MONCRIEFF GUN CARRIAGES FOR RUSSIAN IRON CLADS.

Messrs. Easton and Anderson recently issued invitations to officers of Government manufacturing departments and foreign attaches to visit their works at Erith, in order to inspect the Moncrieff gun carriages made by them for the new Russian ironclad Catherine II. This vessel will probably have about 10,000 tons displacement. She is to carry six 50½ ton breech-loading guns in a central breastwork with steel plate protection overhead, somewhat resembling that adopted by the French in the Admiral Duperre and other barbette ships. The general form and position of the breastwork may be seen in Fig. 1. The guns are in pairs on turntables, and have a large scope of all-round fire. The breastwork only extends to a height of 22 inches above the surrounding deck, so that the battery is not conspicuous, and the guns but little exposed to view even when in their firing position. The breastwork consists of 12 inch compound plates made under Messrs. Cammell's direction in the new Russian factories, backed by about 12 inches of wood and a strong framework. The gun is very powerful. The projectile weighs 731 pounds, and the muzzle velocity is estimated at 1,950 feet per second. This gives 19,260 foot tons energy, with a perforation per inch circumference of 511·2 foot tons, which is equivalent to the perforation of about 23·7 inches of iron. The rule of thumb would give 23·4 inches, this being a case where the sectional density of the projectile is very high. The gun itself is made on the Krupp system. We do not ourselves, says the *Engineer*, like the section—a large heavy central tube is strengthened by several layers of short steel hoops over it. The whole of the longitudinal strain falls on the inner tube, which supports the wedge on the Krupp system.

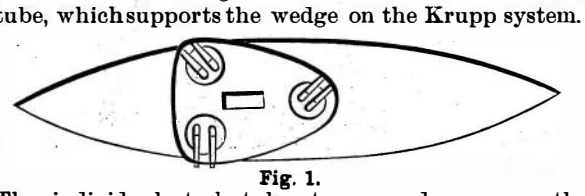


Fig. 1.

The individual steel tubes taper, and consequently their thickness from end to end varies, we think, too much. We believe that in future patterns the Russians contemplate the adoption of the interrupted screw breech in place of the Krupp wedge. Whatever may be thought of the details, however, the gun is very powerful, and the battery, of course, most formidable. As six ships are to be made nearly of the same type and power, the addition to the Russian navy is very important.

The following is a description of the parts shown as far as possible in Fig. 2.

