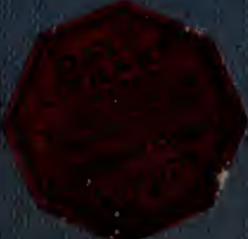
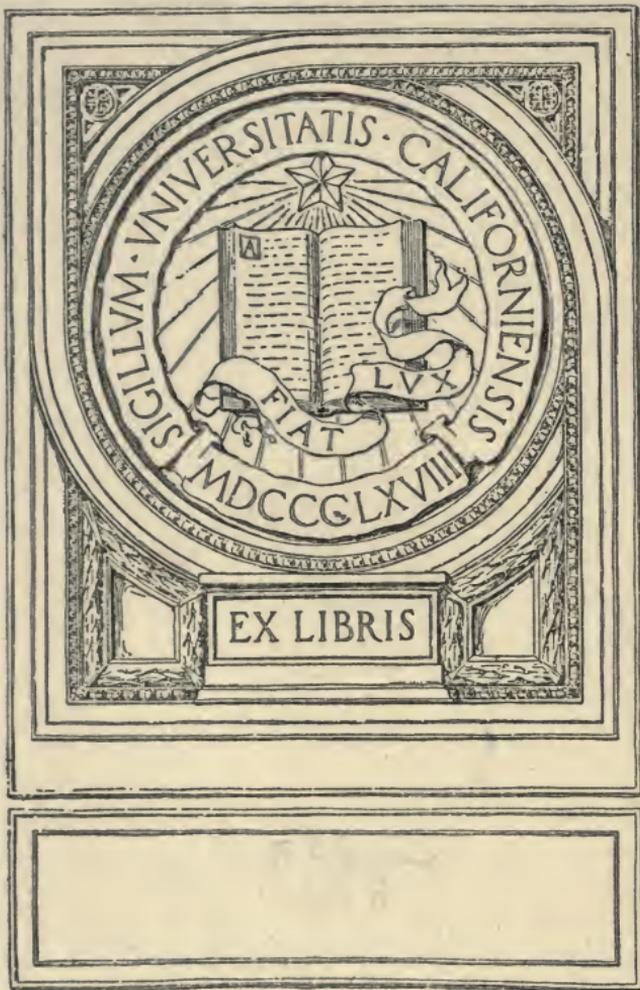


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TAILS UP

BY

EDGAR C. MIDDLETON

LATE FLIGHT SUB-LIEUTENANT R.N.

HOLDER OF ROYAL AERO CLUB'S CERTIFICATE

AUTHOR OF "AIRCRAFT," "THE WAY OF THE AIR"

"GLORIOUS EXPLOITS OF THE AIR," "AIRFARE," ETC.



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PREFACE

THE development of flying, the work of the pilots and observers, the new, sure shield of the British Empire in the skies, are beyond all comment, and need no explanation. But the doing on't, the story of it, the dauntless courage of it, have made our hearts leap. The daring and the gallantry of it have made the horrors of bloody war almost worth the while. They have put History to shame, and dwarfed even the *Odyssey* of Homer to insignificance. Ill befits a feeble pen to attempt to trace the deeds of their Golden Book. In due humbleness has this volume been compiled.

While writing this brief Preface, I have to offer my grateful thanks to the editors of *Cassell's Magazine*, *Daily Chronicle*, *Daily Express*, *Evening News*, *Flying*, *New York Sun*, and *The Star*, for their courtesy in allowing me to make use of certain material

which has already appeared in their respective journals; also to Major-General Ruck, C.B., for his introduction, and Lieutenant-Colonel John Buchan for his foreword.

E. C. M.

LONDON, 1918.

INTRODUCTION

BY MAJOR-GENERAL RUCK, C.B.

(President, Aeronautical Institute of Great Britain)

IN this volume Mr. Edgar Middleton brings home in vivid fashion the everyday life of our airmen in the field and on the seas, including realistic descriptions of many of those dramatic incidents which are part and parcel of their existence.

It is well that such stories should be written now they are fresh in our minds and in the heat of the struggle: it will hearten us up. They will also serve as a reference for future writers in more peaceful times, when it may be possible to analyse the conditions which have given rise to so great a devotion, so complete a triumph of soul over body.

There is no place here for individual praise—a personal compliment would be almost an insult; but I may perhaps be allowed to add

my warmest appreciation of the humanity, the dislike of notoriety, and the light-heartedness which punctuate these records.

This war is but the prelude to still greater developments in our social history. Is it not to be hoped that the qualities shown by our gallant airmen, their courage, chivalry, self-denial, enterprise, and buoyancy, will find adequate expression in the new order of things to which we have to adjust ourselves?

As regards the military value of these deeds of skill and self-sacrifice, it is obvious to all and is of vital importance. If our Flying Services had either failed or had fallen short of the high standard they have reached, our present position would have been a most precarious one; whereas now it is generally acknowledged that the overwhelming superiority in the air which, with the assistance of our Allies, we have every reason to expect in the near future, will lead, ultimately, to the complete success of our cause.

All honour, therefore, to those who have done so much to make such a position possible, and I trust that before the account is closed some recognition may be given to those earlier pioneers in aviation, or to their

memories, who, in spite of every discouragement and much ridicule, held to their opinions, carried out the preliminary investigations and trials (many gave their lives also), and laid the foundation for the splendid work of our Flying Service.

R. M. RUCK,
Major-General.

May 23th, 1918.

FOREWORD

BY COLONEL JOHN BUCHAN

(Director, British Ministry of Information)

I AM glad that Mr. Edgar Middleton has put together another collection of his admirable aircraft sketches. He knows what he is writing about, he has himself served in the Air Forces, and he has a sense of drama and the picturesque which can do justice to the amazing romance of the aeroplane in war. Modern science has depressed the human factor in other arms, and soldiering to-day is in the main a matter of masses and the machine. But the same cause has in the Flying Service worked an opposite result. There the possession of one kind of machine takes a man out of the grip of the machine and sets him adventuring in a free world as in the old days of war. No individual exploits of earlier campaigns have ever

excelled those of the heroes of our Air Service. The incredible has become the normal, and Tertullian's paradox is sober truth: *Est impossible? Certum est.*

J. B.

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TRADITION

CHAPTER I

TRADITION

“GOOD stories,” said an airman friend of mine, recently home on leave from a hard spell of flying over the lines—“to tell the truth, I know very few. At least, there’s one or two stunts that—that fellows in our squadron have put up,” he sheepishly apologised.

He was in dread terror lest I should ask him any personal reminiscences. Yet, to my knowledge, he had brought down fully half a score of Huns, had narrowly escaped death in a flaming aeroplane, and had been badly winged by Hun “Archies.” He was willing enough to talk of others, but of himself—not a word.

Thus, unknowingly, he plumbed the spirit that prevails through every rank of our Flying Service. The air of nonchalance with which the most daring raids are accomplished,

to those unacquainted with the British temperament, would savour unfavourably of "swank" and bravado. Yet it is genuine enough, for it has been developed in every schoolboy sports-field in the country—that spirit of "doing one's bit to the best of one's ability, and keeping one's mouth shut very close about it."

Before he took his leave, however, I managed to draw him out sufficiently to tell me of one cool pilot of the R.F.C., who, by every theory of logic, should be wearing a "brass-hat" and directing an army corps. This enterprising youngster—who, by the way, spoke German fluently—landed one dark night beside a German aerodrome. Leaving his machine near at hand, he coolly approached the sentries, chatted with them for a few seconds, and walked on into the enclosure, where he chanced upon a German officer. The latter he plied with polite questions—particularly whether there were any Gotha machines in the sheds and where they were situated.

Having obtained the necessary position, he thanked his informant politely, and strolled back to his machine. A few minutes later

he was in the air, and within three he had "fanned-down" sheds and machines to flaming ruins. "Not really a bad stunt," condescended my friend, in conclusion.

"Really, not at all bad," one would agree. In some ways it reminded me of an incident I had been witness to when I was over there myself. For the sake of flying proprieties we will call him Smith.

Lend your imagination to the scene. A smoke-clouded mess-room; in various recumbent positions, varying degrees of pilots; being British, all silent and painfully shy. As the squadron commander comes in, one—little past schoolboy age—rises from his seat and smartly salutes.

"Oh, you've just come in," says the commander. "I heard you had a fight."

"Yes, sir," replies the boy breathlessly. "B—— and I met six Hun machines. But my gun jammed after half a round. B—— brought down one, I think. I saw it spinning over their lines."

"Where is B——, by the way?" inquires the Commander.

"Not back yet, sir," is the reply; "but I saw him cross the lines behind me."

“ Engine trouble, I suppose ? ”

“ I don't know. But I say, sir—they were rabbits. They wouldn't even wait.”

The squadron commander smiles. The boy resumes his seat with a blush ; borrows a cigarette, and is soon buried deep in an illustrated paper. Ten minutes before he was 10,000 or 12,000 feet in the air, fighting for dear life, hopelessly outnumbered.

Ball, Bishop, Guynemer, Hawker, Insall, Robinson, Warneford—it is all the same story. Point of view, of course, depends on how one looks at it. The enemy pins his faith in development of machines only to crumple up helplessly before the daring initiative of British flying youth. These knight-errants of the skies have created a chapter of British history, prouder epic than ever Homer sang.

A short-lived four years of blood-agony has startled a watchful world with an Italian airman delivering a letter, by hand, from his Sovereign to the King of England, a thousand-mile-odd non-stop flight in a frail biplane ; a French airman hovering over Berlin ; and giant Zeppelins brought flaming to earth by a tiny monoplane and stouter biplanes.

Of the human element, the unsatisfying fragments which every now and then struggle into print convey the barest inkling of the development of the man. That he has developed in his craft is undeniable. But exactly in what manner, or in what particular phase of flying, it is difficult to say. It must be remembered that the Air Service, both in years and experience, is a youthful corps, attracting youth. And, here again, our standardised theories have been sadly distorted in the searching crucible of blood and shell. Youth, invariably, was held to be irresponsible; with warm imagination, but little thought. How clearly the air has negated that belief.

From intimate acquaintance of young airmen, some successful and some otherwise, I can state that flying develops strength of character and powers of reflection almost abnormally. Perhaps it is that the pursuit of the air is so flavoured with conflicting experiences; in a single flight a man will gain more wisdom and more sound common-sense than in a whole year living under normal conditions on the surface of the earth. Perhaps it is due to the fact of that long grim

tussle—and tussle it surely is—that he must wage with Death from the moment he leaves the ground until he has landed safely again. But I have known youths—irresponsible, light-headed, unthinking youths, when they have first reported at a station—develop in a few short weeks into thoughtful, cautious men. The laughter, the gaiety, and care-free attitude was still apparent ; but underneath—in that particular part of his mental anatomy that is as sacred to a man as his life—some wonderful change had taken place. In fact, it is common knowledge amongst airmen that the more hours a man spends in the air, the less daring he becomes, the less risk he takes. You never see an “ old hand ” doing “ stunts.”

I venture a little story to illustrate my point ; meaning, of course, to indicate how necessary in war-flying a man's brain-power has become. Shall we call him Lieutenant B——? There is nothing fictitious about this story. I daresay B—— himself would recognise it at a glance. But there are certain formalities to be observed. “ During a fight lasting three hours and forty minutes he successfully registered two siege-batteries

on a hostile battery, and observed 100 and 150 rounds respectively." Imagine the skill and thought required to carry out an operation of this nature for so long a time. Imagine the hundred and one little subterfuges in which he had to find resource, to save himself from destruction by hostile anti-aircraft fire or enemy machines.

And a little later: "He made four trips and dropped twelve 112-lb. bombs on two aerodrome objectives. Also he carried out a large number of successful counter-battery and trench registration shoots under exceedingly unfavourable weather conditions"—it takes a wise man to encounter Nature in her own province, and to get away with it—"and has at all times carried out his duties in a thoroughly keen and able manner, displaying a magnificent spirit of dash and energy."

Amazing are the situations which occur in aerial fighting. And they require all a pilot's thought to extricate himself. Here is one instance, concerning the manner in which a solitary British seaplane beat off the combined attack of five enemy craft, in open fight. With a companion, this pilot had set

out from an English coastal base, for reconnaissance patrol.

Somehow, once they got out to sea, they became separated. Seaplane number one was already far ahead, when three German single-seaters dived from the clouds on to the rearmost machine, opening fire from two to three hundred yards. Machine-gun bullets splattered the British machine from all sides. For the time being, all he could do was to keep up a running fight.

Then brains began to tell. Suddenly his machine veered from side to side, in sharp zigzag sweeps. Not only did this manoeuvre serve to put the German gunners off their mark, but also it made it possible for his wireless-operator and engineer to bring their rear guns into play.

Very soon the engineer, with a rapid and accurate "burst," hit the leading enemy machine, and brought him crashing down to the water's edge. The others hesitated; then turned and flew off rapidly towards the Belgian coast. Compare this deed with those of the pilots of the early days.

The 1914 pilot, gallant and daring as he invariably was, was but a puny weakling of

his craft compared with his brethren of 1917. Piloting an aeroplane was the last—and only—stage of his education. Operations were carried out after the manner of the privateersmen of the Middle Ages. In one single flight he would combine reconnaissance, bombing, direction of artillery fire, and aerial combat. Such a flight to-day would end invariably in disaster. Half a mile out from home he would be pounced upon by some enemy fighting-scout, lurking behind the clouds, and his exit would be rapid. Rifle-range often limited his altitude of operations. Now the latest type anti-aircraft guns find targets at a height of over 15,000 feet.

These few facts are written down with no intention of belittling the prowess of those hardy pioneers of the early days, who in courage were giants but in skill little more than children. I remember well one of those early meetings at Hendon, long enough before the war to be forgotten. It was a Sunday—usually a field-day of local conception and construction. All manner of quaint “crocks” were wheeled out on to the aerodrome for a try-out. Half the morning would be spent in getting planes and engine attuned. Then

the aspiring airman would clamber into his machine. The spectators would surge forward, coaxing and cheering, in the vain delusion that they were at last to witness a real long flight.

Unhappy faith to be so shattered! Away would dance the plane, engine roaring, bounding, and bumping like a giant grasshopper across the unlevel surface of the ground, until, with a last painful effort, she would soar into the air, and come heavily to earth again, a few hundred yards ahead. More tinkering, more bouncing across the ground, and more short-lived leaps. But this unfortunate—and usually costly—amusement was mainly instrumental in paving the way for the aeroplane of to-day, also the pilot.

Yes, they certainly had pluck, those pioneers. For how else would the hundred antediluvian craft and sixty-six pilots of the original Flying Corps have driven off the systematised attacks of numerous and highly organised squadrons? And of them is related one of the cheeriest yarns of the war. But it will first be necessary for us to carry our minds back from the roaring Flanders battlefield to the comparative seclusion of home.

On a large table in the corner of the grill-room of one of the most fashionable restaurants in London could have been seen, one autumn evening in 1915, the setting for a most sumptuous repast. Other diners were not slow to observe the lavish display of flowers and glitter of wineglasses, and expressed their feelings somewhat pointedly concerning this unnecessary wartime extravagance. The *maître d'hôtel*, cross-examined, was politely discreet. "Merely a party of military gentlemen who desired to celebrate in suitable fashion some anniversary of the war."

With cantankerous references to temporary gentlemen, the pessimists applied themselves to their meals and waited with indignant eyes the arrival of the party. They were not long to arrive. But as the first guest came in, their feelings underwent a sudden change, for he was being pushed by a kindly waiter in a bath-chair—a poor maimed figure of a man, without one arm and with both his legs missing, and on the left breast of his khaki tunic he bore the wings of the Flying Corps and the decoration of a Companion of the Distinguished Service Order. The second

and third guests were wheeled in in a similar conveyance. The fourth was led in—a great, broad-chested youth, blind in both eyes; while the last two men hobbled painfully across on crutches.

But, at least, if they had paid the dread price of war, they had not lost the happy faculty of enjoying life. The party bubbled over with mirth. Merry peals of laughter rang across the table. Toasts were pledged and toasts drunk. The conversation scintillated with gay quip and happy jest. And whilst many looked on with tear-dimmed eyes, they alone knew it was good to live, good to laugh and joke, good to enjoy the savoury dishes placed before them. For they had earned the right.

Of eight who had crossed in the twilight of that August evening but a year ago, only six remained; the other two had gone to swell the already lengthy Roll of Honour. A year ago that night they had solemnly pledged that if they were spared they would meet together at this same dinner-party. Those who could had kept their word. But in that brief twelvemonth had passed a lifetime of unimaginable agony. They had been

instrumental in guiding the destiny of two great nations and assuring the sacred safety of the modern civilised world.

A CLEAR HORIZON

CHAPTER II

A CLEAR HORIZON

NOWADAYS flying is highly specialised in every branch. The flying commanders are young men, who possess, necessarily, more initiative and imagination than their grey-haired military predecessors. The Army might be content with fitting square pegs into round holes, but in the Flying Corps they believed, and, moreover, insisted, on having the right man in the right place.

For these youthful authorities it required no great mental effort to realise that essentially scientific professions as photography and wireless operating were not matters for hastily trained naval and military men, but rather for civilian experts. Highly necessary it was that these experts should be inculcated with the Service point of view. And to this end they were graduated through a five- to seven-months' course that included instruction

in military duties and drills, military aeronautics, a course of technical instruction dealing with engines, construction of aeroplanes, and the theory of flight. They were taught to fly Service machines under Service conditions, aerial tactics, bombing, combat, and artillery observation, after which they were told off as specialists to respective wings.

In the long period of training a man's particular faculty would invariably display itself. Civilian experts were intended throughout for their particular profession. A youngster exhibiting aptitude in bomb-dropping had his attentions officially confined to that matter henceforth; an expert map-reader found himself doomed to reconnaissance for evermore; and—rarest species of all—the aerial fighter passed his days in mock combats in the clouds.

What was the result of this detailed course of instruction? To-day, on every front of war, we find the British airman holds the skies. The craft have been specialised with the pilots. There are speedy fighting-scouts, slower and more cumbersome reconnaissance machines, and huge double-engined battle-planes, each with its special purpose. And

the modern aeroplane has been developed to such a pitch that it almost flies itself. In fact, it is one of the axioms of fight, when the pilot or his machine has been hit—the best thing to do is to do nothing. “When you’re hit, just take your hands off the stick,” is the advice of experienced pilots. “If there’s sufficient left in her, and you’re high enough above the ground, she’ll right herself; if not, there’s nothing can save her.”

On this particular matter my nervous friend waxed almost violent. “What’s the use,” he complained, “of sitting in a mechanical contraption that works itself, and you’re the dummy that pulls the controls? One might as well be a tram-driver. I don’t believe even that would be as boring.”

I am afraid his viewpoint was somewhat exaggerated. The familiarity of train-travelling has been long enough with us to breed contempt, but not long enough to eliminate an occasional catastrophe. Daily we read of motor-car and tram accidents and collisions at sea, and more and more, unfortunately, of mishaps in the air.

In this manner a certain British pilot had recently the most unnerving experience

possible. On the Western front, and flying alongside another machine at an altitude of well over 10,000 feet, he was horrified to see the engine of the other man's machine burst into flame. The fight for life that ensued passes words and imagination. The pilot, who was flying alone, hurriedly tore off his flying-coat, and attempted to beat down the growing flames. The first man could see the yellow, red tongues licking slowly farther and farther towards the pilot's seat, and cursed himself for his own helpless position. He must sit strapped down, while another man was being slowly roasted to death within fifty yards of him.

Suddenly the pilot of the flaming machine seemed to realise that any hope of life was impossible. He smiled, stood up in his machine, then waved his hand and calmly dived overboard into space.

"I have nightmares of that sight to this day," the other pilot told me. "It was too horrible for words."

Principally, specialisation has made possible double the amount of flying in half the time. In the month of September 1917 alone, 285 German aeroplanes were

either brought or driven down. That is more in one month than in the entire 1914 campaign.

In the daily communiqués we find such extracts as "Ninety-eight bombs were dropped by our aeroplanes during the day on enemy's billets and hutments," or, "Over 10,000 rounds were fired by our aeroplanes from machine-guns at hostile infantry in trenches and shell-holes on the road."

Here in England we have been raided by Zeppelin and aeroplane, by day and by night, in moonlight and darkness. In the full glare of noon a squadron of Gothas circled London with all the nonchalance of a practice manœuvre. What mind could have conceived these happenings, say, four years ago?

Another curious development is that of night-flying. Nowadays, considerably more work is carried out in the air by night than by day. Only a short time ago fourteen giant Capronis, in a flight of over a thousand miles, raided Cattaro by night, and returned without casualty.

On moonlight nights the sky is alive with speeding, phantom shapes. By twos and threes, and sometimes in whole squadrons,

the enemy comes creeping over our anti-aircraft fire to bomb our hospitals and stretcher-bearers, until British craft flying out to meet them, they make off at top speed. In similar fashion, well-ordered British bombing formations are to be heard—and seen—passing overhead, to disappear later over the enemy's country accompanied by an incessant yapping of anti-aircraft guns. Others fly off singly or in pairs, bound for all manner of strange adventures.

One of these roving commissions chanced upon a hitherto undiscovered enemy aerodrome one night. He planed lower to investigate. The landing-ground was ablaze with light, and there, drawn up in a long line, were a squadron of Gothas about to set out for a bombing expedition in our lines. Half a dozen British bombs were sufficient to destroy at least half the assembled craft and to put off the anticipated raid for a day or so. Then the British pilot calmly proceeded on his original mission.

Meanwhile a couple of kindred craft indulged in the unusual pastime of flying down the main streets of a town at the level of the housetops, firing at bodies of hostile troops,

marching up to reinforce their hard-pressed companies in the front-line trenches.

On shore and sea alike war in the air is waged incessantly, by day and by night. Gradually—so gradually as to be almost unnoticeable—the naval pilots have begun to co-operate with their brethren of the Army wing. Formerly the functions of the two Services were entirely dissimilar. Then several squadrons of naval aircraft were loaned to the Western front. So successful was this combination that we find Haig reporting of the R.N.A.S. in the daily communiqué that “the pilots have shown energy, gallantry, and initiative, and have proved themselves capable of hard work and hard fighting. Further, the machines with which they are provided have undoubtedly helped largely towards the success of the aerial fighting which has taken place this spring on the front of the British Armies in France.”

Of more recent date naval machines have greatly co-operated with General Allenby's Army on the shores of the Holy Land. From the river Wady the unhappy Turk was hurried on to Gaza, from there to Askalon, and he

was badly mauled *en route*. A ton of bombs was dropped from a low altitude by one big squadron alone. Also numerous hits were recorded on two large bodies of troops, numbering about 5,000 of rank and file.

To this naval and military co-operation may be added yet a greater international alliance. America takes the air very seriously. Her battle-cry is "Through the air to Berlin." Already she has allocated £128,000,000 for the immediate construction of 20,000 aeroplanes and the training of 100,000 flying men. With the typical touch of hustle, two of the best engineers in the country were locked together in the room of a Washington hotel for five days, charged with the development of an aeroplane motor for use by American aviators over the battle-fields of Europe. They produced the required engine within twenty-eight days.

For over a year the American Lafayette Squadron has been co-operating with the French Flying Corps. The advanced detachment of the American flyers are already in the war area, picking out the lay of the land.

The splendid services of the French have been adequately recounted in the columns

of the daily Press, and need but a passing reference here. The giant Italian Caproni has already won world-wide fame. Originally a rather clumsy and awkward craft, the Italians worked away at it so deliberately during the winter that to-day the Austrians have been driven from the air on every hand.

Stories of the work of these gallant airmen occasionally drift through to this country. The best of such was undoubtedly that of the twenty-year-old Arturo dell' Oro. Twice in aerial combat his machine-gun failed him at the critical moment. And he made a vow that, should such a thing occur again, he would not hesitate to ram his machine into the enemy craft.

The following afternoon an Austrian "Brandenburg" loomed up across the skyline. Up went the youthful airman to attack him. Soaring to a great altitude, he opened fire on his adversary from above. Then the steady "pit-pit-pit" of his machine-gun went off as suddenly as it had commenced.

His companions, who were party to his vow, watched anxiously to see what he would do. The Austrian was already making off for his base, when, without hesitation, Arturo

put the nose of his machine down at a terrific speed, took the enemy amidships, and both went hurtling to earth from over 10,000 feet.

While, queerest, and certainly most tragic, of the last flights was that of another Italian airman, Olivori. The first of his corps to bring down five enemy machines, which feat permitted him the proud title of "ace," Olivori had added seven to his bag before flying home himself. Fatalistic to a degree was the manner of his last farewell. Laughing and joking with his friends, the conversation suddenly turned upon the recent death of the French champion, Guynemer. At the mention of his name Olivori was observed to go deathly white. He spoke not another word, but walked to his waiting machine and flew off, and had risen barely 200 feet when his engine failed, crashing both pilot and plane to earth.

In the enemy country, more than in any other, aircraft construction is being carried on at fever pitch. Every consideration is being swept away before the deep-throated call of the air-raiding Hun.

Motor-building factories and aeroplane works are enlarging their plant and doubling

and trebling their personnel to cope with the influx of orders. The Fokker firm, in particular, have taken over the great Barzina piano factories in Schwerin.

The craft under construction are battle planes, fighting planes (in large numbers), triplanes (remarkable for speed and climbing powers), and heavy three-seated bombers, fitted with 260 h.p. Mercédès, with a climb of 12,000 feet in thirty-five minutes, and capable of carrying 1,700 lb. and 1,800 lb. of bombs.

A species of aerial tank is also under construction. This craft will be built entirely of metal, and is intended for work with the infantry; while a new type of Zeppelin, embodying several new inventions, is being constructed at Friedrichshaven.

Germany lies in the very centre of the air war. France, Belgium, England, and Italy can all attack her from every point of the compass. To meet these deadly attacks the enemy must spread her defensive forces over a very wide area.

The most vital points in their lines of communication—the Rhine bridges—will be at our mercy. They number eighteen in all,

with, in particular, the bridges of Cologne, Bonn, Coblenz, and Freiburg. Such important German military positions as Freiburg, Strassburg, Karlsruhe, Mannheim, Cologne, and Essen all lie within easy riding of Nancy.

But whatever is done must be done without delay. Aerial warfare moves with tremendous speed. And such speed is only possible when thought is combined with action. The Allies must hold the mastery of the air, for on it their future national existence depends. And to hold the air we must lay down three craft to every one that Germany constructs.

