

How Uncle Sam Is Going to Whip the Germans in the Air



WITHIN ten months the United States will have 25,000 battle planes in service in Europe. The planes will be equipped with American motors of 250-horsepower, capable of driving them at a maximum speed of 100 miles an hour. Furthermore, these motors will be constructed principally of aluminum and will be of less weight per horsepower than any airplane motor heretofore built. Thus the plans of the aircraft board of the council of national defense, adopted by the war department and financed by congress, are in a fair way to be speedily consummated.

Not long ago, the Washington correspondent of the Kansas City Star, who signs himself "H. J. H.," went to Dayton, O., to interview one of the inventors of the airplane about America's great aerial program, planned to "blitz" the German army. Portions of the reporter's story are printed below. It gives some details of what Uncle Sam is doing in the production of an army of man-birds.

A young man jumped and caught the propeller blade of the biplane and gave it a pull. It turned half way around and stopped. He repeated the performance two or three times. Suddenly there was a roar and the propeller became a blur.

It was a hot morning in Dayton and the breeze from the revolving propeller fan looked refreshing. The plane wasn't going up. It was blocked on the ground and they were merely trying out the engine. I stepped forward into the breeze.

"The power isn't turned on yet," said Orville Wright, at my side. "It won't be so pleasant here when it is."

The roar turned into thunder. The ground seemed to be blowing away in a cloud of dust. We grabbed for our hats and retreated.

"Just one of the training planes," Mr. Wright explained. "Only a hundred horsepower."

Of no importance on a battle line, perhaps. But one of the gathering squadrons that even now are beginning to cast a faint black shadow across the German horizon.

For this field, with its four square miles, is to be one of the great centers of the aircraft work which is rolled on to turn the scale of battle on the western front. And there at one end of the field, which has been named the Wilbur Wright field, in honor of one of the two brothers who invented the airplane, is the little, weather-beaten shed which was used by the brothers as the hangar for their original plane, only thirteen years ago.

It is just a plain shed, and beyond it stretches the imposing line of hangars off into the distance—pretty nearly two miles of buildings, calculated to house the 240 planes that are to be assembled in the field eight miles east of Dayton. And, yet, it is fittingly preserved as a memorial to the days when air flight was being slowly and painstakingly developed by the daring scientific genius of the Wright brothers.

In Washington I had talked with the men whose imagination had conceived the great \$40-million-dollar aircraft program, and who are now in charge of its execution. They are engineers and executives, not practical aircraft men. They know America's industrial and engineering resources. Their enthusiasm is contagious.

I went to Dayton to talk with the world's foremost aeronautical engineer and to learn some of the difficulties that must be overcome before we can put out the eyes of the Germans in the air, organize our surprise attacks, destroy the enemy communications and blow up the Krupp works at Essen.

Orville Wright is a man of 46, of medium size. Modest and unassuming, he gives the impression of independence in thought and action. He is deliberative in manner, well-organized, perfectly controlled, clear thinking.

"We can do the job," he said, as we drove to the aviation field. "And it's worth doing. It offers us the one big hope of wending up this war next year, instead of permitting it to drag along for years to come. All our information is that Germany and the allies are keeping about an equal number of planes on the battle front. We can't be sure, but their resources in building seem about equal. Each side probably has about 3,500 planes in active service on the western front, aside from their reserves and training planes.

"If we were in a position to put several thousand planes, manned by trained aviators, on the western front today, we might bring the war to an early end."

"By using the planes to extend the range of artillery, and bombing the enemy lines of communication and his munition plants and naval bases?"

"Possibly, to some extent. I am not particularly sanguine over bombing, and I do not believe other flyers are. The men who have never flown are the most enthusiastic over the possibilities of dropping bombs. The anti-aircraft guns keep the flyers at a height of above two miles. Anyone who has ever flown at that height knows the tremendous difficulty of hitting a target. There is nothing for him to gauge his speed by. The bomb drops through air currents moving in different directions which deflect it from its course.

"The Krupp works at Essen offer a large enough target so that a squadron of airplanes might be able to put them out of business. Other plants might be successfully attacked. Under favorable conditions other bombing operations might be carried out successfully. But my idea of the effectiveness of supremacy in the air is along different lines."

