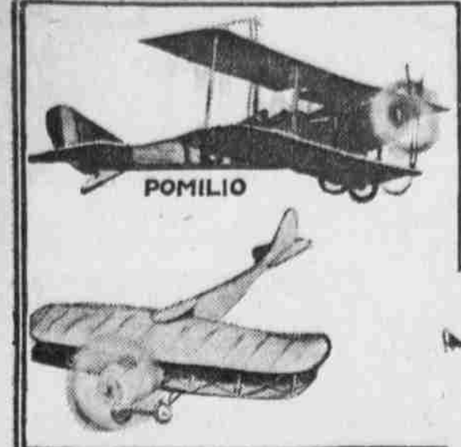
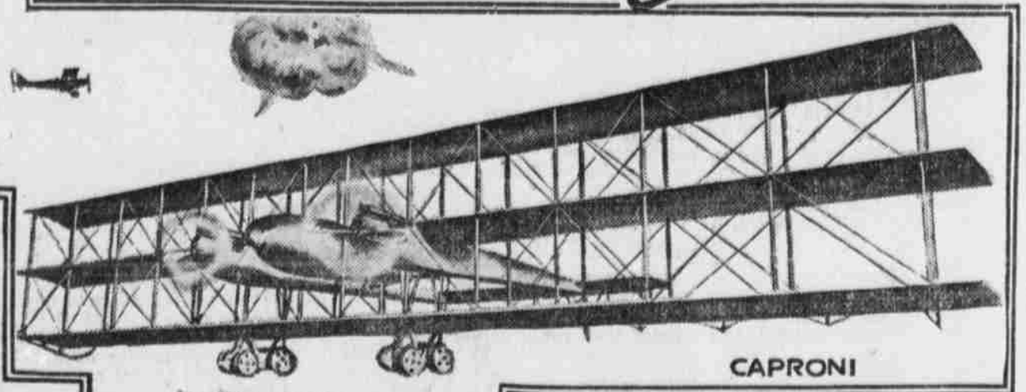
NEW AIRPLANES DEVELOPED by WAR





THEY were just airplanes two years ago, but the demands of war have stimulated the evolution of aircraft so intensively that in the last few months at least three different species of airplanes have been developed, and these are as distinct from each other as condors, pigeons and swallows.

The monoplane has gone the way of the high-wheeled bicycle; it is seen no more in the air. And instead of just airplanes, we have bombing machines, reconnaissance machines and battleplanes, each a specialized type designed for a specific duty. Then, in a class by themselves, there are the hydroplanes, writes Arthur Benington in the New York World.

Bombing machines are the heavy artillery, the condors, the Percherons, the bulldogs of the air.

Reconnaissance machines are the intelligence service, the carrier pigeons, the hunters, the pointers, of the air.

Battleplanes, which combine the duties of light cavalry and machine-gun squads, are the swallows, the thoroughbreds, the terriers, the wasps, of the air.

"You might as well ask me what kind of horse I consider the finest," replied an Italian aviator when asked for his opinion on the finest airplane. "It all depends upon what service you want your plane for. For dropping bombs on cities there is nothing like our own Caproni; the finest climbers I personally have encountered were German machines; the swiftest flyer up to date is the Italian S. V. A.; and I think the Austrians have the most reliable hydroplanes."

Of course this was merely the aviator's personal opinion, and it is given here not at all because of its value as a judgment on the several makes of machines, but merely to illustrate the diversity of type and the wisdom of not confusing the different types in one's mind.

For a bombing machine the primary requirement is ability to carry a heavy load. Then, in order of importance, come: Medium speed (80 to 100 miles an hour); climbing power (13,000 feet); defensive armament and a radius of action from 60 to 100 miles. Load-carrying power involves strength of construction, great stability, and engines that shall develop tremendous power and yet be as light as possible. Types of the bombing machine are the Italian Caproni, the British Handley-Palmer, and the German Gotha G III and Friederichshafen G. H.

