FOR APPLICANTS

FOR THE

WAR BIRDS

"WAR PLANES OF ALL NATIONS"

By W. E. BARRETT

Booklet No. 4

Here is the article every reader has been waiting for, complete tables and information on the fighting planes used in the great war, by every nation. In response to thousands of letters this special feature is printed for the first time in book form.

WAR PLANES OF ALL NATIONS

By W. E. BARRETT

"AW, the big stiff! I'll bet he's four-flushing. If he flew in the war, why doesn't he know enough to answer a few questions about ships?" Many an ex-war bird has had that remark, or one similar to it, muttered behind his back. With interest in aviation growing steadily, men and women everywhere are becoming curious about the war flyer and about the problems that he faced. They are filled with questions and they seldom stop to realize how unreasonable the questions are. A man who owned or drove an automobile in 1917 and 1918 can tell you very little today about the horse power of the motor or the speed of the particular car he drove. Not a man in ten thousand can give you the performance data on four 1917 American cars. Yet these same people expect a flyer who was busy conducting a one-man war to answer such questions off-hand about the planes of three nations. Not only that, but they will expect him to know the types, the different models and a thousand and one details which distinguish one plane from another.

The historian and the fiction writer faces a very similar problem to that of the war flyer. He is confronted with inadequate sources of information in his attempts to convey information to an interested public. He is up against the fact that a strict war censorship existed during the days of the big struggle and that very little information on war planes appeared in print. Nor is he helped much by the post-war publications. Those which devoted space to aviation were anxious to forget war and to direct public attention to commercial possibilities in flying. Not till recently did the war become a matter of interest, and "recently" means that memories have to leap a gap of ten or twelve years.

The charts which accompany this article are the only ones of their kind, I believe, in existence. They have been honestly compiled over a period of thirteen years and, though unfortunately incomplete, provide accurate information on the war planes listed. Dozens of men and hundreds of publications have been directly or indirectly contributors to the charts, and it is impossible to credit sources. However, no

information has been used which could not be re-checked against other information available. Alone, these charts convey a tremendous lot of information. A few words, however, are necessary to make the information readily understood.

Column one lists the planes by name. For this listing, the name used is the general designation applied to the particular ship described. Many planes used sub-letters and numerical designations in addition to their titles but these were so numerous that it would be confusing to attempt to make listings using the designations. A change in body, wing, motor or minor detail would call for the issuance of a new numeral; but very often would change neither performance nor appearance of the ship. An exception to the general procedure has been made in the case of ships such as the S.E. 5, R.E. 8, etc. Where these exceptions have been made, it is because the type in question was an outstanding product that differed radically from other planes of the same general designation. This becomes evident upon study of the charts.

Column two gives the type of plane and the carrying capacity. Most of the war planes were biplanes, but because a few were monoplanes, it was thought best to label each plane unmistakably.

In column three we face the troublesome question of engines. No question has caused more annoyance to ex-war pilots. As a rule, there was no engine course included in a war pilot's training and, at the Front, he left power-plant details to the mechanics. He knew, of course, the make and type of engine used in his particular plane and, in a general way, the engines used elsewhere. There was no reason why he should extend his knowledge further and few pilots could qualify as walking encyclopediæ on the thing that made a ship go up and stay up.

War conditions, too, confused the engine question. Raw materials were at a premium and production was not always up to demand. A plane which ordinarily called for an engine of a certain type would have to be adapted to take another kind when this production balance went out of kilter. That, to a certain extent, will explain the variety of engines listed for certain ships on the charts. If anything, the charts are incomplete on this item. I know that the engines listed were used as designated; I have no idea how many more may also have been used in the same ships.

Horse power is another bug-a-boo. Too much emphasis is placed upon the number of horses anyway. At best, the horse power was the

maker's rating, and that was not always accurate. Inferior materials, poor workmanship, inefficient design—all these things were met in wartime when engines were being pushed out in a hurry and the horse power rating of an engine was an unreliable indicator of its performance. I have tried to be one hundred percent accurate on this, but there may be cases where ratings differed at the source from which I obtained the information; such as a case where the British might release a report on a captured German plane. In such reports, the horse power given was the number of horses delivered under test when the planes were examined by British engineers. This, naturally differed from the manufacturer's rating. However, there is nothing in print to-day on the subject which would not have to be taken with the same reservation.

