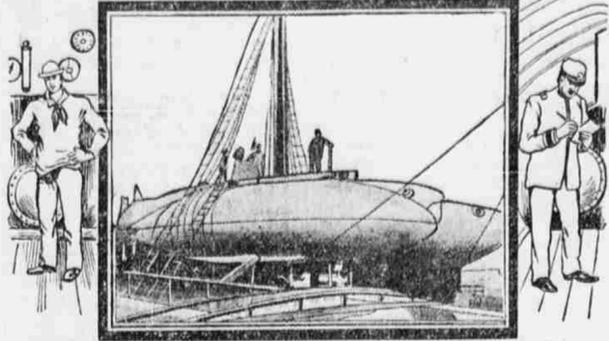


# The SUBMARINE A WINNER

LITTLE WAR CRAFT A GROWING  
FACTOR IN NAVAL EQUIPMENT.



THE PORPOISE AND A SISTER BOAT ON  
THE DECK OF A TRANSPORT



SUBMARINES ATTACKING CRUISER  
SQUADRON

Dreams that become realities! Over and over again has the world witnessed such development, and no claim can be made for the future part which the submarine and the airship are to play in warfare, which seems impossible or improbable, although there are many military experts who smile at the idea that either the submarine or the airship will ever be much more than novel freaks in military equipment. But on the other hand the big world powers continue to buy and build the submarine and to experiment in air navigation and there is no telling what may not be accomplished in the years to come in perfecting these engines of war along practical lines.

The recent shipment from New York city of two submarines, destined for the Philippines, and the near approach of the extensive maneuvers which have been planned for the rest of the home fleet are again attracting attention to the type of craft which carries its load line over the hatch.

In the discussions which have taken place relative to the merits of the type there is a notable difference of opinion. There are now upward of 200 of this type afloat, or perchance submerged, and it may be small exaggeration to say that there are as many divergent views concerning them. There is no naval power, great or small, but now has its submarines. The vast majority of these are merely variants of the Holland type. Having evolved the type, and having spent the best part of his life in perfecting it, Mr. Holland, of course, has implicit faith in his invention.

The following table shows that France now leads the world in this type of vessel, possessing 88, built and building.

Nation	Number Built	Number Building
France	41	47
Great Britain	36	24
United States	8	2
Germany	1	1
Japan	7	2
Russia	1	22
Italy	3	1
Austria	1	1
Holland	1	1
Sweden	1	1
Norway	1	1

This country has eight ready for service and eight under construction. The earlier boats of the class now in service have a length of 63 feet and a displacement, when awash, of 105 tons, and when submerged of 120 tons. The four newer and larger ones—the Octopus, Cuttlefish, Tarantula, and Viper—are 105 feet in length and have a displacement of 200 tons. But the prevailing tendency toward increase in size has affected submarines as well as battleships, and the latest one to be authorized is to have a tonnage of 500. It is now realized that a seagoing submarine is impossible on a small displacement and that the operation of the moderate-sized boats are very restricted. Consequently either the size of the boats must be enlarged or else they must be relegated as substitutes for mine fields or for forts. Of the submarine as a substitute for forts very little has been said, but there seems to be something in the idea. It is conceivable that the presence of a submarine in a harbor would be as likely to keep raiding cruisers at a distance as would a fort. Submarines are mobile while forts are not. But destroyers might be able to render them useless, which they certainly could not accomplish with forts.

The Octopus and the other three of her type, which are to take part in the coming maneuvers off Newport are equipped with powerful engines, motors and improved mechanisms, but in general shape and the scheme of construction, with slight modifications, follows that of the earlier boats such as the Plunger, Shark and Porpoise. They are of greater structural

strength, and said to be able to stand the pressure of being submerged 300 feet, though 200 is the official depth that was required at the Newport trials.

One of the many novel experiments that have been planned lies in the effort to determine whether the presence of dirigibles can be detected by means of balloons or by dirigibles. A scientist, soon after the Kingston earthquake, accidentally discovered that submerged bodies may be more readily detected from a balloon soaring at a great height than from a ship's rail. He had made an ascent in a balloon for the purpose of gaining a comprehensive view of the ruins and altered coast line, and then noted that the further he drew away from the water the clearer submerged objects became. In this way he was able to note the changes which had taken place in the sea bed.

His report gave a hint to our navy officers, and this knowledge is now to be applied to the detection of submarines—rather it is to be utilized for the purpose of determining whether submarines are as amenable to detection from balloons as are tropical sea beds.

