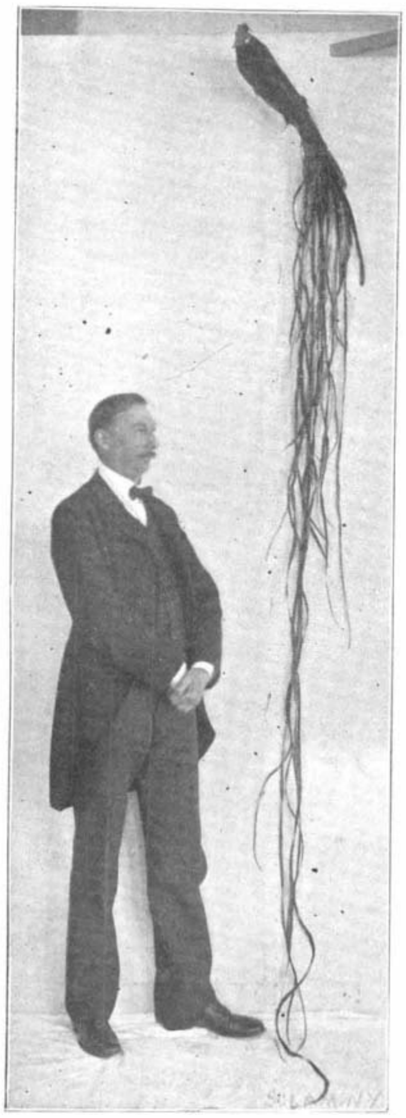
A LONG-TAILED BREED OF JAPANESE FOWLS.

BY WALTER L. BEASLEY.

The first specimen of the remarkable long-tailed breed of fowls from Japan to be seen in this country was recently received at the American Museum of Natural History. The magnificent tail feathers of this creature measure nearly 12 feet, and are strikingly set forth in comparison with the 6-foot figure shown in accompanying illustration. Mr. John Rowley, the taxidermist of the institution, will mount the new acquisition in a characteristic attitude, after which it will be installed in Bird Hall, where it will form one of the most interesting exhibits of that department. Prof. Bashford, Dean of Columbia University, last year visited the locality of the long-tailed fowls and had one grown for the Museum.



A LONG-TAILED JAPANESE HEN.

The introduction of the breed is said to have been brought about by a prince of Japan, whose imperial crest was a feather. Yearly he offered a prize to the subject who would bring to him the longest feather. The greatest effort and skill were therefore employed by the breeders to produce the greatest length of tail feathers possible. At present only a few old fanciers know the secret process of successfully breeding these fowls. A few authentic details have, however, been obtained in regard to the method of their breeding. The particular breed is confined to the region in and around Kochi, the capital of a province of Tasso. The breed is about a hundred years old and is fast dying out. There is said to be no artificial method of making the feathers grow. All is done by selection. Moreover one must know how to treat the birds during the various stages of tail growth. The body feathers springing from the shoulders attain a length of four feet. Two years is the time necessary to produce a full growth of tail. The tail feathers grow from four to seven inches a month. and continue to increase as long as the bird lives. which is usually from eight to ten years. The hens lay about thirty eggs in the spring and autumn. which are hatched by other fowl. The hens are kept housed up and sit all day on a flat perch, and are taken out only once in two days and allowed to walk half an hour or so. a man holding up the tails to prevent them from being torn or soiled. The birds are fed on unhulled rice and greens, and secret food known and prepared by the old fanciers themselves. They demand plenty of water and are wonderfully tame. The ordinary number of long-tail feathers possessed by each bird is fifteen or sixteen. About twice a month they are carefully washed in warm water, and afterward dried on some high place. usually a roof. The present price is $50 for a bird having a tail over 10 feet long. There are four varieties of the breed: White head and body feathers and tail black; second, white all over with yellow legs; third, red neck and body feathers; fourth, reddish color mixed with white on body. All these, with the exception of the second variety, have black tail feathers.