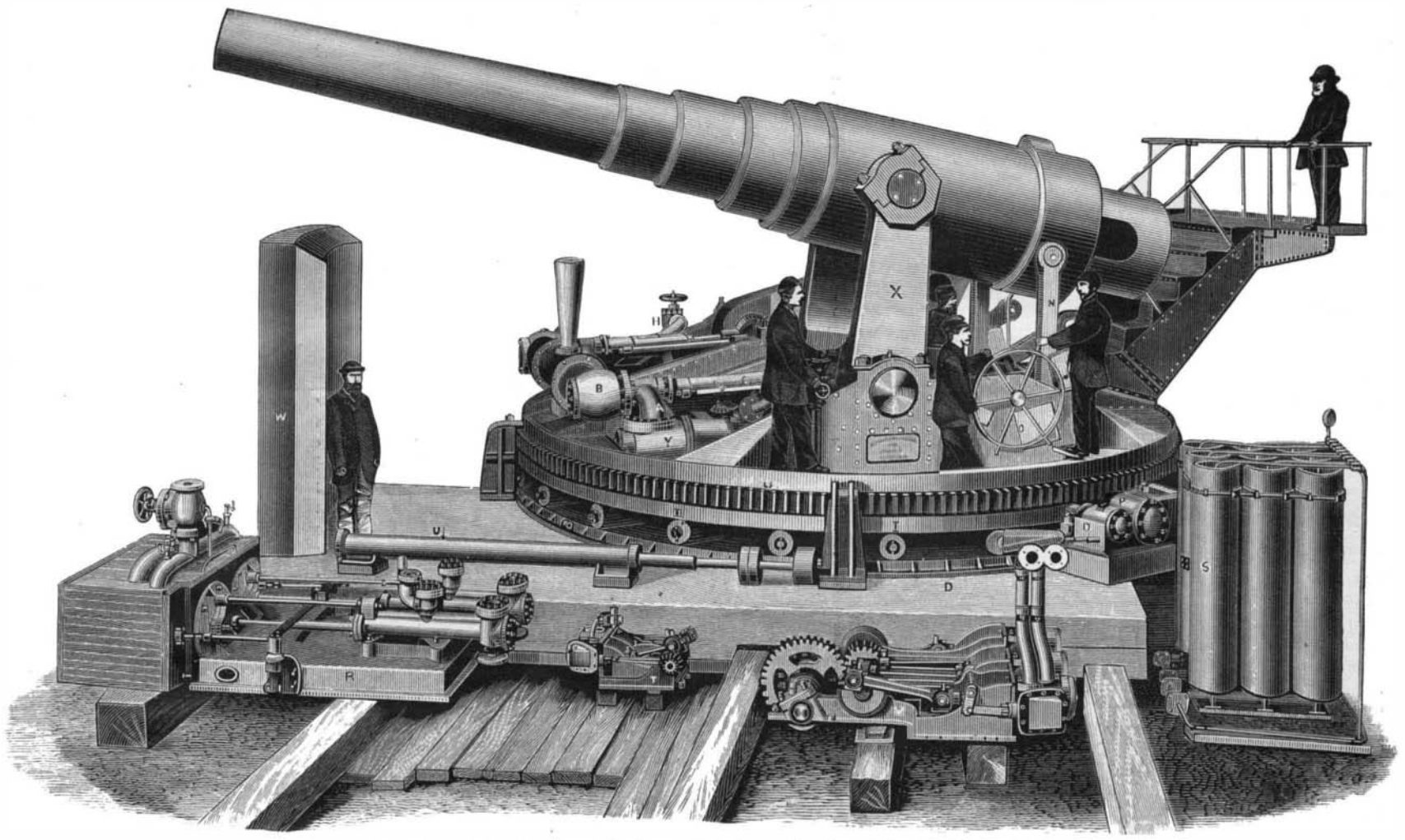


Fig. 2.—MONCRIEFF GUN CARRIAGES FOR RUSSIAN IRONCLADS.

The mounting shown in Fig. 2 consists of a cast steel roller path, D, in segments 21 feet 9 inches—6·63 meters—diameter, secured to the main deck of the ship, upon which revolves upon twenty-two live rollers, III, and round a hollow steel central pivot, a platform composed of a cast steel ring, L, filled in with a thick wrought iron deck, to which, as well as to the outer ring, two pairs of gun carriage sides, J, are boltedand riveted. The carriage sides are hollow, and composed of pairs of steel plates riveted to steel distance pieces. Each pair of sides carries, in bearings fitted with cap squares, a rocking shaft, C, on which is secured a pair of levers, X, the upper ends of which are formed into the trunnion bearings for the gun, and are fitted with cap squares, while the lower ends of the levers have threaded through them a spindle, on to which is coupled a pair of connecting rods, the tail ends of which terminate in spherical ends, which abut against

