

## HOW A BIG BATTLESHIP IS HANDLED IN ACTION.

STIRRING SCENES ON DECK AND BELOW.

Few people outside the naval service know just how a war vessel goes into a fight. To put a battleship like the Iowa or Indiana in thorough readiness for action ordinarily requires about two hours, though, of course, it can be done in much less time in case of urgency.

There is one thing that makes it a comparatively simple and orderly task. On board a fighting vessel every man has a certain assigned post and a certain task laid out for him, with which he is perfectly familiar. This holds true from the captain himself down to the little coolies who wait on table for the different messes. When the signal is sounded it brings every man to his place, and long familiarity makes the work, so involved and complicated to the eyes of an outsider, a mere matter of routine.

If a ship engages an enemy unexpectedly, so that there is not the usual time for preparation, the call to quarters is sounded immediately and the men take their places in divisions. In this case each division attends to a part of the work of clearing the ship, but ordinarily the first signal is, "Clear for action!" At the boat-swain's whistle and the verbal command the men move to their positions, those whose places are on deck forming in squads under direction of the different officers. The captain takes his place on the bridge. Later, when the battle begins, he will go into the protected conning tower, through the narrow slits of which he can watch everything that takes place on deck and the movements of the enemy as well. But for the present, while the preparations are being made, he must decide the general plan of action, how the guns are to be used, and the class and nature of projectile on which he will depend.

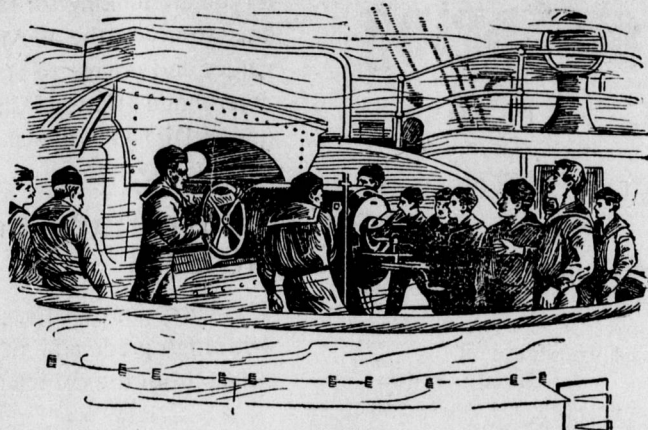
Near the captain stands the navigator, who will have charge of the handling of the ship during the engagement, the signal officers and the various aids. First of all, the decks and working spaces are cleared. The spars, rigging and boats are secured. Everything movable that will not be needed during the engagement is firmly lashed into place, where it will not interfere with the work. The topmen, who are in charge of the little platform high up on the mainmast, haul up arms and ammunition and make everything ready in their lofty quarters, even to filling the fire buckets with water with which to put out a blaze should one be started up aloft. The carpenter, under the direction of the navigator, sees to the removal of awning stanchions, hatch rails and every light object that is not essential to the management of the ship. The chronometers and other delicate instruments are carefully gathered up and laid away below, to save them from destruction by concussion. The torpedo division gets out its apparatus for sending torpedoes and spreads the intercepting nets over the ship's sides, where they can be quickly lowered if need be.

Below the activity is equally great. The engine fires are stirred up and steam is made as fast as possible, for a modern battleship is intended to go into action under a full head of steam. The steam and bilge pumps are rigged and the magazine squad stands to its post, but the magazines are not unlocked until the signal for action. The keys, however, are delivered to the officers of the powder division by the captain at the first signal.

When the ship is cleared the call to quarters is given and the men take their places in divisions. The gun squads stand to their guns and make them ready for use. The hatches, except those that will be used, are covered with gratings and tarpaulins, the carpenter collects his men and with the armorer stands ready to repair any damage that may be done by the ene-

geon, or "bull doctor," has been directing the laying out of cots, instruments and bandages. One hatchway, as near amidships as possible, is always left open for the passing down of wounded men. The surgeon may have no call upon his services, but the rule in every quarter of a battleship is, "Be prepared for the worst, and hope for the best."

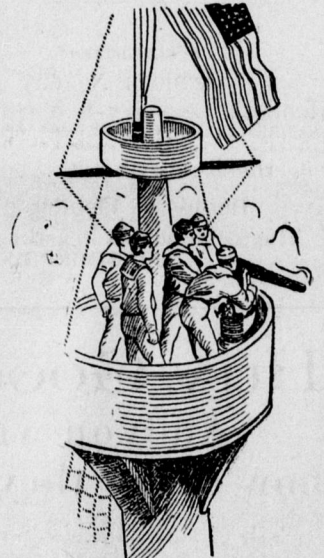
When everything is ready the officers move to their stations. If the ship is a monitor the battle hatches are closed, and the men at last hear



BATTLE SCENE ON THE GUN DECK.

the final command for which they have been impatiently waiting—"Action!"