"Miles per hour." This comes in for debate every time that war planes are discussed. Nothing is ever proven in these debates, because the debaters are usually arguing from different premises. A man who piloted and liked a Camel—no laughing in the rear pews, some fellows did—would naturally use its best speed in these debates; a man who did not, would rate it otherwise. The crux of the situation is that a plane delivered greater or less speed at different altitude levels and under different conditions. Little things, too, would confuse the issue, a little change in the wings or a different prop or what not. A war flyer who says that his Spad delivered 120 miles per hour normally may be just as correct as the man who never got better than 105 out of a Spad. They are speaking of different model Spads. They may even be speaking of the same model. An engine built under war conditions is not always just the same as its mate built in the same plant at the same time; nor are the planes. It doesn't take much on the ground to make 10 or 15 miles an hour difference upstairs.

The speeds used in the charts are normal speeds at the usual altitude of about ten thousand feet. Where difference of opinion was encountered, a slight range is allowed in the charts. All of the designated planes may not have made the speed credited to them; some may have made more. I have tried to strike a norm and make no claims for infallibility on this touchy subject.

In the "Purpose" column a few general terms have been made to do a lot of work. "Scout" and "Pursuit" were the terms usually used in describing single-seater fighters, and they are the terms used in the listing. "Reconnaissance," like charity, has been made to cover a number of things. The planes so listed may have been used for taking

pictures, directing artillery fire, dropping bombs or any one of a dozen uses to which two-seater war planes were put. Naturally, specialization was not carried to the point of creating a ship to do but one thing. Under demand, they had to do many things and do them well. On the whole, though, I have tried to give the main reason for the ship's being and have added supplementary information in a few cases under "remarks."

The "Years Used" column is another one of those things. In filling in this column we had to look at planes as a class. Some parts of the Front saw a new model months earlier than other sectors. In some places, it became necessary to retire a certain plane from service because of enemy tactics; with the plane in more or less general use elsewhere. We have to have latitude on this question. The dates given are correct, taking the Front as a whole.

The space afforded by a chart column is not adequate for the purpose of making "comments" that will really help an interested reader to compare the war planes. There were many factors that affected a ship's performance, and the rest of this article will be devoted to a little discussion of those factors and to a comparison of some of the ships that met above the Western Front.

It will be noted that many of the British planes are designated as "pushers" and that "pursuit" or "combat" planes of the pusher type were used by the Allies at a time when the Germans were standardized on tractors. The reason for that is an interesting story which throws light on the many things that go into the determining of war policy.

In the early days of the war, all the planes in use were designed solely for flying. There were none of the "specialists" which were later developed. An airplane's sole function was to aid the ground troops and the artillery by observation. Not till it became necessary to hamper the enemy observation did combat develop, and with it the fast, single-seater "pursuit" plane and the two-seater "fighter." Outstanding in the British air fleet at this time was the Bleriot Experimental, known as the B.E. This was a tractor type plane designed by Bleriot, who was generally credited with originating the tractor type of ship. The R.F.C. favored the tractor type.

Then came the Fokker of June, 1915, which changed the whole picture. None of the British or German tractors before this could fire in the direction of flight. The prop presented an insurmountable obstacle to front fire, and fighting in the air was made difficult by the necessity of getting the enemy in line with the rear gun; sighting on

him with the tail, in other words. To such an aerial battle arena came the 1915 Fokker; faster than any British plane and *firing through the prop.*

This was an entirely new procedure and it caught Britain and France flat-footed. They had nothing capable of coping with the situation and their engineers were stumped in their attempts to develop an "interrupter gear" that would check the machine-gun fire coincident with the passing of the prop in front of the line of fire. The only answer lay in the development of fast pushers that would have a clear front over which to sight a machine gun. From that need the pusher fighters were evolved and the first good one, the D.H. 2, was a worthy foe of the Fokker. Many others of the period gave good accounts of themselves; notably the Vickers, which has often been called the F.E. Fighter. (Note—The original F.E. was the Farman Experimental but, since the Vickers was known officially as a Fighting Experimental, it was also called an F.E. in many quarters.)