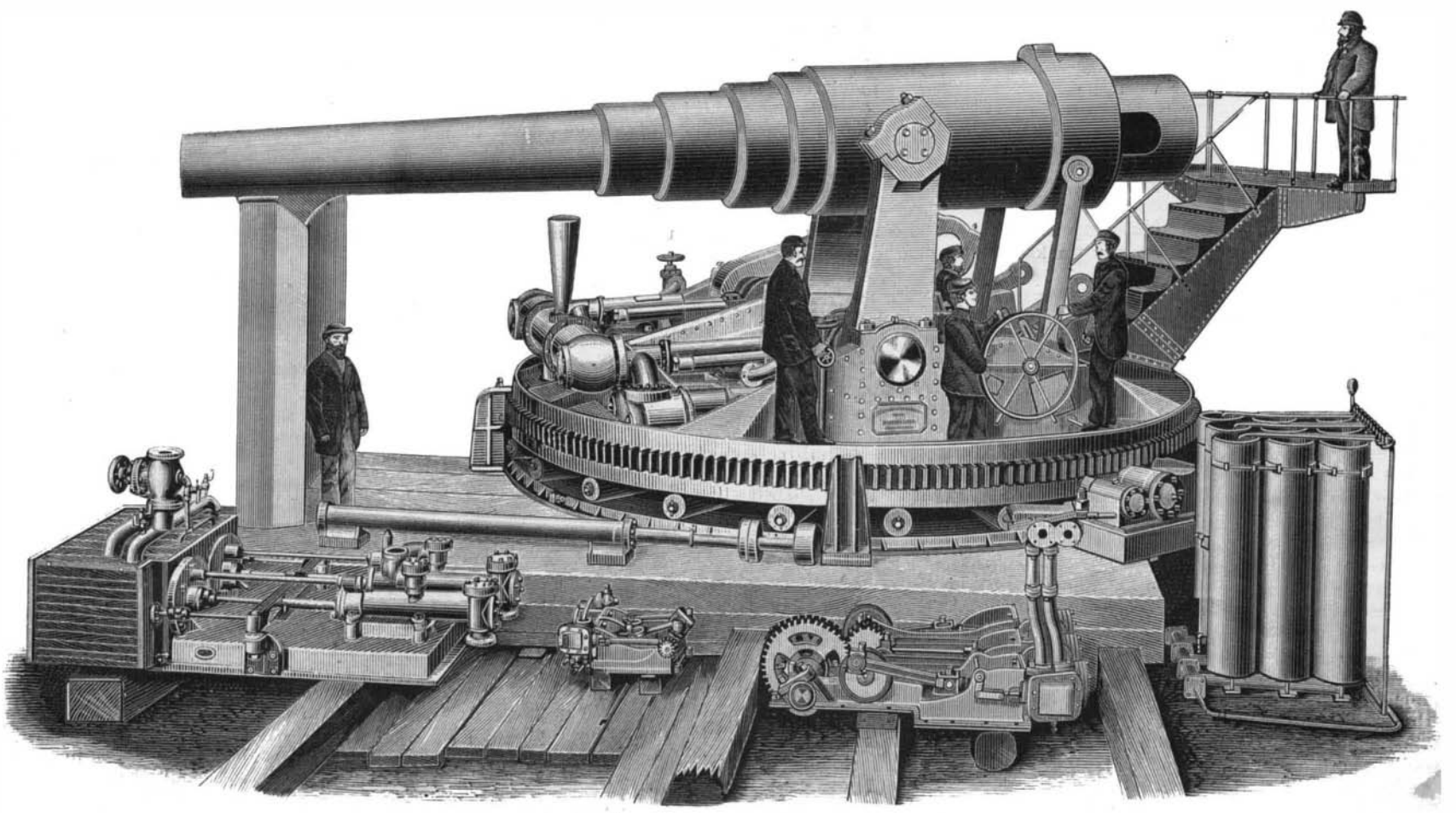


Fig. 3.—MONCRIEFF GUN CARRIAGES FOR RUSSIAN IRONCLADS.

the bottom of the steel hollow plungers, which work into the recoil cylinders. These cylinders, Y, are placed in the forward end of the carriage under the gun, and are secured by bolts and rivets to the carriage sides and to each other. To the upper forward end of each cylinder is fitted an escape pipe, A, which joins a recoil valve chest, B, common to each pair of cylinders. The recoil valve consists of an ordinary conical valve fitted with a strong steel spindle, which passes through a balancing cylinder and stuffing box toward the main rocking shaft, C, which carries the gun.

Inasmuch as the weight of the gun has more and more effect on the plungers as it falls, it is necessary to vary the load on the recoil valve, because a hydraulic pressure which would be sufficient to hold up the gun in any position will be too great to allow the gun to recoil down to the proper loading position. This adjustment is effected by loading the recoil valve by means of disk springs, E, threaded on its spindle and abutting on a crosshead, F, which is connected by means of a pair of tension rods with a cam movement on the main rocking shaft, the cams being so arranged that there is least tension on the springs when the gun is up, and most when it is quite down.

Gun Mounting on the Moncrieff Disappearing System, to mount two 12-inch breech-loading rifled guns of 50½ tons weight, for the Imperial Russian Navy. By Easton & Anderson, 3 Whitehall Place, London, and Erith Ironworks.

Caliber of gun	12 in.	305 mm.
Length over all	30 ft.	9.14 meters.
Weight	50·47 tons	51,271 kilos.
Weight of shot	731 lb.	331·5 kilos.
Weight of powder	248 lb.	112·4 kilos.
Muzzle velocity	1,950 ft.	591·3 meters.
Weight of carriage	100 tons.	101,134 kilos.
Fall of g n	4 ft.	1·22 meters.
Diameter of turrets	35 ft. 6 in.	10·82 meters.
Height of turret	9 ft.	2·74 meters.