"Which ones?"

"In other wars the element of surprise has determined the outcome when the forces were of approximately equal strength. The general who could mass his men so as to fall on a smaller force of the enemy won the battle. The airplane has stopped that. Now a commander on the western front knows exactly what his opponent is doing. There is no chance to mass men for surprise

attacks. Consequently, we have the present deadlock in France.

"What we must do is to drive every enemy airplane out of the air. By doing this we not only prevent the Germans from knowing what we are doing, but we also cripple their artillery, for artillery fire has been directed by the airplanes. Then we can plan surprise attacks and can drive the enemy back. In modern warfare the side without airplanes is at a hopeless disadvantage. When we gain complete command of the air, when we have literally smothered the enemy airplanes, we break the deadlock and win the war.

"The airplane has produced the deadlock. The airplane can end it."

"How soon can we hope to do this?"

"We have the best men in the country at work on the problem. But people must not be impatient if at first our progress seems slow. Only men who have tried it know the difficulties of building a high-power airplane motor."

In the matter of personnel, it may be noted, our aircraft promoters believe we have a great superiority over the rest of the world, for this reason: It takes an exceptional sort of man to make a good flyer. He must be quick-witted and have the steadiest sort of nerves. Otherwise, he comes to grief and smashes an expensive machine. Men of this type volunteered extensively in Britain and Canada early in the war. They constituted the armies that went into the battle line without adequate artillery protection and so were largely destroyed. The same forces operated to destroy the strong and vigorous young men of France and Germany who would have made good aviators. So today America is the greatest reservoir in the world of the right sort of material for the personnel of the aircraft service. While the other countries are having difficulty in getting proper men for flyers—England has invited us to send men to her aviation schools because she cannot keep them filled—our problem is merely to train them and provide them with equipment.

I asked Mr. Wright what speed plane we might expect to develop.

"It is a complicated problem, the limit of useful speed," he replied. "A good many reckless statements are made on the subject by persons with vivid imaginations. It is safe to say there are machines on the western front that can make 130 miles an hour. So far as speed is concerned there are no inherent impossibilities in developing a plane that might make as high as two hundred miles an hour. The difficulty is in the landing."

"A machine's landing speed is about half its maximum speed. That is, if a plane is designed to make a speed of fifty miles an hour its wings will not sustain it in the air if it travels slower than twenty-five miles. It must be moving at a speed of at least twenty-five miles an hour to make a successful landing. So a plane with a speed of 130 miles an hour cannot land at a speed of much less than sixty-five miles."

From the field we drove to the laboratory. It is simply a development of the crude shop in which he and his brother together worked out the problem of air flight. The airplane was no lucky find. It was not developed by rule of thumb. Wilbur and Orville Wright, sons of a Dayton United Brethren bishop, after getting through high school, set up a bicycle repair shop. They had a natural taste for mechanics and for sports. Twenty-one years ago they became interested in the experiments of Lilienthal, the German experimenter, in a glider. His death attracted their attention to his work. For two years they worked on data and "laws" that other investigators had produced, only to find that the work so far done was worthless.

So in their own shop in Dayton they devised a "wind tunnel"—a chute through which an air blast was driven by an electric fan, and set to work measuring the resistances of curved surfaces by a wonderfully ingenious method of their own devising. By a long series of exact measurements and elaborate mathematical calculations involving sines and cosines and such, they worked out the problem of the curvature of the planes and of the propellers.

The problems of balance were enormously intricate. But these, too, they solved. They were pioneers. They had to discover the difficulties and then find the way out. So they had to devise the methods. It took unlimited patience, resourcefulness and hard thinking to win success.

Both the brothers were primarily scientific men. They were impatient to devote themselves to the scientific side of furthering the development of aeronautics.

But they necessarily had to finance companies, fight patent suits and conduct the business of establishing a new industry. Wilbur Wright died five years ago, and in 1915 Orville Wright was able to dispose of his business interests and devote himself to the scientific work where his heart has always been.

