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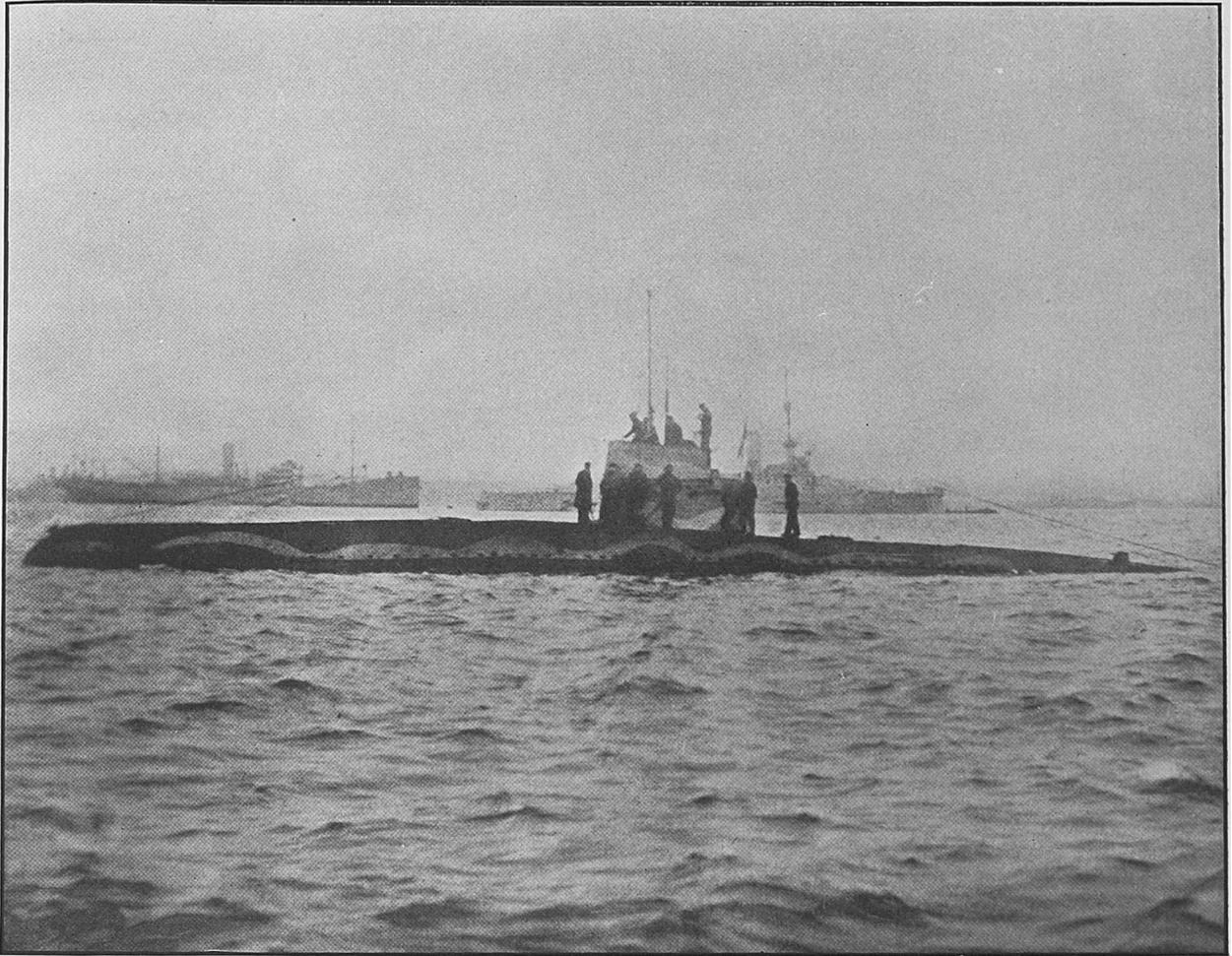
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CAMOUFLAGE—WAR'S HANDMAID

BY LIDA ROSE MCCABE

THERE is a brand-new word in current parlance—Camouflage! You will not find it in dictionary or encyclopedia, for like the art it defines, which is figuratively “throwing dust in the eyes of the enemy” by rendering objects on land or sea invisible through break-up of their outline, it is born of the Great War.