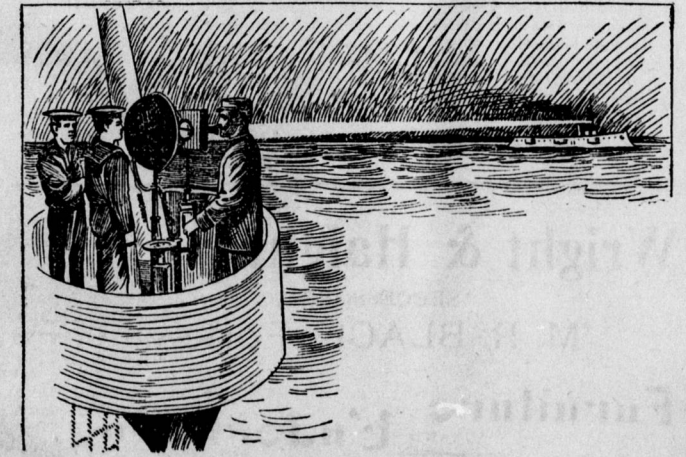
At that command the doors of the magazines are opened, and the men, who form the different chains of scuttles, begin to pass the cartridge cases up to the deck. The delivery of ammunition is in charge of the gunner. In modern naval fortunes the gunner is not, as many landlubbers suppose, the man who fires the cannon. He is a warrant officer, and his position is a most responsible one in time of action, for he must see to the prompt and steady delivery of cartridges, shells



WORKING A RAPID-FIRING GUN FROM THE CONNING TOWER.

and projectiles to all the guns. The chief gunner takes his position on the berth deck, where he can note the progress of the work; his chief assistant is below in the main magazine superintending the handing out of powder, and a quarter gunner is in charge of each of the other magazines and of the delivery on deck.

The charges are passed up from the magazines in wooden cases, which are



OPERATING A CRUISER'S SEARCHLIGHT.

my's fire or the recoil of the ship's cannon. A man with a lead line is placed at the well and during the fight will make frequent soundings to discover if the vessel is injured below the water line. The hose squad is in charge of the fire apparatus, ready for instant service. Chemical extinguishers are used on all the States warships now, and hand are placed in every quarter. Every precaution is taken to start in or near the

ick bay the head sur-

have come into use, though the work is still done by hand on some of the vessels.

"I believe in the hand lift for ammunition," says Rear Admiral Henry Erben, "because if you depend on electricity the cutting or breaking of a wire knocks you out, but if a man is out in two you can put another in his place."

A crew of sixteen men is required to man each of the big guns, such as the twelve-inch and thirteen-inch cannon of the Iowa and Indiana. They are divided into loaders, spongers, shellmen, handspikemen, sidetacklemen, intacklemen and porttacklemen, and are under the direction of a first and second gun captain. There is also a powderman, who delivers the charge to the gun, a fireman and a wreck clearer.

The firing of a pivot or turret gun requires ten separate commands. Most of these explain themselves. They are as follows:

1. Silence! Cast loose and provide!
2. Run in!

3. Shift pivot!
4. Serve, vent and sponge!
5. Load!
6. Run out!
7. Prime!
8. Point!
9. Ready, fire!
10. Shift and secure!

If the ship is under way the man with the range finder is kept busy calling off the distance of the enemy's ship or whatever the target may be. As each new distance is announced the gun is adjusted to that range. At the order to "Point," No. 1 of the gun crew adjusts the sights to his satisfaction, while all the others stand back from the gun. Then at the order "Ready!" he takes a final look, draws his lanyard and quickly repeats "Fire!"

In firing at a ship the target is always the waterline. Though the computing instruments now used are of great value, the only way to get the exact range now, as formerly, is to see whether the first shot falls short or over, and to move her a notch or let her down as the case may require.

The firing of this first shot releases the pentup tension of the preparations, which is succeeded by a fever of work. The lines of powder carriers and runner boys move steadily back and forward, the men in the turrets are soon blackened by powder and smoke until they look more like imps than human beings, but they work on as coolly as the engineers, far below, unmindful of shots that crash about them. All the splendid discipline and training of years makes itself felt in these few moments of fighting as the sailor boys drive their ship manfully on, still eager to know the issue of the conflict.

