

AIRCRAFT CONSTITUTE WAR'S FOURTH ARM ON LAND AND SEA

"Eyes of the Army" and
Navy Too Proved Their
Worth at Beginning of War

HOW PLANES OPERATE

Science of Observation Is Reduced to
Fine Point and Maneuverings in
Sky Are Skillfully Conducted.

The superior use of aircraft in warfare is set forth in interesting fashion by Laurence Le Page in an article in the *United States Magazine*, appearing in the *United States Magazine* for March 21. This article is of particular interest since the author, Mr. Le Page, who now is an attorney in New York, was at Dragon City, being a member of the staff of the *United States Magazine*, during the war.

Those venerable old campaigners, infantry, cavalry, and artillery, have held for centuries the highest pinnacles of achievement in warfare. The three arms have stood united, exclusive, unchallenged and unafraid. Today enters a fourth arm whose coming prostrates those old soldiers and whose future dazzles the imagination of the world.

So valuable are the "eyes of the army" that supremacy of the air is now a first requisite to successful offense or defense. This vital discovery was made by the allies in the first week of the war, when their airplane scouts brought in the information that not thousands but millions of German troops were pouring through Luxembourg into France. Had this intelligence been wanting, it is likely that the decisive battle of this war would have been fought then, and the overwhelming German force would have coupled France and advanced upon England within the month.

From that hour began the tremendous struggle for mastery of the air. Germany had the advantage. Before the war began, she had produced an airplane engine that had won world records in duration and altitude flights. With customary foresight, she had had her best engineers and had trained more pilots than other nations. She had established aerial routes across the land, had experimented with night landing grounds, with airplane guns, bombs, and bomb-carriers.

Flights of Lieut. Immelmann.
The writer witnessed the daily sortie over Paris of the celebrated German pilot Lieut. Immelmann early in the month of September, 1914. German troops were then but 25 miles from Paris. French airplanes were all in service at the front, and the city was left undefended from air attack.

Regularly at 5 o'clock in the afternoon Lieut. Immelmann appeared circling over Paris. It was a daily sight, and it afforded excitement, if not amusement, to the citizens below. So inadequate were the defenses of Paris at that time that the fearless aviator seemed to fly above rifle range. The whirr of his propeller could be plainly heard and the airplane could be discerned several miles away.

Terror-stricken people ran for the nearest doorway and called out in agony only after the noise of exploding bombs announced that he had passed. Then, with furious gestures, they would gaze up into the sky, and the center of the streets after their disappearing enemy.

Among his daily shower of small bombs there invariably appeared a large one, dropped with a bag of sand, addressed to the people of Paris, which was regularly published in the papers the following morning, couched in this style:

"People of Paris! Surrender! The Germans are at your gates! Tomorrow will be ours!"

"LIEUTENANT IMMELMANN, "Air Scout."

Paris today is efficiently protected from air raids by either airplanes or Zeppelins. Besides the anti-aircraft land defenses, including machine guns, observation towers, listening towers and searchlights encircling the city, the airplane patrol above Paris is continued day and night, not by one but by three airplanes at three different altitudes, approximately at 1000 feet, 6000 feet, and 10,000 feet elevation. It is significant that no air raids have occurred over Paris since those at the beginning of the war.

Air raids, or "stunts," as they are called in Europe, and the home defense against such attacks are of secondary importance from the military point of view. Today at the front the smallest movements of the enemy are watched by the air scouts; lines of communication far in the rear are photographed, hidden artillery discovered, mobilization of cavalry bombed and stampeded, and threatened attacks of infantrymen foreseen.

Each morning before daylight the air squadrons assemble and given their instructions. Most vital of all is the return of the trained observers to the commanding officer with their reports. Consequently all preparations are made to this end. First there is dispatched a fast-climbing plane. He attains a height of 18,000 or 20,000 feet before the others leave the ground. He surveys the front and watches for anti-aircraft movements.

Three of the airplanes carry pilot and observer. The others are "single-seaters," and, being lighter, are faster and quicker to maneuver. Their duty is to advance and receive the attack of enemy airplanes, to cover the retreat of their own observers, and, if opportunity offers, to penetrate the crossing of their front by enemy scouts. A minute study of the enemy front must be made. The squadron has to inspect an area of 50 miles front and 25 miles deep. The front and 25 miles deep.