The rapid development of the Fokker and the Albatross, however, doomed the pusher. There were limits beyond which speed and maneuverability could not be built into this type of ship, and the French and British had to go back to tractors. To the Nieuport goes credit for the first solution of firing in the direction of flight with a tractor. This ship came out in early '16 with a Lewis gun mounted on the top wing above the center section; the sights in front of the pilot's seat and the trigger on the control stick. Not till 1917 did the Allies develop an interrupter gear to permit fire through the propeller. In that year, they introduced what is known as the Constantinesco gear, a device that removed the last necessity of "pusher" pursuit planes.

"Finished the War as a Night Bomber" is appended like an epitaph after the name of several noble old arks listed on the chart. There are probably many more about which this could be said, but where I wasn't sure the note was not inserted. A few words on this night bomber detail might be in order.

Pilots generally are inclined to-day toward remarks on the comparative cinch that the night bomber crews had; but there is no record of any deluge of applications for the job when the fuss was on. To make up for the lack of interference from pursuit planes, the night bombers had their own troubles. I am speaking now of the lighter types, not the Handley Pages and the Gothas. Taking off with a load of bombs was no rest cure, and that was the least of it. Night flying has its perils to-day. They were intensified then, with the equipment

available, and forced landings were not merely perilous; they were fatal. Add to that the fact that it was necessary for these boys to swoop down low on the objective in the face of searchlights, machine guns and archie—then take that "cinch job" stuff with a grain of salt. It took good men, and steady, even if not brilliant, ships to handle the detail, and the hat is hereby tipped to them.

Then there were the "Reconnaissance" planes which appear on the charts in profusion. Some of these things had all the flying qualities of a soft pine outhouse and, at best, were much slower ships than the destroyers that were sent after them. The pilot was usually a "stout fellow" at the controls who got miracles out of his crate in a pinch, and the observer who rode with him was a real "jack-of-all-trades." This last-named individual had to take pictures, make notes, maps, observations, direct artillery fire and a thousand and one chores. Then, when something, or a lot of somethings, roared down out of the sun, he had to drop everything and grab the gun or guns. Many a flashy ace went flaming down beneath the gun of a lowly observer and many a fancy war record was built up by men in fast single-seaters who never got a foe except members of the "cold meat division" whose chances in combat were slimmer than slim.

The two-seater fighter was a different animal. Many of them, notably the Bristol Fighter, could get no end of altitude and get it in a hurry, travel as fast as pursuit planes and barge into a mess with guns blazing front and rear. These things counted a lot in the late days of the war.

The single-seaters were of all types and classes, and no study of a chart will enable the reader to make fair comparisons of their worth as fighting ships. The chart gives a good picture of their horse power and speed; but many other qualities went into the making of real fighting craft.

A good example to choose for illustration would be the contrast between the S.E. 5 and the Fokker triplane. These ships met often in the closing days of the war, and if we go by the figures on the chart, the S.E. didn't have a chance. The Fokker, you will note, is credited with a top speed of 150 miles an hour. This has been doubted in some quarters, but the general opinion is that no faster war plane was built. The S.E. 5, on the other hand, never topped 120 and not very many of them did that as a steady diet. On top of that, the Fokker was very sensitive to the controls and could be handled nicely in a dogfight.

It owed its existence to the need of Germany for a plane that would twist and turn faster than the Fokker and Albatross biplanes; planes that matched up well on speed with anything they encountered. Considering these additional facts would seem to make the S.E.'s case more hopeless. In spite of this, the S.E. held a splendid record against Tripes and was, reputedly, the one Allied ship that no German would dive on without at least two companions. What's the answer?

The answer is simply this: the S.E. was a zooming fool. There wasn't a ship in France that could out-zoom the S.E., and there were few sets of wings that would stand the strains that S.E. wings would stand. The wings on the Fokker Tripe certainly would not; and therein lay the triplane's great weakness, a weakness shared by both the Albatross and Sopwith Tripes. By the nature of things that extra wing had less strength than had the other two, and it was the first to lose linen. After that the mop-up wagon! In a fight with one of these things, the S.E. would have top position in the first zoom, and if the pilot knew his stuff, his position quickly balanced difference in speeds.

Against the Albatross, too, the S.E. was more than formidable. The 1918 Albatross would do 135 easily and 150 in a dive. The dive, incidentally, was a standard Albatross tactic. They staked all on a swift rush out of the sun or out of the shelter of a cloud bank, a terrifying swift apparition of death with twin Spandaus blazing. To meet this the S.E.s would point their noses to the earth and go down full gun. Many an Albatross pilot has looked his last look at the cold meat he was chasing, to see it go back up in an impossible zoom while his heavy Mercedes refused to come out of a dive; taking him down into the hard, hard earth. Oh, no, speed wasn't everything by a long shot.