Camouflage, the word, is of French and Italian root. At this writing it is slang, and doomed to be overworked in speech and print before war's end. With the Allies' Victory and Honorable Peace however, it will assuredly be of the dictionary's elect, if not of “English undefiled.” As for the art's *raison d'être* and its contribution towards a world safe for democracy, there will eventually be a distinctive literature; but for the moment libraries have nothing to offer.

Meanwhile, in this oldest of arts ingeniously enlisted for the service of Mars, where does America come in?

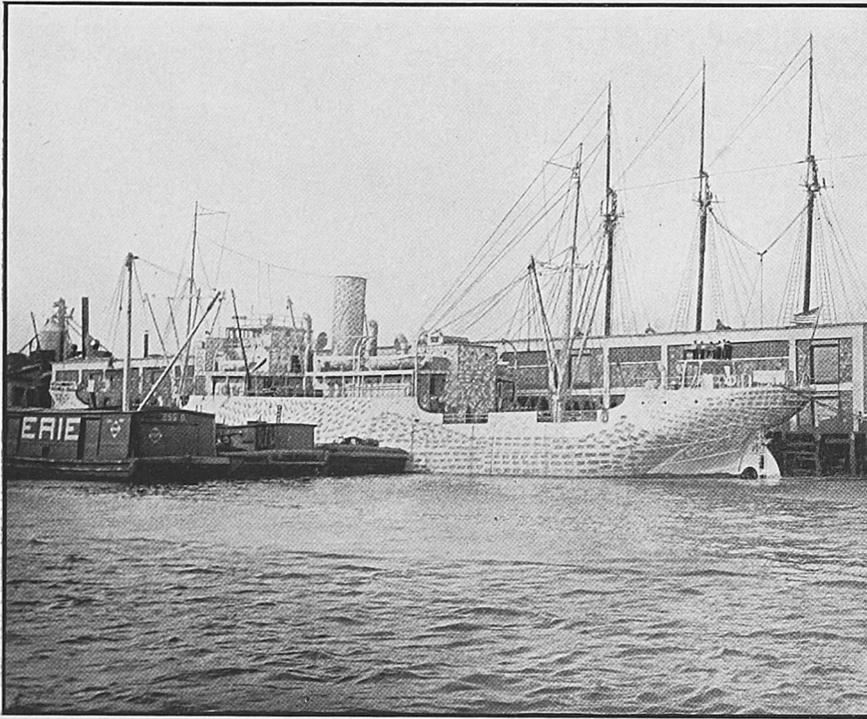
France, America, Art!

Greater opportunity to serve this invincible triumvirate was never given American artists—so ran in September the United States War Department's call for service in the Camouflage Corps recruited under the Department of Engineers, United States Army, the service to be in France.

This mobilization was precipitated by Paris cable from Major-General John Pershing to the War College, recommending Camouflage Corps to accompany each unit of the Army to France.

Harrowed by loss at the front of more than three hundred artists of achievement and promise, early in the war France set about the conservation of the specialized talent of her conscripted army. Painters, illustrators, sculptors of note were winnowed out of companies where they were serving from commissioned officer to common soldier, and sent with military rank and pay to the front or aboard battleships as pictorial war historians.

From the ranks the Government then mustered into Camouflage Corps scene-painters, sign and house painters, stage carpenters, scene-shifters, “make up” men, designers, plaster modelers and casters, moving-picture scene builders, paper-hangers, blacksmiths and like crafters. In happier days these conscripted soldiers had plied their *métier* in the theatres, hippodromes, circuses and moving-picture studios of Paris and the provinces. In the army, as exposure of battery, fort, bridge or railroad focused the enemy's guns, these men, individually, put their crafts to work in the effect to outwit the foe and virtually save their own skins! Their success was not slow to reach commanding officers



A FREIGHTER GIVEN THE SKIN OF A LEOPARD, ACCORDING TO THE IDEAS OF W. A. MACKAY

with vision to match their efficiency. The result is the Camouflage Corps as an integral part of the army, each company officered by a master designer and a virtual stage director.

