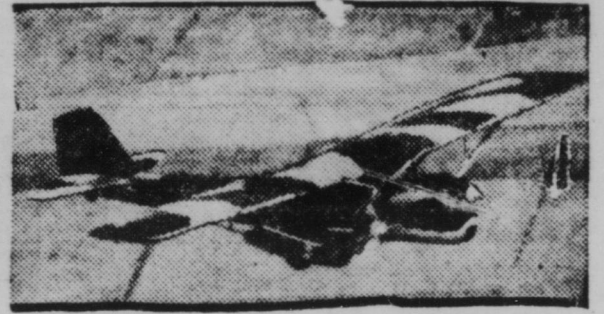


CAMOUFLAGE to Play Big Parts in Next WAR



Tops of the wings and fuselage of planes are spotted so that, from above, they resemble the ground patterns.

Fish net is used for camouflaging gun positions. Into the net branches, leaves and other material are woven so that from above there seems to be no material change on the ground.

Uncle Sam's Service Planes Now Present a Weird Appearance of Paint on "Birds of War," and Fighting Men Study the Effects

By John L. Coontz

A GREAT pile of earth is suddenly heaved into the air. Dust clouds drift downwind. Two aviators make off furiously into the west.

Two hours later a rebel battery opens against the loyalist Spanish forces 1000 yards from the gaping geyser hole.

Modern warfare today depends on camouflage for its protection. That battery had been, a few hours before, located on the spot where the air bombs fell. But yesterday a plane had flown over the area and the battery commander had thought it prudent to remove his guns during the night. He surmised aerial photographs being taken of his location.

DOWN through the centuries, from the earliest times to the present, this art of camouflage for men going into battle is traceable. In the beginning it was crude. Paint daubed on the face, hair shaven from the head; wild animals' heads resting on human shoulders; boughs of the forest moving along the road; streaked bodies and snake-like movements.

Today camouflage for warfare is not crude. It is one of war's most finely developed arts. That camouflaged Spanish battery was not a hurried thing. It did not represent a crude outlay of branches and color. On the contrary, it was a studied affair. For there was much more to contend with than the passing eye along the road or scouting parties to locate its position. There was the eye of the eagle floating in the sky; the photographic art of the laboratory to detect its placement.

The airplane has changed the methods of warfare. Looking down from the great heights, it permits the human eye to determine whether a contour seen yesterday is still seen today, or more important, whether a contour that is there today was there yesterday.

In addition to this penetrating visibility there is the camera to help solve the intricate problem of location. The modern war aerial camera is the most revealing thing in the world. It puts on paper whole sections of a countryside. It brings out roads, bridges, paths, houses, unusual bits of earth piled up, bushes, wisps of smoke.

TO ESCAPE the all-seeing eye of the camera from the air it is necessary for camouflage to be so expert as to obliterate all signs of an army, its equipment, of life. It is not so hard to hide one gun, but when it becomes necessary to hide a regiment or a battery of artillery a problem presents itself. Human occupancy of a spot soon reveals itself in all those signs incident to human activity. Men must eat. To eat they must have food. Food must be cooked. A wisp of curling smoke on a barren spot is evidence of human