FROM DAWN TO TWILIGHT

CHAPTER III

FROM DAWN TO TWILIGHT

ONE can only realise the extent of the aerial battle—and battlefield—by studying a large-scale map of the entire battle-front, and the use of the imagination. From south of St. Quentin to the North Sea must be at least one aerodrome to every three miles. Kite-balloons dot the line-behind-the-line, three to a mile. Double these estimates, and you have the total number of aircraft of both belligerents working in the air at the same time.

The headquarters staffs of both British and German armies are employing reconnaissance and photographic craft for purposes of information; likewise army corps and divisional commanders. Kite-balloons and aeroplanes are directing artillery fire. And, for their protection, fighting craft are skimming the clouds, or carrying out semi-personal "hates" and "strafes."

There are no sign-posts or landmarks in the air ; neither latitude nor longitude. But, fortunately, some far-seeing map-designer has marked off the contour map-surfaces into alphabetical districts and numerical localities. By this method alone can the geographical positions of the "working" aircraft be decided.

Scores of tiny shapes, thousands of feet up, against the blue sky will be located as being over A1,B2.3, or C3,A6.7. At B4,A2.8 on this particular day an R.A.F. pilot dived on to a German captive-balloon, through a considerable a-a bombardment, and brought it down in flames.

Five miles to the south, another pilot, who had just bombed a railway with agreeable result, was wounded in the arm, and fainted. The dive of his machine brought him round. Again he took control, but shortly afterwards lost consciousness once more. Eventually, despite the pain and the loss of blood, he succeeded in making his own aerodrome. The pilot of the consort machine also was hit. But in this case the observer took on, managed to keep the machine level, and flew it until his pilot recovered. Again

the latter fainted. And again the observer handled the control-stick, managing to land the machine under very difficult circumstances well within our lines.

At B3,A7.5, in the same locality, an officer of the same squadron was effectively demolishing an enemy railway-bridge. Four thousand feet above a British photographer was disturbed at his work by several enemy craft. The fight was short and sweet. One of the intruders went hurtling down to the earth. This decided his companions, and they made off. The photographer "carried on."

In another sector the enemy was making a "push." Our corps, hard pressed, was urgently requiring information as to the deployment of his reserves. Despite the outrageous weather conditions and the fact that several previous attempts had been made for the same reason without success, a pilot essayed the flight from a local aerodrome. This was his second attempt of the day. Profiting from past experience, he flew over at a height of only fifty feet through a murderous rifle and machine-gun fire, and returned with the desired information, still smiling.

I doubt if it is possible to describe ade-

quately the terrors of these same "unfavourable weather conditions" to the reader who has never flown. Let him imagine himself to be in the middle of an open heath, without shelter of hill, tree, or house, and overtaken by a violent thunderstorm. Let him, again, imagine himself to be in that same thunderstorm, 5,000 feet above, in a frail aeroplane, buffeted on all sides by howling winds, trounced with blinding rain and knife-edged hail. In a single recent thunderstorm three British pilots and their machines were hurled to the ground—one of them discovered the same evening, eight miles to the south of his course, lying in a field, with both wings shattered, and his engine and fuselage an undistinguishable pulp. But one man got away with it, despite storm and wind and rain.

As the black clouds broke and the jagged flashes of lightning streaked the sky, he was diving down on to a company of enemy infantry. Five miles he was from his own base, with every prospect of being brought down in the enemy's country. Even this failed to daunt him.

Sightless with the driving rain, the Germans

fired wildly in all directions. Like a flash he was within fifty feet of them, spluttering their harassed lines from the seething barrels of his machine-guns. Again he dived, and was hit by a shrapnel fragment. The storm was still raging with bitterest intensity, but he recovered himself. He returned to the charge; diving, climbing up into the storm, and diving again. In all he got rid of between 500 and 600 rounds of bullets. Providence must have set a special guard upon his course that afternoon, for he got home all right.

And here is another *coup de main* of a brother-pilot hidden two miles away in the storm. As the official *Gazette* described it, "In spite of thunderstorms, and the use of smoke screens by the enemy, he ranged a British gun on a hostile battery position, obtaining eight good hits, destroying two gun-pits and causing a large explosion. He afterwards ranged them on to another battery, destroying a gun-pit, obtained three direct hits on a farm full of troops, and then silenced four batteries."

These are but incidents of the flying man's working day. Between dawn and sunset they

may be doubled, even trebled. Take, as an instance, the record of Captain Trollope, R.A.F. The day was March 24th, 1918, the third of the great German push. His bag included :

Morning—A German two-seater, shot to pieces, in flames; a second two-seater brought down, and a single-seater downed in a spin and seen to crash.

Afternoon—A German two-seater exploded in mid-air.

“Then,” as he said, in a letter to his parents, “I saw two two-seaters very low down; I crashed both of them.”

Vice-Commander and Captain John L. Trollope is twenty. And now—though previously reported missing—he is wounded and a prisoner in German hands. His story reads like a romance. He has been through every phase of the war. In June 1915 he was a despatch rider, carrying messages from corps to corps, by motor-cycle. In this way he received his first wound. But, nowise daunted, he transferred to the Naval Wing of the R.A.F., and twelve months to the day

was a fully qualified air-pilot. From that time on he was fighting in the air, over the battle-lines, until, in March 1917, he was sent home to instruct pupils.

He was back again in France by March 1918. For in a letter home he describes to his parents his experiences of a great fight on March 13th. "I had a bullet through both my tanks," ran the letter, "and had to glide for the lines. I turned upside-down on landing, landing at some old trenches." His postscript was characteristic. "But I came out O.K."

Last seen—shortly after dawn on March 28th—he was fighting hard with enemy machines on the eastern horizon.

Four German aeroplanes in ten hours is the day's record of another British pilot, Captain F——. On another occasion, with another pilot, they bagged seven Huns before breakfast, three of them to F——. Another twenty-year-old youth, he has been in France ten months, having brought down over fifty Hun aeroplanes and five kite-balloons, the squadron to which he is attached laying claim to 300 Boche machines.

A squadron is subdivided into flights.

Captain F—— led a flight of six pilots, for three months, without a casualty. That in itself is a record for war-flying. Once, when fighting a German two-seater, he had the narrowest possible escape. The goggles were shot away from his eyes. In the machine the Verey lights caught fire, setting the wood-work alight. Yet he managed to glide his flaming craft back into his own lines.

And another similar, though somewhat more hazardous adventure befell an observer, some three miles east of the Salient. At 8,000 feet in hot fight, the petrol tanks of a British plane were pierced by machine-gun bullets from a German "Albatross." Despite the extreme danger, the observer got to the tanks, and effected the necessary repairs. Then he noticed that the starboard engine was boiling violently.

At the urgent request of the pilot—who throttled down the engine and slowed speed as much as possible—the observer climbed out on to the lower plane of the wing, clinging desperately with one hand, almost hurled off with the force of the head-wind, and effected extensive repairs to the water-circulation system, thus enabling the engine to be

opened up to the desired number of revolutions. All this was carried out in a period extending over 105 minutes, and entirely in the open with a wind-force of ninety miles per hour.

THE AIRMAN'S LOG

CHAPTER IV

THE AIRMAN'S LOG : SOME RECORDS OF THE SKIES

THE log of the airman is hardly exciting in its official form, but it is when little personal notes come creeping in at the tag of some stereotyped phrase that it grips and thrills. Here is an instance: "Four machines sent up managed to bag five Huns before breakfast."

Another youngster—since brought down by enemy "Archies"—left on record that: "I then went over the German trenches filled with soldiers and was fired on by machine-guns, rifles, and small field-guns, in or out of range!" He landed at the first likely spot he saw—it must be explained that he had been mortally wounded in the interval, and was sinking from loss of blood—"My machine was badly shot about."

There are logs in history—of the adven-

turous old sea-captains, roaming the ocean in search of the New World. In words of blood they were written. Their pages were filled with romance and tragedy, adventures and courage, that no Kipling or Jules Verne could imagine. There is an old brass-clamped volume—long forgotten—that lies in a museum in Madrid, containing the memoirs of Christopher Columbus, the day before he and his adventurous crew sighted that wonderful new land of America.

“Pray God,” it runs, “that, with tomorrow’s dawn may come deliverance. Already the men grow restive, and are threatening to mutiny. For two days now they have had no food. Unless we sight land soon I fear they will rise and kill me. But, does such land exist? Is it only some wild fancy of the learned men? I am beginning to fear so.” . . . Then the next day’s entry: “Land at last. . . . Yesterday the *Pinta* picked up a piece of wood, rudely carved, and the *Nina* a branch of thorn, with red berries. I wept like a child when first that barren shore showed up through the sea-mist. When the call of the watch went up, ‘Land ahoy!’ the sailors did but laugh at him.

But as he did persist, they crowded to his side. Now, they are busy planning the conquest of this unknown shore ; and dreaming of what they will do once we have landed. For myself, my heart is bowed down with the weight of my exceeding joy."

Of Scott slowly starving to death in the great snow-bound waste of the Antarctic, we remember that last message to the country found in his log, written : " For my own sake I do not regret this journey, which has shown that Englishmen can endure hardship, help one another, and meet death with as great a fortitude as ever in the past. . . . We have no cause for complaint, but bow to the will of Providence, determined still to do our best to the last " ; and his reference to " that very gallant gentleman," Captain Oates, who walked out into the snow, so that he should no longer be a burden to his starving companions.

There have been other very gallant gentlemen who have flown off with the twilight, never to return. What happened to them, none can say. But sometimes their logs have been found, filled in to the moment when they must have been hit and their aeroplane plunged headlong for the earth, Sometimes,

on these tattered records will be found an ugly brown smudge ; that tells its own story, but too eloquently. A captain of the R.F.C. went out one day early in the war, to make a long flight over the enemy country. On the way out he was hit by shrapnel, and his thigh was shattered. This much he tells us in his report: "I was wounded, but determined to keep on, as the reconnaissance was of the most vital importance." The report went on almost to the moment of landing. Then his machine crumpled to pieces ; and he was found dead. The report—the log—apologised that he could not finish it, as he was "so weak and faint from loss of blood."

The modern log of the flying man differs little from that of the master mariner. It does not tell of seas and shores and hidden rocks. Instead, there is something, if possible, more fascinating. It recounts wonderful adventures: racing through the clouds, diving down to the earth at hundreds of miles an hour, plunging and rocking in a sudden thunderstorm, battling for dear life against the mighty winds of the skies.

It is the unvarnished narrative of what

Lloyd George referred to—on that historic occasion in the House of Commons, when moving a vote of thanks to the Flying Services—as where “the heavens are their battlefields. They are the cavalry of the clouds. High above the squalor and the mud, so high in the firmament that they are not visible from earth, they fight out the eternal issues of right and wrong. Their struggles there by day and night are like a Miltonic conflict between the winged hosts of light and darkness.”

A young naval pilot refers in his log to one of these battles in the heavens:

“When at 11,000 feet I saw ten Gothas coming inland. I climbed up to them and engaged one on the right of the formation about three miles out to sea at something over 12,000 feet. Fired a hundred rounds from straight behind his tail at a hundred yards range; bullets were seen to enter the Gotha's fuselage. The machine started into a slow spin. I followed and fired about twenty-five more into him to make sure. My gun then jammed, and in trying to clear I got into a very fast spin with my engines on. Got out of this in time to see the enemy crash into the sea.

“I then landed, had my gun-jam cleared, and I went up after the remaining eight Gothas—one had been shot down in flames in the interval—and caught up with them at 14,000 feet and engaged them in turn from above and below. Then devoted all my attention to one Gotha, and after firing 200 rounds into him, silenced both his guns. I think both the German gunners must have been hit, as I was able to get within sixty feet of him without being fired at. I finally ran him out of ammunition.”

The following extract is of a very different nature. It is from the log of Paul Pavelaka, a young American with one of the most romantic stories of the war. Previously he was a gipsy, tramping the United States. He was twenty-six when he died. He beat his way round the globe and halfway back again, whereupon he ran into the war. He got a wound fighting Huns with the Foreign Legion, and the Croix de Guerre fighting Huns in the sky with the American Escadrille. On this occasion he missed being burnt to death in a flaming aeroplane by what was almost a miracle. Here is his story :

“I was at about 10,000 feet when I first

became conscious of a slight smell of burning. When I looked towards the petrol-tank, I discovered a tiny flame licking round the base. From then on it was a nightmare. All that I was conscious of was a sudden rush of smoke and flame. Hurriedly I put her down towards the earth. And, as I did so, the flame beat almost into my face. It seemed like an eternity before I got down. And I only accomplished that with a smashed wing and a broken propeller. I was pretty well dazed for hours afterwards."

There has always been considerable uncertainty as to the manner in which that "ace" of British airmen, Captain Ball, V.C., met his death. It has now been described in the record of the celebrated Captain von Richthofen, who is credited by the Germans with having brought down sixty-four Allied aeroplanes.

"It was my brother," this doughty airman wrote in his log, "to whom this signal honour fell. The famous Captain Ball—by far the best English flying man—was his twenty-second adversary. The equally well-known Major Hawker I had already taken to my bosom some months earlier. It gave me

special joy that it should be my brother's luck to down the second of England's champions.

“ Captain Ball was flying a triplane, and encountered my brother alone at the front. Each one tried to grip the other, and neither exposed his vulnerable part. It proved a brief encounter. Neither of the two succeeded in getting behind the other.

“ Suddenly within the brief moment of mutual frontal attack both managed to fire some well-aimed shots. Both flew at one another ; both fired. Each had a motor before him, and the chances of a hit were very slender, the speed being double as great as the normal. There was really little probability of either hitting the other.

“ My brother, who was somewhat lower, had banked his machine too much, and he lost his balance. For a few moments his machine was beyond control. Very soon, however, he regained command, but found that his opponent had shot both his petrol tanks to pieces. To land was, therefore, the only resource.

“ Quickly ! Out with the plug or the body will burn ! The next thought was ; ‘ What

has become of my opponent?' At the moment of canting he had observed how the enemy also had swerved aside. He could, therefore, not be very far from him. The question arose: 'Is he over or under me?' He was below. My brother saw the triplane swerving again and falling ever more deeply: Captain Ball fell and fell until he reached the ground. He was in our territory.

"Both adversaries had in the brief moment of their encounter hit each other with their powerful machine guns, and Captain Ball had received a shot in the head.

"He had on him some photographs and newspaper cuttings from his home country in which he was greatly praised. He appeared shortly before to have been home on leave.

"During Boelke's time Captain Ball had destroyed thirty-six German machines. Now he, too, had met his master—or was it a coincidence that a great one such as he should also die the usual hero's death?

"Captain Ball was without doubt the leader of the anti-Richthofen squadron, and I believe that now the Englishmen will prefer to abstain from trying to catch me. I am sorry for this, because thereby we are robbed

of many a fine opportunity for giving the English a jolly drubbing.

“Had not my brother been wounded, I believe he would, on my return from leave also have been granted his leave with fifty-two Englishmen to his credit.”

A somewhat similar vainglorious recital is to be found in the private diary of a member of the crew of one of the Zeppelins which raided England in 1915. It commences with the receipt of a telegraphic order from Berlin: “Weather favourable; attack London to-night,” and continues: “Punctual to the minute *L 33* leaves its hiding-place, the motors begin to hum, the ship rises majestically and we are off—against England. . . .” The day was ending when the steersman reported: “Twenty-six miles from the coast.” Then, “Land in sight. We recognised Yarmouth, and then the ships separated to avoid collisions in the darkness.” A couple of minutes later the wireless operator brought the information that the English had sparked, “Zeppelins over the Wash!”

“At 12.15 we were over the Thames to the west of London. Then, ‘Full speed ahead,’ Suddenly a number of search-

lights began to work ahead of us. Shrapnel and shells burst all around the ship—the *L33*—but it came safely through, and we saw her bombs dropping on the city, and fires breaking out at various points.

“ Meanwhile we had reached the suburbs. ‘*Klas zum Warfen*’ and then ‘*Abwerfer!*’ are the commands, but in the same moment a searchlight catches us. The first bomb falls and others follow at short intervals. In spite of the hum of the propellers and the noise of the motors, we can hear the bombs exploding, and the shrapnel in our neighbourhood.

“ At 1.15 we crossed the coast-line, and at 2.30 this message was sparked: ‘Place North Hinder Lightship. London attacked.’ ”

The airman's log embraces earth and sky, cloud and trench and sea alike. In that breezy vernacular of the air, it whispers apologetically of “stunts” and “buses,” “bumps” and “planes”; it pictures badly winged craft battling for life against the horizon of the skyline; and also of long, dreary watches over the grey wastes of the seas.

The romance and daring of these flights find full flavour in a few—often ill-spelt—words. The phrasing lacks nothing of the

picturesque. Refreshingly original is the wording, and the matter smacks of clear heavens and sparkling skies.

In the log—irreverently termed “game-book”—one comes across such phrases as: “Number Three was troubled by a searchlight and dived for it. Sliding down the beam, he smashed it up effectively.”

Then the stern eye of authority commenced to frown on such levity. Orders were issued that the words “plane” and “bus” were no longer to be employed in official reports when referring to an aeroplane. “Laying the eggs,” “getting pipped,” and “doing a stunt” were less desirable expressions than dropping the bombs, being wounded, or making a flight.

For the guidance of future offenders a schedule was drawn up. Worded in choice official phraseology, the average report now reads somewhat after the following manner: “7.20 a.m., 8,000 feet, B,A2.7 over the trenches; considerable activity in the enemy reserved trenches. Two pill-boxes observed, B,A3.9, also a tank trap, covered by planks, tree branches, and gravel. 7.30, 9,000, train, locomotive and five coaches, proceeding

westerly direction between S—— and M——, ” and so forth. All of which the Flying Services “chewed over” round their mess-tables and around bleak aerodromes. Until, finally, if not turning a blind eye thereon, at least winked at barefacedly.

And, somehow, that personal note would come creeping into their reports. The breezy nonchalance, the genuine joy of the profession, would not be denied. Thus we find one hardy adventurer :

“ I came down to 2,500 feet, and continued my descent at a rate of well over 100 miles an hour. At about 1,000 feet I loosed my bombs all over the place. The whole way down I was under fire—two anti-aircraft in the yard, guns from the fort on either side, rifle fire, machine guns, and, most weird of all, great bunches of what looked like green rockets, but I think they were flaming bullets. My chief impression was the great speed, the flaming bullets streaking by, the incessant rattle of the machine-gun and rifle fire, and one or two shells bursting close by, knocking my machine all sideways and pretty nearly deafening me. . . . My eyes must have been sticking out of my head like a

shrimp. I banked first on one wing-tip and then on the other, now slipping outwards, and now up and down. I covered, I suppose, getting on for 250 miles. Have not yet heard what damage was done. The C.O. was awfully braced!"

Perhaps pardonable under the circumstances.

"I was using the bow gun and was leaning over when he came out right under me. . . I shot him, and the machine went into a nose-dive."

Thus a United States naval airman has it written in his private record concerning a fight in the North Sea, with five Hun machines, in which he participated.

"Three of us," he wrote, "were on patrol in the morning, and just beyond the North Hinder five Huns drove on our tails. We fought for forty-five minutes, and in the middle of it a submarine bobbed up right under me. We had all dropped our bombs at the start of the fight, so that all I could do was to give him a few shots which drove the hatch closed and the boat to duck.

"Well, it was a running fight. The chief picked two crews that he felt confidence in, and

I was picked. We had orders to keep our bombs, to run from nothing, no matter what the odds were against us, and to show the Hun that we could fight. Nice start for a party. So out we went and ran on to five Huns sitting in the water near their coast. They jumped up and we went for them.

“ We started with a stern action and we were landing too hot for them. They fell into a circle as quick as you could wink and circled below us. We simply riddled them and they did the same for us. One tried to cross our bow to ram us, but misjudged, and as we held on he had to go below us.

“ I was using the bow gun and was leaning over when he came out right under me, with the gunner who sat aft looking at me and pointing his gun in my face. I shot him, and the machine went up on its ear and into a nose-dive. It levelled out just at the water and withdrew. I don't know how much damage was done. We had no time to look.

“ Then my pilot rushed the remains of the circle and broke it up. They ran away in column ahead, but again this put us at an advantage, so they formed a higher and larger circle and really started to ‘lay us cold.’

“ My wireless man, who was using a rear gun, was shot through the neck, and my gun had got so hot by then that the sights had rolled off, and I took what ammunition I had left and crawled back over the lower plane.

“ They saw me crawling in and made it quite hot. Luckily for me, I slipped on his blood and missed a very good burst that was meant for my head. Then I used his gun until we ‘ had put it over them,’ and our ammunition ran low.

“ We used 2,500 rounds between the two machines. Most of the action was at 200 feet.

“ It was a regular bull-dog fight and very dirty work. We made them change their minds, I think. It was the best fight we ever put up from this station, and the first pilots of the machines simply ‘ stuck them in to it.’ The air was literally full of lead and traces of smoke.

“ But don’t run away with the idea that the Hun won’t fight. He had no idea of letting us get away with it that I could see.”

In other instances the log would assume more impersonal a note. Squadron and Wing Commanders would report of Flight-Sub-Lieut. X. or Captain Y. that :

“ He ambushed three aeroplanes from a cloud, dived at them, and then, suspecting a trick, zoomed up to find three fighting planes diving at him from higher clouds. Though below them, he accepted the challenge, and at once doubled up the first one he met.”

“ He attacked a formation of fifteen hostile machines returning from a raid on England. Closing on one machine, he engaged it at close quarters and sent it in a nose-dive into the sea.”

And of another pilot, unknown, that :

“ After a long chase he engaged and brought down one of the enemy raiders returning from England. He engaged a second, but his gun jammed, and though he continued the pursuit to the enemy coast, he could not clear his gun.”

While, at sea, the R.N.A.S. has on record that :

“ They fight when they must, and the straightest shot wins. If hit, unless hopelessly out of control, they take to the water like a wounded duck. If the damage is beyond temporary repair, they sit on the surface and pray for the dawn and a tow from a friendly destroyer.”

Here, on the other hand, is the version of a German airman participating in one of these raids on Great Britain. He is Watch Officer Senior Lieutenant of the Naval Reserve Greener. As they approach the British coast in the twilight, he records in his log :

“ The English coast must come into sight any moment. Sure enough, there it is in sharp outline. Soon we shall be near enough to recognise where we are. . . . Slowly, quite slowly, we approach it. Once in a while a cloud intervenes. But as yet all is quiet and peaceful. Now the coast lies perpendicularly beneath us. Now, now at last we near the goal of our desires.

“ The English are waiting for us !

“ We don't intend to be kept out. Tonight we have time. The night is longer than in June. So on we go. Now and then a searchlight picks us up. Now and then a shot flares at us. . . . But, notwithstanding, there it is—quite plainly—our goal—London. Thou city of my dreams—the cause of my sleepless nights ! . . . A brilliant wreath of searchlights betokens the prize from afar.

“ The captain consults his map and compass, and then commands, ‘ Cross London

from north to south and then veer to the east.' . . . Beneath us we can see and hear that our presence is detected. We discern masked lights. Others burst forth and go out. They are the muzzle-flashes of the anti-aircraft guns. Searchlights stab the sky, first slowly, carefully, anxiously, then wildly, from this, then from that side. Sometimes they locate nothing but a drifting cloud. But now they have found us. Even oftener and more accurately the ghostly white stabs of light are directed straight at our craft and envelop us. Suddenly it gleams bright as day.

“Now shrapnel is bursting fiercely all around us. Shells are tearing at us like birds of prey with flaming eyes. Fore and aft, below us, above us, everywhere, they scream and roar. It is hellish, yet beautiful. And loud above the crash of the thundering shells we hear the deep bass of our faithful bombs — bum — bum — bum — and always the orchestral accompaniment to the concert supplied by our whirring propellers.

“But we are doing things in London, too. There, on our starboard, is a mighty cave-in; and there, to port, another. In their prox-

imity, where a fourth bomb has dropped, there is a whole series of explosions. Heavens, but we're letting them have it this time! There is comrade von L—— at work. He has peppered London before. Only to-night he is less excited.

“But things are getting too hot for us. Away from this inhospitable neighbourhood. A caressing west wind is at our back, and amid protecting clouds we start on our return journey to the coast. Here another, still heavier but futile bombardment awaits us. We've been so busy that nobody had time to remember that our visit to England to-night has been in freezing cold. Our artificial breathing apparatus is almost glued to our lips by the Arctic frost. But it's warmer now. Gradually our nerves and lungs resume their normal functions. Home coasts beckon to us, and before we know it we're safe again and landing on friendly soil.”

There are many sides of the airman's work which have been recounted in this short chapter, but few of the possibilities. The “log” of the air-pilot goes to make a breathless, fascinating chapter of war, an epic of history.

A PAGE OF HISTORY

CHAPTER V

A PAGE OF HISTORY

THE finest of all war-reading is to be discovered in the award pages of *The London Gazette*.

It is the more interesting because it is scrupulously correct in every detail. There is a plain-told narrative, without attempt at fiction or exaggeration. Deed follows deed, in short, terse sentences, with a variety that is at once fascinating and bewildering. Here is a single page from a single list of awards : Military Crosses, Distinguished Service Orders, bars to D.S.O., and D.S.C.s. Almost intentionally, the reports of the various Wing-Commanders of the R.A.F. must have been culled each of their finest stories, and strung together in a dazzling line. But, judge for yourselves.

The first deed—it comes under the list of D.S.O.s—is the story of an homeric combat, in the mist, between a British fighter and a German Albatross.

Apparently for some time these two had been hunting round, and out of sight of one another. Then the mist lifted, and they passed within eighty yards. The enemy was first in with his shot, and getting our pilot through the heart, killed him instantly. The former closed in to administer the *coup de grâce*; but he had counted without the British observer. The machine was already going down, with the Albatross hard behind it, when the observer managed to crawl across his companion's dead body to the control-stick.

Though wounded in the hand, he drove the enemy plane off with his gun, and got his own machine under control. Thus he continued over the lines, and crashed within a mile of his own aerodrome. Even then, dazed and wounded as he was, he insisted on being taken on to his corps headquarters to report. "He showed great coolness and skill," is the laconic comment.

This, again, in the concluding remark of the next award. However, we have here the history of a few startling weeks, told in a few lines. "For courage and initiation." This particular pilot displayed even more

than these two sterling qualities. Rather let it be said that he possessed determination and staying power to an unusual degree. By day and by night, in fine weather and in storm, he kept at it incessantly. He led offensive patrols, which "under his able and determined leadership consistently engaged enemy aircraft"; set fire to and destroyed enemy kite-balloons, and constantly brought down German planes out of control. On one occasion he attacked a new type enemy two-seater machine. Immediately the Hun dived steeply to the east. Our man, following hard on his tail, closed on it, firing a long burst at close range. As the report says, "the enemy went down vertically out of control." But perhaps his finest "stunt" was when "he attacked an enemy kite-balloon at night, and destroyed both the balloon and its shed by fire."