### Homes of the Anthracite Miners.

A group of papers dealing with the Pennsylvania Coal Regions appears in the Century. Jay Hambidge gives "An Artist's Impression of the Colliery Region." Mr. Hambidge says of one of the "patches" where the miners live: Each little house, with the boxes, cubby-holes and fences about it, has been built by the man who lives in it. And he is a laborer, a struggler for mere existence, not deft in the use of tools, nor with an eye for the symmetrical, nor with an appreciation for anything beyond the most primal facts of living. The roofs of the buildings slant at all angles, with no two sides of the same length or deflection. One portion will have eaves, while its companion will scorn the luxury. The same incongruity prevails everywhere. Some of the small openings used for windows are high, while others are low. One door will open in, and another out. The hinges have evidently come from the company scrap-heap, and the staples and latches and locks from the same source. Some of the roofs have shingles, others weather-boards, while others are formed of great pieces of rusty sheet-iron.

### Accommodating Mourners.

R. Talbot Kelly writes an article entitled "An Artist Among the Fellehen" for the Century. In speaking of the kindness of the Arabs, Mr. Kelly says:

Here is an instance of his willingness to oblige. I was making a sketch of the village cemetery, and wanted only a funeral procession to complete my study. I remarked to the old man: "What a pity there does not happen to be a funeral going on, so that I might put it in!" His reply took me by surprise; for, jumping up, he said: "There is a man ill in the village, and he must die soon. I'll go and hurry him!" And, sure enough, he hustled them all so much that an hour later my sketch was complete, and the man safely interred! And I believe that the bereaved family considered themselves especially honored by my interest in the ceremony!

### HELPS FOR HOUSEWIVES.

#### When Scouring Tins.

Cake tins and strainers that are greasy should be first washed in hot soda water and then scoured with a soapy flannel dipped into silver sand. When the surface is perfectly clean rinse in hot water and dry with a clean cloth. Afterward polish with a little dry whiting and finish off with a leather. Dish covers will never take a good polish unless washed with hot soda water and soap first. For the corners and carved part use an old plate brush.

#### To Prepare Suet.

To render suet for cooking purposes, cut it into small pieces while fresh and cover with cold water; let stand 24 hours, changing the water once during the time; this removes the tallowy taste. Drain well and put the pieces into an iron kettle with a smooth bottom surface and add half a teaspoonful of milk to each pound of suet. Let cook very slowly at first and moderately throughout until the fat is clear and light brown and all sound of cooking has ceased. Loosen the suet occasionally from the bottom of the kettle, but avoid stirring. Let stand until partly cold, then pour off into cups to become cold. This fat is as sweet and nice as butter and can be used in the place of butter for cooking purposes. The fat in the "scraps" can be pressed out and used for frying. It is not, of course, quite as nice as the first. When making piecrust of suet roll the crust with a large, old-fashioned bottle filled with warm water. For mince, apple or pumpkin pies, which are warmed for the table, suet is a perfect shortening. It is very nice for frying doughnuts if they are heated before being served.—Sarah E. Wilcox, in New England Homestead.

#### Kitchen Rules.

The following measures of capacity may be found useful to hang in the kitchen for easy reference, says a writer in Good Housekeeping:

Four even teaspoons of liquid equal one even tablespoonful.  
Three even teaspoonfuls of dry material equal one even tablespoonful.  
Sixteen tablespoonfuls liquid equal one cupful.  
Twelve tablespoonfuls dry material equal one cupful.  
Two cupfuls equal one pint.  
Four cupfuls equal one quart.  
Four cupfuls flour equal one quart or one pound.

Two cupfuls solid butter equal one pound.  
Two cupfuls granulated sugar equal one pound.  
Two and one-half cupfuls powdered sugar equal one pound.  
One pint milk or water equals one quart.  
One dozen eggs should weigh 1 1-2 pounds.

The following table of proportions is also valuable:

One teaspoonful soda to one cupful molasses.  
One teaspoonful soda to one pint sour milk.  
Three teaspoonfuls baking powder to one quart flour.  
One-half cupful yeast or one-quarter cake compressed yeast to one pint liquid.  
One teaspoonful extract to one loaf plain cake.  
One teaspoonful salt to two quarts flour.  
One teaspoonful salt to one quart soup.

One scant cupful of liquid to three full cupfuls of flour for muffins.  
One scant cupful of liquid to two full cupfuls of flour for batters.  
Four peppercorns, four cloves, one teaspoonful mixed herbs for each quart of water for soup stock.