SALVAGE OF THE SCHOONER "MINNIE A. CAINE."

BY JAMES G. M'CURDY.

During the fierce gale that swept over the Puget Sound region Christmas Day, 1901, the four-masted wooden schooner "Minnie A. Caine" was cut loose by the tug that was endeavoring to tow her from Victoria, B. C., to Chemanius. Left to herself, and having every stitch of canvas blown away, during the night the vessel was driven ashore upon the rocky beach at Smith Island, lying at the eastern extremity of the Strait of Juan de Fuca.

The schooner struck at extreme high tide, and being light, she ran far up on the level beach. When morning dawned the craft was high and dry and those aboard had simply to descend the ship's ladder to the beach, where they were hospitably received by the government light-house keeper.

The "Caine" was a new vessel of 780 tons, and the insurance companies and uninsured owners were loath to regard her as a total loss. Although the vessel was not badly injured, the long distance she would have to be moved over the rock-strewn beach, and her exposure to the full sweep of fierce westerly winds, made the question of her salvage a very difficult one. The bids offered for her release were all considered too high, and in consequence those interested determined to attempt to float the craft themselves.

Operations were commenced in February, 1902, the plan of salvage being to raise the vessel above the level of the beach and force her seaward along a track of heavy timbers or "skids," by the use of hydraulic jack-screws.

A gang of laborers was put at work clearing away the sand from the schooner's hull, while heavy timbers, hydraulic jacks, blocks, tackle and other wrecking paraphernalia were brought to the scene. A cook house and lodgings for the workmen had to be constructed, and all the fresh water used had to be brought from Port Townsend on scows, a distance of 14 miles. The isolated position of the wreck added not a little to the difficulties of the task in hand.

As soon as the sand had been sufficiently removed, supports for the jacks were built up of blocking. Cleats nailed to the vessel's hull sustained the upward lift of the hydraulic screws. When the schooner had been raised some distance from her sandy bed, it was found that the sharp bowlders had cut through the hull in several places, and that the keel was splintered and broken.

The holes were covered over with planking and rows of heavy timbers were placed beneath the keel. Then the bowlders lying to seaward were shattered by dynamite and removed, and the skidding continued for a considerable distance down the beach. By careful manipulation of the jacks, the vessel was shoved seaward about 45 feet along the improvised ways. In order to take advantage of low tides, all work had to be done at night.

Thus far the weather had been favorable, but now, when a few days more would have seen the schooner afloat, a gale sprang up from the westward, and in a few hours the heavy sea had destroyed all that weeks of weary work had accomplished.

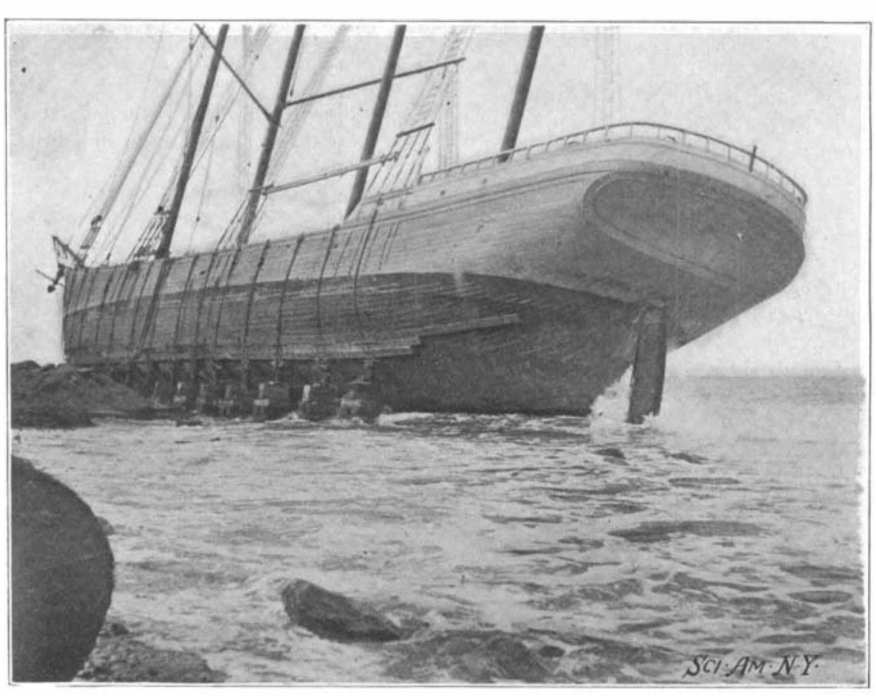
The skidding was washed out and the vessel was thrown back upon the beach. Then came a period of about six weeks when the tides were not low enough to permit of any work being done.