Then, almost before one can get one's breath, there follow the adventures of an airman who possessed the unique faculty of "never failing to locate enemy aircraft." And having nosed them out, he always attacked without any regard to the numbers against him. In nine short weeks he was

successful in bringing down nine enemy aircraft—an average of one machine per week. This, let it be said, at nineteen years of age: “a magnificent fighter.”

It is an uncertain life; but that is its greatest charm. At a height of over 18,000 feet one pilot attacked and destroyed an enemy two-seater reconnaissance machine. In the trenches there happen adventures, many and varied; but one can be certain of them—to a degree. Nothing is certain in the guerilla warfare of the clouds. It is single combat all the time—man to man, gun to gun; and the better man gets away with it. There are no reserves to be rushed up to his support, no unfair preponderance of heavy artillery.

This same pilot, on another occasion, attacked single-handed six enemy triplanes, bringing one down and driving off the remainder. Another carried out some very useful and long flights in flying machines of an old type in East Africa. He completed his reconnaissances even when the machine had been practically uncontrollable through the “bumps.” “He has been eager and ready to go up at all times, and has shown no thought of personal danger.”

And yet another, "when attacked on artillery patrol by eight enemy aircraft, succeeded in driving down one machine, the rest being driven off east."

Halfway down the page we come across the story of a fight, close-in, at seventy-five yards' machine-gun range. The Britisher opened the engagement, nose on, firing rapidly. They turned and climbed and dived awhile, each man fighting for the "upper berth." For, once there, the uppermost pilot has his opponent in his "blind spot," and at his mercy. Opportunity came at last; there followed a murderous burst; the German turned over on its side and commenced to spin. He was followed, and engaged at thirty yards' range. It was the end of that perfect day. With a last uncontrollable lunge, the Hun dived down into the interminable space below.

One would have thought that sufficient sensation for the day. But late in the afternoon, and again on patrol, this same British pilot took on no less than fourteen Albatross at one time. He followed one of them to 8,000 feet, firing all the time. "This is," the official *Gazette* says, "confirmed by other

pilots of the patrol to have fallen completely out of control."

So the terse accounts run on, each new one putting the last out of countenance. For a second bar to his Distinguished Service Cross, an R.A.F. youngster put in an unusually hustling day. In aerial combat, alone, in the grey hours of the early dawn, he ran up against a new type twin-tailed two-seater enemy machine, firing a good many rounds at point-blank range. The enemy machine dived; but again he attacked, until, eventually, the Boche went down vertically with his engine full on. The wings came off, and the machine was observed to crash.

Later in the same day he observed two formations of ten and five Albatross scouts respectively. He attacked one of the enemy machines and sent it down in a flat spin, and falling over sideways, completely out of control. And, almost as an afterthought, he led out an offensive patrol, towards sunset, adding yet another Hun to his personal bag.

To a highly suitable climax, the story of Temporary Second Lieutenant P—— :

"Whilst on artillery patrol his machine was attacked by a hostile scout. Although

he was wounded by the first burst of hostile fire, he continued to work his gun, and succeeded in driving off the enemy machine, which is believed to have been severely damaged. When taken to the C.C.S. he insisted on being sent to his squadron, in order to make a reconnaissance report on movement behind the enemy's lines. After doing this he was taken back to the C.C.S., where he was operated on and the bullet extracted. This officer has proved himself a most reliable observer. He has done consistent good work, and many of his reports have been of the greatest value."

THE DAWN PATROL

CHAPTER VI

THE DAWN PATROL

THE reconnaissance "bus" lay, herded with her kind, in a corner of the bleak aerodrome, within a circle of crude flares, and against the adventure pregnant blackness of the early morning. The forlorn array of cans that lay scalped around her; the fresh odour of oil and spirit—a combination flavour peculiar to aircraft; the tense hum of many voices; the muffled figure of the pilot, hard by; the sudden booming of the mighty engine heralded a speedy departure.

With her squat, blunt nose and broad wing-spread she stood, a craft apart from the slimmer, more graceful fighting scouts. A double-engine battleplane, her triple fuselages interposed by a serviceable, albeit sinister-looking gun-pit, towered over her, in the background, almost with an air of condescension. A toy, in proportion, a Bristol bullet squatted alongside, and a little in rear

of her. The reconnaissance bus was the last in line of six similar craft, squatted across the landing-ground, barely distinguishable in the half-lights, their present muteness proclaiming a separate mission.

The pilot clambered aboard—one foot on the wing, and over the side of the fuselage, into his seat. His observer was already crouched in the forward pit; his head visible only, and that successfully camouflaged by a pair of unsightly goggles. To a sudden motion of the pilot's hand the blocks were jerked out from the wheels, and the machine lunged forward.

Circling gracefully overhead, she could be seen dipping spasmodically to the rarefied patches of air that the growing light had churned up out of the mist-laden depths of the previous night. Then she turned her nose due east, and commenced to climb gradually. And gradually, as she merged into the low-lying clouds, the silhouette of her outline grew less and less distinct. To the pilot, the aerodrome became a mere black smudge against the grey background of the surface.

As he gained altitude, the dawn-light widened; rolling back, like a coverlet, the landscape of the earth beneath, as far as

eye could reach, to the north, to the sand-fringed sweep of blue waters.

The slumbering armies of land and sea woke to animation. Bare reaches of the ribbon-like roadways darkened, here and there, with painfully crawling masses. With a quick puff of white smoke, a great gun spoke somewhere far below. Against the distant skyline the low hull of a destroyer loomed into view.

Presently they swept across the lines, to the accompaniment of a desultory anti-aircraft bombardment. As the minute, flame-grey patches commenced to flick the sky in unhealthy proximity, the pilot "stuffed her nose down," and she streaked out of range. This method having proved effective, he then determined to regain his height—a highly judicious factor in the unequal combat betwixt gun and plane. The rush of upward air died away perceptibly. The angle of transit veered from fifteen below to fifteen above the horizontal. The decrease in speed waxed significant. Then he found time to make his map-readings. Two highways flung outwards, like the arms of a tuning-fork. In the far distance a turning, twisting roadway completed a wide triangle. Immedi-

ately below, another roadway ran left and right at a sharp right angle. A group of small houses straggled along either side to the distance of some half a mile. In rear of the village a gleaming railroad track curved into view. Too far to the north! He changed his course accordingly.

Before him he caught a glimpse of his observer, head bent well forward, pencil in hand, busy over his report sheet. It was too early yet for any considerable activity with road and canal traffic. Behind Lange-marck, their sloping wooden roofs painfully conspicuous, nestled a township of huts. Down the railway, from the north-east, steamed a train—like a worm wriggling across the mud. The observer noted the direction, counted the number of trucks, spied further for rolling stock on sidings, and then made a note on his pad: "5.30 a.m., 10,000 feet, Eg,A5.3, troop train proceeding westerly direction: one locomotive and twelve coaches." Then his roaming eye caught and held the landmarks of their objective. Somewhere between Roulers and Oostnieuwkerke, south of the connecting high-road and hidden in a little wood, lay the emplacement he was ordered to locate. He startled

his pilot from his reverie with a loud "Hullo!" on the speaking-tube. "What's the matter?" came the quick response. "Will you go lower," the observer demanded curtly. Obedience was to perform the easiest known feat in aviation circles. The dial hand on the face of the altimeter veered rapidly downward.

As the earthward rush developed, the surface grew more distinguishable. Roads and railways, rivers and canals, towns and villages jumbled together in uncanny profusion. Now the long-sought wood was easily visible. For a moment or so they circled it at a low altitude, the observer, with his glasses gripped to his eyes, leaning far across the side. Then the speaking-tube broke the tension again. "Home, Jeames," was its brief comment, as an anti-aircraft battery opened rapid fire from somewhere behind the town.

And at that moment—in flying parlance—they "ran right into it." The shock of the burst took the frail aeroplane with a strange, almost human quivering. The smoke and the stench beat into their faces, filling their eyes and lungs, almost choking them. Unconsciously they were aware of the unpleasant rip-rip of shrapnel bullets piercing

the taut fabric of the wings. Dark, gleaming lights flashed suddenly before their eyes. The machine commenced to perform the queerest and most absurd antics. Round they swept in a breathless semi-circle, diving from that into a dark, abysmal space. The rush of upward air roared into their ears, filling the head with a strange drumming. Earth and sky alike were intermingled in a swiftly moving kaleidoscope.

At 2,000 feet, by superb airmanship, the pilot "got her out" and on a level keel again. With his engine at top speed, he made off in the direction of the lines.

The ensuing twenty minutes, preliminary to regaining their height, was an unnerving and an anxious period. But gradually the machine commenced to climb, and by the time the lines were reached the machine skirted over at a respectful height. They were taking no unnecessary risks.

The subsequent report, perused by the Wing Commander, contained, beyond the customary routine observations, no further reference to the adventure than: "Over X—— we encountered an intensive anti-aircraft bombardment,"

SOME V.C.S OF THE AIR

CHAPTER VII

SOME V.C.S OF THE AIR

WHEN, in 1856, Queen Victoria founded the crimson ribbon of chivalry, with attached the tiny Maltese cross of metal made from Russian cannon taken at Sebastopol, and bearing the prized inscription, "For Valour," it was thought adequate to meet any possible deed of human pluck and endurance. But that was before the days of the Flying Service. Though they would be the last to admit it. They hate advertisement!

"Every airman should have a V.C.," remarked, the other day, a gushing member of the fairer sex. Another woman demanded of that good fellow and splendid airman Guynemer, "Now that you have won every possible decoration, including those foreign 'crosses,' what other cross can you win?" "The wooden cross, madam," was his prompt and courteous reply. Try it on any

airman of your acquaintance. His reply would be somewhat similar, but hardly polite.

To a degree this outspoken—and most genuine—admiration is permissible. Really, these youthful heroes of the skies have bewildered and dazzled the prosaic old world that works and fights beneath their speeding feet, beyond understanding. The “nut”—pre-war despised—the sportsman, the gunner, the ne'er-do-well, the soldier are numbered in their ranks. Their courage has made our hearts leap. Their daring and gallantry have made the horrors of bloody war almost worth the while. They have put history to shame, and dwarfed the *Odyssey* of Homer to insignificance. Though perhaps the latter supplied the words lacking to the Pæan, when he wrote :

“ . . . sails

The aerial space, and mounts the winged gales :
 O'er earth and ocean wide prepared to soar,
 The dreaded arm a beamy javelin bore,
 Ponderous and vast : which, when her fury burns,
 Proud tyrants humbles, and whole hosts o'erturns.”

Here are a few phrases, chosen at random, from the tales which follow on. They speak for themselves ! “ On returning with a

damaged machine he had always to be restrained from immediately going out on another." "Five others then attacked him at long range, but these he dispersed on coming to close quarters," and "On starting the return journey he was mortally wounded, but succeeded in flying for thirty-five minutes to his destination, and reported the successful accomplishment of his object." Again: "Though suffering extreme torture from burns, he showed the most conspicuous presence of mind in the careful selection of a landing-place." And, yet again: "He descended at a safe distance from the burning machine, took up Sub-Lieutenant Smylie, in spite of the near approach of a party of the enemy, and returned to the aerodrome—a feat of airmanship that can seldom have been equalled for skill and gallantry."

First of them all must be related the incidents of the two latest flying V.C.s, and incidentally the first to be awarded to the newly-formed Royal Air Force. The story of Lieutenant Alan McLeod, described as "an indomitable fighter," is unparalleled in the history of the air. Though five times wounded, he beat off the attack of eight

German triplanes. His machine was in flames, but he succeeded in piloting it back, almost to the British lines. His observer had been wounded in the fight, and was unable to extricate himself from the burning wreckage. McLeod immediately came to his aid, and only when he was certain that his companion was in comparative safety did he give thought to his own wounds. Then he fainted off from exhaustion and loss of blood.

Flying at a height of 5,000 feet, attacking hostile formations with bombs and machine gun, these eight enemy craft had dived at them from all directions. The situation seemed hopeless. Eight enemy guns ranged on the British machine—overhead, beneath the tail, and on either side. An ordinary pilot would have gone down. But McLeod was no ordinary pilot. Manœuvring rapidly and with great skill, he turned his plane first in one direction, then in another. Thus the observer was enabled to fire rapid “bursts” at each enemy machine in turn, bringing down three of them out of control.

Meanwhile, McLeod had sustained no fewer than five wounds—the observer, six. A German bullet had penetrated the petrol tank

of his machine, setting it on fire. Yet, despite his condition, and despite the desperate position they were in, he unstrapped his belt and climbed out on to the bottom plane of the left wing. There he controlled his machine from alongside the body, and, banking her over at a sharp angle, he kept the flames to one side. Thus manœuvring, he enabled the observer to continue his gunfire until, eventually, they crashed to earth in "No Man's Land."

There the fire broke out with renewed intensity. The observer was still in the flaming machine. But McLeod fought his way through smoke and flame, and dragged him from the burning wreckage. All the time he was under heavy machine-gun fire from the enemy lines, and in constant danger from the explosion of his own bombs. In fact, one of these did go off and wounded him for the sixth time.

A single-handed battle with an enemy aerodrome and nineteen German aeroplanes, from a height of only fifty feet above ground, was the adventure that gained for Lieutenant Alan Jerrard, R.A.F., the second Cross. According to the *Gazette* :

“ When on an offensive patrol with two other officers he attacked five enemy aeroplanes, and shot one down in flames, following it down to within 100 feet of the ground, and, engaging single-handed some nineteen machines, which were either landing or attempting to take off, succeeded in destroying one of them, which crashed on the aerodrome. A large number of machines then attacked him, and whilst thus fully occupied he observed that one of the pilots of his patrol was in difficulties. He immediately went to his assistance, regardless of his own personal safety, and destroyed a third enemy machine.

“ Fresh enemy machines continued to rise from the aerodrome, which he attacked one after another, and only retreated, still engaged with five enemy machines, when ordered to do so by his patrol leader. Although apparently wounded this very gallant officer turned repeatedly and attacked single-handed the pursuing machines, until he was eventually overwhelmed by numbers and driven to the ground.”

Somewhat different was the manner in which Major Bishop, D.S.O.—the British

Immelmann, as our friend the Hun describes him—was awarded the coveted Cross. It was more for a single brilliant action than work over a continued period, although the latter included the destruction of forty enemy aeroplanes, and several kite-balloons, and the deed that won him the D.S.O. :

“ While in a single-seater he attacked three hostile aeroplanes, two of which he brought down, although in the meantime he was himself attacked by four other hostile machines.”

Bishop is the son of the registrar of a small town in Ontario, Canada. Only nineteen years of age, in his first fifty-seven air-fights he brought down twenty-one German aeroplanes and two balloons. His appearance gives every indication of the great physical courage and determination necessary to a pilot with such a record. He is well built, with open, resolute face, clean-shaven, and a quiet, almost subdued manner.

The particular exploit for which he was awarded the V.C. was described by Mr. Roland Hill as follows :

“ Once he swooped down from above the clouds, to find, twelve miles behind the line,

a brand-new aerodrome, with eight nice, new Albatross machines on a nicely plotted lawn.

“ His sudden appearance upset the Germans’ luncheon, so he politely spiralled up behind the airsheds, and when the first machine started up, swooped down on its tail at about fifty feet, through a spray of machine-gun bullets, and sent it crashing down completely wrecked, its pilot killed. Turning again, he swept the second Albatross, as it was just starting up, and saw it catch fire. Climbing up to about 1,000 feet, every kind of gun popping away at him, he found the third machine getting under way, and swiftly raced after it. One little scrap in the air, and he caught it with the full blast of his machine gun and sent it side-slipping into a clump of trees. The fourth machine, by this time, was climbing to get the advantage of height, so he followed suit, and a three or four minutes’ chase in the air resulted. The German turned to give battle when the fifth machine was also well under way, and they seemed to have our man sandwiched. But the British airman kept at Number Four until he had the satisfaction of seeing him flutter down completely out

of control. He was just in a favourable position to grab the fifth Albatross when his ammunition gave out, so he waved a farewell with the empty drum and started for home."

Shortly after the award of his Cross, he returned to Canada for a few months' spell as an instructor in a large training school. During this period he was married to Miss Margaret Eaton Burden, daughter of Mr. C. E. Burden, and niece of Sir John Eaton. After which he returned to France, to command a squadron. Additional to the former decorations he has also been awarded the Military Cross, received the personal congratulations of Sir Douglas Haig, and his father has been congratulated by Sir Robert Borden, the Canadian Premier.

Bishop's was the thirteenth bronze cross awarded to the Flying Services. Among other decorations they had already annexed, by the end of 1916, no less than 7 V.C.s, 72 D.S.O.s, 304 M.C.s, 97 M.M.s, 54 D.C.M.s, 53 Meritorious Service Medals, and 436 mentions in despatches.

Perhaps the most daring of these incidents was that of Richard Bell Davies, V.C., D.S.O.,

R.N., a Squadron Commander in the R.N.A.S. Setting out with Flight Sub-Lieutenant Smylie in two bombing machines for an air attack on Ferrijik railway-junction, in the Gallipoli Peninsula, at the dawn of a summer day, Smylie's machine was hit and brought down by a violent anti-aircraft bombardment.

The pilot planed down over the station, releasing all his bombs except one, which failed to drop, simultaneously at the station from a very low altitude. Thence he continued his descent into the marsh. On alighting he saw the one unexploded bomb, and set fire to his machine, knowing that the bomb would ensure its destruction. He then proceeded towards Turkish territory. At this moment he perceived Squadron-Commander Davies descending, and fearing that he would come down near the burning machine and thus risk destruction from the bomb, Flight Sub-Lieutenant Smylie ran back, and from a shots distance exploded the bomb by means of a pistol bullet. Squadron-Commander Davies descended at a safe distance from the burning machine, took up Sub-Lieutenant Smylie, in spite of the near approach of a party of the enemy, and returned to the aerodrome.

The terse, official *Gazette* so far commits itself as to comment, in conclusion: "A feat of airmanship that can seldom have been equalled for skill and gallantry."

Hawker—Major Lane George, D.S.O., R.E., and R.F.C.—was one of the earlier "stars." Crossing to France with the original R.F.C. squadron, attached to the B.E.F., in September 1914, he took aeroplane pilot's "ticket" 435, at Hendon, on a Deperdussin monoplane, March 4th, 1913. For tackling eleven Boche machines, single-handed, in 1915, he was awarded the D.S.O.; and for "most conspicuous bravery and very great ability" on July 25th, 1915, the Victoria Cross.

"When flying alone he attacked three German aeroplanes in succession. The first managed eventually to escape, the second was driven to the ground damaged, and the third, which he attacked at a height of about 10,000 feet, was driven to earth in our lines, the pilot and observer being killed."

He was shot down and killed by the notorious von Richthofen.

Another British airman with whom this German "ace" fought a savage duel—lasting almost sixty minutes, at a height of over

10,000 feet—was Second-Lieutenant Gilbert Insall, V.C. At the critical moment both men ran out of ammunition. After gaily waving his hand, the “Red Battle Flyer” disappeared behind the clouds, and Insall returned to his base. A few weeks later he “put up” the following great “stunt”:

“Patrolling in a Vickers fighting machine, with First-class Air Mechanic T. H. Donald as gunner, a German machine was sighted, pursued, and attacked near Achiet. The German pilot led the Vickers machine over a rocket battery, but with great skill Lieutenant Insall dived, and got to close range, when Donald fired a drum of cartridges into the German machine, stopping its engine.

“The German pilot then dived through a cloud, followed by Lieutenant Insall. Fire was again opened, and the German machine was brought down heavily in a ploughed field four miles south-east of Arras. On seeing the Germans scramble out of their machine and prepare to fire, Lieutenant Insall dived to 500 feet, thus enabling Donald to open heavy fire on them. The Germans then fled, one helping the other, who was apparently wounded. Other Germans then commenced

heavy fire, but in spite of this Lieutenant Insall turned again, and an incendiary bomb was dropped on the German machine, which was last seen wreathed in smoke.

“Lieutenant Insall then headed west in order to get back over the German trenches, but as he was at only 2,000 feet altitude, he dived across them for greater speed, Donald firing into the trenches as he passed over. The German fire, however, damaged the petrol tank, and, with great coolness, Lieutenant Insall landed under cover of a wood 500 yards inside our lines. The Germans fired some 150 shells at our machine on the ground, but without causing material damage. Much damage had, however, been caused by rifle fire, but during the night it was repaired behind screened lights, and at dawn Lieutenant Insall flew his machine home with First-class Air Mechanic T. H. Donald as a passenger.”

Before returning home for his investiture, Insall determined upon a last farewell flight over the Hun lines. Unfortunately, he encountered there a revengeful member of the Richthofen Chasing Squadron, was brought down, and taken prisoner.

This, however, was far from the last to be heard of this extraordinarily versatile young man. After twenty months in solitary confinement at Cologne, he succeeded in breaking out of his prison ; made his way across Germany, and via Holland, to England, where he was subsequently decorated by George V., who had a long talk with him regarding his experiences.

Insall was peculiarly the type of young man who haunts racing-tracks and aerodromes : the monosyllabic youth of muscular frame, with steel wrists, unflickering grey eyes—behind which lie such a wealth of meaning and emotions that so rarely find voice ; a sunny, cheerful temperament that makes light of hardship and adversity ; and an idiosyncrasy of dress—hair brushed back well from the forehead, hat invariably worn at a rakish angle, clothes spotted with petrol and smelling strongly of oil—and manner which rides calmly all ridicule and criticism. A type that is ever frightened, but never afraid !

However, that is only one type attracted to aviation. On close observation one will notice that personality predominates among

our crack pilots, from Warneford, reckless to a degree and possessed of a warm imagination, to Rhodes-Moorhouse, who in the whole of his twenty-five years never let a word pass his lips concerning his own attainments, and was accredited by his friends as "fearing nothing on heaven or earth," and to John Aidan Liddell.

Had you been acquainted with the latter, you would have accredited him studious—a shy, somewhat bashful youth. An elusive personality that charmed with the very simplicity of its nature, the beauty of its ideal, the breadth of its knowledge and interest in life, a potential scientist, or a brilliant leader of research, was Liddell—in reality one of life's greatest heroes, who, before he died, left on record a deed unequalled even in our glorious records.

"When on a flying reconnaissance over Ostend-Bruges-Ghent he was severely wounded (his right thigh being broken), which caused momentary unconsciousness, but by a great effort he recovered partial control after his machine had dropped nearly 3,000 feet, and, notwithstanding his collapsed state, succeeded, although continually fired at, in

completing his course, and brought the aeroplane into our lines—half an hour after he had been wounded,” thus saving the life of his observer.

On the latter all his thoughts were concentrated. As he lay upon his sick-bed, with the knowledge that the grim hand of Death was hourly creeping nearer, Aidan Liddell wrote to his mother in England :

“ MUMMY DEAR,

“ Don't be alarmed at my little escapade ; will be all right again soon and be with you. . . . Poor Peck [his observer], what an awful time he must have had after I fainted and we were nose-diving head-long for the ground. . . . The Major told me to-day that I have been recommended for the V.C. . . .

“ P.S.—Please don't go talking about this business to all the old dowagers of your acquaintance.”

Seven days later he was dead.

The V.C. exploit of Second-Lieutenant Rhodes-Moorhouse was a similar affair—the temperament of the two men as dissimilar as

possible. In those wonder pre-war days of 1913-14 at "Brooklands," "R.M." and his little two-seater racing-car were most familiar figures, one might almost venture to say, institutions. With a flash, a rattle, and a whiff of petrol the two would whiz past one in a narrow country road; missing other vehicles by inches, and turning corners on a most amazing equipoise of the two near-side rims.

The modesty, charm, and unselfishness of the man were, item and item, the sum of his friendship. His skill and daring were by-words around the racing-track. His courage and fortitude were yet to be revealed. When the curtain of the world-war drama rolled back and the stage of battle was revealed in all its pitiless detail, the story of Rhodes-Moorhouse's V.C. was of those few incidents which lent the affair that atmosphere of knightliness and chivalry which distinguished the battlefield of mediæval times. Here it is :

"For most conspicuous bravery on April 26th, 1915, in flying to Courtrai and dropping bombs on the railway-line near that station. On starting the return journey he was mort-

ally wounded, but succeeded in flying for thirty-five miles to his destination, and reported the successful accomplishment of his object. He died of his wounds."

The deeds of McNamara, Read, Rees, Robinson, and Warneford, in order told, make the sum complete.

McNamara, lieutenant in the Australian Forces, attached to the R.F.C., was participating in an "aerial bomb attack upon a hostile construction train, when one of our pilots was forced to land behind the enemy's lines. Observing this pilot's predicament, and the fact that hostile cavalry were approaching, he immediately descended to his rescue. He did his best under heavy rifle fire, and in spite of the fact that he himself had been severely wounded in the thigh. He landed about 200 yards from the damaged machine, the pilot of which climbed on to Lieutenant McNamara's machine, and an attempt was made to rise. Owing, however, to his disabled leg, Lieutenant McNamara was unable to keep his machine straight, and it turned over. The two officers, having extricated themselves, immediately set fire to the machine, and made their way across

to the damaged machine, which they succeeded in starting. Finally, Lieutenant McNamara, although weak from loss of blood, flew this machine back to the aerodrome, a distance of seventy miles, and thus completed his comrade's rescue."

Captain Anketall Montray Read was awarded his Cross, before transferring to the Flying Corps, for a gallant piece of work at Hulluch, that included carrying "out of action an officer who was mortally wounded, under a hot fire from rifles and grenades."

"Whilst on flying duties, Major Rees sighted what he thought to be a bombing party of our own machines returning home. He went up to escort them, but on getting nearer discovered they were a party of enemy machines, about ten in all. Major Rees was immediately attacked by one of the machines, and after a short encounter it disappeared behind the enemy lines, damaged. Five others then attacked him at long range, but these he dispersed on coming to close quarters, after seriously damaging two of the machines. Seeing two others going westwards, he gave chase to them, but on coming nearer he was wounded in the thigh, causing

him to lose temporary control of his machine. He soon righted it, and immediately closed with the enemy, firing at a close-contact range of only a few yards, until all his ammunition was used up. He then returned home, landing his machine safely in our lines."

