

**HOMING PIGEONS IN NAVAL SERVICE.**

The United States Navy, in organizing a homing pigeon service, places itself in line with the European powers, who for some years have trained birds to cover many routes. Among other lines of flight, the German authorities have had pigeons trained to fly from the coasts of England to Germany—a very suggestive line of operation. In this country the Navy Department propose to establish some twenty-two cotes of pigeons along the coast. Allowing a homing radius of one hundred and fifty or two hundred miles, it will be evident that a wide belt of water along the coast could be thus covered. The object of the birds is to establish communication between vessels of the navy and the shore. The usual direction would be shoreward from a vessel, though for short distances the flight might be in the other direction.

The pigeon used is termed a homing pigeon. The popular term, carrier pigeon, does not belong to the message-carrying bird at all. The carrier pigeon is practically a fancy name which has attached itself to a special breed of pigeons.

Our illustration shows a pigeon house of a type adopted for use by the navy. It is a two-storied structure twelve feet square. It is divided within by partitions of wire gauze, so that the male and female birds can be separated if desired. Around the sides roosting brackets are secured. These are made of boards nailed together so as to form an inverted V, like a section of a board trough. The brackets project about one foot. It is found that roosting poles, such as used for chickens, are not advantageous, as one pugnacious bird will often take possession of an entire pole, and will drive others away from it.

One or both stories of the building are provided with a homing trap. One is shown on the second story to the left in the cut. An opening partly closed with wire gauze leads into the loft. The lower portion of the opening is closed by a number of short rods which hang loosely from a wire crossing the opening about six inches above its bottom. These rods swing freely in or out, so that a bird can pass through in either direction by pressing against the rods and pushing them forward. Near the bottom of the opening a couple of sockets are fastened to the inner faces of the frame. A wire dropped into these and outside of the row of swinging rods prevents them opening outward. When the rod is in place the comblike row of swinging rods acts as a valve. A pigeon can come in but cannot escape outward.

A homing pigeon coming from a distant ship flies at once to the trap and enters the house. Once in, he cannot fly out again. He is kept there in order that his message may be secured. On the shelf which may be termed the floor of the trap are two plates of thin iron, arranged so as to oscillate like a child's seesaw about an axis parallel with the wall of the loft. These cover the entire width of the shelf. A bird in entering walks across one of them and causes it to oscillate or balance over through a very small arc. As it does this it closes an electric circuit and rings an electric bell, which is placed in the attendant's office, so as to notify him of the arrival of a bird.

A peculiarly shaped door is shown in the cut, swung upward against the eaves of the roof. This is a wooden framework covered with wire gauze. When in place it shuts the trap within a cage, as the stationary frame projecting from the house is also covered in with wire gauze on its sides and top. This arrangement is used in training. Every bird to be used for homing purposes has to be taught to go through the trap. This is effected by shutting him up in the cage outside the

trap and by attracting him through it by distributing food on the floor inside. The birds may be kept in the cage with trap open for several days. Then the swinging rods are lowered, and an old bird is placed with those in training to show them the way through. They may also be passed through by hand to accustom them to the rods.

The training process consists in carrying the birds progressively increasing distances away from the home station and releasing them. The best system is to gradually increase the distance; diminishing it, or flying them "backward," as it is called, is considered bad practice. The wonderful achievements of the birds are as purely instinctive as any action can be. A slight change in the partitions of the house has been found to so disconcert them

that pigeons coming from a distance, during whose absence the change had been made, would not enter by the trap.

To identify each bird a ring of aluminum, bearing the year, the pigeon's number and any special mark, is placed on the leg. This is done when the pigeon is but a few days old. The three forward toes of the foot

the designation of the federal navy upon the under side of his pinions. This is stamped repeatedly upon a number of feathers, so that as long as any wing remains some impression of the stamp can still be read.

The messages are written on a sheet of thin paper about four by five inches area, with printed heading. They are put in aluminum capsules, very similar to druggists' gelatine capsules. These are secured by a little clamp to the leg.

The longest distance from which a bird has reached the New York navy yard is one hundred and fifty miles, from the neighborhood of the capes of the Delaware. Each bird is preferably trained in one direction only, and until in their second season the birds are not expected to fly anything exceeding a hundred mile flight. In careful short distance training not over ten per cent of the birds are lost. In long distance work one-half may be lost.

The cote is painted in stripes to make it conspicuous for the birds.

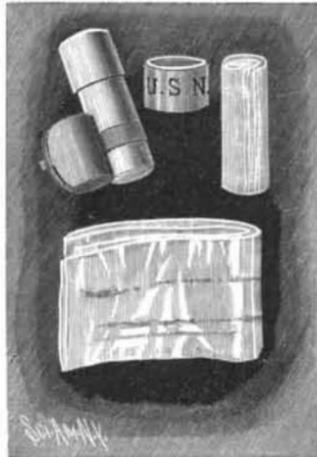
The present six stations, five distributed from Portsmouth, N. H., to Key West, Fla., and one at Mare Island, Cal., will be supplemented in part at least by stations at lighthouses. It was intended at one time to utilize life saving stations, but various reasons militated against the idea.

**The Early Use of Watertight Bulkheads.**

The division of a hull of a vessel into compartments is of a more distant period than is generally supposed. As early as the beginning of the nineteenth century the Chinese divided the holds of their trading vessels, intended for distant waters, into a number of smaller holds or spaces. Those compartments were separated by partitions or bulkheads made of three inch plank, and calked with a gum that was mixed with lime and threads of bamboo—a composition that readily hardened when brought into contact with water. The number of compartments depended upon the number of owners in the vessel. In a large vessel there were sometimes as many as one hundred, each partner shipping his goods in his own berth, which he fitted up to suit himself, and either went in person or sent one of his family to take charge of his property. At just what time this division of the hull was first adopted does not appear to have been recorded. It may have been very old at the period named. The compartments, it will be seen, were made for commercial economy rather than for the safety of the vessel. Use of bulkheads for safety purposes was probably first made in the Western rivers of the United States. As early as 1820, not ten years after the introduction of steam navigation on the Mississippi and Ohio rivers by Robert Fulton, the hull of the steamboat "Columbus," running between New Orleans and Shippingport, Kentucky, was torn open by a snag, but the vessel was "saved from sinking by having a snag room, which apartment alone was filled with water."—Cassier's Magazine.

To observe plants growing under the microscope The American Monthly Microscopical Journal says: Procure a little collomia seed. Take one of the seeds and with a razor cut off a very tiny slice, place it on a slide, cover with a cover glass and place under the microscope. The instrument must be in a

vertical position. When it is well focused and lighted, moisten it with a drop of water. The seed will absorb the moisture and throw out a very large number of spiral fibers, giving the appearance of veritable germination. Beginners will find it easier if one applies the moisture while the other looks through the instrument.



ALUMINUM CAPSULE AND MESSAGE.



STATION FOR HOMING PIGEON SERVICE OF THE UNITED STATES NAVY.

are placed together and the ring is slipped over them. The fourth rear toe is gently held against the leg pointing upward, and the ring is slipped over it. As the toe is released it goes back to its proper position and the ring is secure and may never come off until the death of the pigeon.

Each pigeon is also stamped in red indelible ink with