In his well-equipped laboratory in Dayton he is now conducting two lines of work which will be of immediate value in the great aircraft program planned by the government. One is the measurement of the air resistance of curved surfaces; the other the development of a stabilizer to make the control of the airplane more nearly automatic.

Other aeronautical laboratories the world over have made these measurements of air resistance, but the figures have sometimes been as far as 100 or 200 per cent apart. The results obtained by the Wright method fourteen years ago proved substantially accurate, and now Orville Wright is taking up the work where he left it off.

"I hope to provide the proper measurements for a large variety of planes," he said, "so that in building different sorts we shall not have to depend on cut and try."

The stabilizer is an intricate device by which the action of a revolving fan holds the airplane steady.

"We can set the stabilizer," the inventor explained, "in such a way, for instance, as to keep the plane moving in a circle, leaving the pilot free to use his hands for making photographs."

The stabilizer has been tried out successfully, but needs further refinements so as to do away with the need of daily adjustments before Mr. Wright is willing to put it into service. He is

on intimate terms with members of the government's aircraft production board, and all his results are at the disposal of the government for the prosecution of the war.

He has great expectations of the development of aircraft in practical use after the war, when thousands of trained flyers shall return to civil life, and when we shall have enormous factory capacity for turning out the best machines in the world. But that, again, is another story.

The Joy and Chivalry of Air Fighting.

Flying has become as much a matter of routine in war as marching on land or steaming on the sea, and men are ordered to fly, at fixed hours and for stated periods, as though flying were a natural act, and not the organized miracle that it really is. A correspondent of the London Times writes interestingly about it, saying:

Out in France the last chivalries, the last beauties of battle have taken refuge in the air. From the labors, butcheries, miseries, horrors and asphalt desolation of the earth, the fighting romance of war has taken wings and climbed sunward. There alone combat is individual, visual, decisive. There alone has the combatant to rely solely on himself. There alone is the battle decided not through veils of distance, between impersonal and unknown hosts, but wing to wing and face to face. There alone are the rare courtesies of warfare still possible; it was a British squadron that suggested, and a British aviator who executed, the dropping of a funeral wreath over the German lines as a tribute to the air-warrior Immelmann. And there alone can individual skill and courage have their swift reward. For one flash, between a dip and a climb of his swallow flight, the fighting aviator may catch the glint of his opponent's eye, and, if the momentary burst of fire be truly directed, see him crumple up in his seat and the nose of his machine dip and begin its fatal spinning dive, while the victor soars up again to safety and solitude.

And what a solitude is his! From the moment in the airplane when the mechanic has given his last heave, and the last curt verbal exchange, "Contact, sir—Contact," has been given, and the engine sets up its mighty droning song, the aviator is alone, submerged in that roaring music, deaf and dumb. For perhaps a minute he sits there testing his engine, fingering his levers, assuring himself that all is well; and then, as the drone sinks to a hum, he makes his last communication—the characteristic quick outward wave of the hands and arms. The checks are pulled away, the hum rises to a drone, breaks into a roar, and he is off, bumping over the uneven earth until his speed gives his wings their life, the rough ground is shed away from beneath his feet, and he rises into the sudden peace of the air.

The "peace of the air" may seem like a contradiction in terms in war time; but it is the supreme sensation of fair-weather flying, apart from flying and fighting. Once you have got your height, whether it be a thousand or ten thousand feet, you seem to be absolutely at rest—at rest in sunshine and a strong gale. The dim carpet or map beneath you hardly moves; and although the trembling fingers of the little clocks and dials before you witness to the fluidity of your element and the tenderness of your hold on it, yet the only things that do not seem to move are the wings and stays of your machine which surround you, a rigid cage from which you look forth upon the slow-turning earth or the rushing clouds. It is not until the engine has been shut off, and you begin to plane in mighty circles toward the earth again, that you get, in that delicious rush down the hill of air, any sensation of speed; and not until, a moment before landing, you skim over the earth at 80 miles an hour, that you realize with what pace you have been rushing through the airy vacancy.