Leefe Robinson won the V.C. and world-wide renown at Cuffley for bringing down a raiding Zeppelin, for the first time on these shores.

"He attacked an enemy airship under circumstances of great difficulty and danger, and sent it crashing to the ground as a flaming wreck. He had been in the air for more than two hours, and had previously attacked another airship during his flight."

And Flight-Sub-Lieutenant Warneford's was the first of the Naval "blue ribbons," conferred upon him in the record space of twenty-four hours, for bringing down a Zepp. near Evere, on June 7th, 1915.

WATCHERS OF THE SKIES

CHAPTER VIII

WATCHERS OF THE SKIES

It is difficult to connect the statement that a "successful raid was carried out last night by Canadian troops at Lens" with the elongated, unlovely form of the kite-balloons, floating gently in the morning breeze, five or six miles behind the lines. Like the eyes of a giant octopus they stud the grey war-front at regular intervals, from the sea to the dim indistinction of the south horizon. Stolid, almost immobile in appearance, there are alert eyes peering earthward from that tiny basket beneath the green gas-bag that are restless and without avoidance.

Enemy arrivals and departures, even to the hour of his—or at the time he should be having his morning "tub," and the movement of road and railway traffic to his various headquarters, have been reduced by lengthened observation to a schedule,

as reliable as a railway time-table. At— shall we say—eleven every morning, a supply train comes puffing down that stretch of shell-pocked country from L—— to M——, halting at M——. At three in the afternoon it returns. At an hour after sunrise and an hour before sunset a particular group of heavy guns shell the little town of P—— behind the British lines with unfailing regularity.

Should the train be delayed up country, and late on her time; should that bombardment vary but a few moments: within sixty seconds the information is in the hands—or rather the ears—of the intelligence officer responsible. A battalion or a company coming up for relief, a new gun opening fire, digging begun on a new series of emplacements—these aerial detectives will have the details immediately at their finger ends.

Riding steadily from the first bright hour of the morning to the fading visibility of the twilight, the observer, with the enemy lines spread out before him, a living replica of the large-scale map in his balloon, in direct communication with the British “ heavies ” and with other balloons, amasses

a maze of details and accurate information that the aeroplane, at a high altitude and travelling at a tremendous speed, may overlook. Hours may pass, but finally, as inevitable as fate, the reward will come.

The red flash of a battery shows up at some unexpected point in the green-grey panorama. A second later the telephone-bell by the ground-winch will ring: "New Boche battery observed at A8,A4.6. Put me through to the 'nine-point-two' at M——."

The ensuing official conversation between the observer, swaying 1,000 feet or more above the earth, and the artillery captain alongside his gun, hidden in a tiny wood two miles away across country, we may not overhear. But we can see the gun's crew tumbling out of billets. Off comes the tarpaulin—like the cloth from a table. An ominous-looking shell is brought up, by hand, from some mysterious recess and rammed home. The men stand by.

Then the telephone in the balloon starts up. It is the battery speaking. "We are going to open fire"—nothing more! That shot, however, may be the prelude to a great

advance ; on the other hand, the first signal for an extended defensive barrage. The observer keeps the speaking-tube to his mouth, and watches. His eyes are glued to that tiny half square mile of surface before him. Somewhere below, there echoes the dull boom of heavy artillery. A distant screaming fills the air. Somewhere ahead there is a sudden burst of flame and smoke.

His comment to the battery commander is terse and to the point : " Over ! " Again the operation is repeated. This time the monosyllabic advice varies to : " Short ! " Then a few seconds later an eager whisper : " Target ! " From now on, we may say, the balloonist is only a spectator. The dull boom of the gun comes floating up, with methodical regularity. The burst is, if anything, rather more methodical in its vicinity. The observer may enjoy a well-earned rest !

Then, sweeping across the sky-line, comes the sinister grey form of H.A.—hostile aircraft. Anti-aircraft guns open on all sides. Immediately below a machine gun commences to rattle and bark. Taking advantage of a rolling bank of low-lying clouds, the daring enemy aviator is diving for the balloon

with a murderous directness. Emerging from the toe of the cloud, he is almost in line with the head of the K.B. A bomb drops, and another—harmless enough. The fourth, however, strikes the gas-bag at a glancing angle. A column of heavy black smoke belches skywards. Two tiny black specks descend rapidly from the basket. The crew have taken to their parachutes—the life-boats of the sinking ship. After an unpleasant and trying five minutes they land, little worse for their adventure.

To-morrow a fresh balloon will have taken its place. A similar Hun craft, possibly more, will have paid the revenge. To-morrow the same observer in the same position will be informing the same battery that “his last shot went over.” The Hun aeroplane will come winging across the clouds, possibly with the same success, more probably to pay the penalty of his daring. The air-war is one of incessant give and take—give and take!

Conditions will have changed; the defence blossomed into an offensive. Working in co-operation with other craft and his batteries, the observer will now be making

suggestions for the locality of the barrage. Shot by shot, some will record the artillery fire. Others will be guaranteeing the effectiveness of the demolition behind the enemy's lines. A reinforcement of balloons will have been rushed up over night—in the darkness—and concentrated as secretly as possible in masked camps.

At the dawn they will startle the quiet countryside, floating up heavenward from behind all manner of unsuspected declivities and woods—an endless cordon, as far as eye can reach. All the morning, and far on into the afternoon, they will be directing artillery fire, without cessation. Then with night-fall, the Canadians—or, whatever troops they may be, will go scrambling over the top, into the adventurous shadows of "No Man's Land," and on into the Boche trenches.

That is the modern warfare combination of sky and earth.

THE NAVY THAT FLIES

CHAPTER IX

THE NAVY THAT FLIES

(Per adua, ad astra)

ON July 1st, 1914, the R.N.A.S.—formerly Naval Wing of the Royal Flying Corps—came into being as a separate unit of the Imperial Forces. The Force was commanded by Commodore Sueter, M.V.O., R.N., who had under him one Commander—Samson, D.S.O.—some half a dozen squadron commanders, who ranked as Lieutenant-Commanders R.N., and a personnel of 700 officers and men. The command was composed of one large base for land machines, with five smaller stations for sea-planes along the coast.

It was not long before the new Service had an opportunity of showing its worth, for the Fleet, assembled for a great test mobilisation—which eventuated in a mobilisation for war—was to be inspected by the

King, and the seaplanes intended giving a display with an aggregate force of sixty-two, twenty moored with the Fleet, one flying boat, and some score of aeroplanes. Affairs of State prevented the King from being present at the review, but the seaplane programme was carried out in its entirety.

Immediately afterwards war was declared, and the new Service, with its handful of antediluvian craft, by dawn of August 5th, 1914, were busy patrolling the coasts and the North Sea for German aircraft and submarines, and convoying troopships of the British Expeditionary Force to the scene of war. Of these craft no single machine had a British engine. The horse-power, ranging from 100 to 160, was supplied by both water and air-cooled engines, and there had been no attempt at standardisation.

Of other types of aircraft the R.N.A.S. possessed a score or so of spherical balloons—employed for observational purposes and the direction of artillery—some British “Baby” airships, which had been handed over by the Army a month or so previous, and a small but useful German airship.

Thus equipped, the naval arm undertook

not only Home Defence, but supplied a squadron for patrol work along the Belgian coast. The naval aircraft, by a series of daring raids, attacked effectively enemy destroyers in the North Sea, and destroyed submarines, harbour-works, ammunition-dumps, road and railway transport, billets, and aerodromes in Belgium, thus forming a sound line of defence against the enemy's vaunted ambition, to invade the shores of England.

To the time when the Royal Naval Air Service with the Royal Flying Corps was merged into the Royal Air Force, the British Naval Air Service has been incessantly at work, its activities extending from the British Isles to wherever the British naval and military forces have operated. The early work of the service was marked by the 1914 Christmas Day raid on Cuxhaven; the attacks on Zeppelin sheds at Düsseldorf and Friedrichshaven; the intrepid flying in Mesopotamia and the dropping of 19,500 lbs. of food and a quantity of medical stores into Kut between April 15th and April 29th, 1916; the operations in the Eastern Mediterranean, where throughout the Peninsular

campaign the Royal Naval Air Service flew for both Army and Navy; in East Africa and Rufigi, including the "spotting" and bombing of the German warship *Koenigsberg*; the combating of enemy airmen on their way to or returning from raiding this country; the destruction of three Zeppelins by Royal Naval aircraft; in addition to the work as "eyes of the Fleet" in the vigil kept by our surface craft in the North Sea, the Mediterranean, and elsewhere. One of the earliest operations in the Battle of Jutland Bank was the sending up of a seaplane by Sir David Beatty to identify four enemy cruisers, the seaplanes having to fly at a height of 900 feet within 3,000 yards in order to accomplish their purpose.

During the operations against the German Battle Cruiser Squadron which appeared off the East Coast on the morning of April 25th, 1916, two Zeppelins were pursued by a seaplane, and three submarines were forced to submerge by another machine, while other airmen, in spite of heavy anti-aircraft fire, dropped bombs on the retiring cruisers.

The larger part of the effort of the "home" sections of the Royal Naval Air Service

during the last fifteen months has consisted in "operations in the vicinity of the coast."

In the early stages of the war the Royal Naval Air Service also provided crews for armoured cars which operated against the Germans in Belgium, while armoured-car operations have been carried out against the Austrians, Bulgarians, and Turks.

The concerted attacks on this country in 1915 by Zeppelins gave the Royal Naval Air Service plenty of scope. Flight-Lieutenant Warneford gained his V.C. by bringing down a Zeppelin near Ghent on June 7th of that year; and on August 9th naval aircraft attacked a returning Zeppelin and destroyed it. In all, three Zeppelins have been accounted for. In combating German aeroplanes on their way to or returning from raids on London and other places in this country, the Service has been most successful. In twenty-four raids, twenty-two enemy machines were rendered *hors de combat* and two others were reported to have shared a similar fate.

The submarine-catching activity has extended to bases in the Mediterranean, where both seaplanes, airships, and seaplane-carriers

are employed. And naval aeroplanes have co-operated with the army in the north of France, in Salonica, Italy, Mesopotamia, Palestine, Egypt, and British East Africa.

Where the development of the Military Wing has been with personnel, that of the R.N.A.S. has been with aircraft. It must be remembered, where the former employed only aeroplanes—the military kite-balloon not making its appearance until the end of 1915—the latter has been responsible for both land machine, seaplane, seaplane-carrier, balloon, kite-balloon, and airship.

“The personnel of 700,” as Sir Eric Geddes stated recently in the House of Commons, “had increased to 41,000. . . . The duties were varied, of great value and of absorbing interest.” Naval airships and seaplanes are the terror of the enemy submarine. During a single month the aircraft patrol round the British coast alone is more than five times the circumference of the earth. During the month of September 1917 sixty-four raids were carried out on dockyards, naval depots, aerodromes, and other objects of military importance in Flanders beyond the enemy lines. No fewer than 2,736 bombs were

dropped by the R.N.A.S., totalling eighty-five tons of explosives.

“There is no doubt,” he added, “that these raids result in great material and moral damage, and on many occasions their effect is shown in the aerial photographs to be such as to hamper and restrict seriously the enemy naval, military, and aerial undertakings.”

The Service is commanded by a commodore of the first class, automatically a member of the Board of Admiralty. Two other commodores are under him, with more than half a dozen post-captains, wing-commanders by the dozen, and squadron-commanders innumerable.

The R.N.A.S. now issues an almost daily communiqué of its doings, and has stations all along the coast, many of them with more machines than the entire Service possessed at the outbreak of war, and is busily engaged in convoying food-ships in dangerous waters.

As an instance of a fortnight's work by four of these naval squadrons with the Royal Flying Corps, the following details will give some idea of the work carried out. Over 250 machines were attacked, twenty-six were

brought down, over thirty were driven down, while some 150 offensive patrol raids were made, in addition to supplying escorting machines and carrying out reconnaissances. "Spotting" for the heavy artillery has been frequently undertaken on the Western Front, and commendation has been bestowed on the squadrons and kite-balloon sections of the Royal Naval Air Service.

The work of the Royal Naval Air Service in bombing Zeebrugge, the docks at Ostend, German bases and aerodromes in Belgium and France, has been constant—hardly a fortnight has gone by without a series of such raids—while repeated attacks on destroyers, torpedo-boats, drifters, and mine-sweepers have been undertaken.

On August 9th, 1917, was the successful raid on the Zeppelin sheds near Brussels. On August 25th a successful attack was made on Zeppelin sheds at Cogneloe, near Namur. On April 23rd, 1918, three British machines attacked five enemy destroyers between Blankenburg and Zeebrugge, and a direct hit was made on the leading vessel which took a list to port; only four of the destroyers were seen to enter Zeebrugge

harbour, and it was thought probable that the bombed vessel was sunk. The following morning vessels in Zeebrugge harbour were bombed, and a day later an air attack was made on four destroyers discovered at sea north of Ostend.

Towards the close of the last summer two flights of five Sopwith scouts encountered approximately twenty-five hostile machines between Ostend and Ghistelles, and a general engagement took place. Our machines completely broke up the enemy formation, and a number of hostile machines were either destroyed or badly damaged.

Engaging three hostile machines consecutively, one British airman shot two down completely out of control, and a third possibly; and five others were accounted for. There were several other combats, but none of these could be considered decisive. All our machines returned safely, although five of them were badly shot about, one machine having no less than 113 bullet-holes and both petrol-tanks pierced.

Throughout the whole of the operations in the Dardanelles Peninsula the air operations were undertaken by the Royal Naval

Air Service for both land and naval services. Reconnaissance work was frequently done, some valuable photographic information was obtained, while on a number of occasions the Royal Naval Air Service successfully interfered with the railway and road transport. The Berlin-Constantinople line, largely used for transport of war material, has been frequently bombed, forage stores and munition dumps being fired, and bridges badly damaged in spite of active hostile gunfire ; while trains in motion have been bombed and attacked with machine guns. The Zeitumlik Powder Factory at Constantinople was bombed, and frequent visits were made to Adrianople station, involving long flights, in some cases of over 400 miles.

Crop-burning was another operation performed by the Royal Naval Air Service, enormous damage being inflicted with incendiary bombs. Attacks on enemy battle-ships, destroyers, and transports in the Dardanelles were frequent, and, to quote the Turkish report, in one case only, one battle-ship "arrived at Constantinople with her centre turret damaged and ten men killed as the result of an aeroplane bomb." A

number of flights have had to be made over the open sea on aeroplanes unprovided with floats. One of the longest night flights in the early stages of the war was that undertaken from a station in the Dardanelles area for the purpose of attacking a railway bridge at Kuleli Burgaz. The airman on his flight to the objective was subjected to heavy anti-aircraft fire. He descended to within 300 feet of the bridge before releasing his bombs, both of which apparently hit the bridge. Just afterwards engine trouble developed, and it was with difficulty that the airman returned to his station.

Particular attention was paid on one occasion to Chanak, in consequence of information that the Kaiser and his entourage was paying a visit. Everything pointed to arrangements being made for something spectacular for the Supreme War Lord, and abnormal activity on the part of the enemy in the Dardanelles, together with elaborate precautions for reporting movements of British aircraft, all tended to confirm the genuineness of the reported visit. In spite of very unfavourable weather, the operation, which it was realised would be attended by

considerable risk, was carried out ; several machines set out, but only one succeeded in reaching the objective. This airman dropped a number of bombs on the town. On his return journey he struck the side of a mountain in the darkness and the machine caught fire on crashing. The pilot, although severely injured, was able to climb out of his machine, and was found next morning by a Greek shepherd. At dawn next day, in extremely bad weather, seven machines effectively bombed the town, in spite of heavy anti-aircraft fire.

The first Gotha squad to take part in the war operated in Salonica. A steady offensive in Southern Bulgaria by the Royal Naval Air Service had a most demoralising effect on the enemy. For some time places where the heaviest anti-aircraft fire was encountered were singled out for special attention, and after several visits our machines were able to fly over these places with little or no opposition.

It was mainly due to the efforts of the British Armoured Car Division that the enemy did not break the line in the fighting with the Russians in the Dobrudja early in

December 1916, and the commander received an autograph letter from the General commanding the 4th Siberian Army, thanking the officers and men for their brave and unselfish work:

In October 1916 a number of Royal Naval Air Service machines were despatched from Imbros to Bucharest, a distance of 310 miles. All the machines arrived, after great difficulty, owing to thunderstorms and thick mists. One machine, after passing westward of Adrianople, experienced bad weather in the Balkan Mountains, and owing to a thunderstorm the pilot lost control. He fell from 9,000 feet to 1,000 feet, at which height he emerged from the cloud upside-down, regaining control at 500 feet. While in the cloud the machine looped the loop several times, and the compass became useless. He landed to repair his machine on a spot which was close to a Bulgarian camp. As he was taxi-ing off, a party of Bulgarians opened fire, and charging them, the pilot scattered them with a few rounds from his machine gun. While he was following the course of a river in the hope of striking the Danube, about thirty Bulgarians on a barge

opened fire with rifles. Returning, the pilot emptied a tray of ammunition into them, causing them all to jump into the water. After crossing the Danube, he ran into rain and fog, completely losing his bearings, and ultimately coming down in Russian territory, whence he returned to Bucharest by train.

In the Egypt and Palestine operations valuable reconnaissances were made. El Arish, Homs, Beirut, Bursir, Haifa, the Levisi district were bombed and large fires caused. A very destructive raid was carried out by ten seaplanes up the Haifa-Afuleh Valley. Besides considerably damaging the camp, a train proceeding south was bombed and damaged, the permanent way was broken up in various places, and a railway engine, fourteen carriages, and a large amount of stores burnt. The whole operation was carried out against strong anti-aircraft fire, and although each one of our machines was hit, all returned safely. In the bombing of Homs station, a flight of forty-five miles inland, in a strong wind, causing heavy weather, and crossing hills 1,800 feet high in clouds at 1,500 feet, a seaplane of a

heavier type made an exceptionally fine flight.

The East African aeroplane squadron co-operating with General Van Deventer's column carried out reconnaissances ahead of the Army and bombed the German encampments. The country in which the squadron operated in one section of the campaign made it impossible to land a machine without wrecking it, except in aerodromes and sometimes in river-beds. Much useful work was done in map-making over a difficult country; while the enemy's porter transport was considerably harassed, and despatches were carried when other means of communication between the distant columns had failed. On several occasions the G.O.C. was taken up in a machine for observation purposes.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice, and that these documents should be stored in a secure and accessible location. The text also mentions the need for regular audits to ensure the integrity of the data.

2. The second part of the document outlines the procedures for handling discrepancies. It states that any differences between the recorded amounts and the actual amounts should be investigated immediately. The document provides a step-by-step guide for identifying the source of the error and for correcting it. It also notes that any significant discrepancies should be reported to the appropriate authorities.

3. The third part of the document discusses the importance of confidentiality. It states that all financial information should be kept confidential and should not be shared with unauthorized personnel. The document also mentions the need for a strict access control policy to ensure that only authorized individuals can view or modify the data.

4. The fourth part of the document discusses the importance of data backup. It states that all data should be backed up regularly and stored in a secure location. The document also mentions the need for a disaster recovery plan to ensure that the data can be recovered in the event of a system failure.

5. The fifth part of the document discusses the importance of training. It states that all personnel who have access to the financial data should receive regular training to ensure that they are up-to-date on the latest procedures and best practices. The document also mentions the need for a training program that covers both technical and non-technical aspects of the system.

FROM SHORE TO SHORE

THE UNIVERSITY OF CHICAGO

CHAPTER X

FROM SHORE TO SHORE

FROM dawn to sundown ; from the toe of Cornwall's rugged cliffs to the bleak shores of the Shetland Islands ; from the grey rock of Gibraltar, standing sentinel to the western gate of the Mediterranean, to its counterpart at sun-baked Suez ; from Dunmore Head, in the extreme south, to Belfast Lough, in the extreme north of Ireland ; from Harwich, across the cold grey wastes of the North Sea, to Borkum, with a blue sky o'erhead and a favourable tide, you may see the British Naval Air Service (Royal Air Force) at work ; hugging the shore, or far out hovering over the sea, like giant sea-gulls dipping down for their prey. The craft vary from slim grey airships to kite-balloons rising ungainly from the belly of a ship and giant Curtiss flying boats. But their quest is ever the same—the nefarious Hun U-boat.

Here Jules Verne's monsters of the under-seas and Wells's aerial avengers meet in grim and incessant death-conflict. Here the most up-to-date inventions of modern science are slowly but surely deciding the grave issue of Civilisation versus Barbarity. A shattered periscope in a pool of floating oil, an aerial bird that lies broken and helpless at the water's edge, may seem but small marks in this whirlpool of Armageddon; yet each in their turn marks a long step forward in the march. The methods they employ? You may gauge those best from the anecdotes of battle which follow on.

Scouring the sky, Seaplane X. sighted a large convoy, ten miles distant; between them an enemy submarine, fully on the surface, travelling at a low speed, and within two miles of the convoy. Winging her way, "full-out," at ninety miles an hour, at the same time diving and preparing to attack, she made for the U-boat. The latter did not sight her until she was only three miles distant. Then, at once, she commenced to submerge. When the seaplane reached bombing position, the top of the conning-tower was just awash, and both periscopes were out of the water.

Two large bombs were released, the first of which exploded directly on the conning-tower, and the periscopes were seen to collapse. The second bomb hit the water thirty feet ahead of the conning-tower in a direct line with the fore end of the submarine. The seaplane then turned and observed a considerable disturbance on the surface of the water, with quantities of air rushing up, giving the appearance of boiling. Two other bombs were dropped from a thousand feet, one of which exploded in the midst of the disturbance. In addition to the discoloration of the water caused by the bombs, brown and white matter was observed to rise to the surface. The seaplane remained over the spot for a few minutes, during which the disturbance continued, slightly increasing in intensity. The submarine appeared to be of a large type, painted black, carrying two guns, one forward and one aft of the conning-tower.

How a British seaplane of a larger type succeeded in sinking a U-boat, in face of the united attack of three other submarines, three destroyers, and two seaplanes escorting them, is an epic of Air Service history.

Here is the making on't. One misty morning the seaplane sighted the submarine in near vicinity. The latter was painted light grey, with a mast and a gun, on what appeared to be a raised deck. By the gun was one of the crew. Flying directly over the enemy, the aircraft dropped a bomb, hitting the tail of the underseas craft direct. As she turned to repeat the attack, the British airmen observed that the explosion had made a large rent in the deck, and photographed it. Then, patches of red and grey shell-burst unexpectedly bit into the grey shroud of the mist, heralding the approach of the enemy reinforcements. All six vessels opened fire on our machine, but none of their shells was effective. The enemy seaplanes were unable to approach, owing to the barrage put up by the destroyers. As our seaplane again turned completely round and passed over the submarine, which by this time was sinking by the stern, water being up to the conning-tower and the nose full out of the water, a second bomb was released, exploding fifteen feet ahead of the bow of the submarine, causing it to vibrate and sink immediately. The sea-surface stained with

a quantity of blackish oil, air-bubbles, and strange matter. The destroyers and other submarines closed in on the British seaplane, which, having no further bombs, had to be content with sparking a wireless message to her base, stating the position of the destroyers, and returning home in safety.

Hunting in couples, a brace of seaplanes sighted an enemy submarine fully blown, travelling about fourteen knots, and at once dived to the attack. Two men were on the conning-tower at the time. The first machine to reach her dropped a bomb which found good target, being detonated on the starboard side of the submarine, halfway between the stern and the conning-tower. The submarine heeled slowly over to port and remained in that position, stopped in her own length and began to sink stern first, the bow rising high above the water. The second machine dropped a bomb just as the conning-tower was disappearing. It exploded in front, on the port side. After this bomb had detonated, a further explosion occurred under water, apparently at the bow of the submarine, followed by several smaller explosions. Other bombs were dropped. The

two men were still on the conning-tower as the vessel sank, but nothing further was seen of them, although the area was searched for fifteen minutes. No oil or wreckage was seen.

Another instance was that of a seaplane which swooped down 4,000 feet out of the skies, and obtained two direct hits on a trailing submarine. Flying in consort with two aeroplanes, on patrol, she had sighted this enemy craft—one of an unusually large type, with two periscopes—from a distance. Both bombs fell abaft the conning-tower, one, at least, a palpably direct hit. Suddenly the submarine plunged over on her back, and with a last tremendous wriggle, vomiting quantities of oil, disappeared. The lean periscope knifing the surface of the water, the sudden, roaring downwards sweep of wings, the chaos of the explosion, the tell-tale patch of oil on the water's edge—the incidents vary little in the main details, the craft occasionally.

Opinion in aviation circles is sharply divided as to the merits and the demerits of their respective craft, the lighter- and the heavier-than-air. An airship man will tell you—and not in the strictest confidence—

that an aeroplane, or, for that matter, a seaplane is "a rakish, good-for-nothing bus." The invariable retort of the heavier-than-air pilot is that "an airship is a 'gas-bag,' harmless and helpless." May be that is correct. But they have ample evidence in their defence. Their normal flying altitude is invaluable for this class of work. Neither too high nor too low, from this height the bed of the sea to a depth of twenty fathoms is plainly distinguishable. The sinister black form worming its way against the sandy colour of the bottom, within the fathom limit, stands in dire peril from above. For where the airman can see distinctly, the submerged submarine commander is blind! When, eventually, he comes to the surface, he will find his deadly enemy awaiting him.

In one instance, an airship pilot patrolling about noontime sighted a suspicious patch of oil on the surface of the water. Rapidly he sank lower, to investigate—and watch. For his trouble he was rewarded, ten minutes later, with the sight of a periscope breaking water—to immediately disappear. However, swift as she was, a bomb found the swirl of her descent.

When the maelstrom of the explosion died away, oil and bubbles in large quantities came rippling to the surface. Below, the submarine was to be seen creeping slowly along, with an unhealthy list to port. The airship pilot made play with more bombs. More bubbles and air rose to the surface, also two heavy swirls. Meanwhile a trawler and two motor-craft, which had watched from afar, came dashing to the scene of fray. Several depth-charges were brought into action, and more bombs were dropped; and the surface craft kept watch till after sunset. But nothing further was seen or heard of that submarine.

To witness a submarine attack on a helpless merchantman was the ill—or rather good fortune of another airship pilot. He flew down on the wind, at full speed, to the spot. The submarine saw him coming and submerged. Undaunted, he dropped two bombs directly on the spot whence she had disappeared. In a short time several large bubbles—one in particular being of huge size—came to the surface. This disturbance of the water continued for five minutes. Two trawlers which had come up dropped depth-charges

immediately; three of which exploded right over the target. More oil came up. And just at this juncture the wind, which had been blowing at great force, increased to a gale, and several fittings of the airship being carried away, she returned to the base.

