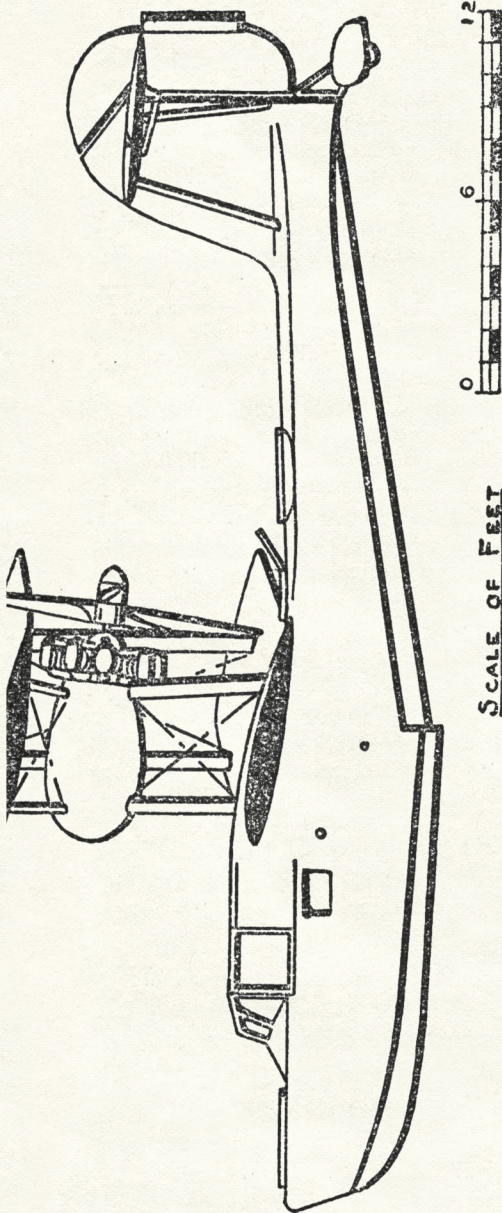


PRINCIPAL DIMENSIONS

Span	. . .	45' 10"
Length	. . .	37' 7"
Height	. . .	15' 3"
Width (folded)	. . .	17' 11"

A General Arrangement Drawing showing elevation, plan and perspective views of the Supermarine Walrus. These Drawings are less than 1/4th scale, but may be scaled-up with the aid of the foot-rule shown above

THE WALRUS AMPHIBIAN



A side-elevation of the Supermarine Walrus drawn to a $\frac{1}{2}$ nd scale

and press it over the cabin section* of the hull. Mould it tightly with the fingers. When the cabin fits well, cut that part of the hull away and hollow the actual cockpit. Also hollow the two gunners' positions and cut out the small windows

in the sides of the hull and glaze them with scrap pieces of cellophane (Fig. 1 B).

Next, draw the outlines of the main planes. The top plane is in one piece, the lower in halves, which are attached to the sides of the hull. Cut out the wings with a fretsaw and camber them with a small plane, finishing off with glasspaper. Mark the outline of the ailerons on both top and bottom planes by scoring with a ruler and bradawl. Make the holes for interplane and nacelle struts and the wheel recesses in the lower surfaces of the bottom planes.

The engine nacelle is simple in shape, but, owing to its circular section, must be very carefully made (using a similar method to that employed on the hull) in order to avoid any "lop-sidedness." The manner of fashioning a wooden engine has often been described, so that it will not be dealt with here.

The tail unit is made from two fibre sections, the one representing the fin and rudder, the other the tail plane and elevator. The outlines are drawn and then cut out with a fretsaw, the symmetrical camber being made with a file and glasspaper. Note in Fig. 2 the way in which the two units are slotted to interlock with each other. Make the four holes in the tail plane for the supporting struts.

The wing-tip floats are made in exactly the same way as the hull. All struts should be made from lengths of 20-gauge wire, with paper fairings on the interplane and lower nacelle struts. The undercarriage "vees" can be made in one of two ways from brass wire—both methods being shown in Fig. 3. The neater, and recommended, method is to solder the two wires together; but for those who are nervous of soldering, the rear leg may be formed into a tight-fitting loop and glued to the main leg.

The combined tail-skid and water rudder is cut from fibre. The propeller is made from scrap wood as two two-bladed airscrews and then glued together at right angles. If a bought airscrew is used it must still be made of two ordinary ones glued together, as that is the method adopted on the real Walrus.

BRITAIN'S LATEST AMPHIBIAN WARPLANE

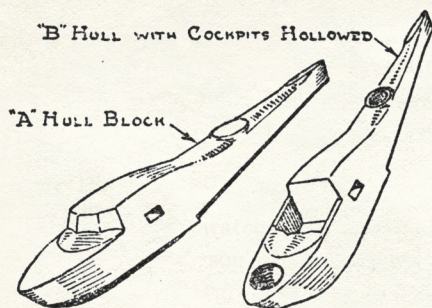


Fig. 1.—Showing two stages of the hull construction

Method of Assembly

ON the sides of the hull, mark the positions of the lower planes. Fit two pins, or short lengths of wire, on each side. Then, by placing the inner end of each plane in turn against the hull, mark the positions of the corresponding holes in the planes. Drill the holes, and if found to be correct, fit the planes, covering both the ends and the wires with glue. This is all clearly shown in Fig. 4.

Now, heat the top plane in the steam from a kettle and bend it between finger and thumb to obtain the correct dihedral angle. Fit the four lower nacelle struts into the cabin top and then adjust them so that the nacelle sits truly—note that the nacelle is parallel with the centre and datum lines of the hull. Fit the short upper nacelle struts and the main interplane struts: the latter should be long enough to project a full $\frac{1}{2}$ in. beneath the lower plane. Put the top plane in place and adjust all the parts for alignment and correctness of dihedral angle. Once everything appears to be suitably adjusted, dismantle the parts and re-assemble carefully with glue.

When the main plane assembly has set, the paper fairings can be glued to the interplane and lower nacelle struts.

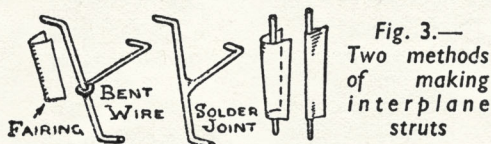


Fig. 3.—Two methods of making interplane struts

These fairings are narrow strips of thin paper folded neatly as shown in Fig. 3.

Glue the engine to the nacelle. The engine is not set square to the hull, being sloped down and to the right towards the rear.

The fibre parts of the tail plane should be interlocked and glued together. Fit the front and rear struts each in one piece (see Fig. 2) and then glue the assembly to the hull.

Fit the undercarriage "vees" and burr the ends of the vertical struts to keep the wheels in place; also glue the tail-skid in place. Drill the wing-tip floats and glue them on to the projecting ends of the interplane struts. Paint the interior of the pilot's cabin grey-green, and glue the transparent cover over it. Fit the airscrew and any odd details, such as the sliding hatch over the rear cockpit.

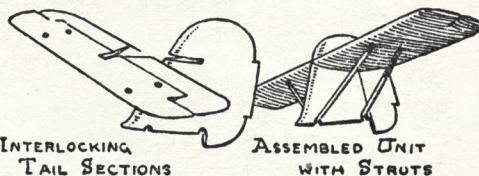


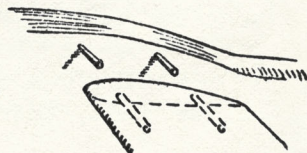
Fig. 2.—Details and method of assembly of the tail-unit

Painting and Colour Scheme

BOTH the Walrus of the F.A.A. and the Seagull V. of the R.A.A.F. are painted silver all over. Cockades are borne on both upper and lower planes and usually, but not always, on the sides of the hull aft of the gunner's cockpit. The machine number is painted in black on the sides of the hull. The engine is painted black.