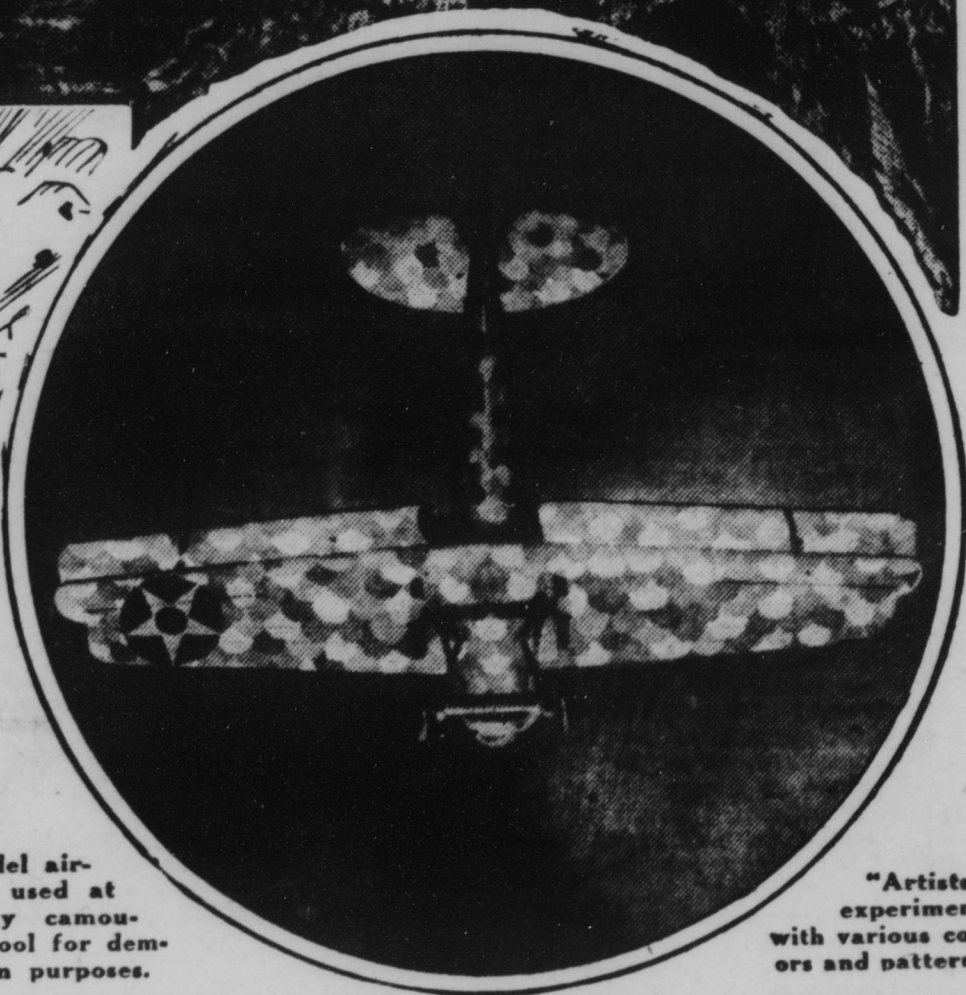
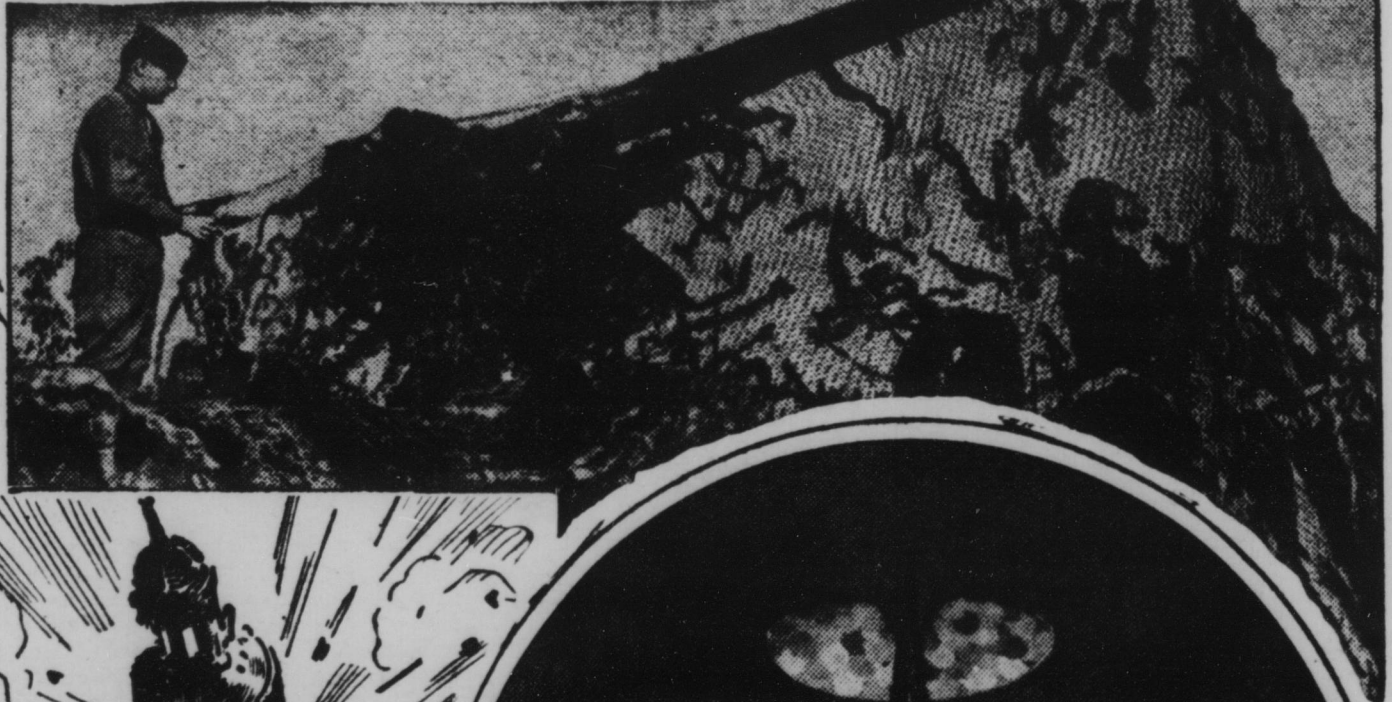
life somewhere on that terrain. Bomb it and you will unquestionably destroy a battery placement.