Patrolling one November afternoon, another seaplane discovered a submarine in the act of diving and a second submarine stationary on the surface. Spiralling down, the pilot got directly over the stationary submarine and two bombs were loosed, one of which hit the decks fairly amidships. The submarine was hidden by the smoke of the bomb, and when that cleared away, the vessel was sinking with both ends in the air. In a few minutes the submarine had disappeared, and again a large quantity of oil came to the surface. Nothing further was seen of the first submarine.

More often than not, unfortunately, the underseas craft is successful in its quest. But sometimes the little God of Chance, perched, grimly sardonic, among the clouds, will send an avenging plane speeding down at the identical—and most unfortunate—moment. Flying out to meet a merchant

ship, a pilot observed a large disturbance on the water, 200 yards away from the vessel. Just afterwards the wake of a torpedo was seen, but it missed the ship by a few yards. The seaplane at once planed down, and in less than a minute after sighting the submarine's movements dropped two bombs which fell and exploded within eight yards of each other. Large quantities of oil and bubbles then rose to the surface, while the merchantman proceeded on her course in safety.

Two other large seaplanes, while on patrol, sighted an enemy submarine on the surface. The first seaplane dropped a bomb which exploded just abaft the centre of the submarine. The submarine listed heavily to port and went down by the stern within one minute. The second seaplane passed over the enemy just as he sank and dropped a bomb which exploded in the centre of the swirl caused by the submarine's disappearance. Two further bombs were dropped, and nothing more was seen of the submarine.

These air-pilots never miss an opportunity. A seaplane saw a submarine come to the surface. The pilot flashed across it in a

headlong dive, dropped a bomb, overshot his target, and turned in immediately to the attack again, to see the submarine disappearing with a list of thirty degrees to port. He dropped a second bomb where she had disappeared, and a few minutes later a patch of oil about 150 feet long and twelve feet wide appeared on the surface. That submarine hunts no more.

AN AERIAL PUSH

CHAPTER XI

AN AERIAL PUSH

THE Commanding Officer of X. Squadron sat at his small office table. Before him lay compasses, pencil, and scale-map, the latter of the district that lay fifteen miles on either side of the firing-lines. Marked off neatly into ruled squares, the canvas contour was printed here and there with odd letters, the larger squares imaginarily subdivided from one to ten. Thus at a single glance he could locate either town or village, railway junction or ammunition dump, to the fraction of a yard. The Commanding Officer thought tensely.

He studied the coloured surface steadily, moving his compasses from side to side and jotting down certain figures on a stray sheet as he went. This task completed to his satisfaction, he drew some buff official documents from his pocket and read them

through with care. Then his reconnaissance pilot came in.

Together they discussed the official report, with due comment on the part of the senior officer, whose concluding remark was curt and very much to the point. "As I figure it out," he said, "the enemy is intending establishing a large ammunition dump at this position"—he indicated a point on the map,—“probably for a concentration of artillery in this sector, possibly as the prelude to an infantry attack on a large scale. That dump must be destroyed at all costs.”

The pilot saluted smartly and went out. An hour later he presented a detailed account. Read in the terse phraseology of report form it ran: "10,000 feet, 10.20 a.m. B,D2.5. Observed congestion traffic on the roads and railways. Former lined to length of half a mile with convoy of ammunition motor-lorries—convoy proceeding westerly direction. On the sidings of the railway-track, which lies approximately half a mile due east of this point—B,D2.5—two long trains of trucks—approximate number twelve apiece—both heading west. In S—— station,

half-mile to the east, another train observed ; locomotive with steam up, heading same direction. Distinct evidences of some form of building taking place in a small wood that runs alongside the main road—B,D2.4. Surface of surrounding fields marked with distinct traces newly-worn footpaths ; all leading up to the point B,D 2.5. Significant fact that, though in this sector anti-aircraft bombardment usually severe, to-day I was able to circle round at a low altitude without a shot being fired.”

On the strength of this, the C.O. despatched a photographic machine to the map position B,D2.5. The latter pilot's mission was no sinecure. Flying extremely low—to acquire better focus—they will be working through an incessant anti-aircraft bombardment for an hour or an hour and a half on end. Within an hour of landing their new negatives will have been developed. Thence they are passed on to the Intelligence Department, who compare them with previous photos of the same area.

This case proved no exception to the rule. Headquarters tested it, first by this theory, and then by that ; discussed it ; deprecated

it ; and finally—— Whether the fact that, late that night, two large transports slipped down Southampton Water into the inky darkness of the Channel, with, battened securely beneath their hatches, the accumulated portions of several heavy-calibre howitzers, and the 2nd E——s and the 14th W——s received sudden marching orders, where they were quartered in a sleepy village in the south of England, that their services to their King and country would be of more value elsewhere—that elsewhere being vaguely intimated to be somewhere in the north of France—has any connection, may best be judged from ensuing events.

Anyhow, for the members of X——squadron the following week was one of the busiest of their embittered young lives. Every pilot had his hands full ; reconnaissance, bombing, and combat bound. The observers went with them. And every branch of work was a specialised branch.

In fact every pilot and observer in the Flying Corps to-day is employed with some special purpose, the craft included, and they vary from the fast rapid-climbing fighting machines to the slower and more cumbrous

reconnaissance and spotting craft with greater powers of duration. There are varying degrees of pilots, and the observers have varying degrees of duty to perform. But every available aeroplane was necessary to X—squadron for the particular job they had on hand.

Primarily it was necessary to gain undisputed sway of their particular section of the aerial front. This was accomplished by the fighting scouts—grey, dour-looking craft that went flashing up into the heavens at all hours of the day, some singly, some in orderly methodical squadrons. Theirs was usually a roving commission. They wandered whither they would and when they would, without order and without question.

This meagre 8 per cent., who alone of many thousands of pilots were qualified to undertake the strenuous business of aerial combat, made as many years' history in as few days. Of them, one—official etiquette demands his identity be no more revealed than a "certain pilot"—met two unwary Huns a-roaming; which brought his bag of Boche machines to twenty-one. A further victim swelled his list the following afternoon. And the ensuing

twenty-four hours of rain only left him more eager and determined for the one great adventure of the "push."

At 10,500 feet—exactly two miles high, he skirted the clouds in the early sunshine, waiting and watching. Below, a squadron of six Hun bombers swept past in an orderly line.

Of those who serve the air is demanded instant determination. Machines and men must move with celerity that is bewildering to the landsman. The three miles an hour of the infantryman is the sixty, the eighty, the hundred of the airman. Planning his action as he dived, that certain pilot took the enemy formation above and slightly in rear. His first half-drum of bullets brought a leading machine tumbling and spinning out of the line. Another dropped out of the fight, to make her base with a bullet-ridden wing.

By this time the Britisher had shot ahead, with four machine guns trained full on his back. Nevertheless he wheeled back into the fight again, accounting for a further victim. Which necessitated, by every rule of Hun warfare, the remainder switching their tails for home.

With an unimpeded airway, the reports the reconnaissance pilots and observers brought in varied as widely as the front they circled. The information grew more concrete, more definite, as day succeeded day. Like a "movie" picture, the scenes flashed on to the screen in proper sequence. First came the enemy labour battalions, swarming like ants below, busy about the concrete bases for the heavy guns, which arrived in due course—deadly and disgruntled, on trucks drawn by puffing tractors.

Infantry—from 10,000 feet, shapeless, sprawling masses of grey—choked every roadway leading up to the direction of the lines; accompanying them the customary columns of supply. Some twenty miles across the lines an observer jubilantly wirelessly home the discovery of a new 17-inch howitzer position. Five miles east and out of his sight another reconnaissance machine had detected the advance of considerable enemy reinforcements. From yet another quarter there came the welcome news of the discovery of a new enemy ammunition dump. And from another, "Nothing to report"—this the most significant news of any. That

particular area would be kept under closer observation than any in the near future.

“The movements of the enemy were watched and a great many hostile batteries were located and reported to our artillery.”

Adventures attendant on these manœuvres were many and varied. In his own peculiar phraseology a wounded officer of the R.F.C. : “They saw,” he said, “something doing in the rear of the Hun lines, flew down to have a closer look, and came under the fire of some ‘archies.’ A direct hit smashed the engine. The pilot didn’t lose control, but planed down as much in the direction of the British line as he could. They came to earth inside the Boche lines, unhurt, nipped out of the ruined ‘bus’ pretty quick, and started running in the direction of the British trenches.

“After running for some time they spotted a sort of erection affair, like a big gun-pit. They crept closer and heard the Boches talking. It was a gun-pit. So they squatted down and made a sketch map of it, with a bearing or two to get the proper range. After that they crept and ran and crawled until they got to the back of the canal.

They had to swim for it, and as they left the bank a couple of Boche snipers got a bead on them, and they had just time to locate the beggars hiding in sunken barrels before they dived. They swum under water, coming up for a breather now and then, with the Boche snipers blazing away, but they got through all right. While still dressed only in wet shirts they got on the 'phone to our heavies, and gave the exact location of that gun-pit, as well as the two barrels. Next thing that happened was a series of direct hits on that gun emplacement and the two snipers' barrels were sent sky-high."

Bit by bit, item by item, these reports were all pieced together. To the staff officer, running through the observers' reports with his map, the country revealed itself, army corps by army corps, gun by gun, and trench by trench, until he knew exactly what areas required the attention of our artillery and what could be ignored. And if the Staff was the head that directed affairs, no less were the aircraft the eye and the brain that supplied the directions. The two work always in the closest co-operation. A chance aerial report shows up at G.H.Q. Commotion

is immediate. Along the wires is flashed the news up to Divisional Headquarters. More commotion; more consultation. Then a telephone-bell tinkles somewhere miles ahead. The bombardment has begun.

In the marionette show of the great game of war the figures—the infantry in the front-line trenches and the heavies immediately behind them—only move to the manipulation of the wires by the staff at G.H.Q. There is the power centre that gives life, by way of innumerable lines, to these smouldering masses.

In the matter of artillery bombardment aircraft were again indispensable. Before the batteries opened fire the aeroplane would be circling over the objective; and when the bombardment opened they commenced wirelessing back to the battery the positions of the bursts of their shells; thuswise, "Your last shot over," or "short of," or "too much to the left or right."

On the other hand, some positions were too far distant to be shelled. These it would be necessary to raid. Manœuvres of this nature were mostly carried out during the night. And that was the most difficult

flying work of all. X. Squadron realised this fact to its fullest extent.

Setting off in the darkness, with a highly explosive cargo aboard, the pilots would have to literally feel their way, with no landmark to guide them to their objectives.

At the low altitude at which they flew they were liable, at any moment, to be picked up by a German searchlight and shot down to earth. Having reached their objective and having dropped their bombs, they had yet to make the return journey and land in the dark.

Daylight raids were few and far between. But, such as they were, the Boche had an admirable object-lesson set him—that, in this most barbarous form of warfare of the ages, there were yet finer and more delicate distinctions. The British pilots, in order to bomb the true objectives and not to massacre helpless civilians, came unusually low, in grave risk of their own necks, and rarely missed their mark. From a height of little above the lines of telegraph-wires alongside the railway that “certain pilot” of X. Squadron cheerfully strafed a convoy, and a moment later lessened his machine of

the weight of several drums of bullets, placing same into both sets of windows of a troop train, and inflicting many casualties.

The enemy's guns continued their delicate attentions all along the line, but were unable to prevent him from bombing another train in a siding. The engine of the latter rocked off the rails at the shock of the first impact, the driver giving obvious refutation to the theory that German dignity never takes to its heels. The quick eye of the pilot caught sight of numerous boxes in the trucks. Ammunition, he thought. From a height of fifteen feet he sprayed them with shot ; but without result. Again he returned ; still nothing happened.

Somewhat apologetic he afterwards explained the situation to the commanding officer. "Heavens, man!" exclaimed the latter, "did it never strike you what would have happened if you had hit that ammunition?"

"I'm afraid it didn't, sir." The pilot blushed ; he was very young. In the ensuing "push" that certain train fell into the hands of the British. Therein high explosive was piled up from end to end.

By this time the push was almost ready to begin. The fighting scouts were turned out to scour the skies in all directions. Now, more than at any time, it was necessary to keep the enemy from the air. One German machine overhead would discover the movement, put his corps commander on his guard, and lead our men into ambush instead of victory.

The condition of the air was particularly unhealthy. Anti-aircraft shells, rifle bullets, artillery shells, small and great, were bursting all round. Were one of the latter—say, a 15-inch—to hit a machine, it would simply vanish into thin air.

Yet while all this was going on the aeroplane pilot had, perforce, to keep in touch with the infantry, watch how the push proceeded, and constantly report progress to headquarters, thus proving that aircraft were indispensable to any stage of the modern battle.

In the next day's newspapers appeared a glowing account of an advance of three-quarters of a mile on an eight-mile front. The X. Squadron of the R.F.C. figured largely in a subsequent field-marshal's

despatch. The commanding officer got his D.S.O. And for that "certain pilot" arrived one day, by motor orderly, a thin buff slip, on which was scrawled in faded pencil, "Well done!—D.H."

WORK AND DEVELOPMENT OF THE
ROYAL FLYING CORPS

CHAPTER XII

WORK AND DEVELOPMENT OF THE ROYAL FLYING CORPS

THE remarkable feature of the R.F.C. apart from its development is that it is the outcome of the genius and foresight of a single man Lieutenant-General Sir David Henderson, K.C.B., D.S.O. As a Brigadier, Sir David took as early a flying certificate as No. 118, and when the R.F.C. was officially constituted in June 1912 he was immediately appointed Director of Military Aeronautics.

In those times the Flying Corps comprised both Naval and Military wings; and controlled aeroplanes, balloons, and airships alike. But the chief occupation of the Director appeared to be that of obtaining the necessary finance from conservative-minded politicians who regarded aviation as a wild sport for adventurous young men. What Sir David accomplished on that miserable

pittance would open the eyes of a company-promoter wide with envy.

Thus, after the R.N.A.S., on July 1st, 1914, had been constituted a separate body, and when, a month prior to the war, a concentration of R.F.C. squadrons was held on Salisbury Plain, no more than five squadrons could be assembled. And they aggregated forty-odd machines!

By borrowing motor transport and machines from the Central Flying School this total was raised—so Lord Curzon informed us, in his tribute to the Flying Services, in the House of Lords, October 29th, 1917—to sixty-six machines and 100 flying officers. Not one of these machines possessed a greater horse-power than eighty, speed of more than seventy miles an hour, or a British-built engine. Yet they all flew across to France without mishap—a great feat in those days. And forty-eight hours later they were in operation on the western front.

DEVELOPMENT

What has been accomplished in the interval may best be judged by a further reference to Lord Curzon's speech. "It all

seemed like the survival of the romance of a bygone age. The 100 flying officers and few machines we possessed at the outbreak of war had grown into an enormous fleet consisting of thousands of machines and tens of thousands of men"; by the statement of Major Baird, in the House of Commons, that: "There are now 958 firms engaged with work for the Director of Aeronautical Supplies—301 as direct contractors, and 657 as sub-contractors, with a possible output of sixteen machines per month apiece." Taking this to be the average output, the yearly aggregate would be 57,792 machines! And by the fact that most months—sometimes weeks—we lose more aeroplanes than constituted the original Expeditionary Force.

Vast as has been the development of the sister service, R.N.A.S., it can in no way compare to that of the R.F.C. The latter is now a great army in itself. The Commander is a Major-General, who, as Director-General of Military Aeronautics, is ex-officio member of the Army Council, and is "responsible to the Secretary of State for so much of the business relating to the administration of the Army Air Service as is

not subject to the control of either the Air Board or the Ministry of Munitions, and as may be assigned to him from time to time by the Secretary of State."

A day rarely goes by without some reference to the work of the airmen in the Headquarters Official. And the Corps has been honoured by the King as Colonel-in-Chief; while aerodromes have sprung up in every county and district in the United Kingdom. At one time, at a large aerodrome may be seen as many machines in the air as constituted the original Flying Corps. And there are more aeroplanes flying over Great Britain to-day than there are motor-cars running in the streets!

The Flying Corps has developed for the most part at home; where it now also combines the duties of home defence against raiding aircraft, and supplies craft and personnel to the armies on the western front, Salonica, Palestine, India, Italy, Mesopotamia, South and British East Africa. Aircraft factories have sprung up literally in hundreds, each employing thousands of skilled mechanics and trained women. Dozens of officers and hundreds of men are employed

at every aerodrome. The Air Board itself necessitates a small army of experts, secretaries, orderlies, and clerks. The Aviation Inspection Department may be numbered in thousands. And the Air Services now claim a separate financial estimate.

The Corps is sub-divided into wings, squadrons, and flights; each with its own Commander. The personnel is composed of pilots, observers, photographers, wireless experts, balloon pilots, equipment officers, engineers, trained mechanics, and women—the last being supplied by the Women's Army Auxiliary Corps.

ADMINISTRATION

Sir David Henderson continued to be in command of the R.F.C. until October 12th, 1917, when it was announced by the Secretary of the War Office that: "Having been deputed to undertake special work, he had been lent for such services, and had thereby vacated his seat on the Army Council."

The announcement continued that: "The Secretary of State for War had appointed Major-General J. M. Salmond as his successor

as Director-General of Military Aeronautics, with a seat on the Army Council.”

At the same time Major-General Brancker, Deputy Director of Military Aeronautics, was appointed to a command abroad, and for the present, it was further announced, his place would not be filled, thus leaving the original Headquarters Staff with :

Director.—Brevet Lieutenant-Colonel L.C.O. Charlton, C.M.G., D.S.O., Lancashire Fusiliers.

Deputy Assistant Director.—Major and Brevet Lieutenant-Colonel W. D. Dooner, Army Ordnance Dept.

Deputy Assistant Adjutant-General.—Lieutenant (temporary Major) H. S. Ebben, R.F.C., S.R.

Staff Captain.—Captain C. F. Gordon, M.C., North Lancashire Regiment.

Major-General Trenchard, who, from the time of Sir David Henderson's return to England in 1915, succeeded him as C.O. in the field, is still controlling the work of the R.F.C. in the war area, and is ably assisted by Temporary Brigadier-General E. L. Ellington, while Major-General Ashmore is responsible for the aerial defences of London.

On November 2nd it was announced by

The London Gazette that the King has been pleased, by Letters Patent under the Great Seal of the United Kingdom of Great Britain and Ireland, bearing date October 18th, to appoint :

Major and Brevet Lieutenant-Colonel (temporary Major-General) John Maitland Salmond the new Director-General of Military Aeronautics, taking the place of Lieutenant-General Sir David Henderson, K.C.B., D.S.O.

IN THE FIELD

Leaving the matter of administration, let us turn again to the more practical side, that of the work of the R.F.C. in the field. We had left those 100 gallant pilots and their sixty-odd decrepit craft at the time of the first landing. Of their glorious achievement in holding the air, through many strenuous months, against the 600 well-equipped aeroplanes with which the enemy took the field; of the reconnaissance pilot who first brought news to Sir H. Smith-Dorrien that his advanced division was faced by three German Army Corps; of the British aircraft whose timely information saved

the Allies, and the world, in that historic retreat from Mons, and of many other inimitable deeds of the pilots of the R.F.C., we have heard and read on countless occasions.

There is no need for us to dwell upon that glorious chapter of British history; that opened the book at the Aisne, and turned the last page at that bloody second battle of Ypres. The years of nineteen fourteen, fifteen, and sixteen marked a period of remarkable evolution in aviation. Some sort of policy had, perforce, to be formulated that dealt comprehensively with this latest form of warfare. The nucleus of a great personnel had to be established and developed to maintain the evergrowing expansion. Types of new machines had to be experimented, constructed, tested; and adopted or discarded. And reconnaissance, direction of artillery, wireless telegraphy, aerial gunnery, photography, and bomb-dropping had to be placed upon some suitable basis.

I repeat: the first three years of the war were merely a period of evolution as regards aviation. It was not until the spring of 1917 that aerial warfare naturally developed. And proof of this assertion may be amplified

by a reference to Sir Douglas Haig's daily reports from Headquarters, and from the fact that 717 aeroplanes—of all nations—were destroyed in April and 713 in June alone.

The progress achieved by the R.F.C. in this matter may best be judged from—an unintentional tribute—a report written by a Commander in the 31st German Infantry Regiment, which was captured by our troops north of the Ancre. Describing the bombardment of his trench, he says :

“ Enemy airmen were over our position the whole day and came down very low. They directed the fire throughout. Our own artillery seems to have fired very little. German airmen appeared only towards evening, but the enemy's airmen would not let themselves be disturbed in their work. Nothing is left of the trench.”

In every big battle of the year aircraft have played a prominent part. Thus we find an expert French commentator, on March 22nd, 1917, after the advance, writing :

“ Despite bad weather, there was considerable air activity in the zone of the enemy's retreat. French and British aviators fur-

nished their general staffs with most valuable information, and successfully drove off many enemy machines."

Again, concerning the big push round Bapaume, Mr. Philip Gibbs gives the following glimpses of the work of the R.F.C. :

"Flights of British aeroplanes were up and singing with a loud deep humming music, as of monstrous bees. Our Archies were strafing a German 'plane, venturesome over our country. High up in the blue was the rattle of machine-gun fire. . . .

"The Germans have a cavalry screen behind their rearguards. They were seen yesterday north of Bapaume and southwards beyond Roye. And some of them were chased by a British airman at a place called Ennemain. He swooped low like an albatross, and brought a man off his horse by a machine-gun bullet. Others stampeded from this terrible bird."

In the advance, towards the end of April, Sir Douglas Haig made constant references to the activity of the airmen. And Mr. Beach Thomas, in *The Daily Mail*, sums the whole affair up as follows :

"We have never before hit the German

so hard or so harassed him by day and night. A night or two ago our men broke up three trains near Douai, one after the other, with bombs dropped from a couple of hundred feet, and so terrified soldiers and other officials with the rattle of machine-guns that the attackers escaped with scarcely an attempt at resistance. A day later two of our fighting 'planes which had sought the Germans in vain for several previous days suddenly came upon a fleet of fourteen . . . charged this motley group, broke up the formation, and sent two crashing to the ground.

"The enemy's losses in purely fighting machines are enormously greater than ours. His plan when he attacks is to mass his 'planes against a single observer, knowing that most observing 'planes are no match for the fighter. . . .

"We hold again the mastery of the air. Whether we keep it depends, first and foremost, on the activity of the factories at home. As I was listening at the aerodrome to a stirring tale of a duel that lasted for half an hour, a speck was seen in the air and the first home-comer of a patrol of three was recognised. He landed and "taxied"

up to us. The clouds had been too low for good flying. He had had no adventures, he said, and was home first because the engine was giving a little trouble. Then he looked over the machine and saw what we had already seen—a huge rent and a broken wire in the body of the 'plane. Clearly a great lump of shrapnel had struck a yard or two behind his back. We had the explanation presently when another two returned. The neighbour pilot had seen an extra double-sized shrapnel shell from an anti-aircraft gun burst just between the two of them—an alarming fact, of which the younger pilot had been wholly unaware.

“Evidence accumulates of the depression caused among the enemy's infantry by the activity of our airmen. A German document describes the moral effect on infantry of balloons ‘hanging like grapes in clusters’ and watching every movement below.”

A yet more complete survey of a period of R.F.C. work on the western front was furnished by the Military Correspondent of *The Times*, in the first of his series of special articles :

“In four months before Arras our aero-

planes reported 1,589 direct hits on German guns, as well as some 200 important explosions, so that the German administration, which was already hard put to it to repair its guns, to create a reserve, and to provide artillery for the new divisions, must have had an anxious time. . . .

“ I only saw two German aeroplanes cross our lines during my visit to the British front, and when some of ours came up and drove them off I thought that ours looked like thoroughbreds and the German hackneys. There were, however, plenty of German aeroplanes on the German side of the line, as well as many observation balloons. The Fokker is fairly played out on the western front, where the Albatross one-seater and the Halberstadter represent the best single-seater fighting machines of the enemy. The former has two guns firing through the propeller and a 160 h.p. Mercedes engine. The Roland, the L.V.G., the Rumpler, and the Aviatik are the most common two-seater planes. Fighting, reconnaissance, and artillery work are carried out by separate units, and a sharp distinction is drawn between these different spheres of aerial activity.

The organisation of the German Air Service is fairly well known to us, and we also know to our cost that we were met by superior numbers of fast single-seater fighting machines at the opening of this year's campaign.

On June 8th, after the taking of the Messines Ridge, Field-Marshal Sir Douglas Haig congratulated the R.F.C. in the following terms :

“ Following on the great care and thoroughness in the preparations made under the orders of General Sir Herbert Plumer, the complete success gained may be ascribed chiefly to the destruction caused by our mines, to the violence and accuracy of our bombardment, to the very fine work of the R.F.C., and to the incomparable dash and courage of the infantry.”

While, towards the end of the summer—August 28th—*The Daily Mail* published a dispatch from Mr. Beach Thomas, describing what must have been a record week in the air. Said Mr. Thomas :

“ I have just read the summing-up of a week's journeyman's work by our Flying Corps in France, and it so excels all that is on record in fact, or indeed in fiction, that I

will omit the stirring tales of all individual adventures in favour of a mere naked epitome. The properest work of the airmen in war is the finding of the enemy's guns and directing fire on them. That is what matters most, though it is the least dramatic in telling, and it is chiefly in this department that past experience has been excelled.

“ From August 14th to 21st our airmen helped the guns to range on well over 700 German batteries. They and the gunners worked so well together that 128 gunpits were totally destroyed, and among the batteries 321 separate explosions were caused.

“ The figures indicate the immense scale of the artillery fighting, as well as of aerial observation. Indeed, such now is the intensity of the gunfire that what is called a counter-attack does not necessarily imply any movement of infantry at all.

“ Under good observation from the enemy it may be as dangerous for the field gunners to fire as for infantry to go over the parapet. At the same time unobserved gunners can drive back the infantry without the need of help from their own infantry. Such experiences have been common in the last

few weeks. In the recent fighting the gunners have had almost the same sensation of a hand-to-hand battle as the charging infantry, and have needed the same sort of courage and calmness.

“In places the Germans, though they have lost their so-called grand stands or super-observation points, as Vimy and Hill 70 and Messines and Pilkem Ridge, have still one or two ridges which force all the duty of observation on our airmen.