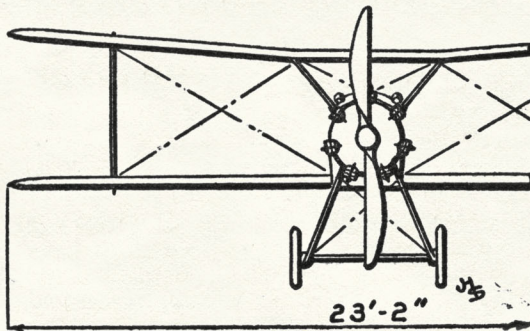
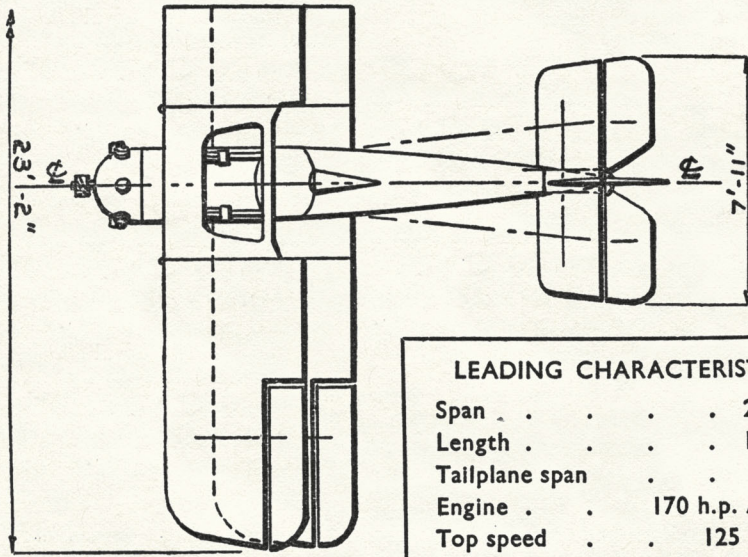
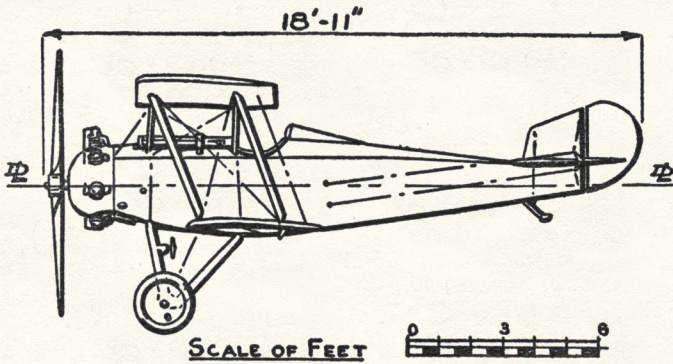
Use small 2d. pots of oil enamel and a No. 5 camel's hair brush. Numbers are most easily applied with Indian ink and a mapping pen. Transfers may be bought to overcome the difficulty of drawing symmetrical cockades.

Fig. 4.—Method of securing the lower planes



AIR STORIES

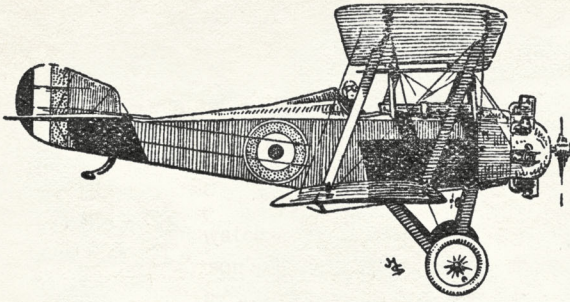
THE WESTLAND WAGTAIL BIPLANE



These plans, drawn to a $\frac{1}{32}$ nd scale, provide all the essential data upon which an experienced modeller can build an accurate solid scale-model of the Westland Wagtail general utility biplane

A SINGLE-SEATER OF 1918

FOR ADVANCED MODELLERS



THE WESTLAND WAGTAIL

Speed and a Rapid Rate of Climb were Features of this little-known Single-Seater of 1918

DURING the War the Westland Aircraft Works were chiefly concerned with the production of standard type aircraft, but towards the close of hostilities they turned their attention to the design of aeroplanes. In 1919 there were three types in existence, a single-seater landplane and two single-seater seaplanes. The landplane, the Wagtail, was designed as a general utility machine intended to be fast and to have a high rate of climb. Particular attention was paid to the problem of giving the pilot the best possible view, and, to this end, the centre-section was very largely cut away.

The engine fitted to the Wagtail was the 170 h.p. A.B.C. Wasp seven-cylinder air-cooled radial. Equipment included two synchronised Vickers guns with 1,000 rounds of ammunition, and oxygen for the pilot.

The following figures give an idea of the general efficiency of this neat little biplane :

Max. speed at 10,000 ft.	125 m.p.h.
Landing speed	50 m.p.h.
Climb to 5,000 ft.	3½ mins.
Climb to 10,000 ft.	7½ mins.
Climb to 17,000 ft.	17 mins.
Weight empty (without guns)	746 lb.
Weight loaded	1,330 lb.

The Wagtail was painted dark green on all top and side surfaces, all under surfaces being light cream. Struts were the yellowish colour of varnished spruce. The engine cylinders were black, the cowling silver and the airscrew grey. The cockades were painted on wings and fuselage—those on the planes being so large that they extended to within an inch or two of both the leading and the trailing edges. The rudder was painted red, white and blue.

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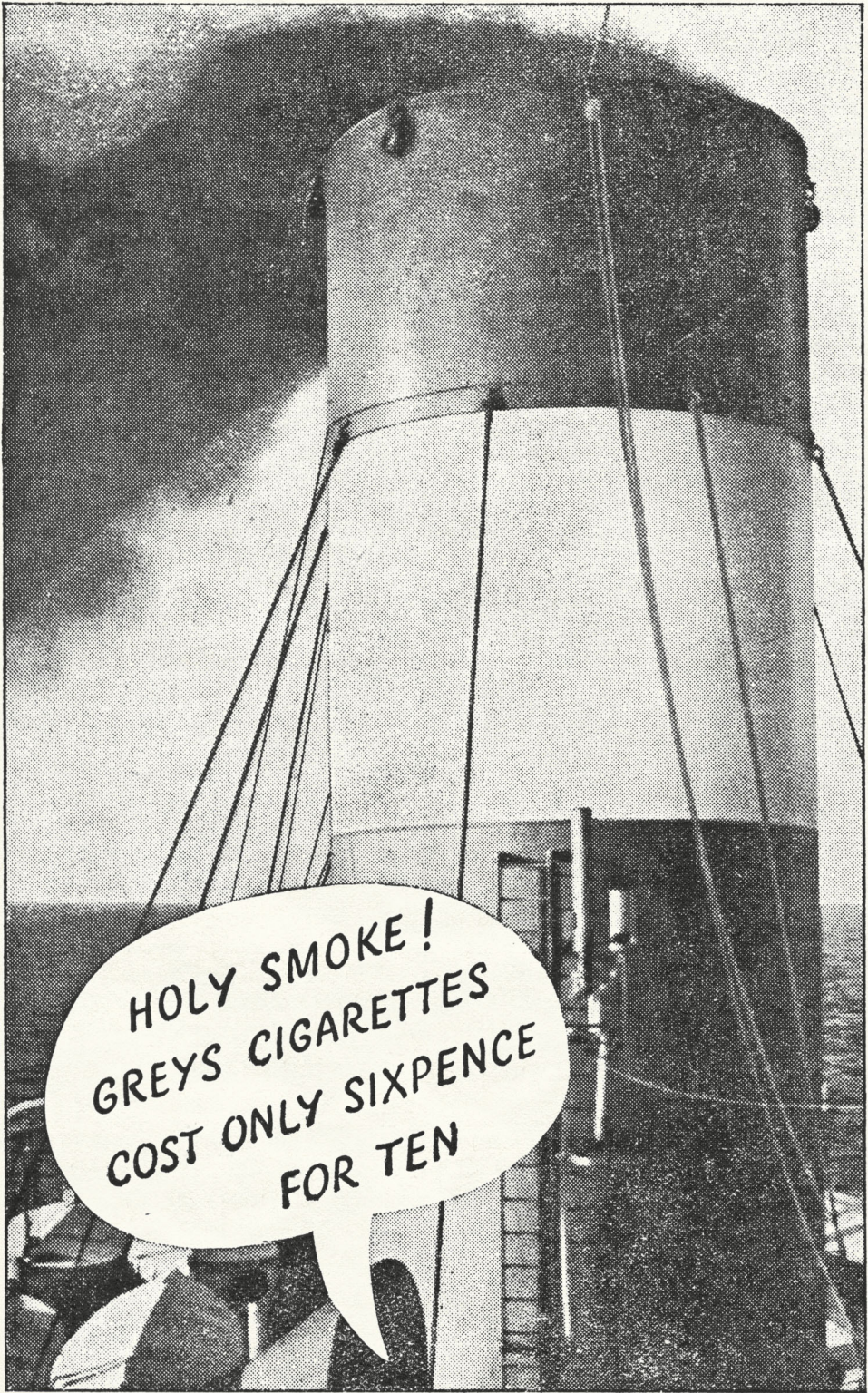
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BRISTOLS FOR TWO