In case I be accused of writing an ad for the S.E., I'll add a few more words to the record. This was a long way from being the perfect fighting ship, even if it was mighty good. For one thing, it was hard to fly, tricky on take-offs and terrible on landings. The landings particularly called down abuse upon its designers who put the undercarriage as far back as they could put it, giving the noble war wagon a tendency to somersault.

All war planes had disadvantages, though, and that is what equalized advantages in speed. The smartest pilot studied the enemy's planes and learned to identify the different types in the air; then he built a battle plan to take advantage of known weaknesses of the foe.

A German would know, for instance, that the Nieuport had a tendency to lose its wing covering in a dive. His obvious tactic would be to try and maneuver the fighting around to the point of making the Nieuport dive or put a strain on his wings. The Spad, with its machine gun built right into the engine, was apt to have more trouble with jammed guns than most other planes, and was less likely to get the gun back into action in the air. A serious jam necessitated a partial dismantling of the engine to free the feedblock. Rotary-motored ships had a tendency to slip badly on right banks and to fall off into right-hand spins because of the gyroscopic action of the engine. The Sop Camel, particularly the first models, was especially bad in this respect. On the other hand, its successor, the famous Dolphin, spun left. This was because of its geared prop which reversed the torque of the engine. Such tendencies on the part of fighting craft were noted and utilized by the pilots of enemy aircraft. The race was not always to the swift, nor the battle to the strong; which suggests consideration of a group of men who have been completely overlooked in post-war literature.

The reader could not have followed this article thus far without being impressed with the importance of design and without a realization of the part played by the engineer behind the lines. The lives of hundreds of flyers rested, literally, in the hands of the aircraft engineers.

The engineer's responsibility is summed up dramatically in a statement made to me this week by a man who served in the squadron of Major Hawker, Britain's first ace.

"Hawker was killed," he said, "not at the moment that Richthofen's bullet got him, but months before, when the Albatross and the Vickers were built. They built Hawker's doom into the ship they gave him."

By the same token, however, many a man had life rather than death built into his ship and acehood rather than crossed propellers.

In the charts you will note a few references to "The German Spad," etc. Many ships, on both sides of the line, were known by similar titles created by some resemblance, often slight. One model of the Pfalz scout and one Albatross, resembling each other only superficially, shared the title of "German Nieuport." Charges of design-copying were prevalent on the part of the three principal nations and many of the charges were probably well justified. From their dates of appearance, it is likely that the Spad was influenced by the Albatross rather than the reverse being true, but there is no doubt that the Nieuport supplied the German engineers with many ideas that were incorporated

into Fokker, Albatross and Pfalz. The Fokker Tripe, we were told, was a dead copy of the Sopwith Tripe; but there was an Albatross triplane before either of them. Under the pressure of war it was but natural that designs should be stolen, and it is doubtful if any investigation would prove that one side profited more than the other from the practice.

I would have liked to have included in the charts a record of every plane that flew in France. I have had to content myself with a list that is representative and that is large enough to present a picture of the fleets which took the air during the epochal period known as the World War.