“As to the rest of this unparalleled week in our airmen’s records let the bare figures speak for themselves. They flew in the week over 1,200 hours; they took another 5,000 photographs of the enemy’s territory; they dropped over 2,000 bombs, amounting to about thirty-six tons in weight; they fired more than 30,000 rounds from low levels at the enemy’s infantry and gunners; they brought down sixty-eight enemy planes, and are known for a certainty to have driven down ninety more, of which a great number were certainly destroyed.

“It must be remembered that our authorities are as strict as an adverse judge in sifting the evidence of crashed machines. Many

not recorded even as hit are crashed, as later evidence has often proved. The German airmen, rather like the German gunners, have been braver at night than by day. They have bombed many places, from hospitals to harvest fields."

The most important reference to the R.F.C. of the year, however, was contained in a long dispatch from Sir Douglas Haig, concerning the battle of the Somme.

Writing of the German trenches between the Somme and the Ancre, Sir Douglas Haig says:

"The second system itself, in many places, could not be observed from the ground in our possession, while, except from the air, nothing could be seen of his more distant defences. . . .

"On June 25th the R.F.C. carried out a general attack on the enemy's observation balloons, destroying nine of them, and depriving the enemy for the time being of this form of observation. . . .

"On the same day (September 26th) Gueudecourt was carried, after the protecting trench to the west had been captured in a somewhat interesting fashion. In the early morning a Tank started down the portion

of the trench held by the enemy from the north-west, firing its machine-guns and followed by bombers. The enemy could not escape, as we held the trench at the southern end. At the same time an aeroplane flew down the length of the trench, also firing a machine-gun at the enemy holding it. These then waved white handkerchiefs in token of surrender, and when this was reported by the aeroplane the infantry accepted the surrender of this garrison. By 8.30 a.m. the whole trench had been cleared, great numbers of the enemy had been killed, and eight officers and 362 other ranks made prisoners. Our total casualties amounted to five.

“ In this combination between infantry and artillery the R.F.C. played a highly important part. The admirable work of this Corps has been a very satisfactory feature of the battle. Under the conditions of modern war the duties of the Air Service are many and varied. They include the regulation and control of artillery fire by indicating targets and observing and reporting the results of rounds ; the taking of photographs of enemy trenches, strong points, battery

positions, and of the effect of bombardments ; and the observation of the movements of the enemy behind his lines.

“ The greatest skill and daring has been shown in the performance of all these duties, as well as in bombing expeditions. Our Air Service has also co-operated with our infantry in their assaults, signalling the position of our attacking troops, and turning machine-guns on to the enemy infantry and even on to his batteries in action.

“ Not only has the work of the R.F.C. to be carried out in all weathers and under constant fire from the ground, but fighting in the air has now become a normal procedure, in order to maintain the mastery over the enemy's Air Service. In these fights the greatest skill and determination have been shown, and great success has attended the efforts of the R.F.C. I desire to point out, however, that the maintenance of mastery of the air, which is essential, entails a constant and liberal supply of the most up-to-date machines, without which even the most skilful pilots cannot succeed.” A happy augury for the future of the lately formed R.A.F.

MOONLIGHT OVER THE BATTLE

CHAPTER XIII

MOONLIGHT OVER THE BATTLE

IF you really want to know what our flying men are doing over there, avoid reading the Daily Officials. They recount little enough to satisfy even a British Board of Censors. Should sense of duty compel you so to do, it is between the lines that history is steeped. It is the commas that are often likely clues, and the full-stops that reveal whole chapters. Here are two of them with, packed between, in terse phrasing, the makings of a sensational "romantic novel." "Two of our aeroplanes which were reported missing in the communiqués of the last two days have since returned to their squadrons." Never a word as to what occurred in that trying ordeal of the twenty-four-hour interval. Again, "Sixteen of our machines have not yet been located. Many of these have undoubtedly made forced landings behind our

lines owing to the difficulty of finding their aerodromes in the heavy rain"—like the wordless film version of a great sensational play.

Who wishes to get to grips with that adventurous spirit that animates the air must himself essay the terrors and the joys of the airmen. One must go racing up to the sky when the first flush of dawn is in the east, the icy blast worming into one's bones; the earth surface opening out on all sides like the petals of a new-blown rose; when the sudden storm comes squalling up from interminable space; when the light is blotted out by the darkness of night. That is the time when the vast shadows harbour friend and foe in every yard, danger and adventure in every mile. Follow that squadron there sweeping across the British trenches, their powerful engines echoing and re-echoing along the still grey lines for miles on either hand, a night bombing expedition on its outward way.

The night is black—black as a raven's wing. The moon has not yet come up; the stars are cloaked behind an impenetrable canopy. But the faintest pin-heads of light indicate the raiders' locality. As they come

up, with a gradually increasing audibleness, they fill the skies with a tumultuous roaring and then die away into the dark uncertainty of No-Man's Land ahead.

Their Squadron Commander is at their head. In rear of him—keeping precise and well-ordered formation—ride six cumbersome “bombers,” loaded heavily with high explosives. Another fighting scout hovers on the extreme left; now darting out in the darkness toward some suspicious light; now diving in to regain formation. Some faint quivering signal flashes in from the leader. They are well over the enemy's country by now, and must climb to avoid possible anti-aircraft traps. Eight blunt noses veer upwards simultaneously. The combined roar of eight engines dies away perceptibly.

Almost too late; red, angry bursts pepper the blackness; murderous, whining shrieks make themselves audible, even above the racing motors. The squadron hesitates, loses formation, regains it, and flies on. The battle-plane on the left dives down, headlong, at the flashing gun-mouths. A bomb or so goes hurtling down into the night, awakening the quietened country-side with

murderous detonations. And then, when all danger seems to be passed, the leader suddenly lunges down out of position; rolling and quivering, like a wounded bird.

A hostile searchlight focuses him, bringing him well within sight of his pack, until, 1,000 feet lower, he regains control; turns with a sharp bank, and heads towards his base. His squadron flies on, leaving in rear a renewed burst of firing, and a sky slashed and lined with innumerable searchlights. Instinct whispers them to wheel to his aid; duty, to carry on ahead. Their orders are definite.

Left to his own devices, the leader clears the bombardment, slithers out of searchlight range, and brings his battered 'plane to earth between the opposing lines of trenches. Travelling at well over sixty miles an hour across the hillocky surface, his machine suddenly tilts nose-foremost into a deep shell-hole. There is a crash of splintering wings and wood-work; the force of the collision starts off a bomb.

Soon—very soon—the declivity is a mass of burning wreckage. Fighting for life, the pilot manages to extricate himself, and

scramble up on to the surface. His leather flying-coat well alight, his eyes and throat choked with smarting, blinding smoke, he rolls over and over on the ground to the banks of a tiny stream, tumbles in, and loses consciousness, as several dark figures come swarming over the top of the British trenches. There is a rapid exchange of rifle shots with the enemy infantry, who have also witnessed the catastrophe, and they hurriedly pick him up and carry him back to their own trenches.

That sunset hour is the busiest of the airman's whole twenty-four. Before the light goes west occurs that tense ceremony of watching the birds come "winging home to roost." From time to time, during the day, pilots have been reported missing. Sundown is the last call. If the missing man doesn't come slithering in at sundown, the chances are that he will never return at all.

Anxious groups—making believe with laughter and fooling—gather on the aerodrome; counting the tiny black shapes, one by one, as they show up on the sky-line; tally them in their minds until the last

man has landed safely; and then move off towards the Mess. Never before!

After sunset, when the turmoil of the day-battle, the roaring hubbub of the guns, and the distant crackle of rifle fire, have died away, when the first trench rockets hiss skywards, in a spluttering trail of light, these aerodromes, free of the resonant hum of mighty engines and bustle of mechanics and pilots, are strangely forlorn in appearance.

But farther back are other similar aerodromes, not so deserted. Their wide spaces are filled with throbbing engines. The ground is ablaze with the flares of labouring mechanic squads. All day there has been a stillness on their spacious enclosures. Only at the time of sunset do they liven up. For these are the aerodromes of the night-raiding aeroplanes, which steal away in the darkness to bomb enemy dumps and communications.

Great powerful machines stretch wing to wing across the enclosure; their parts specially constructed to neutralise the reflective power of metals; gleaming dully in the light of the flares. Opposite the pilot's seat in each 'plane, the instrument-board is

illuminated by carefully screened electric glow-lamps, and hardly a glimmer comes above the cockpit even when all the higher lights are shining, and though the pilot can distinguish every pointing indicator as it moves across the dials as clearly as by the light of day.

The pilots appear from their quarters, and stroll towards their machines. They are heavily clad—much more heavily than their fellows of the daylight. The night is cold, and they have farther to go; so they take precautions. The chorus of the final engine tuning-up greets them as they approach, and mechanics scramble out from beneath wings and fuselages, leaving the bomb-racks well filled and in order.

The pilots clamber into their places. The engine hum becomes a roar, one by one the machines start forward over the enclosure and glide upwards into the night. Red and white identification lights on each wing-tip show for a little, a galaxy of new stars; and then this last sigh of their presence also disappears as the squadron heads swiftly for the distant line.

Their course is as direct as a ruled line :

over the trenches, with all their wavering display of starshells, and on into the enemy's country, where all manner of adventures waylay their speeding feet. Long beams of enemy searchlights stab the darkness, seeking them among the upper shadows. Occasionally finding a 'plane and dazzling her pilot with their brilliant concentration. Occasionally holding such feats of arms as :

Two British machines, convoying a raiding-party, north of, and over St. J——, encountered seven Hun fighting-scouts. Pilot number one put down three of them with just over two drums of ammunition; his companion immediately being attacked by the other four. He brought down one, and then, after pretending to escape, suddenly executed a sharp "volte face" and attacked a second machine, which was forced down. At that moment a machine-gun bullet glanced off the British captain's motor, and he was forced to descend out of the fight. A big German machine tried to bar his way, but the discharge of 150 machine-gun bullets quickly forced the monster to make a compulsory descent to earth; and both British craft flew back to rejoin their squadron.

But, however glaring the searchlight may be, the British pilot soon recovers. He pulls back his control lever, and climbing upwards, leaves the Archie clusters bursting beneath him. Then, strange snakelike flashes quiver and disappear over the horizon of the sky.

These flashes—unwisely enough—indicate the positions of the enemy aerodromes. They are caused by the Huns firing a fixed number of green balls, string-fashion, into the sky, which—in addition to their aerial lighthouses—assist the raiders when returning to their bases. From a height of 10,000 feet those fired from the Belgian coast can actually be seen by German machines high over London, who then have only to steer in the direction of these recurrent signals to “hit” their coast at a known spot.

Leaving searchlights, green balls, and anti-aircraft shells behind them, the British squadron at last sights the faint glow of a darkened German city far below, which tells the pilots that the objective has been reached.

Circling round to pick up their targets the big 'planes look like gaunt night vam-

pires searching for their prey. A sudden jerk of a pilot's hand and half a ton of bombs go hurtling earthward. A large flash, a dull boom, and then a steady glow. And far away from the confusion and panic reigning below in that stricken German town, the great machines swing round in the vastness of the heavens, and, amid a halo of bursting shell, head for the line and home—the record of the affair being set forth in the next day's British Official somewhat after the following manner :

“ Following on the successful daylight raids on the 18th inst., against Treves and Thionville, our night-flying squadrons went out after dark and again attacked these towns from a low height with equally good results. Five bursts were observed on Treves station, which broke into flames. Three other buildings were alight when our machines left. In the second raid on Thionville, bursts were seen on the railway and in the gasworks. A large fire was started which was visible to the pilots attacking Treves. German aircraft and anti-aircraft guns were very active during both raids. One of our machines failed to return.”

Meanwhile, as these happenings are toward, the enemy is also out scouring the skies. Probably he is bombing London. The stories of the thrilling fights which then occur with British aircraft would fill a volume. Here is one typical instance that occurred late in the autumn of last year.

A Gotha was trapped by a British machine over the centre of the city. Another Britisher tacked into the fight, a moment later. The searchlights caught and held them. In and out, darting all over the place, twisting and turning with bewildering speed, the British aeroplanes looked like bringing down the Hun any moment. It was the sight of a lifetime for old London—common enough maybe on the front, but a unique thrill over the house-tops. More than once it seemed that the Hun was surely vanquished. It seemed so as the others shot out like a flash, changed their tactics in a twinkling, wriggled, squirmed, and tested their opponent in every conceivable manner.

To see the race for higher levels—a race to be top dog, in a double sense—was the sort of thing that made you hold your breath. To watch the British machines cut in and

hurl their machine-gun charges at the single-handed fighter made you want to cheer.

The German was a fighter—give him his due. He responded in kind, so far as firing went. He made a desperate struggle for life; the issue was in doubt, with the odds decidedly against the enemy, up to the last moment. Then, with a start, one of the British machines was in at close quarters. A little flicker of red flame burst out at the nose of the Hun machine. The next moment he was plunging headlong for earth. But he fell wide, clear of the city.

And of another raiding Gotha which was brought down in flames in the Isle of Thanet, it is recounted by an infantry officer, who went out to look for the crew, that the pilot was discovered a quarter of an hour later, wandering aimlessly across a field. He made no attempt at resistance. He was too frozen cold to think of such a thing. His face was a greyish blue; his fingers numbed and lifeless; almost unable to walk, he stumbled across to the British officer, and pulled up short.

Between his numbed lips was an unlighted cigarette. He said never a word; merely

indicating his "smoke" with a movement of his hand; followed by a pantomimic exhibition of striking a match.

The Britisher hesitated; looked hard at him for a second or so, then, fumbling in his pockets, produced the desired match and lit his cigarette.

ACES AND PAWNS

CHAPTER XIV

ACES AND PAWNS

“ACE” is a war word and, moreover, one peculiar to flying circles. “Champion,” “star,” “crack,” call him what you will, an “ace” is a pilot who has accounted to his “bag” five or more enemy craft. He is your knight-errant, genius, athletic god in one. But unlike other athletic gods, his prowess is not constituted solely of beef and brawn. He may be—and in fact often has been—delicate of physique, and lacking in physical powers. Guynemer was a noteworthy example. And he was the “ace of aces.”

Of the latter the belligerent Flying Services have, so far, produced not more than seven. On the British side there have been Ball, Bishop, and McCudden. Boelke and von Richthofen, the elder, were the German stars. And France rejoiced in the inimitable

Guynemer, with Nungesser a worthy successor. James Byford McCudden's was the most romantic career of any. He had won every possible British decoration—the V.C., the D.S.O. (twice), the M.C., the M.M., and possesses in addition the French Croix de Guerre. A modest youth, with an attractive personality, he typified the clean-built, sporting Englishman, descended from a fighting stock. For his father—a typical Irishman—was a warrant officer in the Royal Engineers, and his father's father and grandfather were soldiers before him. His mother also was a "soldier" woman, with martial father and grandfather before her. One brother—the eldest of a trio—had already given his life in the service of the air. Another bids fair to, some day, improve upon John Byford's record. And yet another, of sixteen years of age, has already joined up with the R.F.C. McCudden, who until recently was leader of a squadron which has accounted for ninety-nine Boche machines, was only twenty-three. He joined the British Army as a private in a regiment of the line, eight years ago; transferring to the Flying Corps in 1912, to the old balloon section. In the

stress of the German rush through Belgium, Air-Mechanic McCudden, having had some experience in the air, was pressed into service at Mons as an observer. For excellent services there displayed, he was granted a commission. And from that to his captaincy was no long step.

While yet in the ranks he won renown for his handling of the guns in several stiff fights, and was awarded the Croix de Guerre and the Military Medal. "For consistent gallantry, courage, and dash during the month of September 1916, in attacking and destroying an enemy machine, and forcing two others to land," was the official account of the great deed. "He also twice crossed the enemy lines at a very low altitude in attacks on hostile balloons under very heavy fire." And on another occasion he dived down after a hostile machine to a height of only 300 feet and drove it to the ground.

Over a hundred fights he waged against Boche airmen. Three times he fought the redoubtable Immelmann to a standstill; and on every occasion the fight had to be broken off owing to both men running out of ammunition. He paid Immelmann the tribute

of being "a great airman, and a gallant fighter."

Another R.F.C. pilot once remarked of him: "McCudden is one of the real geniuses of aerial fighting. He has established enough theories to fill a volume." McCudden himself told me that his invariable method was to dive for the enemy's tail. And in this way he estimated that he had accounted for no less than forty-seven of his "bag." He was more than enthusiastic about the future. But, as he so characteristically remarked: "We must get on with the war, before we can find time to think about anything else."

Comparing his total with the "aces" of either nations, we find that his name figures second on the list. Here is the order of them: von Richthofen (German), 74; McCudden (Britain), 57; Guynemer (France), 53; Bishop (Britain), 47; Fallard (Britain), 42; Nungesser (France), 31; and Fonck (France), 30. Nungesser is the French "doyen de la chasse." He is a veteran at the game, and was France's leading battle pilot until Guynemer appeared upon the scene.

The French have the most rigorous method

of calculating successes. A Boche machine is only "brought down" when it is seen to crash to earth on this side of the French lines. There is the keenest rivalry between the French pilots for first place; and there are several youngsters who are running Nungesser close. The latter, by the way, every time he crosses the lines seeks out some vanquisher of a former comrade who has fallen in the field of battle.

Last December the engine of Nungesser's machine failed when at a great height, and the machine crashed to the ground. By a miracle he escaped himself, but his mechanic was killed outright. Badly shaken as he was, yet he refused to take any leave in order not to lose his proud position of "ace of the aces."

Fonck held him neck and neck, with thirty apiece, until the end of January, when the elder man encountered a German Albatross in the neighbourhood of Berry-au-Bac, and brought it down after a stiff fight. Unfortunately, the third witness necessary was not forthcoming, so Nungesser was not credited. But on March 10th he assured his position by bringing down a fresh victim, near Craonne.

Cavalry Captain von Richthofen was the elder of two brothers; both of them crack battle pilots, and both with a goodly total of Allied airmen to their credit. The Captain had been at it for over fifteen months; having encountered at various times Guynemer, Ball, and Hawker—an early British crack—whom he sent down to his death. In his book, published in 1917, von Richthofen gives a graphic account of his many fights—though, unfortunately, they are all written in that bombastic, swaggering style peculiar to the Boche. He does not mention the fact in his book, but the German “ace” reports his own victories, in which he includes captive-balloons. And he hunts always with a squadron.

So we have the “top-lines” in their order, and in their ways. But it must not necessarily be concluded that they make best part of the air-war history; many a startling adventure and hair-breadth escape occur to pilots outside that exclusive coterie. Airmen of whom the world-at-large has never heard—nor is ever likely to hear—are carrying this most novel form of warfare into the most outlandish districts, quietly and un-

sung. And in these most out-of-the-way spots the most out-of-the-way events befall. Here is one of them :

Lieutenant G——, with the British Air Forces in East Africa, gives in a letter to *Flight* a piquant narrative of the perils of an aviator flying over those vast tropic wastes. He writes :

“ Once when he went out to bomb a German ambush on the Rufiji River, and engine trouble landed him in a bog with a broken propeller, it took him four days to make his way to a place of safety through the bush infested with wild animals. In the dusk he was confronted with an ugly black animal about four feet high, with vicious tusks. He climbed a tree and prepared to put in the night there. Later he opened his eyes and saw something like two green electric bulbs about thirty feet from the tree. They moved round it in a circle. This continued for forty-five minutes.

“ The tension was unbearable. I wanted to scream, shout, and yell all in one, but instead I burst out with ‘The Admiral’s Broom,’ and with a full-throated bass I roared out the three verses. No applause,

but a reward—the leopard slunk away. Why had I not thought of it before ?

“ I went through my repertoire. I laughed as I finished ‘ Two Eyes of Grey.’ It seemed so ridiculous. Then I got on to hymns, remembered four verses of ‘ O God, our help in ages past,’ and sang the ‘ Amen’ too. The whole thing had its ludicrous side.”

Next morning whilst swimming a river he passed seven yards from a crocodile’s mouth, but just reached the bank in time. Without food or arms—his only weapon of defence his nail scissors—his progress through the awful bush was about 100 yards an hour. His clothing was in ribbons, and his flesh exposed to the thorns, sword grass, and flies.

He swam seven more rivers that day and sank down exhausted under a green tree. He could hear a lion roaring about 500 yards way, and somewhat nearer the grunting of a hippopotamus.

“ Being exhausted I more or less lost consciousness for perhaps half an hour or so. Nothing short of a hippo charging could have made me climb a tree. Am afraid life had little to offer about that time.”

Whilst lying here Lieutenant Garrood "had the annoying experience of surveying two large baboons, the size of a small man, quarrelling over his trousers, now in threads, and among the tops of forty-foot trees."

It was not until he had passed another horrible day and equally terrible night in the bush that he at last was picked up by some natives. "Their eyes seldom left me," he adds. "Undoubtedly I was a strange sight—my legs bare and bleeding, my short vest sodden, dirty, and torn, no trousers of course, just a dirty sun helmet, a short stick in my right hand, and with four days' growth of beard on my dirty face."

Another youthful veteran, attacked by a fighting formation of Boches, fired into one machine, which turned over on its back and spun down out of control. Then he turned his attention to another, and fired 200 rounds into it. Suddenly it went into a spin and crashed. Out with a battle flight of our own the following day, he spun lower and fired, and added a further Hun to his bag. Then, to make full measure that day, he fired an observation balloon; and in the after-

noon, finished the aggregate at four enemy aeroplanes and a balloon in three days.

On another occasion two British machines, photography bound, ran up against half a dozen of the enemy's. Strictly speaking, theirs was a noncombatant craft, but, annoyed at the interruption, they laid about the enemy with their machine-gun to such effect that in a very short time they had knocked out two of their attackers. The remainder then flew away; and they returned to their picture-making, in peace.

Recently our bombers achieved a direct hit on a German Army kinema with results which, according to a prisoner's story, were, as one would expect, disastrous. Immediately, the unspeakable Boche retaliated by bombing our hospitals and stretcher-bearers behind the lines.

But vengeance was swift and immediate, winged on the planes of a British battle-plane. The pilot shot down the largest machine of the party, and turned, at bay, to meet the remainder. Like an avalanche, they hurled themselves at his head. He appeared to be totally inactive. Nearer and nearer they drove—until, when they were

almost on top of him, he made a neat, clean loop over them; to the tune of two further casualties.

Sometimes these "stunts" find their way into *The London Gazette*; the narrative form is hardly what one would style heart-stirring. But judge for yourself; this:

"While flying over the enemy's lines he was attacked by twelve hostile scouts and engaged four of them, one of which he destroyed. He was then attacked by another of the enemy machines, and, though his observer had been wounded, he succeeded in destroying it. His machine was then rendered almost uncontrollable by a shell, the right wing being almost shot off, but he succeeded in landing it in our front-line wire. He has destroyed five hostile machines and shown splendid courage and determination."

Or this:

"He took part in many successful operations over the enemy's lines, in over twenty of which he acted as leader. On one occasion, when leading a bombing raid, his formation was heavily attacked by enemy aeroplanes. He shot one of them down, and brought back

the whole of his formation safely. He also led a successful raid on an enemy aerodrome, and on several occasions obtained valuable photographs. He has accounted for two enemy aeroplanes with his front gun, and always showed great coolness, ability, and resource."

It is when the boys write themselves that one gets nearer to the spirit of the thing. Compare, for instance, the two latter statements with this extract from the letter from an unofficial "ace," somewhere in France :

"I saw a fine thing between Templeaux and Peronne. The Germans were smashing on. Our squadron was returning to our base 'empty.' There was very hot stuff being pumped at us. We could see miles of Huns, our shells bursting everywhere among them.

"Suddenly one of our scouts was winged. He dropped like a crippled pigeon at a tremendous pace, and crashed horribly. At once another chap swooped, landed, picked him up, swung his blades, jumped in, took 'her' off, and put his tail up to our lines. It was all the work of a minute, and one of the pluckiest things I've seen this week.

“The chap was dead.”

Again; another extract from another letter:

“On Tuesday morning I saw a pretty bit of work.

“Fully 25,000 Germans were advancing below—under our very eyes, 10,000 feet above—when from the direction of Chauny there swung round seven French fighting squadrons—105 machines—glinting in the sun.

“They manoeuvred beautifully. Fancy, Jim! a hundred 'planes in a vertical turn at once! They sprang a lovely E-flat note, and 50,000 German ears heard it.

“It was laughable and tragic.

“Down swooped the Frenchmen with a whiz. They spread fanwise. A mighty crescent of 100-lb. bombs fell, then another, then small stuff. Hundreds upon hundreds were killed.

“I saw 5,000 men flat on their faces at once hoping to escape. It was just awful.”

There is heroism unexampled in those few lines, and—a greater thing—a soldier's praise, as only a soldier can give it, in an unadorned recital of plain fact. There is the quick

roving eye of the airman that covers the half of a battlefield in a twinkling of time, and misses not the smallest detail; there is the lusty joy of youth in his nerve-racking occupation; and there is the joy of the enthusiast in the execution of it.

This joy and the whole-hearted defiance of danger once prompted a youthful British airman, who landed one day in the arid wastes of Sinai through a hail of shrapnel, beside a hard-pressed, dust-grimed infantry column, to carry off a mortally wounded man to the nearest hospital—forty-four miles away across the desert—and by his prompt action saved a life; and also it was responsible for the doughty deeds of four merry men recently recounted by A. A. M. in *Punch*. He says that:

“ ‘ A ’ found an aerodrome and sprayed the machines with bullets. ‘ B ’ got under a German machine at 300 feet, and fired into his engine. ‘ B ’ peppered him down to 100 feet, where ‘ B ’ s ’ gun jammed. ‘ A , ’ having finished with his aerodrome, took over the German and saw him down safely to the ground, where he crashed, both wings folding up.”

“ C ” says he saw him “ cartwheeled on his back.” “ A ” then sprayed bullets along a train, while “ B ” sprayed Boches who were playing football. “ B ” also attended to a single-horse transport and three groups of Boches. “ C ” came back low along the roads shooting at ground targets. And “ A.-A.” gunfire was “ severe on homeward flight.”