A Story of War-time Adventure above the Western Front, featuring "Fighting Fare" of an R.F.C. "Brisfit" Squadron

By O. P. F. LANDERS

CHAPTER I

The Balloon "Busters"

IF there was one job that Second Lieutenant Fare hated more than another it was the writing of letters. Since, however, he had a conscience, and knew how much letters meant to his people at home, he always made a point of getting off a creditably long effort once a week.

On the morning which was to prove the most eventful of many hair-raising days since his arrival in France only a

... his whole field of sight blazed into scarlet and orange chrysanthemum of fire

AIR STORIES

few weeks before, he was in his Nissan hut crouched on a camp stool, laboriously putting the finishing touches to the half-dozen sheets which lay scattered on the large wooden bomb-box that served as a table. He had, in fact, got so far as the final flourish when the door flew open with a bang, and a stocky figure catapulted in, tripped over a pile of kit, and sent bomb-box, paper and ink crashing into the anthracite stove.

"Lout!" raved Fare. "Idiot! Boob! Look what you've done to my letter."

Wilfred Aloysius Stubbs, his red-headed observer, picked himself up from the welter and uttered one cryptic word.

"Sausage!" he panted.

"Sausage, yourself! Look at my letter. Ink all over it. Blast you, blast you, and then again, blast you."

"Sorry," said Stubbs contritely, "but if people will leave their gear lying about all over the floor——" He broke off as though suddenly remembering something vital. "Sausage," he repeated. "One of ours has broken loose. Crew came down by umbrella. It's drifting about at eight thousand or so, and the Wing says anyone can go up and pot at it. Get a move on. Half those perishing Camels will have buzzed off by now, and I've just seen Frampton and Dobell galloping along to the sheds."

Forgetting all about his ruined letter, Fare snatched up helmet and goggles from his bed, and beat Stubbs to the door with a foot to spare. He had never yet had the chance to tackle a K.B. and the prospect of "strafing" one without the distracting effects of "Archie" or flaming onions, was precisely his idea of how to spend a couple of pleasant and peaceful hours.

Because Stubbs had to race to the armament hut for his gun, Fare reached the hangars first and beamed with delight when he saw that his flight sergeant had already had his Bristol hauled out and started up.

Noticing his breathlessness, the grizzled sergeant smiled broadly as he saluted.

"Knew you'd be wanting to take a crack at the old gasbag, sir," he observed with the air of an indulgent uncle who had just presented his favourite nephew with an acceptable toy.

Fare nodded thanks and climbed into his cockpit, eager to save every second.

A sudden crackling bellow that swelled into a roar made him glance across the aerodrome. Frampton's machine, trailing its flight commander's streamers, charged thunderously down upon him, zooming overhead like a rocketing pheasant, while Dobell, in the back seat, stood up to make rude and derisive gestures.

"Same to you, with knobs on," grunted Fare, then gently pushed his throttle lever forward.

AS the engine snarled, and the wind whipped, and the wheels strained quivering against their chocks, a great contentment came upon him, and fierce pride of possession filled his soul. Other Bristols might be good—and Fare would be the first to admit the fact generously—but this was "Gold Coast," the one and only "Gold Coast," a presentation to the Service from Britons overseas, and now his own, his private, and his personal machine. More than that, in fact, for other Bristols, despite their acknowledged merits, remained mere assemblies of efficient mechanisms, whereas "Gold Coast," which had served him since his first callow venture across the lines, had acquired personality and won the distinction of companionship. To him, the battle-stained old warrior was as much a living friend as a ship would be to the man who first sailed with her as an apprentice, and had since risen to command.

Although such thoughts never clearly formed themselves; their presence was very much at the back of Fare's mind while he watched the steady needles of the revolution counter and pressure gauges. Indeed, so deep was his fleeting, unconscious reverie that it came almost as a shock when a familiar clattering told him that Stubbs had arrived with his Lewis and was busily stowing away

BRISTOLS FOR TWO

drums of ammunition. Instantly he was awake again, with every sense alert.

He throttled back until the engine's note became a muted crackling rumble, then twisted round to call over his shoulder.

"Oy!" he shouted. "Where do we go from here?"

Stubbs ceased his arranging of drums at the bottom of the cockpit, and raised a startlingly scarlet face to glare at him disgustedly.

"Do you mean to say," he demanded, "that you haven't been along to the Office to find out?"

Fare in his turn went red. Seldom had he felt such a fool, and if it had been possible he would gladly have kicked himself for mooning away precious minutes in his machine, when he ought to have been at the Squadron Office learning all that he could about the position and drift of the errant balloon.

He attempted no excuses.

"I'm a damned fool," he confessed, "it never even occurred to me. I'm afraid that's torn it."

Stubbs sniffed.

"The first part of your statement is correct, but not the last," he said. "Luckily my own keen, cool and calculating intellect remedied your omission. I called in myself. Said sausage, when last reported, was ten miles south of La Bassée, drifting roughly north, rising slowly, and about to enter a thick bank of clouds west of the Forest of Nieppe. That's all. And now, if you think we've done enough bawling at each other in this blazing, blistering blizzard, you might let in your clutch and proceed to drive the equipage."

AS soon as he was off the ground Fare set about reviewing the position as intently and thoroughly as though he were about to enter a fight for life instead of merely setting out for shooting practice with a fugitive, untenanted balloon as target.

Of course, he told himself, everything depended upon who found the balloon first, and the lead gained by Frampton

and the Camels—to say nothing of the scores of other machines that had probably joined in the sport—gave his competitors an advantage that could only be defeated either by luck or by quicker wits. Ruling out luck, he began a deliberate attempt to imagine what they would do.

The answer to that was simple: a hundred to one they would act upon the assumption that the balloon would continue its last reported course and emerge through the clouds somewhere to the north-west of the Forest.

But, argued Fare, was it certain that the sausage would navigate with such consistency? Obviously not. It was rising—and who knew the direction of the wind at greater heights?

Who knew?

Thoughtfully humming, he looked to where the blue-green smudge of the Forest loomed through the ground mists. From the smudge, his eyes travelled up the flank of the clouds until they reached the summit; there his gaze rested, suddenly held, and the humming gave place to a soundless whistle, for the crest was frayed into fingers of vapour, and the fringes were blowing from the north.

"Christopher!" he breathed. "Only twelve thousand, and half a gale blowing bang in the opposite direction! If the old bean gets as high as that . . ."

He throttled back and turned to shout at Stubbs.

"I'm going to fly due east."

"Why? Want to have a smack at a Hun instead?"

"Not unless we bump into one. No. Look at the tops of those clouds, though. See what I mean?"

For a moment Stubbs stared in puzzled silence, then beat an appreciative fist on Fare's shoulder.

"Good work," he gloated. "It's a chance—most certainly it's a chance. If she sinks we're sunk; if she stays in the clouds everyone's sunk; but if she goes on rising she'll blow right back on her tracks. Oh, glory, won't Frampton be sick in the stomach?"