Fire thousand feet above ground

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INCREASE IS AUTHORIZED

Experience of European War Shows
Activities of Submarines, Rendered
Battle Cruisers Unimportant.

By Thomas G. Frothingham.
In the Current History Magazine published by
the New York Times.

The United States navy has been

expanding its fleet of battle ships.

From 18 to 22 years is the

age that combines the proper

proportions of daring and caution

required for a successful flier. After a

certain number of months' training

and a certain quantity of narrow escapes

the average pilot gets "used up" and

is retired at his own suggestion. He

becomes a staff officer, a trainer

in the flying schools, or an observer,

according to the necessity of circum-

stances.

To return to our early morning

expedition, which we left climbing up

to the required altitude in squadron

formation. The three two-seaters, be-

ing more heavily loaded, reach 8000

feet at about the same time the lighter

machines have attained 10,000 feet.

Here they separate, each di-

recting his course to the allotted seg-

ment of the front—one to the left, one

to the right, and one takes the center.

The three observers sit in the front

ends of the machines, a speaking-tube

under the helmet connecting each with

his pilot in the seat immediately be-

hind him. A map of yesterday's flight

is spread smoothly on a board above

his knees. Any alteration of the land-

scape is immediately noted and cor-

rected on the map.

Observations Taken.

Scrutiny is first centered on the nar-

row strip of ground separating the

trenches. Twenty yards in some places,

it widens out to several hundred yards

in others. There have been shot into

the air in this "No Man's Land."

Occasional stumps remain which have

been spared by both sides because they

are not worth wasting shells upon.

One of these stumps seems to have

something new about it. The airplane

circles around it several times. Field

glasses disclose an aperture in the rear

of the stump. Here are two wires run-

ning from the stump back to the en-

emy's trench!

The Germans have crept over one

of these nights, silently dug up the

old landmine and have substituted

a hollow telephone booth exactly sim-

ilar to the familiar old stump. Prob-

ably information was telephoned back

all day yesterday by the watchful spy

within. The airplane observer jots

down note No. 1.

Farther on a new trench is discov-

ered and traced. Here a group of

troops has been cut down during the

night. Over their heads a fresh dug

earth on a hillside, denoting a ma-

chine-gun emplacement. To the right

green smoke is exploding and

the map. The observer directs the

pilot's attention to this spot, and in a

moment they are volplaning down

toward it. A nearer view dis-

covers an unusual cluster of green

branches standing in an unnatural

position, and a dim wagon rut leads

directly to this spot from the rear. The

observer presses a button on the dash-

board twice, and takes two pho-

graphs of the hill from the camera at-

tached to the bottom of the fuselage.

A signal to bank off to the left and

ascend is given in the form of a

sharp whistle. The airplane rises

21 feet arm, and while the pilot's

enemy are bursting on all sides the

officer tranquilly jots down the site of

the battery of artillery.

A Battle Royal.

From far up in the clouds an enemy

scout has been trailing him. Carefully

maneuvering for position, the Fokker

suddenly shoots down with tremendous

velocity. Within 50 yards of his

prey, he opens fire, pouring in a stream

of lead until he passes underneath and

spirals away to the rear.

Already our defenders are upon him,

however, and he drops down over his

own lines within the danger zone.

Above his own airframe he sees a

bag of comrades taking the air—six,

eight, twelve, in all. Behind him and

above him are the enemy—in a su-

perior position. He descends to within

a thousand feet and skims along

blithely below his squadron.

And now comes a battle royal. The

observers leave the field and speed

homeward with their reports. The

combatants count their forces and

those of the enemy.

Both sides are jockeying for the up-

per berth in the air. For the upper

berth gives many advantages. They

can shoot down upon their adversaries,

while they themselves are out of range

of their opponents' guns; they have a

wider view; they are safely above

side-view danger; and, most important

of all, they can use the additional

height to accumulate added speed when

a sudden dive is essential.

Such are the tactics and strategy

of the air. By its use small forces

often overcome double their numbers.

Darting, firing, banking, circling,

climbing, and darting again and again,

the battle in the air continues until

the combatants are shot down or

crippled and limp away to safety.

The Airplane at Sea.