But all these deeds fade into insignificance when compared with the one that gained for Squadron Commander Moon a championship of the Distinguished Service Order. The story of it is :

“ On January 6th, 1917, whilst on a reconnaissance flight over the Rufiji Delta with Commander the Hon. R. O. B. Bridgeman, D.S.O., R.N., as observer, he was obliged by engine trouble to descend in one of the creeks, where it became necessary to destroy the seaplane to avoid the possibility of its being captured. For three whole days the two officers wandered about the delta in their efforts to avoid capture and to rejoin their ship. During this time they had little or nothing to eat, and were continually obliged to swim across the creeks, the bush

on the banks being impenetrable. On the morning of January 7th they constructed a raft of three spars and some latticed window frames. After paddling and drifting on this for the whole of January 7th and 8th, they were finally carried out to sea on the morning of the 9th, when Commander Bridgeman, who was not a strong swimmer, died of exhaustion and exposure. In the late afternoon Flight Commander Moon managed to reach the shore, and was taken prisoner by the Germans; but was eventually released from captivity on November 21st, 1917."

MARVELS OF THE AIR

CHAPTER XV

MARVELS OF THE AIR

MORE wonderful adventures bechance in the air than were ever thought of on land or at sea. They happen at all altitudes—among the clouds, a few hundred feet above the ground, over the sea, and over the roof-tops ; and at all hours of the day and night. One second Death lays the air pilot by the heels, the next he is flying clear in the heavens. For instance, imagine the sensations experienced by a British pilot engaging an enemy machine for over twenty minutes, to find that only her inherent stability carried her on—her pilot was dead, shot through the heart.

What everyday event can compare with that of another flyer, who was shot through the arm by an " Archie " fragment at 8,000 feet. He lost consciousness. When he came to again it was to find himself lying in a

hospital bed. The machine had flown herself across the British lines, and landed in a meadow. Aeroplanes have been employed frequently as Red Cross ambulances. Badly wounded men have been carried from behind the lines to the base hospitals in record time. An airman who was badly injured in a false landing outside a town on the north-east coast was attended by a doctor who arrived in another 'plane. And, not long ago, an urgently needed set of medical instruments was dispatched by aeroplane from London to Dunkirk in three hours.

The representative of a well-known aircraft company, with establishments in London and Paris, frequently makes business trips from one city to the other by way of the air, and usually accomplishes the return journey between early morning and sunset: a record which has been capped by the performance of a "ferry" pilot—taking new machines to, and bringing old machines from, the British Army in France. One summer morning he flew to France and back between breakfast and lunch, had tea in an aerodrome behind the lines, and ended the perfect day by dining at a depot within

thirty miles of London. Some feats are even more striking.

There is the possibility of fire. On the comparative safety of land, fire is alarming enough. In the air its terrors are manifold. A pilot is cooped up like a rat in a cage. He cannot dive for the earth—the downward rush would fan up the flames. He cannot take refuge in an inaccessible part of the machine—because there are none. He must sit tight, and hope for the best. Upon one occasion, certainly, an airman did succeed in diving his flaming machine into the sea; but it was by little short of a miracle, and with an after-experience he would not care to repeat. Flying from France to England with a mechanic, six miles from shore the engine of the aeroplane burst into flames. They were at an altitude of over 2,000 feet, but he did not hesitate. The faster they dived, the fiercer grew the flames, the thicker the smóke. Only just in time they plunged into the water.

The 'plane submerged, with the exception of the tip of a wing, and on this they took refuge. Two British destroyers had sighted their descent from a distance. But, just

then, a mist blew up. For over an hour the airmen had to wait before being taken off, the machine sinking almost immediately after. Only by his prompt action did the pilot save both their lives.

Promptness is the first essential in flying. Almost out of sight, an aeroplane appears to crawl along the sky-bed. Whereas, in reality, it may be flying at 150 miles an hour. Everything moves in proportion. The mind of the pilot works in tens and scores of miles. His altitude may be varied several thousand feet in a few seconds, by a single touch of the control-stick. He travels twice as fast as any other human being on land or sea. The latter is similar to the air; but, where it is simple and natural to float in a boat, the aviator is, all the while, forcing the hand of Nature. A grim, protracted struggle with the elements includes the possibility of death by cloud, storm, or "bump"—patch of thin air. Pilots often emerge from clouds unconsciously flying upside down. An observer, sitting two feet in front of the pilot, has had a bullet through his heart, and the latter made his base untouched.

Three times during the war airmen have

deliberately driven their machines at an enemy, and hurled down to death, the two locked in flames. An R.A.F. officer, late one afternoon, observed a German "Albatross" swooping low over the British lines, under pretence of dropping a friendly note. Below his fuselage the Britisher caught sight of a camera. He shot him down without hesitation. Aeroplanes have been employed frequently for landing spies inside hostile areas. There was an instance of a young British naval officer circling over a certain fortified area in the South of England, who discovered a man, hidden by a clump of bushes, sketching the harbour from the lee of a hill. He dived for him. But the German spy heard the roar of his engine, and ran off. The airman chased him, and swooping low, shot him down with his machine-gun.

It must be admitted that the German airmen have proved themselves to be as cunning and resourceful as any of their compatriots on the ground. Their finest coup was a recent raid on Paris. In the French capital there is established a series of listening posts, that will detect any air-

craft within ten miles. Aware of this fact, a Hun pilot evolved a brilliant strategy. He hovered over the clouds, on the enemy side of the lines, until a French bombing squadron appeared below. He followed it—still out of sight—while they bombed a German ammunition dump; turned south with them, and crossed the lines in their wake.

In order that the noise of his engine should be confounded with that of the French machines, he closed in as near as possible. When the latter sloped down for their aerodrome, the listening posts immediately picked him up. But it was then too late to give warning; and he dashed in over the city, bombing heavily.

Warned by this occurrence, the French took precautions. When the next German squadron arrived over Paris on a night raid, they had the most alarming experience. As one of the pilots participating afterwards wrote in the *Lokal-Anzeiger* :

“Suddenly the French put ‘lanterns’ in our way. Above and beneath us, ahead and astern, they hung quietly in the air, and with their blinding glare lighted up our

'planes. They are rockets with parachutes provided with very brightly burning fuses. Some special mechanism enables them to remain steady for a full minute in the air. Sometimes dozens together appeared near us to show our machines to the anti-aircraft guns.'

The French have rendered finer service to the air than any other nation. They were the first to foster and encourage flying in the early days. Their Air Service is the best organised and equipped of any belligerent. And only when the history of the war comes to be written will the world realise its great debt to Guynemer, Fonck, and their gallant comrades. Here is an instance of the manner in which the French airmen held the fate of Europe for one long, terrible night.

It was about the time of the second battle of St. Quentin. The British Fifth Army had gone down before the overwhelming masses of German troops. The latter, by means of rapid and well-organised rail and motor transport, was driving on before the French reserves had time to come up. Behind Arras the enemy had concentrated over a score of

“ storm ” divisions. The country-side was black with troops. The roads were choked with innumerable gun-limbers and ammunition-wagons. Night and day troop-trains puffed up behind the lines ; disgorging their cargoes of reinforcements, and puffing away again for more. The fate of Paris hung in the balance.

Then General Petain took action. “ Order every flying commander within striking distance of Ham,” he told his Chief-of-Staff, “ to send up, immediately, every squadron at his disposal—whether fighting or bombing, and concentrate on the German reserves and lines.” Immediately the order was flashed up and down the lines to the French aerodromes. Within half an hour the air was black with machines, all heading for Ham.

All that evening, and through the night that followed, the French airmen swept low over the German masses, bombing and machine-gunning. In seemingly never-ending train, squadron after squadron flew up, loosed off their bombs, used up their ammunition ; then returned to their bases for more. The effect was indescribable. The Huns must have been shot down by thou-

sands that night. Booming explosions and columns of flame stabbed the darkness as the ammunition parks went up. The business of bringing up the reserves was abandoned in despair. By the dawn the whole German Army was in state of mad panic. Over two divisions had been put out of action, and their great opportunity lost irretrievably.

This incident must awake even in the most sceptical mind visions of the possibility of aircraft in the future. Those visions will yet be realised when conservative humanity overcomes its hatred of innovation. But, meanwhile, incidental daily events pass unchronicled; events that only go to prove that when man attempted the conquest of the air, he—like Atlas—was taking on something far greater than the exploration of a few continents, or the mastery of five oceans. His unquenchable spirit will always supply the ways; his fertile brain, the means. But he can never wholly overcome the gigantic forces of Nature battling against him.

And even Nature must have turned humorous when she permitted two human beings to fly through the air for over two

hours ; both of them dead. That is the fact, and this the story. On a clear summer's day three German two-seaters put to air in fighting formation, and chanced upon a solitary British 'plane. Confident in their strength they attacked simultaneously ; which was a bad mistake—or this story might never have been told.

The R.A.F. man was quick to profit. Looping sharply overhead, he came down on the back of the rightmost machine—his left—and plugged her. She staggered and dropped from the fight. Her companions waited for no more ; but turned for home. The Englishman chased them, firing short bursts from his machine-gun. As he caught sight of the other machine, now 1,000 feet below—at about 5,000 feet over the earth—he thought to finish her off, there and then, and dived for the pilot's back, reserving his fire until within 100 yards. He did so.

When the tray of ammunition had blazed off, the German was still flying as serene as ever. He essayed another burst ; but still she flew on a level keel. Again he fired ; again without result. Then he brought his machine almost within speaking distance,

and literally riddled the Hun with bullets. For all his pains, she still swept on, in a circular course, heading for the south.

Curiosity got the better of him, and he followed her close-in for, maybe, half an hour. All the time he fired bursts continually, until his ammunition ran out. By this time they had been at it for over an hour. But the Britisher held on, determined to see the matter through. Twice they swept across the lines in wide, right-hand circles, averaging over sixty miles apiece. Until, eventually, the stranger machine volplaned down into a field behind the British lines. Both German pilot and observer were dead; killed—unmistakably—by machine-gun bullets. The aeroplane had continued her volition, for almost 200 miles, by inherent stability.

ARMAGEDDON FROM THE SKIES

CHAPTER XVI

ARMAGEDDON FROM THE SKIES

AN unnamable hero of the British Flying services, bound on "contact patrol," and flying perilously low over the seething battlefield, late one Thursday afternoon, witnessed a sight permitted to few mortal eyes. Whether he appreciated his experience we shall never know. His machine was brought crashing down to earth, and himself killed by an enemy machine-gun before the next day's sunset. His narrative, however, will be handed down to history. He was flying somewhere north-west of St. Quentin. Here is the extract from the letter :

"Since an early hour in the afternoon, rolling clouds of picric smoke smothered the surface of the earth, almost obscuring it from reconnaissance. The effect was most startling. At one moment, the mirage would roll back like a coverlet ; the stretch of

road and railway, village and field below, would be almost bare of movement. At another, through a rift could be caught a fleeting glimpse of indescribable masses of grey, which at first against the greyer shadow of the earth would appear motionless, then develop animation at numerous points; a great human snake that writhed this way and that, endeavouring to free itself from its own voluminous coils. I dived lower, and rapidly fired off a tray and a half of cartridges from my machine-gun, encountering little or no defensive fire, and certainly causing casualties.

“A broad, straight highway, running directly north and south, indicated Le V——, where a great mass of British infantry—the Umpth Division—was lying. Gradually, very gradually, it was dwindling away in long, ceaseless tendrils from the main body, to a more expansive mass in the rear-ground. Tiny shoots of flame stabbed the smoke cloud from all directions. It was denser here, and difficult to distinguish friend from foe. . . . The hurl and shock and recoil of the infantry battle were here plainly visible. . . . By this time, I had run out of ammuni-

tion. So I flew off westward, through the smoke, to the clearer atmosphere beyond, leaving the charred, smouldering carnage of what had once been a pleasant countryside of rolling meadows and woodlands behind me with a feeling of repugnance."

For almost a fortnight British and German aeroplanes had been disputing the airway over the theatre of future operations. Sir Douglas Haig by March 14th had received information of the coming Push from the Intelligence branch of the Flying Corps; to whom a reconnaissance patrol pilot had reported that "the enemy were carrying out intensive training with tanks, sixty miles behind their lines." Other reports spoke of congestion on roads and railways, particularly in the Courtrai, Lille, Douai, Valenciennes, Mons, Cambrai, and Hirson districts. And it was common knowledge that the enemy had carried through a great lay-out of railway track in the region of the Meuse, shortening by fifty miles all communication between the internal industrial centres and the dumps and supply bases immediately in rear of the firing line.

The aerial fighting which immediately pre-

ceded the battle was the fiercest in history. Day after day, huge British bombing 'planes flew over Mannheim, and other large military centres and railway junctions; blowing up railway sidings, aeroplane sheds, and munition dumps, from low altitudes. From the first tinge of dawn to the last moment of twilight, photography, reconnaissance, and artillery-directing aeroplanes were hovering over their lines. All through the day and far into the night, at higher altitudes above the racing clouds, British and German machines met in Homeric combat, endeavouring to gain the mastery in that particular sector.

Then came the first actual raid of the battle. On the fifteenth, R.F.C. pilots bombed the railway sidings at Hirson, which were congested with troop and ammunition trains waiting to proceed to the battle, causing considerable damage to rolling stock and permanent way. And, ten hours later, under cover of the darkness, the barracks, munition factories, and the railway station of Zweibrucken were subjected to a destructive bombing.

From that time until the dawn of the eighteenth, aerial activity continued with-

out cessation. A large concentration of German infantry, waiting at Kaiserslautern before being flung into the battle line, were literally mown down with bombs and machine-gun fire. In one single night raid a further sixty tons of bombs were dropped on two German aerodromes, which were the bases for the German night-flying machines. Then, on the nineteenth, came an ominous lull; due to rain and clouds, which continued until late into the evening of the twentieth. During this period, however, an extensive bomb raid was carried out on a large shell depot north-east of St. Quentin, which only that morning—according to an Allied spy, who had been dropped three days before in the German lines, and picked up after twilight of the twentieth—had been stocked roof high with shells for the coming battle.

By this time all that was humanly possible had been done to meet the coming offensive. The British Army and the Flying Corps in particular were ready at every point, and awaited the event with calm deliberation. Those who could read between the lines of the official communiqués realised that the long-advertised Push was imminent. With

Thursday's renewed and desperate aerial activity, this realisation waxed a certainty. Away up in the North Sea, in the Bight of Heligoland, British seaplanes were patrolling constantly, watching for any attempt on the enemy's side of a concerted movement on the part of his fleet.

The mist of Thursday morning cleared towards midday, but only in certain localities. In most places the light was only suitable for low flying. Nevertheless the British airmen succeeded in locating great bodies of enemy reinforcements, and pouring many thousands of rounds into them, causing innumerable casualties. At first the anti-aircraft defences were unusually violent. Then the Germans, apparently with the idea that any further attempt at concealment was useless, ceased fire, or kept up only a pretence. The bombing machines dropped no fewer than 900 bombs on railway stations immediately behind the lines, causing the enemy reinforcements and supplies of ammunition a delay of at least twelve hours.

Even at the low altitude at which flying was possible on this day, the air fighting was tremendous. Sixteen Hun aeroplanes

were brought down, and six driven down. One of these was flying so low as to be shot down by British infantry within their own lines. Bombs were dropped on further large bodies of German reinforcements, rather to the north-west of Tournai. And here for the next twenty-four hours—and many twenty-four afterwards—all aerial activity was centred.

Came the night before the battle. At sundown, clouds and mist hung low over the face of the sky. Behind the mist, beneath the low clouds, a few miles to the west was the incessant jog-jog-jog of armed men; on high roads, and by-roads, across the fields, and by the railway tracks. But the Flying Corps missed nothing of all these preparations. Whenever there came a break, a reconnaissance machine would go speeding westwards. An hour later the pilot would return, the observer with a bulky report. From another aerodrome, farther down the line, other machines would go out, and other machines return with fresh enemy dispositions, fresh enemy ammunition dumps, fresh enemy gun positions; here a concentration of tanks, there a railway being run up to

the trenches. The fight was grim and merciless, from the moment they left the ground until they came winging home again, with perhaps a broken strut, or a wing barely hinging on the supports, and sometimes with the pilot or the observer mortally wounded. The enemy were determined they should not gain information. They were out to get it at all costs. The Staff alone knew the result of this long unequal combat ; and they benefited thereby, to a very considerable degree. As observer after observer handed in fresh returns, the wires got busy behind the British lines, half-way across the North of France, calling for reinforcements from all parts.

Through the long night of waiting, and in the teeth of the storm and gales, every available night-flying squadron in the battle area was turned out into the skies. Haig himself reports that " our bombing squadrons dropped 300 bombs alone on a hostile aerodrome south-west of Tournai, used by the enemy's night-flying squadrons, and also on a large ammunition depot north-east of St. Quentin."

At the dawn, with the mist still hanging

over the surface of the ground—almost like a sea fog, before the pallid grey light broke through the faint glimmer of the sinking moon—the R.F.C. had carried out a score and one reconnaissances. They had seen the great masses waiting, grimly silent, behind the enemy trenches; they had seen the gleaming muzzles of the giant howitzers and smaller field guns in every hole and corner. The story of their report sheets, when—and if ever—it is written, will beggar credulity. Towards the dawn a terrific artillery bombardment opened by the enemy's guns. Shortly after a pilot landed at an aerodrome behind the British positions—barely beyond shellfire; frightened, white countenanced, but yet unafraid, he managed to blurt out: "There are thousands of them—thousands! The whole countryside is alive with advancing infantry." Then they came racing across the devastated patch of No Man's Land.

From all corners of the heavens, British airmen came swooping down on to them like avenging angels, firing and bombing as they dived. But the Germans appeared to ignore them. Men fell on all sides. Still

they marched on. No power on earth could have stopped that living tide! Back went the airmen for more ammunition. Down they swooped through the mist again. Still the enemy came marching on. Shattered for all time was the theory that aircraft would be the deciding factor in modern war. But they demonstrated most admirably that they could hold up reinforcements until either the enemy rushed up a battery of machine guns, or the 'plane fell to earth, a shattered wreck.

When the enemy endeavoured to snatch a brief rest that night, they were at them again, bombing and killing. Three and a half tons of bombs they dropped on villages and camps to the north-west of Tournai.

This, however, gave the Hun his cue. At daybreak the following morning, his aeroplanes swooped up from all sides—the low-flying machines being particularly active, engaging our forward troops with their machine-guns. The only fault to find with our own pilots was perhaps that they did not take the affair with the due seriousness which it warranted. But that is not the English spirit. They go languidly to their

pleasures, laughingly to their deaths. They were not languid this morning.

Between Arras and St. Quentin the main aerial combat raged. The mastery of the battle area fluctuated; now to one side, now to the other. Eventually the British had it. Day for day, night for night, these conditions were repeated, until at last the Allied Army stood firm and unshakable behind the line of the old Somme battlefield. The adventures of the airmen, meanwhile, ran through the gamut of the emotions. One night the low-flying pilots came home and reported that the ground immediately behind the enemy advance was strewn for miles with grey corpses. Another afternoon a reconnaissance pilot—plaintively enough—described having seen a great army of Huns, all plunging into the battle in brand-new uniforms. As one of them commented: “Imagine they are going to dine in Paris to-night!”

At low altitudes the German airmen appeared to adapt their reconnaissance to the policy of peep and run. Immediately the skyline showed clear, they would come flying over. Then a British machine ap-

peared, and they turned for home as fast as they could go. But, up high, a bombing squadron sped away, destined for Paris. The French, however, were prepared for them, and, after a desultory attempt, they dropped their bombs on Compiègne, and returned again.

Saturday the 23rd was remarkable for the bombardment of Paris by the—now famous—German heavy gun. Hostile aeroplanes over the city in the early morning hours heralded the commencement of this manœuvre. At first they were thought to be bomb raiders. But as they kept to a very great altitude, and circled continually without dropping any bombs, it soon became obvious that their intention was to direct the gunfire. Back at the firing lines, Haig reported :

“ Many thousands of rounds fired from a low height on hostile troops massed in villages and in the open. Bombing carried out continuously all the day. Over fourteen tons of bombs dropped on enemy’s billets, high-velocity guns—which presumably included the Paris gun—and stations in battle area.”

Later the same day it was reported :

“ Our machines carried out another most successful raid on factories at Mannheim. Nearly a ton and a half of bombs was dropped and bursts were seen on the (Badische) soda factory (great chemical works) and railway and on the docks. Several fires were started, one of which was of great size, with flames reaching to a height of 200 feet and smoke to 5,000 feet. Fire visible for thirty-five miles.”

Another day over 1,700 tons of bombs were dropped on varying targets, which included enemy docks, stations, camps, high-velocity guns and reinforcements. This day was notable as being the heaviest in the course of the whole battle. Forty-five German aeroplanes were brought down, and twenty-two driven down out of control. After this enemy craft were conspicuous by their absence for miles around ; whereas British machines came flocking over the battlefield in ever-increasing numbers.

“ A total of twenty-two tons of bombs were dropped by us, and over 100,000 rounds were fired from machine-guns,” was the welcome news contained in the following

day's Official; on receipt of which the Air Board dispatched the following telegram to General Salmond, the young commander of the Flying Corps in the field: "The Air Council congratulate you and all ranks of the R.N.A.S., R.F.C., and Australian Flying Corps on the splendid work carried out during this great battle. We are all following their great deeds, and know that they will keep it going." And to which he returned his famous message: "Very many thanks for Air Council's congratulations, which are much appreciated by all concerned. All ranks have their tails well up, and the superiority of British over enemy airmen has never been more marked."

On the 26th the enemy issued his résumé of aerial fighting for the whole battle:

"Since the beginning of the battle ninety-three enemy aeroplanes and six captive balloons have been brought down. Cavalry Captain Baron von Richthofen achieved his 67th and 68th aerial victories."

Comparing this with Haig's daily reports, it shows a considerable advantage on our side. Thus in five days, March 21st-25th inclusive:

German aeroplanes destroyed	
or captured	137
Driven down out of control	83
Balloons destroyed	<u>3</u>
Total	<u>223</u>

As an appreciation of this unequalled performance, King George sent the following telegram to Sir Douglas Haig :

“ I wish to express to General Salmond and all ranks of the Air Services of the British Empire in France my gratification at their splendid achievements during this great battle. I am proud to be their Colonel-in-Chief.”

Thus ends the first chapter of the Flying Services as an army of combat. What they proved capable of in those few strenuous days will alter materially all military theories of strategy and tactics of the future. In that period they put up many fine achievements, but none finer than that reported by Reuter's special correspondent on the 27th. Thus :

“ Two entire German divisions advancing towards the battle front were almost completely annihilated, before they were able to fire a single shot, by machine-gun fire and bombs from about a hundred French aeroplanes.”

THE AERIAL DUEL—AND AERIAL
DUELLISTS

CHAPTER XVII

THE AERIAL DUEL—AND AERIAL DUELLISTS

“GOOD duellist, bad soldier,” asserted the great Napoleon. But he was wrong. The aerial duellists of the twentieth century, Ball and Bishop, Guynemer, McCudden, and Richthofen, were to give the lie to his assertion. The “Iron Duke,” who hammered him at Waterloo, knew better. “A little duelling now and then doesn’t hurt the Hussars,” he said, when consulted by the Prince Regent about punishments. He had been out himself.

Cæsar’s legions regarded with contempt the German judicial belayings, in Teutonic forests, 2,000 years ago. An Italian noblewoman, a century later, complained of the call of a gentleman, after hours, as a blazing indiscretion. They put a sword into his hand, and set a bravo on to him. He did not survive, to benefit by the confession of

that rascally sneak who had imposed upon the lady. Duelling was unfashionable in that particular city for years afterward. Boulanger was foolish enough to get himself pinked by an ordinary fellow, thus losing his chance of becoming another Napoleon. In his brilliant comedy, *The Rivals*, Sheridan made duelling a matter of festive sport; while, only last year, Sir Douglas Haig dispatched to Britain's greatest aerial duellist a personal note, "Well done. D. H."

In 1600 it was plainly ridiculous; in 1900-odd it seems almost knightly. Many a fine fellow has been sent by kings and cardinals to the gibbet because of it. Popes have levelled the terrors of hell against it. Court-martialled and cashiered, good officers have ended in the gutter because they would play at it. Since the days of Louis XIV civilisation has labelled it murder. Only laughter could exterminate the wager of battle. Modern conditions, modern necessities have mocked at laughter. Duelling has again become an honourable and heroic thing in the eyes of men. These Homeric combats of the English or the French against the Germans, in the highway of the air,

are not styled duels; but nevertheless that is what they are.

The aerial combat grips the imagination with a force that no other sensation can provide. It is the gauntlet of man's progressiveness flung into the face of the elements. Two miles aloft, barely distinguishable against the glare of the sky and the enveloping mists of the clouds, there creep up two waspish, attenuated shapes—apparently from the ends of the horizon. A sudden burst of sunshine finds them as they wheel into the fight. It plays along the glistening wings, radiating from a thousand different points; now at the burnished engine fittings at the nose, now the struts of the wings apparent against the blue. One is above, and a little behind. He streaks for his opponent's tail. So near, that from the ground it appears inevitable they must collide, and crash, helplessly wrecked, to the earth. Gradually the two forms disassemble themselves, and again spring into action; wheeling, tumbling, with delightful recklessness, skimming each other, by inches, at a break-neck speed, twisting, climbing, diving, up and down every chord of the heavens.

To the infantry and gunners watching anxiously below, it is the grandest spectacle of the war. They envy the daring airmen with all their hearts. To them the affair possesses a curiously personal aspect. It is their fight. There, in their trenches, and behind their guns, they experience every dive and twist, and turn, with a vividness that is remarkable. And when at last one or the other makes his last dip down that tortuous stair of flight, a tense expectancy prevails—until either the black crosses or the circles of red, white, and blue become visible on the vanquished craft. If it is the one, the air is rent with deep-throated cheers; if the other, a murmur goes down the line of British trenches like the moan of the wind through the trees.

That is how Guynemer died. A month later Guynemer's friend met his vanquisher; destroying him, in kind. And what was Guynemer but another D'Artagnan? Ball of the Flying Corps was another Athos; Richthofen a Teuton De Wardes. Over Cambrai and Picardy and Waterloo they refought the fatal encounters of their ancestors. One century came Wellington, with

horse and foot ; the next Bishop goes winging across the Flanders plains, in a frail aeroplane. It is the modern expression of the ineradicable thirst of men for personal combat.

The most savage duellist of the war, Boelke, whose letters to his parents proved him to be without mercy or compassion, died at the duel. Captain Ball, our great "ace," was brought down by a Hun star who had shadowed him for months. The Allies do not recognise these combats of individuals officially ; but the enemy makes use of the exploits of her great flying men for propaganda purposes in her own and neutral countries. More famous of these so-styled champions are Baron von Richthofen, with sixty-four allied machines to his credit ; Werner Moss of Crefeld, with forty-seven ; the notorious Boelke, with forty ; Lieutenant Wolf, with thirty-three ; and Lieutenant Schafer, with thirty. Immelmann had brought down twenty-eight Allied aeroplanes before himself being destroyed by a British battleplane.