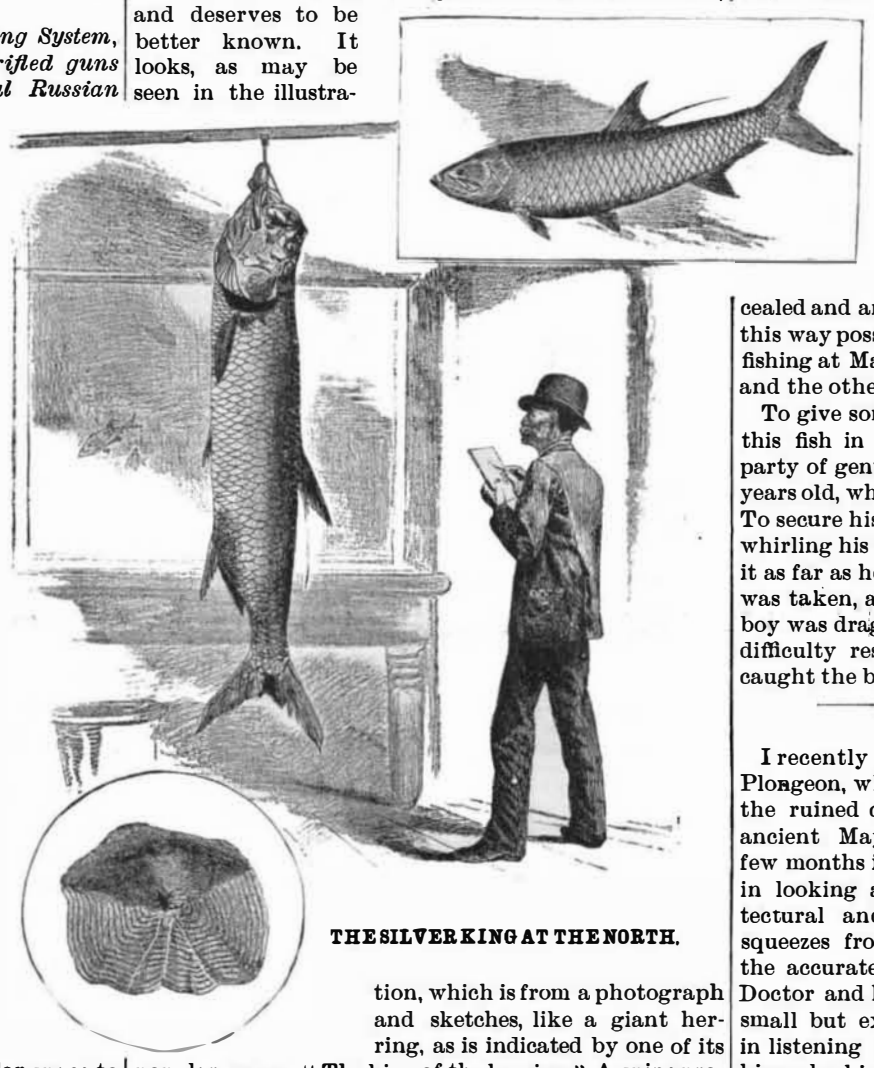
The outer end of the valve spindle is screwed, and carries a disk and pair of nuts, by means of which any desired initial tension may be placed on the springs. The pressure in the recoil cylinders during discharge is expected to vary between 48 atmospheres and 55 atmospheres. The water from the recoil valves is discharged into a large cast iron pipe common to both pairs of cylinders, by means of which it is conveyed into the central pivot casting, and so back into the tank from which the pressure pumps draw their water. For raising the guns, water, under about 66 atmospheres pressure, is admitted to the rear and upper end of the cylinders, that is, the ends nearest the center of the carriage, by means of a stop valve controlled from the side of the carriage. The plungers do not fit their cylinders fully, but terminate in pistons of a little larger diameter, through which there are holes which always keep up a free waterway between the forward end of the cylinders and the annular space to the rear of the pistons.