In April operations were resumed. Ebb tide now occurred in the daytime, allowing the work to be carried on much more expeditiously. The skidding was replaced, the jacks were put into position and soon the ship was got moving down the pathway toward the sea for the second time. Before long, however, another violent wind came on and the timber work was again torn out; but the vessel was held to her new position by the use of heavy anchors.

During the ebb tide men were kept shoveling sand from about her hull, while at the flood the winches aboard the schooner were kept straining at the wire cables made fast to the anchors planted to seaward. A tug-boat was called and took several pulls at the stranded vessel, but could not budge her.

Two powerful tugs were next engaged to be on hand May 10, to take advantage of one of the highest tides of the year and make a supreme effort toward floating the craft. Meanwhile the winches were kept going constantly, fighting for every inch of cable that the four-fold purchase would yield.

Finally, on the evening of May 9, the steady pressure told, and the "Caine" slid back into her native element, after being a prisoner for nearly five months. One of the waiting tugs took her in tow and hurried her to Moran's drydock at Seattle, where she will receive a complete overhauling. The salvage operations cost in round numbers $20,000 and the repair bill will amount to at least $10,000 more. But as the vessel had cost $65,000 the year before, her owners were well satisfied with the outcome of their efforts.

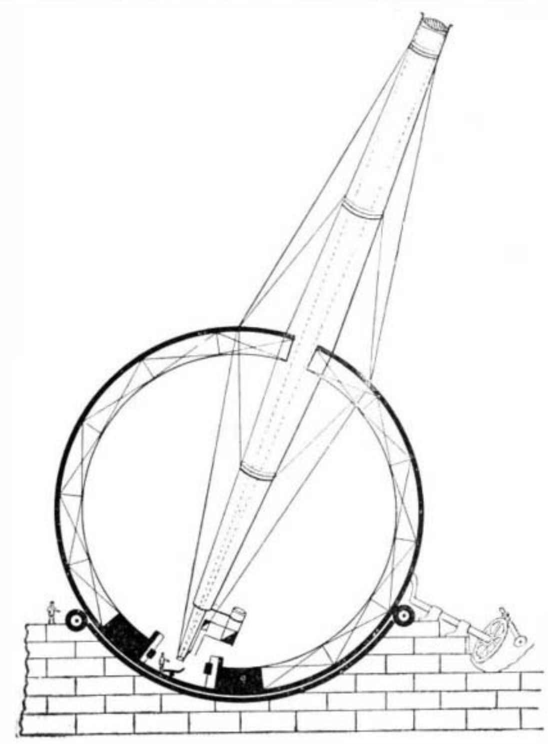


WRECKED SCHOONER "CAINE;" SHOWING LINE OF HYDRAULIC JACKS BY WHICH SHE WAS LIFTED FOR INSERTING LAUNCHING WAYS.

PLANS FOR A GREAT TELESCOPE.

BY MARY PROCTOR.