But these are the sensations of mere joy-riding. Ten or twenty minutes may take the fighting pilot to his station in the air over the enemy's lines. How puny the absurdity of the greatest war of all time can appear is only known to the aviator as he sits in the breeze and the sun, high above it all; the danger to him is not down there, although to ascend into his remote sphere he has to pass through the zone of anti-aircraft fire; his own particular enemy is the German fighting machine, which may come down to hurry or destroy the observer, and which he must himself attack the moment it makes its appearance. Between these two he watchfully patrols, and all this time, although a battle may be raging beneath him, he hears nothing but the strong, rasping hum of his engine. He flies and fights alone.

RAVAGING A WASTED COUNTRY.

The darling of the American girl of a century ago and the Frenchman's traditional habit of yielding to the will of "the ladies" form the fabric of an amusing bit of family record that Mr. William Allen Butler gives in "A Retrospect of Forty Years."

My aunt, Mary Allen, having spent some time in France, was proficient in her knowledge of the French language and manners, he says. On a visit that she paid to Lafayette, who was always exceedingly courteous to Americans, she told him that she had a great favor to ask. He indicated that he would grant it, and she begged him for a lock of his hair.

"Madam," said the general, "I wear a wig!" But to show his willingness to meet her wishes, he proposed to remove the wig and let her appropriate any remaining natural hairs that she could find.

She accepted his offer and proved herself to be a good searcher by getting a few clippings, which she brought home, as a great treasure, and divided honorably with my mother. Each sister carefully preserved her quota of hairs in a ring

HOLD WAR MEETING

STATE AND COUNTY COUNCILS CONFER AT LINCOLN.

PLEDGE SUPPORT TO NATION

Request Haller to Resign.—Oppose German Teaching and Discuss Numerous Vital Questions.

Lincoln, Sept. 11.—One hundred representatives of county councils and officers of the State Council of Defense met here during fair week and pledged their utmost support of Nebraska and her citizens to their country in the great world war.

Speeches full of enthusiasm, loyalty and patriotism by the chairmen of the county councils, who know conditions in their territory, and state officials who know conditions in state and national affairs, constantly brought cheers and appreciation from the delegates assembled at the meeting. The sentiment of the meeting was that Nebraska's resources should be placed at the disposal of the United States government during the war.

The meetings, although marked by sharp discussion along some lines, revealed that all the members were working toward the same ends and should concentrate on one efficient manner to attain the ultimate result. Every county representative pledged the support and loyalty of his people to the state council in its work. All agreed that only through co-operation could the results desired be obtained and it was felt that the meeting will result in a more general understanding between the county and state councils and work for the benefit of both concerned.

A resolution demanding the resignation of Frank L. Haller, president of the board of regents of the University of Nebraska, was passed by the conference amid loud approval of those present. The conference went a step further. It asked the board of regents to depose Mr. Haller, if he refuses to resign. The conference commended Richard L. Metcalfe for his courageous loyalty in unmasking Mr. Haller's alleged duplicity. The members expressed a belief that this will bring Mr. Haller to take some definite step one way or the other.

German text books will be strictly tabooed, if the county councils have their way. They oppose the teaching of any foreign language in grade schools, or the teaching of the German language in any public school. The county men feel that in passing this resolution they are speaking the sentiments of a majority of the people of the state. The fact that many schools have abolished the teaching of German may be an indication of the sentiment of these people in Nebraska.

The German press also came in for a round of scoring by the conference. Claiming that the German language papers are using insidious methods against the welfare of the country, the county calls for the regulation of suppression of the German press and demands that the United States congress pass laws to that effect.

The conference called upon all federal officers to rigidly prosecute all violations of existing federal laws relating to treason. If existing laws do not denounce as criminal statements derogatory to the country and its purpose in time of war the council calls upon the congress of the United States to pass laws to that end.

Vice Chairman Copland of the state council of defense spoke in the interest of the seed wheat campaign which is being pushed by the state council. The county councils have been asked to operate so as to make the campaign effective. The county representatives in session showed their interest and a willingness to cooperate with the seed wheat campaign by passing a resolution approving the work of the state council and the appointment of G. W. Wattles, national food administrator for Nebraska, and C. T. Neal, the government wheat buyer, for the territory tributary to the Omaha market.