The reconnaissance machine must have room for at least two persons—the pilot and the observer; installation for wireless apparatus and cameras for taking both still and moving pictures; fuel capacity sufficient for three or four hours of flight; fairly high speed—say from 115 to 120 miles an hour—and ability to carry a machine gun with which to defend itself if attacked. The camera installation makes great stability necessary. Types of this machine are the Italian Pomilio S. V. A, and Savoia-Pomilio; the French Voisin, and the German Brandenburg, Albatross C III and Aviatiks C III.

Speed and climbing power are the essentials in a battleplane. The latest types of this sort—the Italian S. V. A. and a new model of Pomilio; the French Nieuport and Spad, and the German Albatross D I and Albatross Bue—can carry only one man, who acts as pilot, observer and gunner. Most of them have only one gun, which is not mounted on a swivel, but is an integral part of the engine itself, for, as it discharges its bullets between the blades of a propeller revolving so rapidly that it cannot be seen, it must be perfectly synchronized with the motor, otherwise a bullet might strike a blade of the propeller. These machines are nothing but flying cannon. They carry no passenger, no cameras, no bombs, nothing except a single operator and the ammunition for the gun.

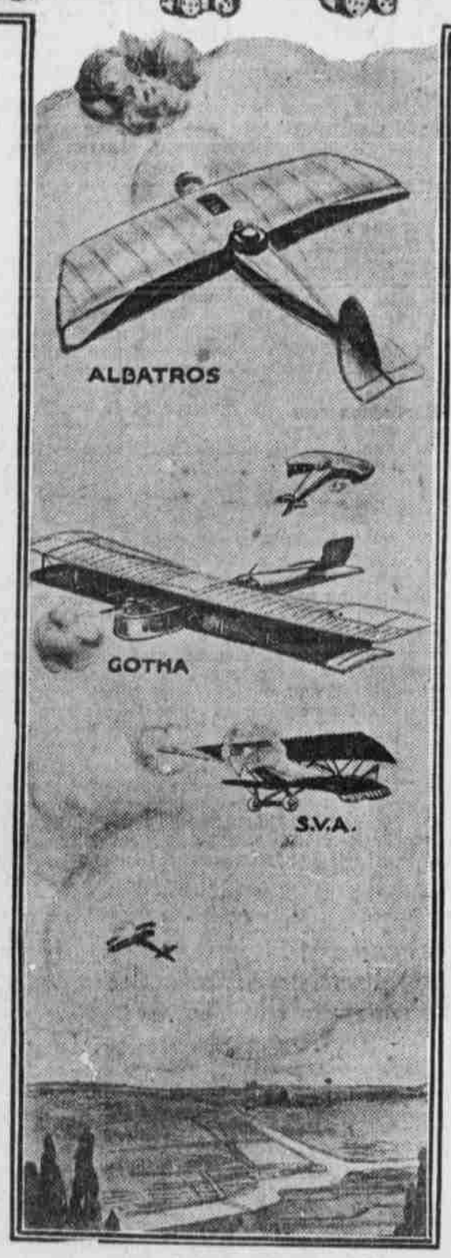
The difference between reconnaissance and battleplanes appear slight when set down in figures, but then every fraction of an inch affects the speed and stability of an airplane.

Some idea of the differences may be obtained from the dimensions, and these can be given only approximately except in one or two cases. It is, of course, impossible to describe our own American planes, so the comparisons that follow are based on foreign machines.

One of the smallest of the battleplanes is a new Pomilio which has not yet been tested in America. American representatives of the Ansaldo company of Genoa, which makes the S. V. A.—another very small one—decline to make its dimensions public at present, but Capt. Alessandro Pomilio, designer of the machines that bear his name, has no objection to it being stated that the Pomilio which flew from Fortress Monroe to Mineola and which soared over New York on Liberty Loan day, has a wing spread of approximately 38 feet. This, however, is a reconnaissance machine. The one that is coming is a battleplane and its wings have a spread of only a fraction over 30 feet. Both these Pomilio machines have exactly the same motor, a 200-horse-power Isetta-Fraschini, but the greater size of the one already here enables it to carry a passenger and cameras, while the smaller one can carry only one man. The reconnaissance Pomilio makes 120 miles an hour; a scout is said to have made on tests in Italy 160 miles an hour.