Prof. Todd, of Amherst College Observatory, has devised an ingenious plan for constructing a telescope. on the model of a gigantic eye, 100 feet in diameter, with a pupil represented by an object-glass 5 feet wide. A tube 200 feet in length, occupying the position shown in the illustration, is designed to extend 100 feet beyond the exterior of the sphere. The focus of the telescope falls on the interior of the sphere, at the point where the retina of the eye is located, and here the eye-pieces, spectroscopes, and photographic cameras are to be placed under the control of the observer. The entire sphere is to be floated in a zonal basin constructed within brick or stone masonry, about 25 feet in depth and from 100 to 120 feet square. By this means the utmost ease of motion may be acquired in directing the sphere.



PROF. TODD'S PLAN FOR A TELESCOPE.

In order that the observer may enter the sphere, the tube must be placed in a nearly horizontal position, the observer entering through a door in the tube, at a point close to the sphere itself. He then walks along a pathway leading to the adjustable platform, where the eye-pieces and other accessories are stationed. This platform is delicately poised by means of weights which are so adjusted, that if additional observers are admitted on the platform, their equivalent weight must first be removed before observations begin. This swinging platform may be compared to the glass crystal of a ship's chronometer, being mounted in the same way, always maintaining a horizontal position, no matter in what direction the axis of the telescope is pointed.

From this platform, and extending through an opening in the sphere, is an electrical cable controlling an exterior automatic apparatus, by means of which the telescope may be pointed in the necessary direction for altitude, azimuth, in declination or right ascension. These specified motions may be obtained by means of a series of rubber-faced wheels, mounted on oscillating forks or levers, three wheels being necessary for each co-ordinate, and the required speed being controlled by electric motors. The cable connection inside the platform enables the observer to use any set of co-ordinates he may need, it being possible, of course, only to use one set at a time.

Following the design of the antique armilary sphere, a series of automatic-setting devices for the horizon and equinoctial system of co-ordinates is advisable, these setting-systems being gimbal-mounted and controlled by means of a pendulum. In order that the eye-piece of the finder of the telescope may be as close to the eye-piece of the great tube as possible, Prof. Todd considers a finder with a duplex Coudé tube essential.

With regard to the clockwork required for controlling the moving parts of the telescope, such as the dome and observing platform, exceptional power is needed. Prof. Todd suggests that the mechanism should consist of electric motors controlled by the observer from his chair, thus making a change of level in the floor or the observer's chair unnecessary. In the present style of mounting, the dome is separate from the rest of the structure, and means must be provided for rotating it in the required direction, while Prof. Todd's suggested form of mounting a telescope, either refractor or reflector, is one in which the telescope, observing-floor and dome, are all combined in one.

When not in use the exterior tube of the telescope is lowered nearly level with the ground, and the objective is sheltered beneath a movable roof, like that of a transit-room. In this way, the objective is accessible at any time for the purpose of adjustment or repairs. If such a telescope were placed on a high mountain, it would be possible to keep the interior of the sphere at a comfortable temperature by means of electric heaters, and within a compartment of the sphere, a barometric pressure might be maintained by artificial means.

Prof. Todd estimates the price of such a telescope, as follows:

Sphere	$175,000
Five-foot objective	75,000
Masonry and cement basin..........	5,000
Clock work and motion.............	10,000
Tubes and eye-piece accessories......	10,000
Total	$275,000

