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Western Front: Fromelles/Poizieres and Beyond

The First Air Observation Posts

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In 1912, the idea that aviation, flimsy as the first aircraft were, could be used to the benefit of armies in the field was poo-pooed, considered by some to be 'a useless and expensive fad'. Others more visionary than the Chief of the Imperial General Staff saw the potential for aeroplanes to be used for observing beyond the enemy lines, perhaps for disrupting their manoeuvres by bombing and strafing, and maybe to guide the artillery.

Despite the early dismissal of the aeroplane as a potential aid to the fielded forces, only nine years after the Wright brothers first powered flight, the Royal Flying Corps was formed in April 1912 and not to be outdone, the Royal Naval Air Service formed in July 1914, just in time for the outbreak of World War I. It will be the work of the RFC (and Australian Flying Corps) that I will now concentrate on although the RNAS pioneered much of the use of aircraft to support their surface forces. As to the RFC and AFC, remember, they were both corps of the army, had army commanders who had little or no experience of the air medium and no doctrine to guide them. They had to develop the air roles as they went and that included artillery cooperation. But first came air observation using balloons.

Early attempts

The first use of aerial observation was in 1794 at the Battle of Fleurus, an engagement between the First French Republic under General Jean-Baptiste Jourdan and the coalition army of British, Hanoverian and Dutch troops under Prince Josias of Coburg. The French were victorious on this occasion put down in part to their use of a hot air balloon *l'Entreprenant* (meaning enterprising) for observation of the enemy positions. General Jourdan knew what the enemy troops were doing despite the smoke and fog of war. Later, hydrogen-filled balloons were used in the American Civil War for similar purposes and also in the Sudan and Boer Wars. However, there are few if any reports of attempts to coordinate artillery fire at this time, but the idea had begun to take hold.

The Royal Navy put a lot of effort into naval gunfire support early on in World War I with observations of shot called from the air and we know that this was used to great effect at Gallipoli. Turning to the land campaigns, at first, balloons were used, but their vulnerability and flammability meant their observers were soon called 'balloonatics' and they had to be able to use parachutes! These balloons were generally static and had to be wound down as the front moved or when enemy fighters approached. Although balloons continued to be used throughout the war, their inflexibility meant the RFC soon began to use aircraft. The first of these were

unarmed, slow and unreliable, so they were used for reconnaissance and early attempts at bombing. There was no way a cumbersome radio set could be carried in these early machines as they were too heavy, needed a separate power supply, required an observer to operate it and were of generally short range.

The lack of radio communications did not stop the use of an observer from calling the fall of shot and corrections to the gunners. By the time of the Battle for Neuve Chappelle when the British attacked the Germans between 10 and 12 March 1915, a number of 'new' techniques were used in an effort to break the trench deadlock. The RFC used cameras to photograph enemy positions and long-range patrols of the lines gave early warning of enemy movement. The application of rudimentary bombing was tried against enemy rail junctions, but the small weight of bombs did little damage. But it was in another development, that of artillery cooperation that emerged that I will now discuss.

Challenges

As well as the weight of radios, the weight of an observer also presented a challenge early in the war, but as aircraft design and engine performance in particular rapidly improved, by early-1915 it became practical for observers to be carried alongside a pilot. This made a huge difference to the utility of the aircraft. The observer could drop hand-held bombs, look out for enemy aircraft and report on the enemy positions using hand written notes placed in a canister and dropped over the friendly lines. Initially lamps were also used to signal in Morse but it was not until mid-1915 that radios could finally be carried. It was also a time when enemy aircraft became a real threat to the friendlies and machine guns were mounted on aircraft for self-protection.

Meanwhile the work required of the artillery had been broadly classified as: barrage fire and attack of targets in the open; bombardment; and counter-battery work. Generally speaking it was the counter-battery work that was the hardest to coordinate and needed the most air cooperation effort.

As the doctrine of how to make best use of the air medium emerged, within a year, the RFC had developed two types of squadrons, Army squadrons which supported the Army as a whole, and Corps squadrons which directly supported the local Corps commander. As you are aware, the front of an army was allotted to the various corps by Army HQ, and each individual corps made responsible for a certain geographic area. It is the same area over which specific RFC squadrons were allocated. It was the RFC corps squadrons that took on this role of artillery cooperation with great success. These corps squadrons were each made up of three flights of about six aircraft each.

With regards to the Australians, No. 3 Squadron AFC would spend the war as a corps squadron, initially with the Canadian and XII Corps front near Arras. By November 1917, they moved to Flanders in support of the Australian Corps and took part in the battles for Amiens and le Hamel. They flew the study RE8 reconnaissance aircraft to great effect even managing to shoot down a number of aircraft, the Albatros DVa in the AWM being one of them.