It took French imagination and initiative to spring camouflage as a handmaid of war. For long its value escaped the British, while the Germans, I am told, continue to ignore it as not worth the candle! "Germany" to quote an American war correspondent of Hindenburg taint "hasn't time to waste over a few lives or guns. It reckons by hundreds and thousands!"

The success of the French camouflagers in faking a village street through the medium of paint-pot and canvas into confounding the enemy to believe that it was an empty street; erecting muslin walls behind which troops marched without detection; concealing moving or standing trains by painting out the landscape; modeling a plaster horse to replace a dead horse familiar to the enemy's trenches and stationing an observer inside the clay substitute, where he watched by day, vacating it at night to report to headquarters; destruction of scenic outline until it is impossible for an aeroplane to locate French batteries—this and much more percolated, despite censorship, to America to kindle a responsive chord.

With the declaration of war by the United States two winners of the American *Prix*

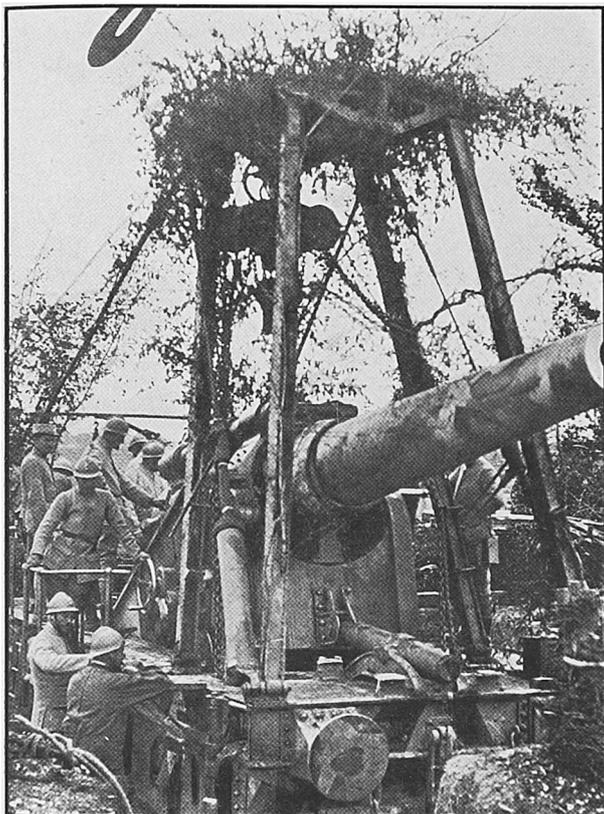
de Rome—Sherry E. Fry and Barry Faulkner, mural decorators, rounded up the American Academy of Design, Architectural League, Society of Illustrators, Society of Scenic Painters under the Chairmanship of Edwin H. Blashfield into the Camouflage Society of New York. To Monadnock, New Hampshire, the home of Mr. Abbott H. Thayer the painter and naturalist, Barry Faulkner hied for instruction under that recognized authority in concealing colorature. On his return, seventy-nine members of the Camouflage Society "signed on" to work for the War Department, which at this crisis was as ignorant of the basic principles and usage of camouflage as were the signers-on. President Nicholas Murray Butler is likewise credited with offering to the Government in the name of Columbia University a training camp for

camouflagers under the direction of Professor Borning of its Architectural Department, the University to furnish *gratis* camp, instruction and materials.

Of these and like offers upon the part of institutions and individuals the War Department wisely fought shy. Nevertheless, in the interval, camouflage was being industriously pursued at our various army posts through the far sight of individual officers and wide-awake artists. The work in some instances was momentarily financed by private citizens, so reluctant was the War Department to recognize its need. One coast post for example whose tile roofs were visible far out to sea, was effectively camouflaged by planting hardy vines that



GENERAL PÉTAIN, THE KING OF ITALY AND PRESIDENT POINCARÉ IN THE CAMOUFLAGED OBSERVATION POST ON THE FRENCH FRONT



BIG GUN PAINTED TO LOOK LIKE FOLLAGE

transform the whole into an indefinable part of the landscape. But it took as has been stated the Pershing cable to precipitate camouflage into an integral part of the Army.