The engine bellowed again and the

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Bristol's nose rose as Fare trimmed the tail for climbing. Unwaveringly they watched the upper reaches of the clouds, and simultaneously they rapped out, "There she is!" when a small bulbous blot slowly detached itself from the murk, and imperceptibly drew itself free into the clear air above.

It was Stubbs who bagged their quarry, not with better shooting with his Lewis, but because, through longer experience, he had learned to concentrate his tracer upon the gas-filled nose, whereas Fare, attacking a balloon for the first time, put burst after burst into the empty tail. Stubbs explained this in short and shouted sentences while they swept in wide gliding circles round the falling crimson flower of flame.

"Right," called Fare, when he understood his failure. "Likewise thanks. I'll remember that. Meanwhile what about grub? It's getting on for lunch time."

"Sound scheme," agreed Stubbs.

Throughout the idle journey back to the aerodrome Fare pondered characteristically over what he had learned; and it was because of that pondering that disaster and sorrow fell upon him.

AFTERWARDS Fare could never identify the exact moment when he knew that he was going to crash.

Absorbed by thoughts of imaginary balloon strafes, he made his habitual approach, hands and feet working together in perfect automatic precision throughout the tight left-hand spiral, the swing into wind, the sideslip over the aerodrome's boundary, and the leveling up for the final flattening out. Through eyes which saw without perceiving, he registered the accustomed picture of hangars and huts, and the long straight road where the lorries were lined. The grass rose up, blurring and streaming beneath his wings; he watched it with familiar indifference, easing back the stick and waiting for that fleeting flick of time when he must draw it fast against his belt.

Then came calamity.

Suddenly, like the loosening limbs of a

stricken giant, the controls softened and sagged. Questingly the long cowling seemed to nose the air, then fell with the dropping of the left wing as the Bristol stalled.

Fare saw the wrinkling of the fabric; heard the splintering of the main spar, and the crunching of cambered ribs; felt the crack as the engine bearers snapped, and the lurch when the undercarriage struts buckled upon a bent axle. All these impressions hammered their way through his senses, yet he scarcely heeded them; even when he tasted blood on his tongue, where his mouth had smashed into the Vickers, he could not believe that the unbelievable had happened; nor did full realisation break upon him until solicitous faces appeared above the coamings of the cockpit, and quietly anxious voices asked if he was hurt. With a queerly wearied movement he flicked up the catch of his safety-belt fastening and heaved himself out of the crumpled fuselage down to the ground.

Ignoring all around him, he stood staring at the wreckage, though the first glance had told him, beyond even the hope of doubt, that "Gold Coast," his "Gold Coast," had flown her last flight.

A voice, more insistent than the others, pierced his shell of self-condemnation.

"Are you hurt, Fare?"

He turned to meet the eyes of his C.O.

"No, sir," he answered heavily. "Not hurt. Not a bit." A quick fear stabbed. "Where's Stubbs?"

A stocky figure sprang smartly to attention, stiffened, and saluted with ridiculous vehemence.

"Here, sir. All present and correct, sir. And please, sir, may we do it again?"

Fare smiled at the well-meant clowning, then turned to the C.O. again.

"I'm damned sorry, . . ." he began.

Because Major Gemmell was a wise man, as well as a pilot of vast experience, he understood at once and interrupted swiftly.

"Rubbish. Just a moment of absent-mindedness. Happens to all of us some-

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times when we've been on war flying for a bit. One gets—casual. Done it myself dozens of times."

"But, sir, this is—this was 'Gold Coast.'"

"Quite so," agreed the Major quickly. "A damned fine machine in her time, but recently she's been getting a trifle long in the tooth. I intended to pay her off, anyway, so you've saved me the trouble of wangling. Now get along to the Mess and feed. After lunch you and Stubbs can run over to St. Omer and collect another machine. I'll ring up and fix it for you to have your pick. Take 'G.' It's time she was pensioned off, and it's a good excuse to get rid of her as well"—he paused—"as well as our old friend here."

"Thank you, sir."

Fare lifted a gauntleted hand to his helmet, then trudged off with Stubbs to the Armament Hut and waited outside while the Lewis was being returned to store—a formality which was not strictly necessary, but one that Stubbs insisted upon observing, for he preferred that his precious gun, with its delicate Norman foresight, should be in safe keeping instead of being left exposed to the risk of accidental damage.

STUBBS emerged, briskly rubbing his hands.

"Business being concluded," he said, "what about a drink?"

Still bowed down by his sense of criminal guilt Fare surveyed his observer with cold distaste, feeling as Macbeth might have felt if his lady wife had suggested a quick one immediately after the murder of Duncan.

"Have one yourself," he growled. "I'm going to the hut. Now that you've mucked up my letter I've got to write another."

"Let me write to her instead," Stubbs suggested eagerly.

Disclaiming even a rude retort, Fare spun on his heel and tramped away, hands thrust deep into the pockets of the leather coat which flapped around his bulky boots. Subconsciously he knew he was acting like a sulky schoolboy,

yet it was not only his pride that had been hurt by that abominably careless crash; the wound went deeper, almost as deep as though he had unwittingly brought disaster upon a friend.

Wrapped in unsociability, he was about to pass the open door of Mess when the voice of Frampton hailed him.

"Hi, Fare! Come in. I want you."

Reluctantly Fare halted and climbed the three wooden steps. Other invitations he might ignore, but not a direct summons from his Flight Commander. Stubbs, glumly stumping along several yards behind, noted the change of course with unbounded satisfaction, and hastened to follow.

To their surprise they found that a stranger was standing by Frampton's side at the bar, a man well above the average Squadron age, but one whose diffidence betrayed the fact that this was his first experience of a unit on active service. The Flight Commander introduced the three in the intervals between ordering drinks.

"This is Willis. . . . Sherry for you, Fare? . . . Willis has just come up from the Pool. . . . Pink gin, Stubbs? All right. It's your stomach, not mine. . . . Cheero! And now that the social amenities have been observed let us get down to the agenda. I've got to hurry because the Wing want me to go over and discuss a really snappy balloon 'strafe' which is under contemplation. And that reminds me—was it luck or cunning, Fare? Your getting that sausage this morning, I mean?"

"Cunning," Stubbs put in quickly. "Fare figured out its change of drift from the clouds."

Frampton nodded.

"Good work," he approved. "And I'm damn glad, too, that we can get a new kite on the strength of it. Which brings me to the point. You two are going to take 'G' and dump her on the St. Omer crowd. I'll run over by car this afternoon and fetch her back if I can't work another swop. Meanwhile you'll take your choice out of the whole blooming dépôt by way of replacing 'Gold Coast.' Also I want Willis to go

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with you. It'll give him a couple of landings for his log, and you can show him round the country as well. He'll fly 'Q' with sandbags in the back. Everything clear? Good. Then I'll be off."

With a friendly nod at the newcomer he collected his flying kit from a chair and hurried out of the Mess.

CHAPTER II

The Pilot from the Pool

DURING lunch and the flight to St. Omer, Fare and Stubbs formed identical opinions concerning young Willis. As a personality they liked him well enough, although he seemed to have nothing whatever to say for himself; as a pilot, however, he aroused their gravest misgivings. After swerving dead across wind, he dragged his Bristol staggering into the air, almost before the tail-skid had lifted; also his subsequent exhibition of formation flying kept Stubbs muttering like a distant thunderstorm. The fiery little gunner's comments to Fare, when they had landed at the Aircraft Depôt, were richly and lavishly expressed. While climbing out of his cockpit Fare listened sympathetically, but, as his observer's criticisms became steadily more rabid and more technical, he found himself defending the culprit with the instinctive advocacy shared by all true pilots.

"Probably only a bit out of practice," he grunted as he jumped to the ground. "We all have our off days. He'll be all right as soon as he's had time to settle down."

Stubbs laughed harshly.

"Settle down!" he scoffed. "Did you notice how he settled down just now? I've never seen such a hell of a landing in my life. The man's a public menace. For Mike's sake fly straight home and don't stop to fool around on the way."