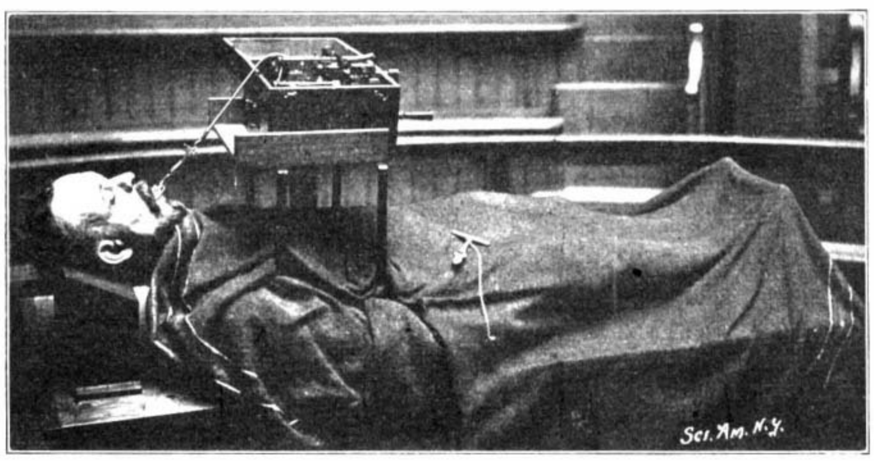
Prof. Todd is well known for his mechanical ingenuity, and has worked out the detail of his scheme very thoroughly, having had it in mind for the past twenty-five years. He had received much encouragement from expert engineers and telescope builders with regard to the efficiency of his plan.

Great telescopes have helped astronomers to make important discoveries, such as that of the planet Uranus, first seen in Herschel's reflector; the satellites of Mars, discovered by Asaph Hall in 1877, with the Washington 26-inch refractor; and the fifth satellite of Jupiter, first glimpsed with the 36-inch Lick Observatory telescope. At the time of these discoveries, these great telescopes made such celestial finds possible. What may not be the result awaiting such a telescope as Prof. Todd has planned?

TONGUE-TRACTION FOR RESUSCITATION OF THE ASPHYXIATED.

It has long been known that rhythmical traction of the tongue is one of the most efficient means for the resuscitation of persons who have been drowned. Dr. Laborde, of Paris, who has carried on extensive investigations on the effect of tongue traction as a means of resuscitation, maintains that often, although the organism has apparently ceased to live externally, it still lives internally. That is to say, life is still latent; and as long as there is latent life, there is still hope of saving an asphyxiated or drowned person. The function which it is most necessary to revive is the respiratory. Experimenting upon dogs, Dr. Laborde found that two or three hours after apparent death had set in, it was sometimes possible to secure resuscitation. A vigorous half bull dog weighing 35 pounds was chloroformed to such an extent that respiration had entirely ceased; after a quarter of an hour's traction of the tongue, the animal came to. The experiment was tried again until complete asphyxiation occurred, and traction was not resorted to until five minutes after. The dog, who bears the appropriate name of Lazarus, this time appeared to be really dead. One hour and two hours of traction were followed by no result. But after another one-half hour, a respiratory cough showed that life was still present. The dog soon revived. It occurred to Dr. Laborde that it would be a good idea to substitute an automatic apparatus for the cloth-covered hand. The first apparatus made was driven by clockwork. The more improved apparatus now used is operated by means of an electric motor, the current being supplied by a secondary battery. By means of this improved instrument it is possible to subject the tongue to continuous traction for three hours.

TONGUE-TRACTION BY HAND.



TONGUE-TRACTION BY THE LABORDE ELECTRIC APPARATUS.

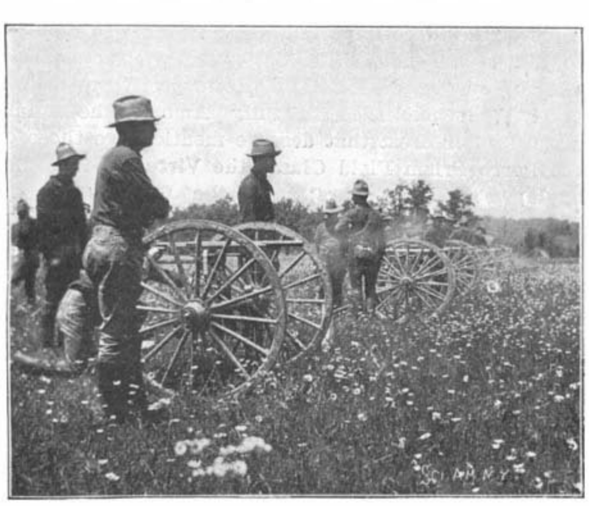
THE MILITIA AND THE COLT AUTOMATIC GUN.