The foregoing describes but one of

the functions of this new arm of mili-

tary science. Equally valuable, per-

haps, is the airplane's use in recon-

naissance. From its vantage height the

pilot can discover the lurking submarine

at any depth, and he can explode the

small submerged bombs strewn in the

ships' path. Not only can the air

scout locate the submarine by her dark

mass under water and by the longi-

tudinal ripple following her wake on

the surface, but he can drop down on

any level over the victim, or loose

one of his high explosive bombs, and

his career is ended. No dreadnaught

of the first line can accomplish such a

feat.

As an artillery fire "spotter" the air-

plane service has produced wonderful

efficiency. Circling over the enemy,

and quicker to maneuver, their duty

is to advance and receive the attack

of enemy airplanes, to cover the re-

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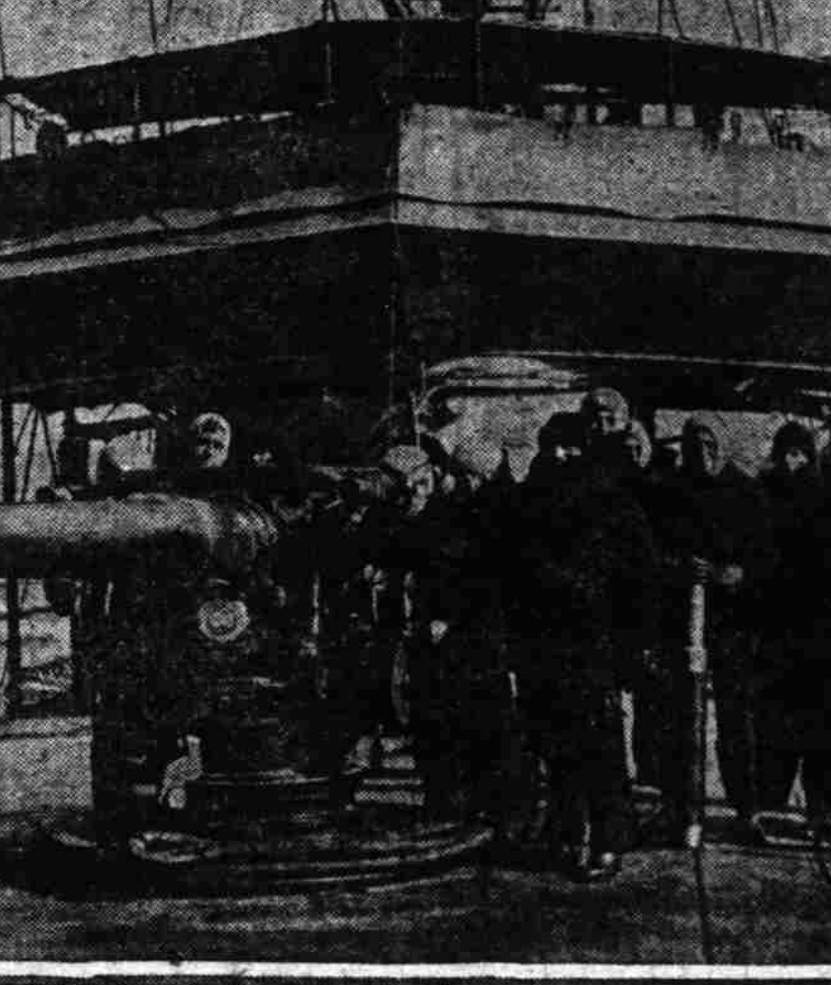
carlines transferring all over city.

Take Municipal car line direct to door.

Motor bus meets trains and streetcars.

U. S. DESTROYER AT SEA

Here is part of the crew of a United States torpedo boat destroyer at sea, wearing the new knitted cap which has just been issued for use in wintry weather in northern waters.



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the leader in the development of the "all-big-gun" battleship of today. called the "dreadnaught." From the first single-turret ship, the Monitor, to the two-turret monitors, then to the U. S. S. *Roonoke*—these were the three great strides in such ships designed by the United States navy in the period of foreign naval in-

crease, from 1906 to 1911. Through all these years our navy was restricted to the two-battleships-a-year program.

In the recognized first essentials of sea power the strength of the United States navy in vessels built and building is given as follows:

Dreadnaughts..... 17
Pre-dreadnaught battleships..... 21
The United States navy has no battle cruisers.

Gun Strength Emphasized.
In addition to the dreadnaught battleships of the first line it should be understood that our pre-dreadnaught battleships are better than those of other navies. The reason for this is that the U. S. S. *Roonoke*—these were the three great strides in such ships designed by the United States navy in the period of foreign naval in-

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