Until that moment that had been Fare's intention, but Stubbs' self-assertive condemnation aroused a corresponding obstinacy, and he made up his mind then and there to do precisely the

opposite. Without speaking, however, he swung on his heel and joined Willis, who was standing by his machine and staring around with an air of most intense preoccupation and interest. When Fare clapped a hand on his shoulder he started as though alarmed, and Stubbs snorted again as he watched them saunter away towards the busy hangars.

The selection of "Gold Coast's" successor proved to be a lengthy business, partly because Fare insisted upon inspecting twelve Bristols, and having the engines of seven run up before making his final choice, but mainly on account of Willis, who wandered off and vanished amid the Depôt's maze of machines of every possible type and in every stage of assembly. When Stubbs, scarlet and perspiring, eventually ran him to earth he was in the cockpit of an S.E.5, playing with the joystick and apparently enjoying an imaginary flight.

Stubbs drew a deep breath.

"Good afternoon, Colonel Bishop," he observed with icy politeness. "When you have come down off patrol, and filled in your combat report, perhaps you would honour the Squadron by dropping in for a nice quiet cup of tea."

Confused and tongue-tied, Willis scrambled out and tramped in silence by his side to where Fare was impatiently waiting at the controls of his new mount. The crackle of the Rolls died to a bubbling bass as Fare looked over the side and spoke.

"Are you in any particular hurry to get back, Willis?"

"No."

"Good. I thought of taking this kite up to her ceiling and trying her out. Suit you?"

"Yes."

Fare nodded.

"Keep as close as you can then, and poop off a white light if you want to attract our attention. Stubbs'll be keeping an eye on you."

"Stubbs most assuredly will," growled Stubbs, heaving himself into his seat. He glared after Willis's retreating form with cold distaste. "Chatty little soul, isn't he? And I found him larking

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about in an S.E.5 like a kid playing puff-puffs——”

A bellow from the engine silenced him, and the Bristol's convulsive bound made him sit down with a violence that was made all the more disconcerting by the fact that he missed the mushroom seat. Fare had had enough of his observer's bad temper.

ALTHOUGH he started his flight with a prejudice in favour of the lamented and peerless "Gold Coast," Fare had not reached ten thousand feet before he was forced to admit that his new machine showed promise of becoming even better. Like most Bristols, when freshly delivered, she was inclined to be heavy on the ailerons, but that, he knew, could easily be remedied by slightly flattening the dihedral. Between ten and fifteen thousand, climbing through tenuous clouds, he decided upon certain minor alterations to the rigging, and at seventeen thousand, as he listened to the sturdy roar of his engine, he bitterly regretted that lack of ammunition in his Vickers and the absence of a Lewis gun behind made it impossible for him to cross the lines and search around for a fight. The very existence of Willis had long since vanished from his mind.

A fist thumping his shoulder brought him back to reality. He throttled down to hear what Stubbs was shouting.

"Willis!" howled Stubbs. "Look at the fool!"

Dismay filled Fare with cold foreboding as he followed his observer's pointing finger. Three thousand feet below, and over two miles away, Willis's Bristol was drifting steadily towards the lines; nor was that all, for as Fare searched the eastern sky his eyes picked out a group of tiny specks, hovering between Amentières and Lille. At the sight, foreboding turned to fear, alive and gnawing, for it needed no long gazing to tell Fare that the specks were Fokker Triplanes.

Cupping a hand against his mouth, he twisted in his seat.

"Fire a red light," he bellowed.

"Keep on firing 'em."

"What's the good of that? He won't see 'em. Probably hasn't even missed us yet!"

Before Fare could reply, an explosive cough from the exhaust reminded him that he was gliding with the radiator blind still open, and that the engine was getting cold. Quickly he adjusted the vacuum setting, and pushed the throttle lever forward. As the revolution counter picked up, wavered, and steadied, he swung round on vertical wings and thundered eastward.

In his mind there was only one hope—to head the blind and errant Willis off before he crossed into German territory and was pounced upon by the waiting Fokkers. But though he could see no other hope, there were many other thoughts to distract him with their bitterness. Continually there hammered at his brain the knowledge that if Willis were shot down the fault would be his. It was he whom Frampton had charged with the care of a raw and inexperienced novice; and it was he who had ignored Stubbs' protests, as well as the evidence of his own eyes, and taken that unskilful newcomer up through clouds to fifteen thousand feet over ground which he had never seen before. Brooding upon his carelessness and his breach of trust, Fare cursed himself as savagely as his most vindictive enemy could have desired.

Yet still, so it seemed, there was a chance of reaching Willis before disaster fell upon him. With the advantage of extra height, and an engine that was perfectly tuned, it should be possible, Fare thought, to overtake the fugitive in time, so long as he held his present course. Crouched behind the wind-screen, Fare kept his eyes glued to the distant Bristol, one hand pressing the cockpit coaming as though thereby he could force a fraction of extra speed.

FAINT hope was beginning to be lit by dawning certainty when Willis made a move which countered every calculation.

Hitherto he had been flying level, and

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roughly south-east ; now, as though suddenly realising that he was alone and lost, he circled once before setting off on a steep descent under full power ; and the direction he took was due east.

Even if speech had been possible, Fare could have found no words for that final and fatal blunder. While Willis held to his new angle nothing in the sky could save him from the Fokkers. Peering over the centre-section Fare counted them ; seven, possibly eight, a pack that would have been dangerous even for the best Bristol pilot and gunner in France to tackle—and Willis, the incompetent, only had ballast in the back seat.

Often before, Fare had wished that it were possible to speak to Stubbs in moments of crisis, but never had the desire been so urgently keen. Now that the wings of death were whistling in the wind that wailed around him, Fare's brain shed every emotion of annoyance, becoming coldly calm and calculating.

In essence the problem that faced him was simple :

If he allowed events to take their course Willis's life might be counted by seconds. If he plunged ahead into the coming fight neither he nor Stubbs could fire a shot in attack or defence ; by thousands to one, therefore, the odds were that they would only share Willis's fate. Combat consequently meant—as Fare realised only too well—that in all probability he would be condemning his gunner as well as himself to an utterly useless end. A timely retreat, on the other hand, promised safety at the price of certain memories. Conjuring up these memories before his mind, and knowing that they would haunt him for life, he hesitated no longer. Stubbs, he knew, would feel the same. The shrilling of the wires rose in pitch as he pushed the stick forward, while, from out the corner of his eye, he watched the Fokkers cease their circling before they fell like hawks.

It was while he was barely half a mile away that the first of many inexplicable events occurred. A rocket shot up from Willis's cockpit, traced a twinkling

arc against the sky, and dropped to its extinction. Fare blinked, wondering wildly what was happening to his sight, for he had never seen a rocket such as this before.

Red rockets he knew, as a warning of danger or a call for help ; green also, as instructions for a deputy leader to carry on ; and white, to wash out patrol or signify trouble ; but the rocket which Willis had fired was a brilliant electric blue, and it trailed a wake of black smoke.

The Fokkers were very close now, and they also seemed to have been taken aback by that startling light, for their dive flattened abruptly, and no tracer leapt from their guns ; like a protective escort they then gathered close around the Bristol, which still flew steadily on into the east.

Even if Fare had decided at once to pull out and think over these incredible happenings, it would have been too late, for his speed was well up in the two hundreds, and he had hurtled in among the Fokkers before fresh plans could even begin to form. From that moment all thoughts and reasoning were lost in the frenzy of fighting for life.

CHAPTER III

Agent of The Double-Cross

ALTHOUGH the Fokkers were so mysteriously willing to content themselves with taking Willis prisoner, it at once became only too plain that they felt no such indulgence towards Fare and Stubbs. While three closed in around Willis, the remaining four flicked about and came raging to the attack with Spandaus spitting.

As in a nightmare, Fare saw the latticed web of tracer as it wove itself in angles all around him, and felt the chattering jar of bullets snapping through wings and tail. Scarcely, however, did his brain even take the stamp of these impressions, for they seemed of no importance by comparison with one last fleeting glimpse of Willis, attended by his captors and pursuing his serenely steady downwards path.