So far as official tests are known, the S. V. A. holds the record for speed. This is the machine that made the sensational flight from Turin to Rome, 396 miles, in two hours and fifty minutes, averaging 130.8 miles an hour. The French Nieuport machines are unofficially reported to have made as high as 175 miles an hour.

The dimensions of the German Albatross D I are known exactly, having been published by the French military authorities after measurement of captured machines. Its wings have a spread of 29.7 feet; its fuselage is 22.6 feet long; its speed is 124 miles an hour and it can climb to 18,150 feet. It carries two rapid-fire guns, discharging through



the propeller, and 100 cartridges for each gun.

Returning now to the bombing machines, the types best known are the German Gotha, which is virtually a copy of the British Handley-Palmer, and the Italian Caproni. The dimensions of the latter cannot be given, for the machines are in several sizes, the smaller being biplanes, the largest being a triplane. Those of the Gotha G III are known. It is a biplane with a wing spread of 77.7 feet, and fuselage 40.38 feet long; it can go 96.8 miles an hour, ascend 14,850 feet and carry a load of 1,320 pounds of bombs besides at least two men.

It was necessary to put three planes on the larger Caproni, in order to carry the immense weight at high speed. It has three fuselages, each with its own motor, the one in the middle being much shorter than the others. The right and left fuselages have propellers in front, the middle fuselage has a propeller behind. The motors are 240-horse-power Isotta-Fraschini.

The Caproni are slow machines—only about 90 miles an hour—and is capable of fighting single-handed against the little wasps of the air. They are unique in that any one of their motors suffices to propel the machine; therefore, all three must be stopped by bullets before it is disabled. In this last respect its only rival is—so far as known at present writing—the great German Gotha, which has two motors, either of which will propel it.

One of the most striking facts about the evolution of air craft since the war began is that the monoplane has virtually disappeared. Quite early in the war the French Nieuport grew an extra pair of wings. The principal reason why two pairs are better than one is that lifting power in the air depends upon the area of the wings. Now the Gotha's two pairs of wings are 77.7 feet long and 7.326 feet wide, which gives an area of 569 square feet for each pair, or 1,138 square feet as the total wing surface. If this were all in a single plane, the wing would have to be about 153 feet long if they had the same breadth as now; and the leverage of the wind on their ends would be so great that the machine would be absolutely unmanageable.

For this same reason the biggest of the Caproni, which is by far the largest thing in the air, has three planes instead of two.

The Gotha is, however, more than a bombing machine; it is a veritable aerial battleship. Over its bow on a swivel is a machine gun that can shoot forward over a horizontal arc of more than 180 degrees, and over a perpendicular arc of about 240 degrees. On its fuselage, behind its wings and behind the propellers, is another gun that shoots astern over a horizontal arc of nearly 180 degrees and over a perpendicular arc of about 190. Besides these two guns the Gotha has a third, mounted on a pivot in the body of the fuselage and pointing downwards, through a port hole in the bottom of the fuselage. By means of this last gun it can defend itself from enemy machines attacking it from below and behind, a position in which all other machines but the Gotha are vulnerable.

The Germans have been most ingenious in designing their airplanes for maximum effectiveness of gun fire. Their single-seated Albatross D. I and D III, Fokker D, Halberstadt Roland D, and Ago D have two fixed guns firing ahead through the revolving propeller, and these machines are able to carry 2,000 cartridges for each gun. Their two-place reconnaissance machines Albatross, Rumpler, Aviatik and L. V. G. have one fixed forward gun firing through the propeller and a second lighter gun on a swivel mounted behind the planes and firing to the rear over an angle of 180 degrees. The French have adopted this system for the airplanes of similar type.

The most ingenious armament, however, is that of the new Pomilio scout plane. It is not advisable to betray the secret of this plane at present, but it is permissible to say that the single pilot controls five guns, all shooting ahead simultaneously, and that four of these are so perfectly concealed that even a photograph does not show where they are situated. It is in reality a five-barreled Gatling gun on wings. This machine is now on its way to America, if indeed it has not already arrived.