GERMAN WAR PLANES

MAKE AND MODEL	TYPE	ENGINE	H. P.	M.P.H.	PURPOSE	YEAR	COMMENTS
ALBATROSS	Single S't'r Biplane	Mercedes	100	60-70	Scout	1914-15	
	" "	Mercedes	130	80	Scout	1915-16	
	" "	Mercedes Benz	160 160	100-105	Scout	1916	
	" "	Mercedes	170	110-120	Pursuit	1916-17	
	" "	Mercedes	200	125-135	Pursuit	1917-18	
	" "	Mercedes	225	135-140	Pursuit	1918	
	Single S't'r Triplane	Mercedes	170	120-130	Pursuit	1917-18	
	2 Seater Biplane	Mercedes	130	60	Reconnaissance	1915	
	" "	Mercedes	170	85-90	Reconnaissance	1916-17	
	" "	Mercedes	200	100-105	Reconnaissance	1917-18	
	" "	Mercedes	225	115-120	Reconnaissance	1918	
	" "	Warchalowski	200	95-100	Reconnaissance	1916-17	Austrian Front
AVIATIK	Single S't'r Biplane	Argus	120 140	?	Pursuit	1916-17	
	" "	Benz	160	100-105	Pursuit	1916-17	
	" "	Benz	200	115-125	Pursuit	1917-18	
	2 Seater Biplane	Mercedes	100	70-75	Reconnaissance	1914-15	
	" "	Benz	170	80-95	Reconnaissance	1916-17	
	" "	Mercedes	220	105-115	Reconnaissance	1917-18	
A. E. G.	2 Seater Biplane	Benz	200	95-105	Fighter-Recon	1917-18	
	Biplane	Mercedes	Twin 260s	90	Bomber	1918	
FOKKER	Single S't'r Monoplane	Oberursel	100	85-95	Pursuit	1915	The "Eindecker"
	Single S't'r Biplane	Mercedes	160	95-105	Pursuit	1916-17	D-1
	" "	Oberursel	100	95-150	Pursuit	1916-17	D-2
	" "	Mercedes	175	110-120	Pursuit	1917	D-4
	" "	Mercedes	200	125-130	Pursuit	1917-18	D-5
	" "	Mercedes	180-200 220	130-140	Pursuit	1918	D-7
	Single S't'r Triplane	Oberursel	100 110	125-130	Pursuit	1918	
FOKKER	Single S't'r Triplane	Mercedes	200 220	135-140	Pursuit	1918	

GERMAN WAR PLANES—Continued

MAKE AND MODEL	TYPE	ENGINE	H. P.	M.P.H.	PURPOSE	YEAR	COMMENT
FREDRICHSHAFEN	4 Place Biplane	Mercedes	Twin 220s	?	Bomber	1917-18	
GOTHA	Biplane	Mercedes Benz	Twin 160s	?	Bomber	1916	
	" "	Mercedes	Twin 220s	?	Bomber	1918	
	" "	Benz	Four 240s	?	Bomber	1917	Condemned
HALBERSTADT	Single S't'r Biplane	Argus	120	105	Pursuit	1916-17	
	" "	Mercedes Benz	160 240	110 120-125	Pursuit	1916 1916-17	
	" "	Mercedes	220	125	Pursuit	1917-18	
	2 Seater Biplane	Mercedes	180	90-100	Fighter-Recon.	1917-18	
HANNOVERANER	2 Seater Biplane	Opal-Argus	180	105-115	Fighter-Recon.	1917-18	
L. V. G.	2 Seater Biplane	Mercedes	100	60	Reconnaissance	1915-16	
	" "	Mercedes	160	85-90	Reconnaissance	1916-17	
	" "	Benz	240	100-110	Reconnaissance	1917-18	
PFALZ	Single S't'r Biplane	Mercedes	160	105	Pursuit	1917	
	" "	Mercedes	180	115-120	Pursuit	1917-18	
	" "	Mercedes	220	125-130	Pursuit	1918	
ROLAND	Biplane	Maybach	Twin 260	?	Bomber	1915-16	
	Single S't'r Biplane	Benz	160	90-100	Pursuit	1916-17	
	" "	Goebel	160	105-110	Pursuit	1917-18	
	" "	Mercedes	160	110-115	Pursuit	1917-18	
	2 Seater Biplane	Mercedes	100	70	Reconnaissance	1916-17	
	" "	Benz	160	80-85	Reconnaissance	1917	Low Wing Biplane
RUMPLER	2 S't'r Biplane	Mercedes	160	80-85	Reconnaissance	1916-17	
	" "	Mercedes	200	90-95	Reconnaissance	1917	
	" "	Mercedes	220	110	Reconnaissance	1918	
	" "	Maybach	240	90-100	Reconnaisszнce	1917-18	
TAUBE	Single S't'r Monoplane	Argus	100	50	Reconnaissance	1914-15	