BRISTOLS FOR TWO

But in spite of Fare's stunned bewilderment, hands and feet, instinctively obeying the commands of training, had already carried out the one manœuvre that promised some chance of escape. Stick forward and strained to the right, full left rudder and cheese-cutter rammed down to the last of its notches, all combined to fling the Bristol into a shuddering side-slipping dive. Since Willis would not fight, and he—unarmed—could not, Fare hoped that the Fokkers would try to beat him to the ground, and rip off their wings in the attempt.

The hope proved vain, as he quite expected, for only the most suicidally reckless of scout pilots, on either side of the lines, would have ventured to challenge a Fighter in full dive. The spray of pursuing bullets grew thinner and thinner, until he was alone in an empty sky, standing on the rudder-bar and falling feet first, while Stubbs behind him, kneeling on the back of his seat, clung to the Scarff mounting and stared over the centre-section through the propeller's disc at a tangle of trenches which rose like the roof of a lift, disentangling and flying apart in their rising.

During the zig-zagging dart across No-Man's-Land, twenty feet from the mud and bumped by the eddies of shells, during the long snarling rush that skimmed the poplars along the road home, only one thought filled all the world for Fare and Stubbs—the thought that one of their own Squadron had deliberately deserted to the enemy.

Usually, after landing, Fare throttled back so that he and Stubbs could crack a joke or exchange pithy comments on the flight. This time, however, neither felt inclined to speak. With shock-absorbers squealing and grunting as the wheels lurched over the hummocky grass, Fare taxied up to the sheds on half throttle, swung round with a burst of full power, and cut the switch.

Frampton was waiting for them, his face grim and set, and he jumped up on the bottom plane before the last twitch of the propeller.

"Squadron Office at once," he snapped. "The Wing Commander's waiting for you."

AS the three entered the Office, the A.C.O. looked round abruptly from the map which he was studying with Colonel Bragg, the Wing Commander, and a stocky little captain wearing the green tabs of Intelligence. For a moment Major Gemmell's face lit up with a fleeting smile of relief, but when he spoke his voice rasped as curtly gruff as ever.

"Glad you two are still alive. Thought that swab might have shot you down. Have you any idea where he landed?"

Fare shook his head.

"Afraid not, sir, but he was heading for Lille last time I saw him. I expect he got there, too, because the Fokkers were almost sitting on his wings. They formed a sort of escort as soon as he fired his blue light."

"Eh? What's that?"

Briefly, but omitting nothing, Fare described his flight with Willis, not even attempting to excuse his own rashness in taking a raw pilot so close to the lines. "But who would have thought, sir," he ended bitterly, "that one of our own crowd would deliberately rat like that?"

Silence fell until the Wing Commander laughed grimly.

"Hardly one of our crowd," he corrected. "You can set your mind at rest on that point. We haven't been harbouring a traitor. We've been had for mugs!"

Suspicion suddenly flooded Fare's mind.

"You mean, sir," he hazarded, "that the blighter was a——"

"Hun!" snapped the Colonel. "Precisely." Frowning, he paused to glance at his companions. "Since these two officers are so intimately concerned with the whole affair," he continued, "I think it is only right that they should be told the truth. Is that agreed? Good. This, then, is what has happened.

"About two weeks ago a certain Second Lieutenant Willis was detailed

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to ferry a D.H.4 across from Dover. He had never flown the Channel before, but the weather was fine, though misty, when he started. Unfortunately the mist suddenly thickened into fog, and that was the last that was heard of him for days, until our recently departed colleague turned up in Dunkirk, introduced himself as Willis, and spun a most plausible yarn about being lost, landing in the sea, getting ashore behind the German lines, and sneaking his way back by night along the foreshore. Quite a good effort in fact, and he was recommended for the M.C.—a distinction which no doubt made him laugh himself sick.

“Actually, of course, the genuine Willis had been taken prisoner, and the imposture was carried out by a person of somewhat dubious nationality, but at any rate a man whom we now know to be Richter, a paid German agent who was educated in England. Of course, Richter could not have kept up the deception indefinitely, but Willis must have accidentally given away the fact that he didn't know a soul in France, and as Richter naturally had all his papers the game was safe enough for a few days.

“Our Intelligence people, however, are pretty wide awake, so he knew he couldn't linger long. In fact if he hadn't managed to bolt this afternoon they would have got him. But bolt he did, and it's obvious that the blue light was a signal which the Boche patrols were looking out for. So that's that—a sorry business, although, as Major Gemmell remarked, it's lucky that he didn't round his trip off by blowing you out of the sky.”

Fare nodded soberly, but Stubbs broke into a throaty and delighted chuckle.

“Gosh what a nerve!” he exulted. “What colossal and glorious cheek! No wonder he couldn't handle a Bristol properly if he didn't even know the controls. And mustn't he have hugged himself when we took him along to St. Omer and showed him the whole works. Hun he may be, but he's also a dashed good sportsman.”

THE C.O. and the Colonel grunted their grudging assent, but the man from Intelligence stubbornly shook his head.

“That's just what he's not,” he retorted. “If Richter were a genuine Boche, and playing a straight game for his blasted Fatherland, I'd take my hat off to him and wish him luck. The plain truth is, though, that he's a no-nation double-crossing swine of the swiniest description, and he'd sell out the other side to either France or ourselves in a jiffy, if only he could persuade either of us to trust him. We've got the offer in black and white, in his own private and personal code.”

“That being so,” mused the Colonel, “surely the remedy's obvious. Send the incriminating chit along to German G.H.Q. They'll be only too glad to provide the necessary firing party.”

The Intelligence Officer snorted in disgust.

“Unfortunately, sir,” he replied, “the position's not quite as simple as that. Richter's a subtle devil and he's worded his proposal in such a way that, although his meaning's as plain as a pikestaff to us, we should never be able to convince the Huns that we weren't trying to pull a bluff on 'em. They find him too damned useful to do anything in a hurry. In fact, although he's perfectly willing to let 'em down, he's quite the most successful and dangerous agent they've got. We'd do almost anything to get him.”

The idea which came to Fare at that moment broke upon him with such breath-taking brilliance that he could hardly find the words to express it.

“Sir,” he exploded, “I've got a wheeze—a scheme. Suppose that instead of trying to bluff German G.H.Q. we bluff the blighter himself. Suppose that we use that personal code of his to send him a note saying that we've got actual and positive proof of his double-crossing stunts, and that we intend to drop that proof over the lines to-morrow morning unless he brings that Bristol back and gives himself up. Wouldn't that put the wind up him and make him decide

BRISTOLS FOR TWO

to quit while the quitting's good? "

Major Gemmell and the Wing Commander looked at the man from Intelligence, who stood thoughtfully fingering his chin and regarding Fare and Stubbs with a strange expression in his eyes.

"As it stands at present," he answered slowly, "your plan wouldn't work. I doubt very much whether Richter would fall for it to the extent of actually giving himself up. I do think it's probable, though, that we could rattle him badly enough to make him hellishly anxious that the machine should never cross the lines. And since he couldn't very well put anyone else on to the job without letting the cat out of the bag, the odds are that he'd try to do the stopping himself. The fellow's a skunk, but no one can deny that he's got guts. See what I mean? "

Stubbs and Fare looked at one another, and an ecstatic grin passed between them.

"Yes," said Fare at last. "We do see. And, if the Major gives permission, we shall be crossing the lines near Laventie at seventeen thousand feet as soon as it's light to-morrow morning. Perhaps Herr Richter would like to do the same."

"Bristols for two," murmured Stubbs.

CHAPTER IV

Coffee for One

IN sanctioning the plea of Fare and Stubbs to be allowed to go alone, Major Gemmell forcibly declared that he was not actuated by any scruples regarding sportsmanship. Only an embellished fool, he pointed out with considerable emphasis, would submit to such a handicap when waging war on a rascal of Richter's type. He was forced to admit, however, that the sole chance of getting their man was to offer him even odds, for the spy would be sure to prefer the uncertainty of calling their bluff to the certainty of being killed if he were required to tackle a formation single-handed.

