

that already it has been possible to make a magneto which when filled with explosive vapour and surrounded by it, gives rise to no ignition of the mixture. We have also learnt that the back-firing or "popping" of an engine into the induction pipe which throws a flame back can be made innocuous by drawing the air supply of the engine from outside the body work. This, indeed, is standard practice to-day. The use of electrically heated clothes, called for by fighting at heights such as 20,000 ft. will not be normally desirable, and as for appliances for wireless telegraphy, which will have their place for giving trader craft their direction and for calling to the ground, they will not, under peace conditions, impose any risk of fire which cannot be circumvented. In general, the standard of safety from this point of view will be automatically enhanced in all transport work. Carelessness, such as makes people bring matches into a T.N.T. factory, cannot be expunged from the human race, but this class of occurrence need not disconcert us at all. In filling up with petrol there is the chance of spillages, and no doubt but that every aerodrome should be equipped with portable fire-extinguishers of light weight made available at filling points, and no doubt also but that all larger aeroplanes will carry one in an accessible position, until the proved absence of utility causes them to be relinquished.

The accident, if it can be so called, of losing one's way in a fog will be far less likely to result in disaster, when, to quote it once more, there exists a multiplicity of landing-grounds, because, on the one hand, no fog has been found to

extend more than a very limited height, say, 700 yards maximum, and, on the other hand, because we now know that fogs are quite local in their occurrence at any one moment. A befogged flyer, instead of alighting through a foggy patch, merely moves a little further on before landing. This does not imply that projects for signifying to a flyer who is above the fog the correct position of his aerodrome by pilot balloon or raised lights are to be discarded, but this is not the place to deal with that point.

Parachutes are spoken of, but by many flyers are not thought particularly desirable. We know that at present they require a height of some 500 ft. to open out and afford the safety which they appear to offer,* and it is usually below these levels that the flyer becomes convinced he is to be exposed to some risks, say, by the conditions of the ground together with the stopping of his engine which causes him to alight. One would have to be very seriously out of touch with those who fly daily and really know their job, if one continued in the impression that numbers of accidents are the inevitable concomitant of aerial travel, and it is sufficient to say that any such opinion may be dismissed as one which has arisen from the peculiar conditions of press publicity in war and the exclusively high pressure and high performance conditions of the development of aeronautics up to to-day. The lack of contact of the public with the serious and successful work which has been achieved has already been mentioned.

(To be continued.)

* [How about the "Guardian Angel" parachute?—Ed.]

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

General Headquarters, November 21st.
"On the 20th inst. our aeroplanes attempted to work throughout the day in conjunction with our operations between St. Quentin and the River Scarpe.

Low clouds and mist and a strong westerly wind, with drizzle and occasional rain throughout the day, made it necessary for our pilots to fly at 50 ft. from the ground. Even at that height they were at times quickly lost in the mist. Continual attempts were made to maintain contact with our advancing troops, but this was rendered almost impossible by the weather conditions. Many bombs were dropped on the enemy's batteries, lorries, aerodromes, transport and railways. Batteries and small groups of infantry were attacked with machine-gun fire. Valuable information was gained, despite the very difficult conditions. Only five hostile machines were seen all day on the battle front. Eleven of our machines are missing, their loss being due to the mist and the exceptionally low height at which they were compelled to fly."

General Headquarters, November 22nd.

"Further details received show that the attacks made on the 20th inst. on the enemy's infantry and transport by our low-flying pilots, including pilots from the Australian Squadrons, were most successful. On the 21st inst. the weather was even more unsuitable for flying than on the previous day, but a number of successful reconnaissances of the enemy's lines of communication were carried out, and every endeavour was made to keep in touch with our infantry. No enemy aeroplanes were encountered, and none of ours are missing."

General Headquarters, November 23rd.

"On the 22nd inst. the bad weather continued, preventing all flying except at a very low height. Our aeroplanes were very active in attacking hostile troops and transport on roads in the neighbourhood of Cambrai with bombs and machine-gun fire. A number of fights took place with the enemy's low-flying machines, three of which were brought down, while two others were driven down out of control. One hostile balloon also was brought down in flames. Five of our aeroplanes are missing."

War Office, November 23rd.

"Salonica.—Bombing raids have been carried out against Tuscuh (west of Demirhissar) Ernekeul (south-west of Demirhissar), and Veznik (east of Seres). The Royal Naval Air Service shot down a hostile aeroplane, which crashed behind the enemy's lines. Another machine which attempted to attack one of our balloons was brought down behind our lines, the pilot being killed."

Admiralty, November 24th.

"On November 23rd, in the course of fighter patrols by the Royal Naval Air Service, two enemy aircraft were probably destroyed and one driven down completely out of control. On November 20th, also, one enemy machine was destroyed. All our machines have returned safely."

General Headquarters, November 24th.