#### Recipes.

Chicken Gelatin—Slice cold roast chicken and lay in a mold with alternate layers of cold boiled tongue and occasional slices of hard-boiled egg, and season with celery salt. Dissolve half an ounce of gelatin in a pint of clear brown gravy and pour it over the meat. It must stand for twelve hours to harden before cutting. It is a most appetizing dish, and a very nice way of preparing cold meat for tea.

Light Soup—Put a can of peas (reserving half a cupful), a small onion, one bay leaf, a sprig of parsley and teaspoonful of black pepper in a small stewpan and simmer for half an hour. Mash and add three cupfuls of good stock and let boil up. Strain, add one teaspoonful of cornstarch dissolved in a little cold water, one large teaspoonful of butter, and boil for ten minutes. Add one cupful of rich milk, half a cupful of peas, salt to taste and serve.

Prune Pudding—Beat up the yolks of six eggs and the whites of three; thin with a few spoonfuls of milk and stir in four spoonfuls of flour. Stone a pound of mashed prunes and mix them in with the other ingredients; also add a very small pinch of salt and two spoonfuls of grated ginger. Moisten the mixture with the greater part of a quart of milk, and tie the pudding in a buttered cloth and boil for two hours. Serve with a sweet butter sauce.

Fries—see of Beans—Soak over night one cup of large dried lima beans; drain, put on the fire in one quart of salted (one tablespoonful) water and simmer for two hours, or until thoroughly done, but not broken. When they are cooked, in another saucepan put two tablespoonfuls of butter, one tablespoonful of chopped parsley and the juice of a lemon; when the butter has quite melted throw in the drained beans, and lightly toss for a few moments. Serve in a border of plain boiled rice, when rice is not served for luncheon.

### CHINESE WOMAN PHYSICIAN.

She Is a Graduate of Ann Arbor and Is Very Competent.

The first native woman in China to hang out her shingle with an M. D. upon it is Ida Kahn, who recently graduated from Ann Arbor (Mich.) University. She came to this country about six years ago to study medicine



MISS IDA KAHN.

and now she has returned to her native town, Kin Kiang, on the Yangtse River.

Her countrymen doubtless consider her a new woman of the most advanced type, and at first she will probably have more time on her hands than patients on her list.

Ida Kahn, M. D., is imbued with the missionary spirit. Converted to Christianity herself before she left China, she hopes to be the means of converting others.

She was much liked at the Ann Arbor University, where she took the full medical course. She spoke English very well when she came to America, and successfully passed the examinations necessary for entrance to the class of medicine and surgery—an examination which required an English essay, correct in spelling, punctuation, capital letters, grammar and paragraphing, mathematics (arithmetic, algebra and geometry), physics, zoology, history and Latin.

The medical course required incessant and hard work. There were recitations and lectures in osteology, embryology and histology; operative, minor and general surgery, practical pathology, internal medicine and dermatology.

Ida Kahn not only gave her attention to these studies, but also went in for bacteriology, electro-therapeutics, and she became initiated in the mysteries of batteries, induction coils, electrodes and other appliances and made experiments in electro-physics and electro-physiology.

The charming oriental garb was only worn by the maiden from the flowery kingdom upon high days and holidays. On ordinary occasions she dressed like an American, a style which she liked so well that she intends to introduce some reforms in dress among her countrywomen.

#### New Antidote For Poison Arrows.

Major Ternan, who has returned to London from Uganda, reports that during the recent fighting Dr. Macpherson discovered an antidote for the poison in which the native arrows were dipped. The antidote consists in injecting a solution of strychnine. Hitherto people wounded with these arrows have always died, but Dr. Macpherson succeeded in bringing the wounded men around in about two hours.

#### Benefactor to the Bald Headed.

An entomologist says he has known a common garden wasp to kill 1,000 flies in a day. If we have ever said anything in derogation of the wasp and his heated terminal facilities, we trust that it will be considered as never having been spoken. Anybody or anything that will kill 1,000 flies in a single day is worthy of all praise, and the wasp will henceforth be persona grata among the bald-headed fraternity.—Boston Transcript.

#### A Floral Season For Hats.

It is said that a milliner, to be a success, needs quite as much artistic taste as an artist, and we cannot doubt the truth of this statement when we look upon some of the top-heavy examples of the new millinery.

Hats literally loaded with flowers stand out very conspicuously among the few which are less pretentious, and consequently in better taste, and it is evident that this is to be a floral season in the department of headgear. Some of the newest toques are made entirely of flowers and leaves. Fine flowers are used for the crown and brim and roses with the leaves wired into agrettes for the high trimming at one side. The craze for violets and violet tulle for hat trimming



LOADED WITH FLOWERS.

seems to have taken a new lease of life, and blossomed out in millions where we had thousands before. Bunches of white and purple violets are used together in one hat, making a very pretty contrast.