"But don't you two imagine for one moment," the C.O. ended, "that because

you mean to turn up by yourselves it'll be Richter's intention to do the same. If he can think of any conceivable dirty trick to play he'll play it, so you'll have to have eyes all round your heads, and keep 'em skinned into the bargain. Of course, if there are any decent clouds about I'll take the whole squadron up, cruising round the neighbourhood as high as we can get. That'll at any rate make it impossible for any prowling gang of Tripes to drop on you. Unfortunately, though, the mornings have been so perishingly clear of late that we may not be able to get within fifty miles of Laventie without the whole of Hunland spotting us."

Much to the secret satisfaction of Fare and Stubbs the following dawn came up on a sky so limpid that only the Major's final exhortations and profanities could accompany them as their Fighter snarled away into the east. But, although glad to be facing the adventure entirely on their own, neither would have denied that he felt infinitely more keyed up than he had ever felt before. There was a ring about Stubbs's phrase "Bristols for two" which reminded them of the inevitable "coffee for one" that followed, and never allowed them to forget for one second that the fight which lay ahead of them would be a fight to a finish.

Although, naturally, they could not be certain that Richter would come to meet them in the stolen Bristol, the whole Squadron had agreed that he would probably do so, since he would unquestionably want to have a gun at his back, and the German Air Force possessed no two-seater of remotely comparable fighting power.

It was for a Bristol, therefore, that the two searched the east when the altimeter showed seventeen thousand, and the ruins of Laventie lay broken beneath their wheels like a smashed insect. Behind them the Forest of Nieppe bristled sombrely, while away to the south the La Bassée reservoirs gleamed in angular metallic flakes. Blue and shadowy Lille brooded beneath the morning mists, and the diseased skin of the

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battlefields stretched from north to south across the land, pockmarked with shell-holes and perforated by the ulcers of craters.

To Fare and Stubbs, however, the scene meant nothing more than an assembly of landmarks, for every sense and faculty was bent upon the search for some moving speck that might be a Bristol. Other specks moved about the sky—a Rumpier returning at over twenty thousand feet with the bag of morning photographs, a lumbering Armstrong-Whitworth directing an early shoot, and scattered patrols, on both sides of the lines, taking-off from their aerodromes to begin the day's work. As yet, however, the air remained uncrowded, and it should have been easy enough to spot another Fighter if one had been in sight.

Reluctantly Fare throttled back and shouted.

"Looks as if he's giving it a miss."

"Afraid so. . . Hello. . . See that?"

"What?"

Stubbs was pointing down and away to the south-east.

"That sausage. It's a Hun and it's broken adrift. Rather odd that we should have lost one only yesterday, and the Huns another to-day."

"Odd but welcome. If our old pal Willis-Richter doesn't show up soon we'll go and blow blue blazes out of that gasbag."

"Sound scheme. . . Hell!"

THE last high-pitched yell was all but drowned by the rattle of a Vickers and the drumming of bullets as a burst punched its way through the empennage. In a flash, Stubbs had whirled about in his cockpit, his Lewis ready and questing. No enemy was diving from behind, nor could he trace the attack until Fare, skidding aside in a flat turn, uncovered a Bristol, barely a couple of hundred feet below, in the very act of falling away from a stalled shot.

"Blast ye!" spat Stubbs, and sent a long raking fire into the olive-green belly.

It was himself, though, not Richter

whom he cursed—himself for the dunder-headed lack of imagination which had never foreseen that the German would make use of his British machine in order to fly unchallenged as far as he liked over the lines, and then creep up unseen beneath the Bristol's worst blind spot, knowing all the time that his victims' attention would be concentrated upon what lay ahead of them. From Richter's point of view it was an almost infallible trap, and only a slight error in deflection had robbed him of his prey.

Teeth bared in a fighting grin, Stubbs watched a rent splash open beneath the rear cockpit of his enemy, then sky and earth gyrated round him as Fare half rolled to bring his own gun to bear.

As soon as his target flicked into the field of the Aldis sight Fare knew that Stubbs had well and truly done his work, for the limp leather figure behind Richter was lolling hideously over the spade-grip of a silent gun.

"Gotcher!" grunted Fare, and felt for the Bowden control.

Light glittered for an instant on Richter's goggles as the hunted man looked up in terror over his shoulder, then the dive of hunter and quarry steepened, and fine filaments of tracer spun a skein between them as Fare opened fire.

He never saw the drifting balloon until Richter was almost upon it; in fact he barely had time to recognise the bean-shaped outline, and to realise that his bullets were piercing it, before the whole field of his sight blazed into a scarlet and orange chrysanthemum of fire. A blast of air like the blow of a club struck the controls from under hands and feet; the cowlings reared up then dropped, and the whole universe became one vast blurred screen at which the wings chopped and flailed like the arms of a windmill.

When he conquered the spin, and the stunned sense of sickness, many thousands of feet below, balloon and Bristol both had vanished, but a long spiral horn of smoke, slowly melting in the calm morning air, hung suspended from the arc of sky above.

BRISTOLS FOR TWO

Feeling strangely cold and shaken, Fare turned his back upon the ominous stain, and settled down to the long straight glide that would take him home.

“**P**OETIC justice,” murmured Major Gemmell tapping Fare’s combat report with his finger. “If ever there was a case of the biter being bit it’s this.”

Fare shook his head, not so much in disagreement as because his ears were singing, and the familiar walls of the Squadron Office seemed singularly unreal.

“But, sir,” he protested, “I still don’t see what happened, or why the sausage suddenly went off like a mine.”

The C.O. laughed shortly.

“Because it was a mine,” he retorted. “We underestimated the resources of the late lamented Richter. We assumed that he wouldn’t dare tell anybody that the message we dropped yesterday evening was to be taken seriously. We thought he’d swear it meant nothing and was a hoax. We were wrong. Whatever yarn he spun on the spur of the moment was good enough to induce Hun G.H.Q. to turn loose a perfectly good balloon filled with high explosive, as a trap to blot you out. It would

probably have succeeded too. I’ll lay a fiver to a farthing that if Richter hadn’t attacked when he did you’d have had a go at the gasbag.”

Stubbs and Fare looked at one another, remembering what they were planning at the moment when Richter fired. Silently they nodded.

“Quite so. Luckily for you, though, the silly ass couldn’t leave well alone. He’d come up, of course, to have a front row seat at the show, and when he saw you floating about, fairly asking for trouble, he simply couldn’t resist the temptation to take a pot shot—which was bad business for him, since it meant that he had to lead you into the trap and thereby caught the packet himself. . . . Ah, well—so ends the adventures of Bristols for two and coffee for one.”

Outside the Mess Stubbs gripped his pilot’s arm and stumped purposefully up the steps.

“Got a craving for coffee?” grinned Fare.

Stubbs sniffed.

“Coffee?” he snorted. “Coffee!”

And marching his prisoner to the bar he called loudly for drinks of sterner stuff.

HERE’S THE ANSWER

More Replies to Readers

BOMB-DROPPING (K. L. White, Sevenoaks, Kent). Sorry, but you are quite wrong. If a modern high-speed bomber waited until it was over its target before releasing its bombs it would never hit its objective. Sighting has to begin some distance away from the target—as much as 5 to 8 miles in the case of a bomber travelling at 250 m.p.h., and, from 15,000 feet, the bombs would be released when the aircraft was still about two miles from its target. They would then be carried ahead by their forward impetus to land on the target.

AIR ACTION IN PALESTINE (Robert Marlin, Putney, London). The R.A.F. Squadron to which you refer is probably No. 33 (Fighter) Squadron which is equipped with Gloster Gladiators and has been in constant action in Palestine in support of the infantry and police for several months.