"On the 23rd inst. our aeroplanes co-operated with our infantry in their attacks, flying up and down the lines of our advancing troops at a low level, and helping with machine-gun fire to disperse the enemy's infantry. Hostile reinforcements and transports on the road were also attacked, and many bombs were dropped behind the battle front on important railway junctions at which rolling stock was collected and detaining in progress. Australian squadrons again took part in this work, which was carried out continuously throughout the day, although the weather at times made flying almost impossible. The enemy's aeroplanes showed more activity in attacking our bombing and low-flying machines. In air-fighting six hostile machines were brought down. Nine of our aeroplanes are missing, two of which were seen to collide over the enemy's lines."

General Headquarters, November 25th.

"On the 24th inst. the weather was bad, but several reconnaissances were carried out by our aeroplanes. In the battle area bombs were dropped on the enemy, and machine-gun fire was opened against his troops. In the afternoon the violence of the gale made it almost impossible for machines to leave the ground. One of our aeroplanes has not returned."

General Headquarters, November 27th.

"On the 26th inst. the weather was slightly better for flying, but low clouds and a strong wind again hindered work in the air. Some successful artillery work was done by our aeroplanes, and many photographs were taken. Enemy troops, batteries, and transport were constantly attacked by our low-flying machines. During the day bombs were dropped on the crossings over the

River Sensée and on railheads near Cambrai and north of Douai. At night Douai station was attacked, and bombs were also dropped at Somain station and sidings. Over 3 tons of bombs were dropped in all. A few fights took place, in which one hostile machine was brought down and four were driven down out of control. Another hostile machine was shot down by fire from the ground. None of our aeroplanes are missing."

General Headquarters, November 28th.

"On the 27th inst., although there was a very high wind, with rain, most of the day a few important reconnaissances were carried out successfully by our aeroplanes. A little artillery work was done also, and the enemy's troops in their trenches were engaged with machine-gun fire from the air. During the night, in boisterous weather, over a ton of bombs were dropped on Menin railway station. One of our machines is missing."

General Headquarters, November 29th.

"On the 28th inst. there was a slight improvement in the weather, the visibility at times being good, but a very strong west wind and clouds interfered with the co-operation of our aeroplanes with the artillery as well as with reconnaissance work. A number of photographs were taken, and over 130 bombs were dropped during the day on Courtrai, Roulers, Menin, and Thourout railway stations, and on other targets in the Ypres battle area. At night, in spite of the strong wind and clouds, 17 heavy bombs were dropped on Roulers railway station, and many rounds were fired from machine guns into the enemy's huts in the neighbourhood. One hostile machine was driven down out of control. Three of our aeroplanes are missing."

General Headquarters, November 30th.

"There was a distinct improvement in the weather, and a full day's flying was possible. Work with the artillery was successfully carried out by our aeroplanes, many photographs were taken, and several thousand rounds were fired into the enemy's infantry from low heights. During the day 180 bombs were dropped on a large ammunition dump north of Cambrai, on Roulers railway station, and on hostile billets in the battle area. Enemy aircraft were very active, attempting to interfere with our artillery and photographic machines. In air fighting, five hostile machines were brought down and two were driven down out of control. Another hostile machine was shot down by machine gun fire from the ground. Three of our aeroplanes are missing."

War Office, November 30th.

"Palestine.—In an air encounter five hostile aeroplanes attacked three of our machines; one Turkish machine was driven down out of control and one damaged."

General Headquarters, December 1st.

"On November 30th, clouds were at a height of 2,000 ft. all day, but our aeroplanes were out continuously co-operating with the other arms in the counter-attacks against the enemy south-west of Cambrai. Our artillery machines, in addition to registering our guns, located and reported over 200 hostile batteries. The bombing machines concentrated their efforts on troops and transport collected in the villages in rear of the battle, dropping over 200 bombs. The enemy's troops and transport moving on roads behind the fighting also offered good targets to our scout pilots, who fired over 15,000 rounds at them from their machine guns. The fighting in the air was very severe, and resulted greatly in our favour. Fifteen hostile machines were brought down and three others were driven down out of control. Seven of our machines are missing."

General Headquarters, December 2nd.

"On the 1st inst., in spite of the clouds and mist, which rendered flying almost impossible, several reconnaissances of the areas in rear of the battlefronts were carried out successfully by our aeroplanes. Over 60 bombs were dropped, and many rounds were fired with machine guns from the air at columns of the enemy's infantry on the road. During the night bombs were dropped on Roulers station. Only a few combats took place, in which two hostile machines were brought down. Another hostile machine was compelled to make a forced landing and struck the ground in a shell crater. One of our machines is missing."

War Office, December 2nd.

"Salonica.—Bombing raids were successfully carried out on Tul Keram, an important junction on the Turkish line of communications. About a ton of bombs was dropped on the camp, railway, anti-aircraft batteries, and aerodrome."

General Headquarters, December 3rd.

"On the 2nd instant, in spite of a very strong north-west wind, our aero-