### SCIENTIFIC SCRAPS.

The normal temperature of fish is 77 degrees.

Humboldt said that a single pound of the finest spider webs would reach around the world.

One inch of rain falling upon one square mile is equivalent to about 17,500,000 gallons of water.

Oats grown on humus soil contain a much greater percentage of nitrogen than those on ordinary lands.

One of the constituents of the best qualities of varnish is a resin known as kauri, which is only found in New Zealand.

A dog has in his upper jaw six incisors, two canines and six molars on each side; in the lower, six incisors, two canines and seven molars on each side.

The beautiful and delicate colors observed on the eggs of birds are not very fast to light, more especially when they belong to the lighter class of color.

Vaticana is the name given to one of the latest asteroids discovered, No. 416, in honor of Father Boccardi of the Vatican observatory, who has computed its course.

Röntgen rays have proved of great assistance to the surgeons of the British army in dealing with gunshot wounds among the troops engaged in the luckless expedition on the Indian frontier.

According to the recent calculations of Professor J. C. Kapteyn of Amsterdam 900,000 miles a day is the velocity with which the sun and its planets are speeding through space in a northerly direction. The brightest star in that part of the heavens toward which we are going is the brilliant Vega in the constellation Lyra, a sun unquestionably much greater than ours. Every year, by Professor Kapteyn's estimate, we draw some three hundred million miles nearer to that star.

A writer in science describes a curious monstrosity which has come under his observation. This is a cock with no signs of spurs upon the tarsi, but with a couple of well-developed spurs upon the head, on either side of the comb, giving the creature the appearance of being horned. These mock spurs are not attached to the skull, whatever they may originally have been, but are loose. Instances are on record of spurs being grafted on to combs, but, so far, no similar case is known to have occurred in nature.

#### Story of a Famous Diamond.

Only two pure diamonds are known in Europe. One of them is the famous "Hope" diamond, and all sorts of rumors have been flying about lately regarding its sale. This famous diamond cannot be disposed of except by authorization of the Court of Chancery, and persons in charge at the court say no application has been made for its sale, but the mere fact of its being talked about brings up many interesting events of its history. Few have seen this historic gem, which, since 1870, has been in safe keeping in a London bank. Its history is one of the romances of great jewels, for it was brought by Tavernier from India in 1642, and sold a quarter of a century later to Louis XIV, who wore it on some occasions of great state. In 1792 it was stolen along with many other treasures, to lie hidden till 1830, when it appeared mysteriously in the London market, and was bought for \$90,000 by Mr. Henry Thomas Hope, but these figures are not supposed now to represent anything like its real value. During its wanderings two pieces have been cut from it—one of which found its way into the Duke of Brunswick's collection—making its present weight 44 1-4 carats. Experts distinguish this diamond from sapphires, not by color only, but by its isometric or cubic system of crystallization, that of the less valuable stone being hexagonal.

#### Lifting Redhot Steel by Magnets.

Every one knows that a magnet will attract and lift cold steel, but few have hitherto been aware that it will lift redhot metal. Yet this is done hourly at the plate mill of the Illinois Steel company. The magnets there are said to be capable of lifting five tons of redhot steel, and not only so, but each magnet will pick up half a dozen large steel plates and drop them, one at a time, with the regularity of clockwork. So cleverly and quickly do they conduct themselves that they seem endowed with almost human intelligence. The way these pieces of magnetized steel pick up the steel plates that require a derrick to hoist under any other circumstances and place them in the desired spot is said to be truly marvellous. A keen-witted electrician has solved the problem of operating the magnets so that the plates can be dropped one at a time.—Industries and Iron.

#### The Appetite of Plants.

Mr. H. W. Wiley, of the department of agriculture, says that the mineral food consumed by plants is of two kinds. Some minerals, such as phosphoric acid, potash, lime and magnesia, are essential to the nourishment of the plant. "But plants have also a general appetite for mineral substances, eating freely in addition to the quantity necessary to their proper nutrition." Mr. Wiley adds that plants seem to thrive best where their appetite for non-essential mineral food is gratified. He includes soda in this kind of plant food.

#### Juvenile Definitions.

A boy being asked to describe a kitten said: "A kitten is remarkable for rushing like mad at nothing whatever and stopping before it gets there." It must have been the same boy who thus defined scandal: "It is when nobody ain't done nothing, and somebody goes and tells."—Tit-Bits.