SHORT SUNDERLAND (D. Hollis, Guernsey). Performance figures recently released for the Short Sunderland show that this military flying-boat, with four 810 h.p. Bristol Pegasus engines, has a top speed of 210 m.p.h. at 6,250 feet; cruising speed is 178 m.p.h., and landing speed 80 m.p.h. Rate of climb at sea level is 1,200 feet/minute and service ceiling 20,500 feet. Normal range is 1,670 sea miles but overloaded to an all-up weight of 49,870 lb., this range can be extended to 2,500 sea miles.

MACHINE-GUNS (R. Anderson, S. Shields). (1) The Lewis gun is now in process of replacement in the R.A.F. by a more modern type and re-equipment will shortly be complete. (2) Yes, the American Browning-type machine-gun is being built in quantity in this country under licence.

MINE-LAYING AIRCRAFT (K. Greenley, Cape Town, South Africa). We do not know of any British mine-laying aircraft, but the German Admiralty recently divulged news of certain unspecified types of German aircraft which had been fitted to lay mines at sea. It was stated that some were adapted to dropping mines in flight from a low level while others were flying-boats equipped to sow a mine-field while taxiing on the surface of the water.

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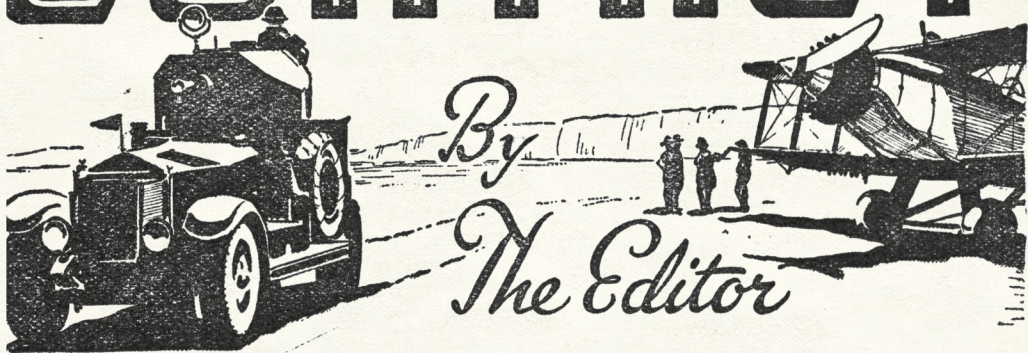
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By
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THE feelings of our Information Department have been hurt.

The Department undertakes to answer, to the best of its ability and to the extent of its many sources of reference, questions on all aviation matters submitted by readers. In the course of this work it deals each month with several hundreds of questions, ranging from a request for the name of the first R.F.C. pilot to land in France in 1914 (*a very popular query, this!*) to such a recent "poser" as the penetrative power of a 100-lb. G.P. bomb with tail-fusing (*the answer to that one was 12 feet*). Its services are also in great demand for supplying information about modern types of R.A.F. aircraft, and it is here that the difficulty arises.

Our Lips are Sealed

A READER will write to ask us the names of the latest representatives of a certain class of British military aircraft, say fighters or flying-boats. We introduce him to the Spitfire or to the Short Sunderland, whichever the class may be, whereupon the reader writes back, advises us that he lives almost next door to a certain R.A.F. aerodrome and tells us, more in pity than in anger, that our information is quite out of date, that for weeks past he has been seeing a much newer type carrying out flying trials—and when are we going to wake up and describe the machine?

That reader may be—and often is—correct in his assertion that a new and improved type has, in fact, been produced. We ourselves have probably known of its existence for some considerable time. But what that reader does not realise, and of which we are all too well aware, is that there exists an Act of Parliament, known as the Official Secrets Act which, under pain of dire penalties, forbids even a mention by the Press of any new type of British military aircraft or engine other than those which have been officially "released" for publication.

The Powers-That-Be

THUS, while every thinking person knows that more up-to-date British fighters than the Spitfire, whose original design dates back to 1933, must be in active preparation behind the scenes, the Spitfire, so far as the Press generally and our Information Department in particular are concerned, must remain "officially" our latest type of fighter until the Powers-That-Be permit the mention of a newer type. And when a description of that newer type is allowed to be given, it will surely be because development of a still newer and more efficient machine of the same class is already well under way.

Readers who Know too Much

WHAT the Powers-That-Be, if they knew, would do to those readers who,

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in writing to point out our alleged ignorance, give us detailed accounts of highly "hush hush" aircraft they have seen, we shudder to contemplate. But at least we will keep their guilty knowledge safe if they, on their part, will cease from reproaching our law-abiding Information Department for not giving them information which, in the national interest, must obviously be kept secret, and for maintaining such polite fictions as that the top speed of the Spitfire is the official figure of 355 m.p.h. when they know—just as well as we do—that it is very appreciably higher.

Did He Defeat Albert Ball?

IN welcoming the first reader of AIR STORIES to write to us from the Dutch East Indies—Mr. E. H. Coorde, of Bandoeng, Java—we have also to thank him for sending us a copy of an account of Captain Albert Ball's death which appeared several years ago under the name of Carl August von Schoenebeck, a former member of Richthofen's Jagdstaffel 11.

In our January issue, it will be remembered, we quoted a report, sent to us by a Scottish reader, in which a German doctor claimed to have been an eye-witness of Ball's destruction by a battery of machine-guns concealed in a church tower. The following version by von Schoenebeck, who also claims to have been an eye-witness, is in direct contradiction of the doctor's statement:—

"I was with the Richthofen Staffel," writes von Schoenebeck, "and was a spectator of one of the most exciting air fights that ever took place. We took-off one morning, and as our squadron leader was not with us, we were led by his brother, Lothar. The latter came up against Captain Ball, the English 'ace.' Lothar attacked, and each tried to get on the other's tail. But both pilots and machines were evenly matched; they always just managed to slip away from in front of their opponent's nose. They were getting the last ounce out of their machines and climbing all the time. It looked like a never-ending bout of tail-chasing.

"The tussle was so exciting that both the German and English pilots completely forgot everything else. We had a truce while we stared spellbound at this life and death battle. The contest of turns went on and on, but neither could manage to get on to the other's tail. At last Lothar decided he had had enough. He suddenly pulled his machine round to face his opponent. He flew at

Captain Ball for a fraction of a second: for the briefest of moments they fired at each other.

"Almost at the same instant Ball's machine reared up, went into a spin and crashed. Ball was killed. At the same time Lothar was hit in the shoulder, so that he had to go down in a steep nosedive and landed somewhere near Captain Ball's machine. We landed in the neighbourhood, so as to help Lothar, but the English flew home to report that a Richthofen had got their best man."

This account, of course, agrees with the German official version of Ball's downfall—but, as in the past, so in the future, there will always be many who will refuse to believe that the young Richthofen, in single combat, could ever have accounted for an air fighter of the calibre of Albert Ball.

News of a Gnu

IN a recent issue, an Essex reader, discussing the Sopwith "Zoo," recorded a rumour that a Sopwith Gnu was still to be found in flying condition in Australia. Welcome confirmation of the existence of this twenty-year-old veteran has now come to hand from Mr. Ray M. Genniskin of Warrnambool, Victoria, Australia, who writes:—

"I was interested to see the recent reference to a Sopwith Gnu in Australia and thought that you might like to know that this machine recently took part in an Air Display here in Warrnambool. Moreover, it later towed a glider, containing a gliding expert, Mr. Pratt, from Geelong to Melbourne, a distance of about 50 miles. So you see there is still a lot of life left yet in the old Gnu!"

Air Adventure in Palestine

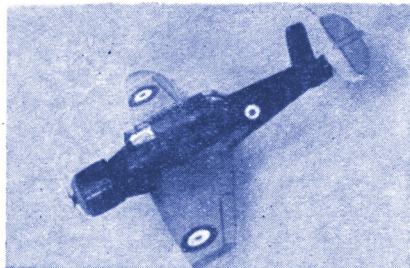
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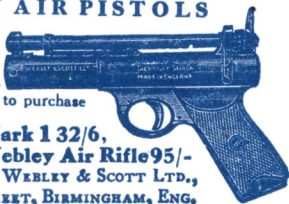
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