Talking with the Italian aviators now here about motors, I found them deeply interested in the new Liberty motor, but none would venture to express an opinion about it.

"I could not judge of its value," said one of them, "until I had taken it up 5,000 or 100,000 feet in the air and watched how it behaved there. The Fiat company, which has been making motors ever since these were first invented, needed two whole years of experimentation before it was able to turn out a satisfactory airplane motor. Several times it thought it had it; several times it offered a motor that performed perfectly under the most exacting laboratory tests, but each time it failed when tested in the rarefied air of 10,000 feet above the earth. After two years of trial the Fiat people produced the wonderful motors now so extensively used. The Isotta-Fraschini company had a similar experience. We all admire the perfection of mechanism of the Liberty motor and we all hope that actual flight will prove it to be as perfect as it looks, but no one of us would venture to give a verdict on it until he had flown with it at all possible altitudes."

These men, all of whom are youths who have had thrilling experiences in actual warfare, are fond of discussing the probabilities of a flight across the Atlantic. Any one of them would be willing to attempt it, but they disagree as to the machine most likely to be the first to make it. Some say the giant Caproni, which would need at least 24 hours, and probably 40, to fly from Newfoundland to Ireland (the shortest route), while others say some such machine as the S. V. A., as it could make the flight easily between sunrise and sunset. In the one case it would be like a giant condor relying on the power of its wings to sustain it a day and a night in flight, in the other case it would be a sea gull or a swallow relying on terrific speed to carry it over by daylight.

NAMING OF WARSHIPS.

The law requires that all first-class battleships "shall be named for states and shall not be named for any city, place, or person until the names of the states have been exhausted," and a recent article by Walter Scott Meriwether in the Rudder points out that Secretary Daniels' recent order assigning the names of New Mexico, California, Tennessee, Mississippi, and Idaho to the five superdreadnaughts now under construction completely exhausts the list of unused names. In selecting names for the five battle cruisers authorized by the last congress, recourse was had to names which never should have disappeared from the navy register—Constitution, Constellation, Saratoga, Ranger, and Lexington. The famous old frigates Constitution and Constellation, now preserved as relics of the wooden fleets of a century ago, will be known as "Old Constitution" and "Old Constellation." The present Saratoga was formerly the New York, the armored cruiser which served as Admiral Sampson's flag ship.

EVERY MAN TO HIS LAST.

Because you are an excellent carpenter, declared Socrates in his famous Apologia at Athens, it does not therefore follow that you are the wisest of men. Yet the tendency persisted and persists, and Alexander Cruden, a great maker of concordances, was found offering his services to the British government, over 150 years ago, as "corrector of morals," just as many rich business men in England today are offering their services to the government "under the conviction that they can do in one day what an expert can barely manage in three.—Christian Science Monitor.

IN MONTENEGRO.

There's a peculiar superstition in Montenegro where the peasants believe that the iron kettle chain over the hot fireplace will not heat at all on Christmas night, as at all other times, but remains cool to the touch. To explain this they claim that a similar chain hung over the fire built on the floor of the stable at Bethlehem, and that at the birth of Christ, the virgin mother grasped it for support. It became cool at her touch lest it burn the saintly hand.

WHO IS WHO NOW

PROMINENT IN MANY STATES

Senator James Hamilton Lewis is a "Rainbow division" all by himself. No, this isn't intended to be personal, although, of course, Senator Lewis is rather famous for his whiskers and his haberdashery. Senator Lewis is a "Rainbow" in that his career has been spread over a large part of the United States. He has been a distinguished son in more different states than any other public man today.