This evidence of human occupancy is the hardest of all things to obliterate. Clothing, light communication lines—telegraph wires, telephone wires, horses, motorcycles motor cars—all must be covered so as not to be seen by enemy airmen flying over or be revealed on the photographic plate. Comparable to it only is the segment of the army on the move. It is impossible to camouflage moving caravans of motor lorries. The character of the terrain is changing constantly. First there is a stretch of woods, then a barren spot, then clumps of bushes, then a plain, then a river with bridges to cross. To meet all these changing conditions of the earth's surface is impossible.

Camouflage as it is practiced in warfare today represents a few set principles. The first rule is to break up the outline—avoid the characteristic. A battery emplacement has a certain normal appearance when not camouflaged. The idea then is to break this up to make it appear not normal. In this way the battery is hidden from detection by the enemy. An ammunition dump has certain characteristic outlines. Break it up.

The second rule is to break up the shadow of the outline. A man walking in the sun casts a shadow. A building or gun emplacement casts a well known shadow. This must be broken up. Stress is laid on this by camouflage experts. For one of the greatest giveaways signs is the shadow. Shadow is evidence of substance and substance is what the enemy bomber is looking for.

The third general rule in camouflage is to simulate color or, to express it more accurately, to simulate the light reflecting value of surrounding terrain. When the sun shines on various objects it gives off reflections peculiar to the



This model airplane is used at the army camouflage school for demonstration purposes.

"Artists" experiment with various colors and patterns

color of that object. When there is sand a certain reflection will result; when there is a green field another reflection will be observed; when there is water still a different reflection will be shown. These reflection must be simulated for the object placed in their respective environments.

FOR camouflaging the top of a plane the most suitable color combination has been found to consist of blue, green, mauve and purple. These four colors blend with the colors of the earth, the tans running in with the plowed fields, roads and newly cultivated ground. The blue and green tie in with the foliage of the fests, the growing crops of the fields and the hedges along roadsides. Purple, which has a very low visibility rating, blends in with the shadows of evening and the aspect of the earth after rain.

The wing surface of the plane is divided into three irregular sections and these sections are painted the colors which are to mislead the eye of the enemy gunner.

Blending a plane into the sky is another problem. Flying against the contour of this blue bowl a plane is perfectly silhouetted. This silhouette must be completely blotted out. The color combination used is that of burnished aluminum, light blue, light purple and white. The aluminum reflects light and brightens the under-surface of the

plane. The white helps here, while the light blue and light purple carry out the sky deception.

ON GROUND camouflage many materials are used. All manner and types of underbrush are made to cover guns, wagons and ammunition dumps. The season of the year has much to do with the types of material to be used. The contrast must always be natural. Snow is not a good camouflage. It has the unhappy faculty of revealing all manner of activity, both of man and beast. Gun blasts, which destroy the grass underneath the muzzles, are easily discernible in snow. They show up as black streaks.

Weeds and grass are also used extensively for camouflage purposes. These are woven into fish nets spread over the guns or other objects to be camouflaged. Burlap is also woven into fish nets in strips. This type of camouflage is used largely where guns are on the move.

A new element that is entering into camouflage now, and offering a problem as yet unsolved, is the light-filtering camera. This camera cuts out the different kinds of light at will and makes the outline of the camouflaged object stand out in nakedness. This is a new development since the World War and may make of camouflage a still more scientific art than it is at present.