Major Evarts Tracy, United States Reserves, Engineer Corps, who acquired military training and commission at Plattsburg, is head of the Camouflage Corps of the United States Army in France. Architect and engineer of European training and experience, Major Tracy quickly recognized the practicality of French procedure in securing camouflage skill. The Government's first advertised call for recruits for the Corps significantly stipulated it was not to be confounded with the "so-called Camouflage Society of New York." This was no reflection upon the Society's skill, patriotism or personnel. The War Department's October call in New York for recruits for the First Company of the First Camouflage Corps followed the French method. The want then, as it will be to the end of the war, was for men skilled in crafts, France specified. Men so skilled who previously enlisted will be mustered as need rises from their regiment into the Camouflage Corps, while the order stands for a company raised wholly from moving-picture plants.

To enlist in the Camouflage Corps is to embark into mystery. The training and work are under seal of secrecy. Not until the recruit arrives at Headquarters of the Engineer Corps near Fort Myer, Washington, D. C.—the chief training camp—is the veil rent.

"Camouflage" said to me a Government official of foreign experience "demands quick action. Concealment of a fort, battery; transformation of street or building, effacing outlook station or troops is the work of designers, draughtsmen, painters

trained in deceptive colorature. There is no time to ponder over schemes or try them out. The stage director, as it were, marks off unerringly on a hasty sketch so many feet or yards of such-and-such a color, and hands the execution over to men of lightning speed. Scenery builders of out-door movie pictures, theatre-scene painters, men who set up and pull down one-night circuses are the bone and sinew of war camouflage."

The origin of camouflage is waggishly credited to Mother Eve! Its usage in the French and American armies is largely based upon discoveries and deductions made by the painter-naturalist Abbott Henderson Thayer as embodied in his authoritative work: "Concealing Colorature in the Animal Kingdom."

Twenty-five years study of the virgin forests of his native New Hampshire revealed to this distinguished painter nature's purpose and method in the coloring of animal, bird and insect. To make an object seemingly invisible by breaking up or wiping out its outline, according to Thayer, is camouflage in a nutshell. It is outline-silhouette, not bulk or surface, that renders an object visible to the eye. By breaking up, obliterating the outline an object is visually non-existent. Thayer found this basic fact demonstrated everywhere throughout nature in the coloring of animals, birds, insects. The Master Painter of the Universe, he discovered, contrary to Darwin and Wallace, colors for protection, to render brute creation invisible to its enemies.

In the popular mind the zebra is a flagrant example of conspicuousness by virtue of the boldness of its stripes. Thayer cites it as taking the palm in nature's scheme of deception, so effectively do the stripes cut the animal (to the eye of the observer) into pieces as it stands against reeds and sky near the watering-places of its *habitat*. The zebra coming to drink at dusk is seen by the crouching lion against the reeds and sky which his stripes simulate.

Thayer claims that all animals with few excep-



A NEAR VIEW OF A COW ACTUALLY STANDING ON THE ROOF OF A CONCEALED BATTERY TO CAMOUFLAGE IT FROM THE ENEMY

tions are equipped with full obliterative shading of surface colors. In birds counter-shading and surface-marking combine in the highest and most effective degrees to produce invisibility. It was from his study of nature's devices in protecting animals through coloration that he deduced the principles making good to-day in the training of Camouflage Corps.

It is summed up in counter-shading, averaging of backgrounds and obliteration of outline. Shading, so Thayer maintains, is more important for concealing than color, because primarily it is an attribute of form, while color is second. By counter-shading he means a gradation of shading counter to that which light would produce when thrown upon the object. The result is a perfectly flat surface, the object retaining its length and breadth, but losing all appearance of thickness or roundness. For this reason he contends that animals are painted by nature darkest in those parts that tend to be lighted by the light of the sky and *vice versa*.

Long before the world war Abbott Thayer demonstrated this counter-shading discovery (now known as "Thayer's Law") in the museums of London, Oxford, Cambridge and Florence, where he set up models at his own expense. He also lectured before scientific societies in Europe and America, his original ideas meeting with more or less opposition. For it was then no less difficult for the followers of Darwin and Wallace than it is to-day for the "man in the street" to accept the fact that the North American Indian, for instance, paints one side of his face green, the other red for self-protection in order to lose his identity in the forest and thus approach or escape his enemy—and not, as we were taught, to indulge barbaric love of color to the end of captivating a capricious squaw!