The radius of action of the Octopus and her type is about 100 miles from base. These vessels are equipped for warfare with two 18-inch torpedo tubes. Submergence is accomplished through the filling of the various ballast tanks, which include the forward and after trimming tanks, a midship tank, main ballast tank and several auxiliary ballast tanks which are distributed in various parts of the boat. The Octopus carries very little reserve buoyancy, about 800 pounds, and submerges by pointing the bow down about eight degrees, using the horizontal rudder for this purpose. To maintain submergence after reaching the desired depth, the bow remains pointed down about three degrees, with slight variations in each boat.

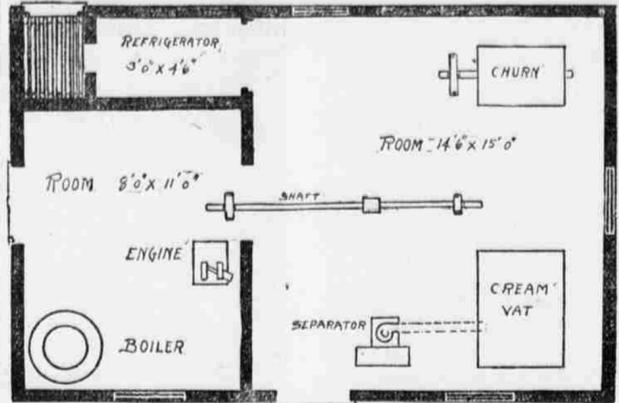
In making ready for diving the boat is trimmed down by the head, and after having filled the trimming tanks to the required extent, so as to leave the amount of positive buoyancy required, about 800 pounds, the craft is in shape for the plunge. As the craft gains headway the diving rudder is put down and the vessel dives. The depth, registered on a scale, is regulated by the diving rudder. To maintain submergence after arriving at the proper depth a man has to receive special training in operating the diving rudder.

To return to the surface the amidship tank is first blown. This holds 1,000 pounds of water, which is forced out under ordinary circumstances in five seconds by means of compressed air. Another vital interior feature, both for breathing purposes and for motive power is the compressed air system. The air is stored in a series of 2,000-pound flasks and other lesser ones. The latter are used for firing torpedoes and for blowing out the tanks. The motive power is a powerful gasoline engine for surface running and an electric motor for submerged running. The speed is from 11 to 12 knots on the surface and about nine knots when submerged.

One of the features recently installed is a copper signal buoy, 15 inches in diameter, which is arranged to be readily released from the inside in case of danger while the boat is submerged. This rises immediately to the surface, indicating the exact position of the craft, and serving as a distress signal in case of an accident. The ball buoy and a reel of 200 feet of three-sixteenth-inch bronze wire are incased on the bridge, just in front of the conning tower, in a boxlike compartment.

## WHAT THE FARM DAIRY SHOULD BE TO SUCCEED

Arrange the Building Conveniently for Handling the Milk Product.



The accompanying plan for a farm dairy will give a general idea of the requirements for such a building. Accommodation is made for handling the milk of 30 cows and making butter. A cement floor is in every way super-

ior to a wooden floor for a creamery. When properly put in, a cement floor will last indefinitely and can be kept clean and sanitary, whereas a wooden floor is short lived, rots quickly and is always a source of contamination.

## AS TO LICE AND MITES

Don't Board Them.

Other foes of little chicks are external parasites, lice and mites. We frequently find lice even among winter brooder chicks. Lice on the head are most troublesome. They fasten themselves to the back of the chick's head, near the base of the brain and gradually kill the chick. It is a pitiful sight to see the little chick scratching the back of its head trying to dislodge the pest. Good results are usually obtained by greasing the head of each chick with five per cent. carbonated vaseline. Kerosene and lard, equal parts, prove equally effective. The chicks can be rapidly treated and should be attended to as soon as there is any suspicion of head lice. The louse may be seen readily by means of a small magnifying glass. It can also be detected with the naked eye if one is very careful to examine the right place, although one must look carefully to see it.