The following resolution urging the united efforts of the county councils and citizens of Nebraska was offered by the committee and passed by the conference:

"After months of preparation the armed forces of the United States are about to take their place upon the battle line. Our young men will soon be in the trenches. It is more than ever necessary that they should know the truth behind them is the undivided and determined spirit of a loyal people to the end that their sacrifices may be lessened, and that the victory for which they fight may be the sooner achieved. We therefore call upon all defense councils of the state to increase their patriotic efforts to the end that every element of strength may be exerted in behalf of a just and righteous cause and also that nowhere within the confines of Nebraska shall there be anything but unquestioned and unyielding loyalty to the cause of justice and of freedom."

Railroads Kill 10,000 in Year. Washington, D. C., Sept. 10.—Ten thousand one persons were killed in railroad accidents during 1916 and 1917,722 were injured, according to figures covering the year, made public by the interstate commerce commission.

Probe German Publications. Washington, Sept. 10.—The government is investigating German language newspapers, socialist publications and literature of pacifist organizations. Prosecutions may follow.

CRISIS OF WOMAN'S LIFE

Change Safely Passed by Taking Lydia E. Pinkham's Vegetable Compound.

Wagoner, Okla.—"I never get tired of praising Lydia E. Pinkham's Vegetable Compound because during Change of Life I was in bed two years and had two operations, but all the doctors and operations did me no good, and I would have been in my grave today had it not been for Lydia E. Pinkham's Vegetable Compound."



Such warning symptoms as sense of suffocation, hot flashes, headaches, backaches, dread of impending evil, timidity, sounds in the ears, palpitation of the heart, sparks before the eyes, irregularities, constipation, variable appetite, weakness and dizziness should be heeded by middle-aged women. Lydia E. Pinkham's Vegetable Compound has carried many women safely through the crisis.

which brought me out of it all right, so I am now well and do all my housework besides working in my garden. Several of my neighbors have got well by taking Lydia E. Pinkham's Vegetable Compound."—Mrs. VIOLA FINICAL, Wagoner, Okla.

SAW HIS ERROR TOO LATE

Misfortune Convinced Tommy He Had Used Salt Water on Wrong Portion of His Anatomy.

Tommy Tonkins was keen on baseball and particularly ambitious to make his mark as a catcher. Any hint, however small, was welcomed if it helped on his advance in this department of the game. When he began to have trouble with his hands, and somebody suggested soaking them in salt water to harden the skin, he quickly followed the advice. Alas! a few days later Tommy had a misfortune. A hit at the bottom of the garden sent the ball crashing through a neighbor's sitting room window. It was the third Tommy had broken since the season began.

Mrs. Tonkins nearly went in anger when Tommy broke the news.

"Your father'll skin yer when he comes home tonight!" she said.

Poor Tommy went outside trembling to reflect. His thoughts traveled to the punitive strap hanging in the kitchen and he eyed his hands ruefully.

"Ah!" he muttered, with a sigh. "I make a big mistake. I ought to have sat in that salt and water."

Knew What a Sapling Was.

An American ambulance driver lately returned from the French front tells of visiting an instruction camp in England before sailing for the United States. A gunner, he said, was learning to shoot at targets, and the officer in charge asked the novice:

"You see that sapling on the hill-side?"

"No, sir," replied the gunner after a careful look. "I don't see no sapling."

"What?" yelled the officer. "You see no sapling? Why, there's one right in front of you."

After another squint the soldier reported as before.

"Look here," said the officer, "do you know what a sapling is?"

"Oh, yes, sir," answered the gunner. "A young pig."—New York Sun.

In Same Fix as Our Enemy Aliens.

A traveler at a small hotel in a backward seacoast town of New England complained to the clerk of the inn concerning the food, the beds, the rooms—in fact, there was nothing in the house that pleased him. When he finished, the old, long-bearded proprietor of the place drawled:

"Young man, did anyone ask you to come here?"

"No, I don't know that they did."

"Wal, did anyone ask you to stay here after you came?"

"No, I don't know that they did."

"Wal, they wun't."—Manufacturers' Record.

Nothing jolts a woman's sweet, trusting disposition like marriage.

He is a lucky man who can stretch the truth without breaking it.



The wholesome nutrition of wheat and barley in most appetizing form