In Fate's legerdemain it remained for the most inhuman of wars to vitalize into humane service the discoveries of this American painter-naturalist known to art exhibition visitors only as the creator of easel pictures of high ideality and master technique.

Camouflage, as we are coming to know it, while new to our Army, is old to our Navy, which to-day is credited with being abreast, if not in advance, of the rest of the world in its usage. Despite this efficiency it does not form to date an integral part of Navy service. The artists engaged in nautical camouflage are not uniformed and serve without rank or stipulated government pay. There is radical difference between land and sea camouflage. While much of the paraphernalia of land war is stationary, not a little of it moves—tanks ("To spew forth death to the crazy Hun") motors, horses, men, occasionally cannons.

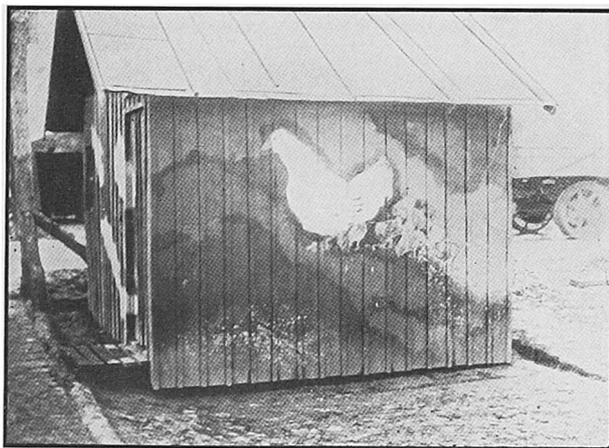
Land objects like land birds, Thayer maintains, need sharply contrasting pattern. Pattern suggests one object seen beyond another—the sky seen

through trees, a tree trunk amid foliage. Ships on the other hand have shifting sky and sea for constant background. Neither sky nor sea has strongly contrasting pattern. They are characteristically nonchrome. Then there is no dependence upon the havoc of sunrise or sunset. Gulls, whose locomotion suggest the concealing color for ship—white (except on their backs) to match the sky—gray to match the sea.

American nautical camouflage harks back to the Civil War when the Confederates adapted various shades of gray and painted their blockade-runners bluish tints that simulated the lower sky coloring or prevailing haze overlying water. "Battleship gray"

however, in light of today's scientific camouflage is more of an advertisement than a concealer. Mississippi River gunboats were camouflaged by tying trees to smokestacks and covering the decks with boughs, so that the boat when at anchor fell in with the wooded shore.

Four years after the Spanish-American War, which added nothing to nautical camouflage, Gérôme Brush and Abbott Thayer took out a patent for the counter-shading of ships to make them less



RAILROAD SECTION HOUSE MADE TO LOOK LIKE A HEN AND HER FAMILY

visible. This was before Thayer had learned by experiment that it takes the whitest white, when *vertical*, to match the horizon sky. The patent process paints the ship or object so as to obliterate contrast of light and shade. A ship so painted, when on the open sea, appears transparent. The observer seems to look through it as if it were not there. Normally light surfaces are painted dark, and the darkened are lightened, while the shaded portions are painted with a color to neutralize shadows and blur their definition. When viewed by flying airmen a ship so painted would merge with the sea, but the vividness of its silhouette against the horizon, experts claim, would not be materially modified. A counter-shaded ship makes a gray silhouette, too dark to match the sky except when the sun shines nearly perpendicularly on its side. Desiring to help the Allies two years ago, Abbott Thayer went to England where the British adopted for the coloring of their snipers that which Thayer had dictated for their soldiers. They also colored their tanks in accordance with his method.

Before the German submarine atrocities our merchantmen took to camouflaging, which became obligatory with the Treasury Department's decree (October 1, 1917) that "every ship leaving this port should be camouflaged or insurance rates increased accordingly." New York harbor, these days, is in consequence a veritable floating salon of Cubist, Futurist and Vorticist color-feats significantly emphasizing the passage of the one time derided culturists from theoretic into actual warfare!