BY G. E. STONEBRIDGE.

After a practice march of seven days over the roads of Long Island, the 3d Battery of the New York National Guard arrived on the eighth day at the rifle grounds at Creedmoor, and used their guns with results that left no doubt as to what would happen if the fire were directed toward an advancing enemy. This battery was formerly armed with Gatling guns, but has now been supplied with the Colt automatic rifle, one of the most deadly machines in existence. The gun weighs only 40 pounds, and the battery is provided with mounts of three kinds, so that it is only the work of a few seconds to transfer a gun from a disabled mount to a good one. One mount is on the carriage, one on the limber, and a tripod, that can be spread and set up in a few moments in any desired location, composes the third. The battery has six carriages and caissons, and six extra guns and tripods, making twelve guns in all with eighteen mounts.

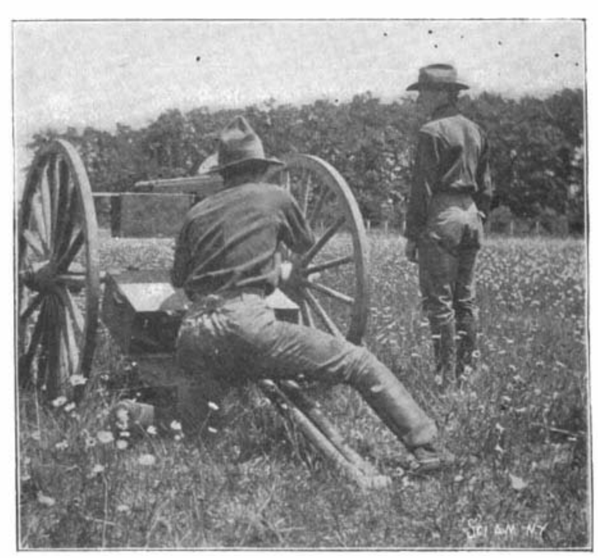
On the range at Creedmoor the battery first went into position at 200 yards and moved back by easy stages until the limit of the range was reached at 1200 yards. The cartridges, on a canvas belt, pass into the gun on the left side, and the empty belt emerges on the right side, while the shells are drawn back and ejected through an aperture near the top. On the under side of the barrel, about six inches from the muzzle, is the gas check, the automaton that does all the work. At each shot the explosion throws this lever downward, swinging it back against the gun. It is this motion that works the interior mechanism which loads, fires and ejects the shell. Eight shots per second, or nearly 500 per minute, is the usual performance of this gun. When a battery of these destroyers is viciously pouring out its rain of destruction, no living thing can stay in its arc of fire. The 3d Battery uses a .30 caliber gun, and smokeless powder. While the stream of bullets is pouring from the muzzle a faint vapor can be seen, but it vanishes the moment firing ceases, and the location of the gun cannot be detected by smoke.

The weapon is made ready for firing by throwing down the gas lever, this action bringing the first cartridge into position. The first shot is then fired by pulling the trigger. The firing then continues until the ammunition is exhausted. The belts of cartridges are folded in layers in a small box, which is hung on the side of the gun, and which feeds unceasingly until no more remain. The empty belts, when rolled up, look like a common lamp wick and can be placed in a coat pocket. The loading tool is quite as ingenious as the gun and resembles a hand sewing-machine. One man feeds the machine with cartridges, a second turns a crank, while a third guides the loaded belt into the boxes. This little machine sews the loaded shells into the belts as fast



Five Hundred Shots per Minute with Smokeless Powder.

Charging the Belts.



A Gun in Action, Using Smokeless Powder.

THE MILITIA AND THE COLT AUTOMATIC GUN.