BRITISH WAR PLANES

MAKE AND MODEL	TYPE	ENGINE	H. P.	M.P.H.	PURPOSE	YEAR	COMMENTS
ARMSTRONG	2 Seater Biplane	R. A. F.	90	80	Reconnaissance	1915-16	
	" "	Beard nore	120	90	Reconnaissance	1916	
	" "	Beard nore	160	105	Reconnaissance	1917-18	
	Sing. S't'r Bip	Gnome	80	75	Pursuit	1915-16	
	" "	B. R.	220	130-135	Pursuit	1918	
AVRO	2 Seater Biplane	Gnome and Le Rhone	80	65 75	Reconnaissance	1914-15	Later used as Training Plane
	" "	Gnome and Le Rhone	100	75-80	Reconnaissance	1915-16	
	" "	Gnome Le Rhone Clerget	100 110 130	80-90	Reconnaissance	1916-17	
	" "	Hispano-Suiza Sunbeam	200 200	100-110	Fighter	1917-18	
	Sing. S't'r Bip	Gnome	80	100	Pursuit	1916-17	
	" "	B. R.	180	110-125	Pursuit	1918	"The Spider"
B. E. Bleriot, Later, British Experimental	2 Seater Biplane	Renault	60 70 100	50 60 65	Reconnaissance	1914-18	10 or 12 Models of This
BEARDMORE	" "	Sunbeam	240	90-95	Bomber	1913	
	" "	Adriatic	230	0	Bomber	1913	
	Sing. S't'r Bip	Hispano-Suiza	200	110	Pursuit	1918	
BLACKBURN	2 S't'r Bip	Gnome	80	60	Reconnaissance	1914-15	R. N. A. S. mainly
BRISTOL	" "	Gnome	80	70-75	Fighter-Recon.	1914-16	
	" "	Rolls-Royce	250	105	Fighter-Recon.	1917	
	" "	Hispano-Suiza Sunbeam	200 200	120	Fighter-Recon.	1917-18	The Famous "Bristol Fighter"
	" "	Rolls-Royce	300	130	Fighter-Recon.	1918	
	Single S't'r Biplane	Gnome Le Rhone Clerget	80 110 130	85-100	Pursuit	1915-16	"The Bullet"
	" "	Le Rhone Clerget	110 130	90-105	Pursuit	1916-17	
	Sing S't'r Mono	Clerget	130	120-130	Pursuit	1918	
CAUDRON	2 Seater Biplane	Le Rhone Gnome	110 60 & 80	55-65	Reconnaissance and Training	1914-15	Balkan Front Mainly
Made in both France and England	" "	Hispano-Suiza	Twin 200s	?	Bomber	1915-16	
	Sing. S't'r Bip	Le Rhone	80	70	Pursuit	1915	
DE HAVILAND	Sing. S't'r Bip	Gnome	80 & 100	90-95	Pursuit	1915-17	D.H. 2(Pusher)

BRITISH WAR PLANES—Continued

MAKE AND MODEL	TYPE	ENGINE	H. P.	M.P.H.	PURPOSE	YEAR	COMMENT
DE HAVILAND	2 Seater Biplane	Beardmore	Twin 130s	?		1915	D.H. 3—Condemned. Never saw service.
	" "	Rolls-Royce B. H. P.	250 240	130	Recon.-Fighter Bomber	1916-18	Fastest Ship of its time (D.H.4)
	Sing. S't'r Bip	Le Rhone	110	100-105	Pursuit	1917-18	D. H. 5
	" "	R. A. F.	100	65	Training	1917-18	D. H. 6
	2 Seater Biplane	B. H. P. Napier-Lion	240 450	110	Bomber	1917-18	D. H. 9
	" "	Rolls-Royce Liberty	375 400	110	Bomber	1918	D.H. 9A- American Edition with "Liberty"
	" "	Liberty	Twin 400s	115-125	Bomber	1918	D.H.10-The Re-designed D.H.3
F.E.8(Fighting Exper'l)	Sing. S't'r Bip	Beardmore	160	75-85	Fighter-Scout	1915-16	
F. E. 2B	2 Seater Biplane	Beardmore	120 160	55-65	Fighter-Recon.	1915-18	Finished War as Night Bomber
F. E. 2D	" "	Rolls-Royce	250	?	Fighter-Recon.	1918	
HANDLEY-PAGE	Biplane	Rolls-Royce	Twin 250s	80	Bomber	1914-18	
	" "	Rolls-Royce	Twin 375s	90	Bomber	1918	
	" "	Rolls-Royce	Four 350s	?	Bomber	1918	Ready, but never saw service
MARTINSYDE	Sing. S't'r Bip	Gnome	80	95	Pursuit	1915-16	
	" "	Gnome	100	110	Pursuit	1916-17	
	" "	Beardmore	120	95-110		1916	
R. E. 8 (Recon. Experimental)	2 Seater Biplane	R. A. F. Beardmore	130 160	60	Reconnaissance	1915-18	
S.E. 4(Scout'g Exp'r'l)	Sing. S't'r Bip	Hispano-Suiza	140	90	Pursuit	1916	
S. E. 5	" "	Hispano-Suiza	150 200-220	105 115-120	Pursuit	1917-18	
S. E. 5A	" "	Hispano-Suiza	240	125-135	Pursuit	1918	
SOPWITH SCOUT	" "	Gnome	80 & 100	90	Pursuit	1915-16	
SOPWITH CAMEL	" "	Clerget B. R.	130 150	110-120	Pursuit	1917-18	
SOPWITH DOLPHIN	" "	Hispano-Suiza	200-220	120-130	Pursuit	1918	
SOPWITH SNIPE	" "	B. R.	200	125-135	Pursuit	1918	
VICKERS	" "	Gnome	80-100	75-90	Pursuit	1915-16	
	" "	Hispano-Suiza	300	130-135	Pursuit	1918	
	2 Seater Biplane	Gnome	80 100	60-70	Fighter-Recon.	1914-16	