"I lie awake nights" confided an expert merchantman camouflager "and chuckle over how I am able with brush, color-tubes and a bit of brains to



RUSSIAN SOLDIERS IN THE TRENCHES CONCEALED BY A CLOAK OF EVERGREENS

cheat U-boats, and without bloodshed get a freighter with 15,000 barrels of oil safe through the war zone!"

The nautical problem of the hour is to confuse the submarine commander, who is taking observations through the periscope, calculating how to get close enough to strike with his torpedo. In the vanguard of camouflagers working to this end is William Andrew Mackay, the mural decorator, who bases his process of ship camouflage upon scientifically approved theories of light and shade. Mackay before the world war proposed a camouflage scheme to Lieut.-Commander J. O. Fisher, United States Navy. As a divisional of submarines, Lieutenant Fisher accepted it and experimented with Mackay, who with a handful of fellow artists and navy officers of professional zeal have since then brought the art to high efficiency.

Paradoxically, it was while decorating Mrs. O. H. P. Belmont's Chinese tea-house at Newport with tiles lacquered to meet America's atmospheric con-

ditions, after a process of Mackay's invention, that this gifted protégé of the late Frank D. Millet stumbled on nautical camouflage. A destroyer anchored one day in the harbor in close range of the tea-house. Mackay hastily sketched it. Next day when he returned to finish it, the destroyer had disappeared. Chagrined, he recklessly daubed the cardboard with colors until the destroyer's silhouette disappeared. Suddenly it came to him: "What if a real destroyer were daubed over with like colors? would it merge in with its background at sea and be lost to the eye?" As our army camouflage recruits now turn to Thayer's "Concealing Colorature in the Animal Kingdom" in his subsequent experimentations so Mackay came in his own library upon "Modern Chromatics" by Ogden N. Root, a professor of physics—in the seventies—at Columbia University.

It was the scientific facts gleaned from this book, Mr. Mackay tells me, that suggested to him that camouflage for our ships should be based upon

color scheme almost diametrically opposite to that heretofore accepted as likely to promote concealment in low visibility.

"Daylight is not of uniform clarity" he explained, recalling tentative experiments "according to hour and clearness of the air one or another of three dominating colors prevail. The dominating colors are not red, blue, yellow so long accepted, but red, green and violet. Instead of starting out with gray coats I use colors bright when viewed near by, colors upon which atmosphere would work metamorphosis as distance increases."

This color scheme, to quote one authority, does not *conceal* a ship, but if the color areas are large and strongly contrasted in value, they make it *harder* to accurately *point* a gun.

Contrary to Mackay's or Thayer's method is that of Henry Reuterdaahl, the famous marine painter,

who, at the zenith of his skill and earning capacity, is now voluntarily serving the Government, with rank and pay of a Lieutenant, in the Navy Recruiting Bureau.

"There is no science that I know of in my ship camouflaging" said Reuterdaahl who camouflaged the submarine chaser *Degrasse*, "I am guided wholly by feeling acquired through twenty-five years more or less buffeting with the sea." The eye does not focus alike for different colors. With this scientific fact Mackay now aims to bewilder the U-Boat observer by presenting to his vision an indefinite form, and thus hasten fatigue and quicken error in range-finding.

Lida Rose McCabe

NOTE: The above article is approved by the Navy Publicity Bureau and by Abbott H. Thayer, who wrote the authoress: "We greatly appreciate your wish to get the truth published—so much is error."

A SONG FOR AMERICA

How comely is our motherland,
With joy for every eye!
O'er sunlit vales her mountains stand,
Her prairies kiss the sky.
From many an autumn-bordered lake
Her fair streams seek the shore.
We love her for her beauty's sake,
But most for something more.

What vigor in her throb and tread!
How dauntless is her mind!
She plants that continents be fed,
And never looks behind.
The magic of her lamp and tower
O'ermates Aladdin's lore.
We love her for her bounteous power,
But most for something more.

We love her for her tender heart,
That thrills at Pity's call,
Her will that Freedom's goodly part
Shall be the share of all.

Lord of the stricken world, we ask,
(Proud peace or holy war),
Renew her might for every task
And guard her as of yore.

Robert Underwood Johnson