To kill mites, clean all coops and brooders perfectly, then apply thoroughly, either whitewash, kerosene oil, or some of the prepared insecticides. Be sure to fill all the cracks and crevices as these are the places where mites will be found hiding during the day. Burn all the litter and add new. A spray pump may be used for applying the insecticide, as it drives the liquid into the cracks and crevices better than can be done with a brush. Whitewash can be applied with a pump and then smoothed over with a brush, doing rapid and effective work. Mites differ from body lice in that they suck the blood from the fowl's bodies, while lice have biting mouthparts and live on the skin and feathers, causing intense itching and annoyance. Mites live on

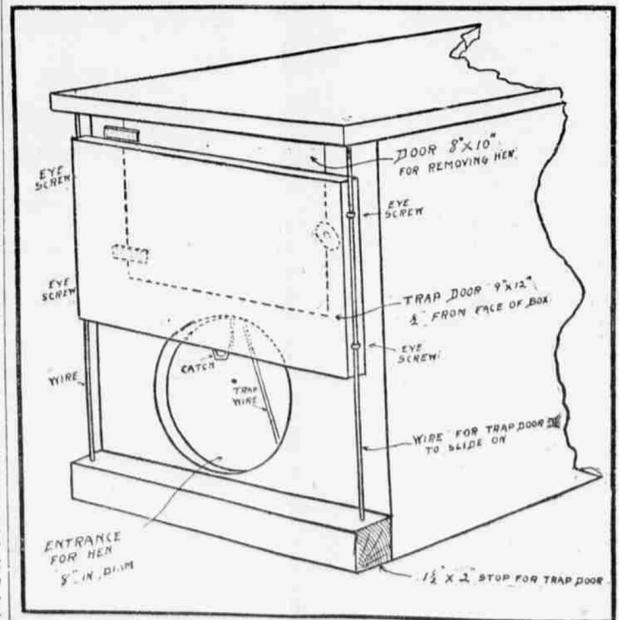
the fowl's body at night only, hiding in cracks and crevices during the day. They appear red when gorged with blood, or white when there is little blood in their bodies.

To kill the lice we must treat the hen's or chick's body, as the lice live there practically all the time. There are several kinds of these lice, but they all yield to the same treatment, namely, a good dusting. The dust fills up the breathing pores in their bodies, and thus suffocates them. A good insect powder may be made from equal parts of fine ground tobacco and powdered sulphur. Snuff is also used. There are a number of insect powders on the market and most of them prove very satisfactory. The essential thing is a finely pulverized substance that will go through the feathers.

Having carefully dusted the chicks (and hens, if the chicks are running with them) clean the houses and remove to clean ground. A good dust bath should be arranged so that the hens and chicks may help keep themselves clean. An excellent dust bath is made by drawing a load of "chip-dirt" and dumping it in the yard where the little fellows may have ready access to it. For winter use a box partly filled with fine sand, road-dust, land plaster or coal or wood ashes answers very well. A mixture of sand and land plaster seems to please them more than either one alone. Some use wood ashes alone, but a mixture of wood ashes and road dust, or fine sand, makes a heavier bath and therefore more effective in cleaning the lice out of the feathers.

**Good Alfalfa Field.**—I have a two-year-old field of alfalfa from which I cut last year on June 30 3½ tons per acre, on August 1 1½ ton per acre, and on October 24 over a ton. It also gave five weeks' pasture before the snow fell. I do not irrigate my alfalfa, as it is only 12 to 20 feet to water.

## Trap Nest of Simple Construction



The construction of this style of trap nest is as follows:  
The front of the nest box should be 14 inches wide and 20 inches high; two inches from the bottom a circular hole eight inches in diameter is cut. A door is placed at the top eight by ten inches square by which the hen is removed. The trap consists of a board ten inches square, with an eye screw on each side. The door slides up and down on a No. 9 wire passing through the screw eyes of the trap door. A nail bent in the shape of an "L" and filed flat on the bottom side is driven into the center of the bottom of the trap door with the bottom

part of the "L" projecting toward the inside of the box. About one inch above the middle of the entrance a hole is bored large enough to admit a No. 9 wire that is bent as shown. The top side of the bent piece of wire upon which the nail of the trap door rests is also filed flat, and the trap is set by placing the "L" shaped nail of the trap door on the wire, as illustrated. The wire hangs on the inside of the nest box, as shown. The hen in passing through the entrance on either side of the wire moves it enough to release the trap door and lock herself in. The length of this nest may be from 16 to 20 inches.

## STYLES IN BODICES



These are styles suitable to be carried out in almost any woolen material of not too thick a texture. The first and second show the back and front of same bodice; it has a tight fitting lining on which is arranged back and front deep points of figured silk. That in front is attached to right side of lining, then hooked over to the left, as the fastening of lining is down the center front. The back piece is fixed on the lining.