FRENCH WAR PLANES

MAKE AND MODEL	TYPE	ENGINE	H. P.	M.P.H.	PURPOSE	YEAR	COMMENTS
BREGUET	2 Seater Biplane	Le Rhone Gnome	80	55-60	Reconnaissance	1914-15	
	" "	Liberty Renault	400 300	120-130	Bomber	1918	
	" "	Liberty Renault	450	125-135	Fighter-Recon	1918	
BLERIOT	Single S't'r Monoplane	Le Rhone Gnome	60	50-60	Reconnaissance	1914-15	
	" "	Gnome	80	60-70	Scout	1915	
	2 Seater Mono	Gnome	80	60-65	Reconnaissance	1915	
CAUDRON	2 Seater Bipl.	Gnome	60 & 80	55-60	Reconnaissance	1914-15	
	Sin. S't'r Bip.	Le Rhone	80	65-75	Pursuit	1915	
	Biplane	Hispano-Suiza	T'n200s	110-115	Bomber	1918	
	" "	Salmson	T'n250s	85-95	Bomber	1917-18	
	" "	Le Rhone	Twin 120s	85	Bomber	1916-17	
MAURICE FARMAN	2 Seater Biplane	Renault	70	60	Reconnaissance	1914-18	Later used as Training Plane in France, England and Italy
	3 Place Biplane	Hispano-Suiza	Twin 220s	?	Bomber	1918	
HANRIOT	Sin. S't'r Bip.	Salmson	230	?	Pursuit	1917-18	
MORANE	Sin S't'r Mono	Le Rhone	80	60-65	Scout	1914-15	
	" "	Gnome	160	?	Pursuit	1918	
	2 Seater Monoplane	Le Rhone Gnome	60 80	55-60	Reconnaissance	1914-15	
	2 Seater Bipl.	Bugatti	420	?	Reconnaissance	1918	
NIEUPORT	Sin. S't'r Mono	Anzani	40	?	Recon. & Tr'n'g	1914-18	
	2 Seater Mono	Gnome	60	?	Recon. & Tr'n'g	1914-18	
	Sin. S't'r Bip.	Gnome	80	70-75	Pursuit	1915	
	" "	Gnome	100	90	Pursuit	1915-16	
	" "	Le Rhone	110-120	105	Pursuit	1916-17	
	" "	Gnome	160	115-125	Pursuit	1917-18	
	" "	Hispano-Suiza	220	110-120	Pursuit	1917-18	
	" "	Renault	240	?	Pursuit	1918	
SPAD	Single S't'r Biplane	Hispano-Suiza	140 150	105	Pursuit	1916-17	
	" "	Hispano-Suiza	220	120-125	Pursuit	1917-18	
	" "	Hispano-Suiza	300	125-135	Pursuit	1918	

Questions for your entrance examination to the *War Birds* are based on information in this and pamphlets Nos. 1, 2, 3.

No one will wear the *War Birds* wings or carry the *War Birds* card who does not know of, and respect, the things that make up the life of a sky warrior. There is an examination to be passed before you qualify—and it is not an easy examination. But, when you have passed it, you will know the glory of really "belonging." Your wings will not be a mockery—they will stand for something tangible and you will have won the right to wear them.

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