Improvisations to overcome difficulties

So how best to work with the gunners? After early clumsy attempts to help the gunners get the correct fall of shot, by the time of the battle of Neuve Chappelle, the Army brains had worked out a simple method of directing artillery fire onto its targets. This was soon to become known as the 'clock code' or 'clock system'. A celluloid disc was marked in concentric range circles, clock face and segments and when oriented on a topographical map, helped the observer plot the fall of shot in relation to the target which was set in the centre of the circle. The gunners on the ground had the equivalent map and grid. A typical call might be advance shot 10 o'clock, 50 yards. This method quickly enhanced the counter battery work in particular, with these targets generally being hidden, over terrain and pinpoint in nature. Hard to see from the air, impossible to see from the ground.

Given the size of some of the corps counter-battery areas, it was usual to allocate two or three separate flight areas according to the Corps geographic spread. When there were two counter-battery areas, two flights were detailed to counter-battery work with the Heavy and Siege batteries and a third flight was made responsible for information concerning the trenches on the whole Corps front and for registration work with Divisional, Heavy and Siege artillery.

So how did it work? Observers had to quickly learn their geographic area and be competent in Morse code. Not only did they have to juggle maps blowing in the slipstream and a Morse key on their knee, they had keep situational awareness in the air, know where the friendly batteries were and be quick to spot and report the fall of shot before the wind blew the smoke away. And they had no time to be airsick.

Once a shot was fired, the observer would quickly plot range and bearing off target and transmit corrections to the ground. To save time a shorthand code was adopted for these corrections. The gunners would then adjust the fall of shot accordingly. The process would be repeated until the enemy battery or target had been destroyed, often taking quarter of an hour or more per battery engaged. Of course, this meant that the corps squadron aircraft were prime targets for enemy gunners, both Archie (that is anti-aircraft artillery) and fighters. Having to loiter over the front for up to an hour or more, at slow speed and at a reasonably low altitude cannot have been much fun.

Lessons?

Because of the high turnover of pilots, observers and artillerymen, the General Staff issued pamphlet SS 131 – *Co-operation of Aircraft with Artillery* in 1916. This 69-page pocket sized document was not to be carried by airmen as it contained detailed guidance on how the system worked as well as report formats, shorthand codes and prearranged signals used on the ground. It was reprinted several times and by the December 1917 edition was 80 pages in length. It encapsulated the lessons of previous successful and unsuccessful operations and allowed for standardisation across the various fronts.

One later development was the 'zone call system' used for non-pre-arranged shoots of area targets. Both battery and observer had to be in possession of exactly the same maps which were

squared on the same plan. A suitable division was made into squares of 6000 yards with subsidiary squares of 1000 yards each making a 36-square grid. So how did it work? If we take the example below, a shot 1200 yards to the north-east of the reference point would fall on square W B 11 – note that this is also X 11 on the adjoining sheet (not shown). It meant that each user had to use the same reference sheet! Targets were also given a prefix and number (just to confuse everyone). So in the example a target called N1 in the north-east area would be WB11 N1. It gets more complicated than that when corrections are applied, but the reader will I hope get the general idea.

1	2	3	4	5	6
7	A 8 or W	9	10	B 11 or X	12
13	14	15	16	17	18
19	20	21	22	23	24
25	C 26 or Y	27	28	D 29 or Z	30
31	32	33	34	35	36

By the end of the war, air – artillery co-operation was a commonplace activity and quite sophisticated, made easier when voice radios were introduced later in the conflict.

How implemented later

By World War II, the idea of using air to support the artillery as well as infantry was well established and practiced at annual field exercises between the wars. From these early beginnings came the concept of close air support, with aircraft providing both location and targeting. For the gunners, it meant an extension of the artillery arm with the airmen acting as both observation post and air battery able to reach guns which were out of range or difficult to hit or even to substitute for a shortage of guns on the ground. However, despite advances, there remained problems. First was the matter of aircraft avoiding the fall of shot and on more than one occasion a friendly aircraft was hit by one of its own artillery shells with disastrous consequences. The second problem was that just as aircraft became more capable, so did the Archie. AAA and SAMs soon turned the tide against close air support aircraft making the role unpopular with airmen.

By 1918, No 3 AFC began to use smoke bombs to mark targets and friendly positions and this soon became standard for the Corps squadrons. Between the wars as technology improved, so too did smoke marking. Eventually by Korea, rockets and coloured smoke was used which continued through Vietnam and is still used today.

It is worth remembering that the first airmen came from the ranks of the cavalry, infantry and both artillery, so it is not surprising that together they made an effective team.

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