Comparing these totals—which it may be mentioned include captive balloons, that

our airmen never take into account—with those of the crack French and British pilots, the balance is easily on our side. Here is a brief summary :

Captain McCudden, R.F.C.	57
Captain Ball, V.C.	53
Capt. Georges Guynemer	51
Captain Bishop, V.C.	47

Every one of these great fighters has developed his own methods of attack. There was no precedent to fall back on. Warneford was the first of the British duellists. He attacked, in a tiny monoplane, a giant Zeppelin twenty times his size. It was a repetition of David slaying Goliath. His official award of the Victoria Cross was announced as: "For destroying single-handed a German Zeppelin. Afterwards, although forced to descend on enemy soil, he succeeded in flying back safely."

Ball was the "Scarlet Pimpernel" of the skies. He would wait above the clouds, at a great altitude, watching the enemy aerodromes. Immediately a German aeroplane would attempt to take the air, he would dive for it and drive it to earth again. Some-

where below, British craft would be attacked in overwhelming numbers. Again he would swoop down on top of them, putting them to flight.

In direct opposition to this code were the methods of the Hun, Boelke. Of forty air fights in which the latter participated, it is said that ten were duels with men he had challenged or been challenged by. Because his antagonists played the game, he escaped from more than one encounter which should have gone against him. Boelke had no use for the rules of chivalry.

His plan was never to take any risks, but to allow our pilots to assume the offensive. And, in support of this theory, he once informed a German newspaper man :

“ It has been said that the German airmen never fly over hostile lines, and that they always remain over territory occupied by their own troops. As regards chasing machines, that is true ; but it should be remembered, firstly, that our new machines have some features which we ought to keep to ourselves, and, secondly, that our object is only to prevent hostile aeroplanes from carrying out their observations. It is for

these reasons that we prefer to wait for them where we expect to meet them.”

Another method was that of the late Lieutenant Immelmann, who would follow an enemy machine from a great altitude, keeping above him all the time. Then, when a favourable opportunity presented itself, dive straight for his tail, firing at him until he was in close proximity. If the manœuvre were unsuccessful he would cover his own retreat by continuing the dive and coming out in a semicircular direction.

While von Richthofen, on the other hand, always hunts with a small squadron at his command. They fly in two lines. Above is the leader, alone. Three other craft are below. Immediately an Allied machine is sighted, Richthofen climbs above the clouds, while his consorts endeavour to surround the hostile craft. When this has been accomplished successfully he dives straight at the Allied machine, using his machine-gun all the while.

A year or so before the war an Englishman and his wife were sitting in one of the most famous beer gardens in Berlin, when a Prussian officer commenced to ogle her.

Annoyed with this unmannerly conduct, the Englishman went over and remonstrated with him. The interview terminated with the Prussian getting a smart clout across the head. There was a great flurry and to-do, but for political reasons a duel was made impossible and the Englishman returned to his own home.

When the war broke out the Prussian learnt that his adversary had become an officer in the Flying Services. He managed to get himself transferred to aviation, moved by the one obsessive thought of finding that Englishman some day and killing him.

Two years went by, and he came no nearer to his ambition; but it was observed that the Prussian before attacking an Ally machine invariably took extra risks by flying close and by taking time to scrutinise carefully the features of the enemy pilot. He killed, when he could, without heat. Until at last they met one summer's day, somewhere down there, over the Somme. They say the fight was one to remember. It went on without a break, for over an hour. And both were killed.

Sometimes it is a matter of military policy

to seek out and destroy individuals, each as dangerous as an army corps. Thus a sort of splendid jealousy develops. Richthofen represents the greatness of Bishop. It becomes his or another German's obsession to find and kill this troublesome rival. In one phrase you have the ethics of aerial combat.

Georges Guynemer soared one morning to seek a certain German who had annoyed him. The story is told by an R.F.C. officer, in a letter home.

“ He and another officer,” he wrote, “ went out on Tuesday morning to hunt the Hun. They were flying fairly high, somewhere around 16,000 feet, I think, and Guynemer went down a little way to attack a biplane, while the lieutenant who was with him stayed up to protect his rear.

“ About that time eight Boche monoplanes put in an appearance, and the lieutenant was kept busy trying to worry them and keep them from going down to the captain. He succeeded, and none of the Boches dived down, but in the general mix-up he lost track of Guynemer and he has not been heard from since.

“ The loss of this man is very great, as he

was by all odds the greatest aviator and individual fighter the war has produced.

“As I have already written you, he was very small and of frail appearance. I believe his health was very far from good, and the high altitudes sometimes made him so sick he had to come down. He would fly for a week, then go away for a rest, as he was not strong enough to stand any more.

“In the course of several hundred fights he has been shot down seven times and twice wounded. To keep at it under such circumstances and after all he had gone through, a man's heart has to be in the right place. He certainly deserved to live the rest of his days in peace, and one hates to see a man like that get it. Long immunity breeds a contempt of danger, which is probably the greatest danger of all.”

All the world knows, Guynemer was killed fighting. His body was found by a sergeant of German infantry, lying by the roadside with his battered machine. The Germans afterwards erected a monument over the spot.

Again this officer wrote :

“One of our cracks got square the other

day with the man who is reported to have killed Guynemer. This German was a captain and an observer in a biplane. The observer is the man who handles the movable machine-gun in a biplane.

“The Boche machine had flown from far behind their lines to take pictures, but was very high, over 20,000 feet, probably relying largely upon his height for protection, for an ordinary fighting plane will not go that high. Our man, who is very expert and who has been a pilot for a long time, was in a particularly powerful machine, and was the only one who saw the Boche who could get up to him.

“He climbed up under and behind his tail. Every time the Boche pilot would try to turn in order to give his gunner a shot, the Frenchman would slide around also, always keeping the Hun's own tail between himself and the machine-gunner, so that the latter could not shoot without shooting away his own controls.

“In this manner he got right on top of the Boche, and at the first salvo put his machine-gun out of business and probably hit the gunner—that is, the captain who is

supposed to have shot Guynemer. After that there was nothing to it. The second dose the Frenchman gave him cut away the supports of the wings on one side so that they came out of position. The Hun flopped over on his back and Guynemer's supposed slayer fell out of his machine, taking a nice little tumble of 20,000 feet.

“The machine and pilot tumbled end over end, and as they went by a number of French machines waiting below, who had not been able to get up, amused themselves by taking pot shots at them.”

It is one story but typical of many. Bishop has again returned to France after a well-earned rest. McCudden was a youth of twenty-three, who joined the Army, eight years ago, as a private; transferred to the Flying Corps in 1912; where he was promoted to captain, as a reward for some of the most brilliant flying work of the war. His total bag numbered fifty-seven Hun machines, nine of which he brought down in a fortnight, the remainder including forty-seven two-seated Boches. Achilles pursuing Hector around the walls of Troy is simply Bishop seeking Richthofen among the clouds.

SAWBONE SOLILOQUIES

CHAPTER XVIII

SAWBONE SOLILOQUIES

THE perfect airman; who is he? What are those especial qualifications that so harden him to those unexpected dangers and nerve-trying moments of flying? At what exact age is he at his flying "prime"? What are his characteristics? Should he be tall or short; light or heavy? Is good eyesight or hearing essential? Which is to repeat but a few of the queries that are crowding the flying aspirant's mind, now that our aerial cavalry are so much to the forefront of the great battle.

Opinions on this matter vary to a considerable degree. Only recently a British Member of Parliament called attention to the need for more efficient medical supervision in the training of our airmen. This, he explained, was essential by reason of the dangerous effect of high altitudes on very

young men. And immediately afterwards a well-known flying commander traversed his opinion with the statement that "beginners were never taken up to high altitudes until they had had considerable experience in flying."

But the medico M.P.'s views were supplemented by the letter of another officer of the R.A.M.C. to *The Evening Standard* :

"Man is an animal intended by Nature to live on a ground level," he wrote. "In an aeroplane he can rapidly ascend 10,000 or 20,000 feet, and even more rapidly descend.

"During both the ascent and descent the surface of the body is subject to very rapid changes of pressure; and unsuspected weak spots are disclosed and peculiar deviations from health observed.

"A comparable condition is observed in divers and other persons who have to work under high air pressures. When these persons are relieved too suddenly of the pressure under which they have been working, as may easily arise in the case of a forced ascent from deep water or a too rapid decompression in an air-lock, a train of symptoms is produced which is known as 'Caisson Disease,'

having its converse parallel in the case of an airman making a rapid descent from a high altitude."

This correspondent states that he was surprised at the flight-commander's statement that airmen do not care a button whether they are flying at 10,000 or 6,000 feet.

"Men faint at high altitudes and experience great difficulty in breathing, who on the ground show no sign of trouble except to a scientific eye. It is simply courting disaster to attempt to 'fit by slow degrees' such men to such work. How many beginners crashed under instruction," he asks, "before the scientist laid down the standards now universally employed?"

That perfect vision was the first essential of the perfect airman was the agreement of many prominent medical men and flyers, who recently held a meeting at the Medical Society of London to discuss this subject.

The principal speaker was a young naval surgeon—an ex-Harley-Street specialist—Surgeon Graeme Anderson, who had had considerable experience in examining airmen since the beginning of the war, and also holds a flying pilot's certificate. He related

how, upon a certain occasion, he made an experiment by going up as a passenger with his ears plugged and his eyes blindfolded.

“I wanted to find out,” he said, “if I could tell the movements of the machine without seeing or hearing. After a while we seemed to be going up and up, on an almost even keel, but as a matter of fact we were descending. . . . Only men almost perfect from the physical point of view should be allowed to fly,” he concluded, “and even those accepted should be graded for flying at different heights and then for different duties.

“Men who suffer from chilblains should be passed only for low flying,” he went on, “because chilblains are an indication that they are not medically fit to rise to great altitudes.” He deprecated the taking of alcohol by pilots. “The action of a little alcohol is intensified greatly by flying,” he added; “and while I have known men do some amazing ‘stunts’ under its influence, it always beats them in the end. A man of this kind retained on one of his worst days a power of reasoning which, in spite of sleepiness, made him decide not to attempt any ‘stunts.’ So he set off for home—thirty

miles away. Over his aerodrome he performed almost unheard-of antics. Ultimately he 'crashed,' and when he recovered consciousness he said that until the last moment he could remember he had stuck to his resolve not to do 'stunts.' The perfect age for flying is twenty-four."

And later, Surgeon Anderson supplemented his views with an article in *The Illustrated Sunday Herald*, as follows:

"Scarcely ten years ago the pioneer aviators were looked upon as men possessing some supernatural quality—the power to fly.

"All that is now changed.

"Man began to teach man, and the institution of the dual-control methods of instruction, in which teacher and pupil fly in the same aeroplane, each with a set of controls acting in unison, paved the way for many to learn flying.

"Hundreds of young Britons are now passing straight from the school to the aerodrome, and from the aerodrome to the flying front.

"It is well to know something of the aviator's duties in war-time. For the most part, he has unusually comfortable quarters,

a good bed and food, and has not to undergo the long marches and discomforts of trench life as in infantry work.

“ He is usually out of range of enemy artillery fire, although subject to hostile aircraft attack. In bad flying weather he has much leisure time. On the other hand, in the few crowded hours of his daily work he may come through the most intense strain to which the human nervous system can be subjected.

“ As it has been aptly put, an aviator's life consists of ‘long spells of idleness, punctuated by moments of intense fear.’ He has to face extremes in the elements—intense cold, the sun's glare, rain, wind, fog, and misty and gusty or bumpy weather.

“ There is the incessant noise of the engine—he may have long-distance patrols, in which the imagination is given free play to run riot, perhaps over the sea, with no landmarks and the dread of engine failure ever present in his mind.

“ His visual acuteness is sharpened, always on the look-out for hostile aircraft, watching for and registering the flash of enemy guns, taking photographs, noting movements of

enemy troops, rolling stock, submarines, or other information of naval or military value, and subjected to more or less accurate anti-aircraft gunfire from the ground.

“ Often he has to reach altitudes where the available oxygen is reduced by one-half. He may have constantly and rapidly to change height, as in the modern aerial fighting he may be opposing more than one enemy machine. His judgment has to be most accurate to perform the various intricate aerial evolutions so as to outwit his opponent and gain a favourable position to rake him with machine-gun fire.

“ He may have to loop, spin, dive, or side-slip apparently out of control, in order to deceive or to decoy his opponent over a friendly gun or near a friendly formation.

“ There is the subconscious dread of his aeroplane catching fire in the air, and lastly, and most exciting of all, the nerve-strain of contour chasing or ground strafing in which he attacks the enemy on the ground from a low height of perhaps twenty feet to fifty feet.

“ For the past three and a half years I have lived with aviators, flown with them, and entered for the most part into their

interests, studying them alike in squadrons, in aeroplane, seaplane, and airship stations, and in hospitals specially devoted to their maladies.

“ Let me here pay a tribute to our flying men, ‘ that nothing is too good for them, and it is up to us as a profession to strive in every way we can to safeguard them from disease, and should disease overtake them, to find the means to restore them to health again.’

“ We can help in this matter by knowing the requirements of the aviator’s life, by studying the psychology and physiology of flying, and by investigating the maladies commonly found amongst flying men.

“ In eliminating the unfit, and as manpower is an ever-increasing problem, I would suggest the institution of a special flying school where ‘ border-line ’ pupils could be instructed in flying under patient and sympathetic instructors, and with a medical officer specially interested in aviation carefully recording the results.

“ Such records would be invaluable to us in confirming or modifying the present standards of fitness required for air work.

“ The modern aviator’s work is becoming more and more specialised, and here again we can help by framing standards of fitness graded by the various flying duties.

“ In selecting candidates for the Air Service, what is looked for is a sound constitution, free from organic disease, and a fairly strong physique in order to withstand altitude effects, such as cold, fatigue, and diminished oxygen. It is essential that there should be normal hearing and good muscle and equilibration sense.

“ As the aviator is so much dependent on his eyesight, too much importance cannot be laid on this part of the examination. But next to vision, and most important of all in obtaining the best aviator, is the question of temperament.

“ Undoubtedly there is a particular temperament or aptitude for flying, and its distribution is particularly interesting, whether looked upon from its racial aspect or its relation to health, life, and habits. Unfortunately this temperament is a difficult matter to estimate clinically, and especially so in the examining room.

“ The ideal aviator must have good judg-

ment, be courageous, and not upset by fear, although conscious of the perils of his work. He must be cool in emergencies, able to make careful and quick decisions, and act accordingly. His reaction times must never be delayed ; he must be ever alert, as mental sluggishness in flying spells disaster.

“ Whether he should be imaginative or not is a difficult question to settle—one meets many of both types. I am inclined to think that the pilot with imagination, yet able to keep it well under control, makes the better pilot.

“ With regard to the relation of habits in this special aptitude for flying, it is found most commonly amongst those used to playing games and leading an outdoor life. The yachtsman and the horseman, with their fine sense of judgment and ‘ lighter hands,’ should make the most skilful pilots.

“ The Germans always selected their aviators from their cavalry until recently. It was thought that racing motorists would make the best pilots, but this has not been proved to be the case.

“ Every now and again one meets a type with splendid physique and apparently un-

shakable courage who learns to fly indifferently or is unable to learn at all, and again one meets the weedy, pale type learning to fly quickly and turning out to be a first-rate pilot.

“In the surgical examination the age, height, weight, and general physique are considered. The age should be between eighteen and thirty. Under eighteen and up to twenty, caution and well-balanced judgment may be lacking; twenty-four is about the best age; and over thirty-three the candidate, although quite able to learn to fly, does not stand the nerve strain of air work so well. Cody learned to fly at forty-seven, and was flying regularly till he met his death when fifty-two years of age.

“Naturally, the lighter the candidate the better, but in modern times, with the increased speed and climb of aeroplanes, this does not count so much as formerly.

“As a general rule, those whose previous occupation has been of an outdoor nature, and those who have been accustomed to playing outdoor games, make the better aviators—although, as in most things, the exceptions to the rule are to be found in

the thoughtful, quiet, student type who rarely play any games, yet surprise everyone by their rapidity in learning to fly, and in developing 'light hands,' and conversely we meet the type who learn to fly without difficulty, and develop hands like hams as far as piloting an aeroplane is concerned.

"An inquiry is made into the candidate's habits, especially in relation to tobacco and alcohol, although very little real knowledge is gained in the examining room. Most flying men smoke a great deal, and very few are strict teetotallers.

"I firmly believe that to the aviator excess in alcohol will ultimately beat him. And it is obvious that defective eyesight or colour vision or imperfect hearing may lead a pilot to death."

L'ENVOI

CHAPTER XIX

L'ENVOI

O. HENRY, quietly ambling through life, plumbing the depths of Humanity's being; Mr. Britling, that all-wise philosopher, sitting by his night-desk at quiet Dunmow, alternately watching and wondering at the great world run riot, careering around him with a chaos of conflicting emotions,—may have penned a similar story, and—with the grey dawn—consigned it to his capacious wastebasket as insufficient—lacking in reality and local colour.

It was for some unknown Belgian woman—untricked in the craft of letters—to present that one story of the air to a breathless world. It was only a matter of a few lines, but its spirit was that of nineteen long centuries of men and heroes; Empire builders all. She enclosed it with a snapshot of a shattered British aeroplane, a pitiful heap of smoulder-

ing ashes and distorted metal, and she wrote :

“ What a pity such heroes should have to die ! They could have escaped, but preferred to fight to a finish. Never have I seen such gallant resistance before. . . . The two heroes were buried with military honours.”

The scene flashes away again. It has all the rapid changing and many-sided phases of the realm of sky they serve. This time there is a haunting memory of some epic of the past ; a suggestion of the muffled roll of drums for some doughty old warrior of the Peninsular Wars. But this is more poignant in its sorrow, more simple in its execution. “ If any music is played at my funeral,” he had demanded, somewhat whimsically—proud in the strength of his buoyant youth—“ let it be the ‘ March of the Men of Harlech.’ ” Ten days later, he had flown west to the Valhalla of the airman, beyond the racing clouds ; an almost unrecognisable figure, blackened and disfigured by the sudden hell of flaming petrol, as his ‘plane plunged headlong for the earth.

As I piece together these so-varied stories, often the thought comes flashing into my

mind, " Could Dumas and Swift have somehow come together in that great world beyond, and collaborated; these their joint effusions?" But they could never have supplied the climax. Edgar Allen Poe must have had a hand in that. And even his wizardry stands me in poor stead, when I remember the tragic scene of which I was an unwilling spectator, now some two years ago.

It was at sunset; one of those red-gold sunsets of Kent. The broad sweep of green aerodrome and the broader sweep of blue sky beyond were alive with darting aircraft, " upstairs " for the last time before night-fall. One by one, they came slithering home again, until but one remained.

How, when, or why exactly it happened, none can say. But as this last 'plane came nosing down to the landing-ground, another craft from the far end rushed up into the air. Too late they tried to warn him. At a height of just over the level of the shed-roofs the two machines crashed into one another. There was a sudden unnerving jar, that seemed to echo across the quiet fields for miles around; a tearing and a

rending, as of a thousand rushing wings, and a second later two ugly heaps lay in adjacent fields.

There was a pilot and an observer in one, and a pilot in the other machine, a fighting scout. All were dead!

Bad luck, you may call it, or maybe fate. But there is an unbelievable element of the sway of that capricious little god where flying is concerned. Ask any airman of your acquaintance, or take note of the following:

“Flying—to be more correct, ‘getting off’ from the ground, and when still at a height of only between 200 and 300 feet above the surface—the engine of a ‘plane went off dead. Down she came, almost in a ‘nose-dive,’ and struck a tree with her wing, whirling round and round.

“In the air the human mind moves rapidly. In the brief space of time that had been permitted him, the pilot, seeing his danger, had unclasped his belt and leapt out, escaping with nothing more than a shaking. His machine meanwhile had dashed to the ground and turned turtle. Had he remained in her, he would have been killed.”

Erwin Haertl was a Hun ; but for that, a sportsman and a man. He died from wounds behind his own lines after having, a few minutes before, at 9,000 feet in the air, brought down a British pilot. Half-way through the fight he was mortally wounded, but nevertheless stuck it to the end—though he had to stand up in his machine, and knew that it meant certain death to do so.

Rudyard Kipling must have taken that story to his heart. And how he must have revelled in that other reported by the war correspondent of the *Petit Parisien*, that went :

“ We were passing through the Lozière Wood, west of Ailly-sur-Noye, when a British aeroplane fell down 300 metres away from us. The motor caught fire, and in a moment the machine was enveloped in flames. In the furnace, strapped to his seat and motionless, was the pilot, a very young officer, almost a lad. His head reclined on his shoulder, and in his pale face the half-closed eyes gave no sign of life. But he was still alive, and when consciousness returned he showed great surprise at finding himself in the house where he had been immediately conveyed. In what

a terrible drama had this unfortunate lad played during the space of but a few minutes!

“He had been on a reconnoitring trip and was flying very low to spy the enemy’s positions, when eight German aeroplanes dashed at him. He rose immediately, simulated flight, and then by splendid manœuvring sent three of the enemy spinning to earth. At that moment he felt a sharp pain in the head. A machine-gun bullet had struck him. Others whistled by his ears, and a second broke his collarbone. His head swam, and the buzzing of the engines deafened all sound.

“Yet a third bullet tore through the young officer’s neck, and three more struck him in various parts of the body. He could do no more, and shot for earth. Though bleeding from many wounds and hardly able to hold up his head, he still retained enough command over the machine to avoid capsizing it, and so came to ground.”

But perhaps the most poignant incident of all was when Sergeant Thomas Mottershead of the old R.F.C. went up to his death. True, he was awarded a posthumous V.C.

But what was the Bronze Cross in comparison to such a deed ?

At 9,000 feet he was set upon and outnumbered by Hun machines. Fighting gallantly, one of the enemy bullets pierced the petrol-tank of his 'plane, and immediately it caught fire.

“ Enveloped in flames, which his observer, Lieutenant Gower, was unable to subdue, this very gallant soldier succeeded in bringing his aeroplane back to our lines ; and though he made a successful landing, the machine collapsed on touching the ground, pinning him beneath the wreckage, from which he was subsequently rescued. Though suffering extreme torture from burns, Sergeant Mottershead showed the most conspicuous presence of mind in the careful selection of a landing-place, and his wonderful endurance and fortitude undoubtedly saved the life of his observer. He has since died from his wounds.”

And so to the end. Jules Verne must have taken part in this great flight ; if not in person, at least in spirit. But his lips have long since been closed ; and it was left to Mr. Handley-Page, the famous manu-

facturer of more famous aeroplanes, to tell it for him.

It is the story of a British bomber that flew from London to Constantinople; and, after ravaging that mysterious city of domes and minarets, came safely home again.

Officially the affair was mentioned in a Press Bureau message, November 16th, 1917, that:

“ At Constantinople our machines, in spite of heavy anti-aircraft fire, dropped to a height of 800 feet to attack the *Goeben*. The first salvo of four bombs missed the ship, but hit some submarines and destroyers moored alongside her. The second salvo hit the *Goeben* a little forward of amidships, causing a large explosion and a big conflagration. Our machines then bombed the *General*, in which the German headquarters at Constantinople are reported to be situated. Bombs were dropped from a height of 1,300 feet, and two direct hits were secured on the stern of the ship. The next object of attack was the War Office, on which two direct hits were observed in the centre of the building. The Turkish Minister at Berne has made a statement in reference to these

air attacks, in which he acknowledges that the War Office at Constantinople and a destroyer were hit; 'a certain amount of damage being done.' "

Mr. Handley-Page gave a somewhat fuller story, at a dinner held in London to celebrate the event. He said that :

" Setting out from Hendon, the company of five reached Paris, and flew through France down the Rhone valley to Lyons, and on to Marseilles. From Marseilles they flew to Pisa, and thence to Rome. The battleplane then proceeded to Naples, and on to Otranto. Crossing the Albanian Alps, the aviators flew on to Salonica, and thence to their base to prepare for the final stages of the trip to Constantinople, which involved flying 250 miles over a hostile country under conditions equally arduous as that of Chavez's flight across the Alps.

" While flying across the Albanian Alps the airmen could see the hostile Bulgarian horsemen chasing them, in the hope that their machine might be forced to descend and give the crew as prisoners into their hands. Cross winds, clouds, and all kinds of atmospheric disturbances rendered the

latter portion of the voyage most difficult and perilous. The mountain peaks range from 8,000 feet to 10 000 feet, in height. Happily the engines never failed for one moment, and even with the heavy load on board there was never the slightest fear on the part of the pilots that any trouble would arise.

“ After a short rest at their base, and careful overhauling of the machine, the airmen set out on what was the culminating achievement of their wonderful flight. The bombing of the Turkish capital was done at night. A two-and-a-half hours' journey brought the two pilots and engineer left to man the aeroplane over the Sea of Marmora, and straight up the Sea of Marmora they headed for the attack on the *Goeben* and the Turkish capital itself.

“ Constantinople was reached when flying at a height of 2,000 feet, and there, lying beneath them, could be seen the *Goeben* with all lights on and men walking on deck. Constantinople itself was brilliantly illuminated. The Golden Horn was clearly silhouetted.

“ Once the aeroplane flew along a line

parallel with the *Goeben*, so as accurately to determine its speed and give the necessary data for bombing. Circling twice, the machine dived down to 800 feet, and a salvo of four bombs was released. The first salvo missed the *Goeben*, but exploded against one or two submarines lying at its side. Again the aviators flew around, in order to make certain of their aim, and this time they hit the *Goeben* with four bombs.

“ The dropping of the eight bombs seemed to disconcert the Turks, for all lights suddenly went out. The pilots then made off towards the Golden Horn, and dropped two more bombs on the ship called the *General*, which was the headquarters of the German General Staff. Finally, they flew over the Turkish capital, and dropped two more bombs on the Turkish War Office, which, in the words of the Turkish communiqué, ‘was not destroyed,’—having been over Constantinople thirty minutes altogether.

“ Now by this time considerable alarm seems to have been caused in Constantinople, and guns which had not been previously fired were now directed upon the aeroplane. In

fact, the flight back to the Sea of Marmora, when Lieutenant McClellan took charge, was accompanied by a fusillade of shrapnel and explosive shells, and on arrival at the base it was found that no fewer than twenty-six bullets had penetrated the machine. One lucky shot partially disabled part of the oiling system of one engine, and the return flight was carried out with the second engine alone."

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