"J. Ham" Lewis is forty-eight years old. He was born in Virginia, raised and schooled in Georgia, went to the University of Washington, hopping way across the continent, became a member of the legislature there; later became congressman-at-large for the state of Washington; moved to Chicago, and, after holding several public offices, became United States senator from Illinois. If that isn't a real "Rainbow" career, we are very much mistaken. J. Hamilton Lewis hadn't been practicing law in Washington very long before he was elected to the upper house of the legislature. After becoming congressman-at-large he was boomed by the Northwestern Pacific coast states for vice president at the Democratic convention of 1900. Senator Lewis also has had a military career. He was an officer in the Spanish-American war, being a member first of the staff of General Brooke in Cuba and then of Gen. Frederick D. Grant in Porto Rico. He also was accredited a member of the commission which settled the Alaskan boundary disputes between the United States and England.

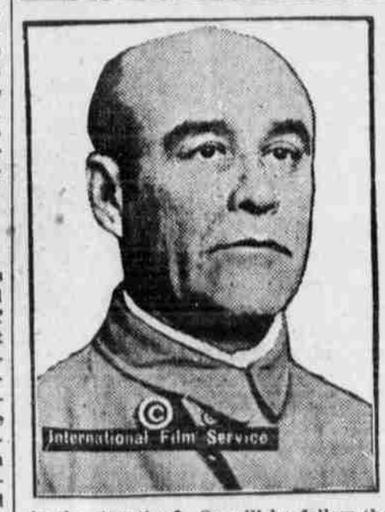
AVOWED ENEMY TO KAISER

It has been said that the kaiser has some friends—whether they intend to be or not—in congress, but one thing is certain, Senator Henry Cabot Lodge of Massachusetts is not one of them. Senator Lodge has been one of the bitterest enemies the kaiser has had to reckon with. He has been strongly anti-German since the beginning of the world war in 1914.

The power of a United States senator is great enough in itself, but Senator Lodge's power in the senate is added to by reason of his assignment to three of the most important committees, those on foreign relations, finance and naval affairs.

Henry Cabot Lodge was born in Boston May 12, 1850. He graduated from Harvard college in 1871 and from Harvard Law school in 1875, with the degree of LL. B. In 1876 he was given the degree of Ph.D. by Harvard university. He served two terms in the lower house of the Massachusetts legislature, for being literary by disposition, he was popular in the Bean City. After several terms in congress, Massachusetts elected him to the senate. That was in 1893, and he has been there ever since. If it will encourage the kaiser any, it is permitted to announce that Senator Lodge's term of office will end on March 3, 1923, which, doubtless, insures his being on the job until the end of the war.

AMBASSADOR IN HARD POSITION



The neutrality of Carranza in Mexico is generally viewed as tantamount to a pro-German attitude, and the position which Senor Ygnacio Bonillas, the Mexican ambassador, occupies in Washington is therefore increasingly difficult. There is talk of President Wilson losing faith in Carranza and Carranza losing his power with the Mexican people and of Felix Diaz having embraced a pro-American, pro-entente policy as a preliminary to starting another revolution.

The Mexican ambassador knows that the future is certain to be shaped by the policy which Carranza pursues toward the German legation in Mexico City. Reports in Washington are that the German minister now virtually controls Mexico's foreign policy. Will the ambassador tell Carranza frankly what his confreres in Washington are saying and thereby make his own personality a dominant figure in the situation? Or will he follow the old school of carrying out instructions and nothing more? So far it is impossible to say.

WANTS GREAT AMERICAN ARMY

One of the strongest advocates of military preparedness of the present Sixty-fifth congress, and of many congresses preceding that, is a fighting Californian—yes, a Californian, although born at Kuppenheim, grand duchy of Baden, Germany. This Californian is Representative Julius Kahn, ranking Republican member of the military affairs committee of the house, and representative of the Fourth Congressional district of California, which means the city of San Francisco.

Through eight different congresses, not including the present one, Representative Kahn fought for preparedness. And now that the United States is at war with the country where he was born and where his parents were born, Representative Kahn is still found fighting for a greater army and for greater effort to win the war. Congressman Kahn has drawn plans for an army of Americans not less than 4,000,000 strong. He realizes that we are up against a serious business and he proposes that Uncle Sam shall make such gigantic preparations now as will insure this serious business being brought to as speedy and as victorious a conclusion as possible.