The material is slightly full at waist both sides and fronts. The sleeve puffs are of material, the tight under-sleeve of silk. The braces are of the material finely tucked horizontally, then mounted on a plain lining, the edges bound with crosswise silk like vest. The fronts cross below the waist, the ends finishing under the deep-pointed bands. Silk cord and pompons form a trimming.

Materials required; 2½ yards 44 inches wide, 1¾ yards lining, 1¼ yard, silk 22 inches wide.

The other drawings illustrate a rather simpler style tucked each side front to the bust, and at back to the waist. The deep oval opening is strapped at edge with the material, the vest being white fine cloth braided. The sleeves are tucked in the upper part, the tight under-sleeve matches the vest.

Materials required: 2½ yards 46 inches wide, ½ yard white cloth, about 8 buttons, and 1¾ yard lining.

## METHODS OF PERFUMING HATS.

Paper Box Lined with Silk Perhaps the Most Effective.

The perfumed hat fad grows apace, and every milliner has her own way of doing it.

"The essential thing," says one milliner, "is any kind of a box. But it must be large enough to hold the hat without crushing the feathers. One woman used a little tin ice chest which had been unused for a long time and was free from smell. A big white paper box can be set inside the tin one. Then comes the matter of scenting the paper box, which must be lined with silk.

"The most successful scented hat box I ever saw was made of paper and there were four inside pieces of silk which served to line it. They could be removed. When filled with scent they were simply overpowering and the paper hat box was a bower of the richest satchet. And into this the hat was placed.

"The cover was put on the paper box and the whole thing was set away in the tin chest. The chest being airtight held the scents within. And so, the hat became scented. It held its scent even in the wind for three months."

## PARISIAN "FLUFFY RUFFLES."



Plaited corselet skirt and jaquette of putty-colored cloth; waistcoat of black satin, and simple straw hat with gray and blue wings.

## Toilet Vinegar.

Here is a toilet vinegar which is simple enough to make: Lavender flowers, seven ounces; alcohol, eight fluid ounces; diluted acetic acid, 58 fluid ounces.

## CUSHIONS FOR SUMMER DIVANS.

Filet Covers Are Pretty and by No Means Hard to Make.

The woman who does not confine the cushions of her summer divans entirely to madras and washable cottons should have one of the new filet pillow covers which are much easier to make than they look.

The pillows should be quite small and flat, about the size used in baby coaches and the covers made of alternate squares of filet and hand embroidered linen, edged with Cluny lace, should button on that they may be often washed.

Select for the linen squares an open-work design in which eyelet work predominates; use only enough of the satin stitch to make stems or a few dots. Do not have too much work on these squares; the main thing is to have them quite open to show the colored silk or mercerized pillow cover beneath.

Even easier is one of the covers made from an entire filet square that just fits the pillow. The cover may be alike on both sides, or, if that is too expensive, the underside may be of sheer lawn or of inexpensive filet net.

Some of the imitation filet squares are very good looking and if dyed with tea to a creamy tint will make charming sofa pillows at comparatively little cost.

Sometimes these covers are finished with a narrow overcast seam; more often they have an edge of Cluny put on flat, without gathering. The combination of these two laces is particularly effective.

## The Outdoor Girl's Gloves.

Unless you are a typical outdoor girl with a large income, do not invest in chamois skin gloves for summer. The athletic girl who drives a great deal likes this large loose glove for rough wear, but they are not a good investment for the typical summer girl. They make the hand look large, and while they wash as clerks guarantee they will, like the chamois skin you use for cleaning windows, they have weak spots and wash through on the latter. A good silk glove is a far better investment, but do not be inveigled into buying brilliant blues, greens, purples and rose colors to match your silk or linen frock. White or soft shade of tan are in better taste; black gloves are hot in summer and should be worn by those in mourning only.

## The Cameo Popular.

Cameos seem to be with us to stay. According to a recent fashion note, they are even being utilized for the drop earrings that are fashionable just at present, and the dainty effects are to be found in large and small pins, in belt buckles and in bracelets. Perhaps there is no more effective use for the cameo than in a bracelet set in jet or old gold. One beautiful design noted in one of the shops recently was wide carved jet setting for a most delicately carved cameo. Then there are large brooches which are exquisitely outlined, and even hatpins. That the cameo is extremely popular is demonstrated by the many imitations, some of them exceedingly good, which are to be found.