The pipes, H H, by which the water for raising the gun enters, communicate with the cylinders close to their glands, the water makes its way freely through the pistons to the forward end until the pistons reach the opening of the pipes, and then, as the gun rises further, the pistons gradually close the opening, and thus by throttling the water bring the gun gradually to rest in its firing position. The guns can be lowered slowly by letting the water escape from the cylinders through a small screw stop valve placed beside the main lifting valve, the water in this case also returning to the pump tank. The rotation of the gun platform is effected by means of teeth, L, cast in the upper roller path which forms the frame of the platform. Into these teeth gears a cast steel pinion keyed on a vertical shaft, which descends through the main deck to that beneath, M, where it is actuated by a double-acting three-cylinder engine, the movement of which can be controlled through the center pivot by means of a system of rods and levers worked by hydraulic notch hand gear placed between the pair of guns. The elevation of the guns is accomplished by elevating bars, N, attached at their upper ends to trunnions formed on the rear ends of the guns, and at their lower ends to screw lifting gear contrived in the hollow carriage sides about O, and so adjusted in form and disposition that the guns always recoil into the same loading position, whatever the elevation may be. The gun platform is prevented from turning excessively from the discharge of a single gun by means of a brake, P, worked by hydraulic pressure, and it is locked in the loading position by a bolt, which is shot by the same agency; the application both of the brake and of the bolt is performed automatically by the hydraulic hand gear for rotating the platform.

Hydraulic pressure is supplied by means of a direct-acting automatic duplex pumping engine, R, capable of delivering 20 cubic feet per minute under a pressure of 66 atmospheres; this pump may be placed in any convenient position in the ship. The water under pressure is pumped into an air accumulator, S, composed of nine steel vessels grouped together, and of a capacity sufficient to raise both guns once into the firing position without the assistance of the pump. The compressed air in the accumulator is supplied by a small torpedo air compressing pump. The ammunition is served by means of an inclined endless chain actuated by small steam engines, T, and is rammed home by means of telescopic hydraulic rammers, U; the sighting platform may be seen at V, and a piece of barbette wall at W.

THE SILVER KING IN NORTHERN WATERS.

A tarpon (*Megalops thrissoides*), or silver king, as it is often called, measuring 5 feet 9 inches, and weighing, when taken, 110 pounds, was caught last Monday (August 17) in a seine by a fisherman off Sea Bright, New Jersey, and exhibited at the stall of Eugene Blackford, the fish commissioner. This fish, though rarely taken in Northern waters, is very abundant about the coasts of Florida and throughout the Gulf of Mexico, and deserves to be better known. It looks, as may be seen in the illustration, which is from a photograph and sketches, like a giant herring, as is indicated by one of its popular names, "The king of the herring." A spine projecting back of the dorsal fin measures 12 inches in length, and looks like a terrible weapon of offense or defense, though there is no account of its being used as such. One peculiarity of this beautiful fish is its large and brilliant scales, measuring on an average over three inches across, covered with a luster that resembles silver, and in part somewhat translucent, showing beautiful red markings, when fresh and held against the light, like thin cowry shells. They are used in Florida in the manufacture of artificial jewelry.



THE SILVER KING AT THE NORTH.

If required to name the best North American game fish, the one whose capture is accompanied with the greatest amount of pleasurable excitement, the one requiring the greatest amount of skilled and practiced muscle on the part of its captors, I would unhesitatingly give preference to the silver king; multiply the vigorous resistance of a 24 pound salmon by five or six or a large bluefish by a multiple twice as great, and you have some idea of the difficulty of landing a full grown silver king. A fish takes your bait with a rush. If inexperienced in tarpon, your finger is cut to the bone. The line fairly whistles as it leaves the spinning reel. It all runs out, parts at its weakest point, and the fish carries your tackle out to sea. Many are hooked, but very few caught.

There is, or was, I believe, a standing offer to pay for an excursion ticket to Florida and three months' expenses to any one who would land a tarpon with rod and reel, so difficult is the taking of this fish; and yet that the difficulties of thus catching them are not insurmountable may be seen from the account published in the SCIENTIFIC AMERICAN of May 23, 1885, of a specimen weighing 93 pounds, having been taken on a 21 thread line and 5 foot bamboo rod.

The experience of Mr. W. H. Wood can be had by any skilled fisherman with suitable tackle. At present, tarpon fishing is scarcely known as a sport, and the best means and appliances for taking the fish are scarcely determined. The inside of the mouth is very tough and elastic, and the fish seems to possess the power of ejecting the bait by protruding its fleshy tongue. The upper jaw is armed with minute teeth; and consisting, as it does, of movable plates working against the upward pointing lower jaw, invariably cuts the line, which necessitates the use of plain wire, to which the hooks are soldered, or some such device to secure a hold. A writer in the *American Angler* for Dec. 15, 1883, recommends the following barbarous and possibly unsportsmanlike rig for the capture of this noble fish:

"I take the heaviest piano wire obtainable, and make three joints four inches long and three six inches in length. The joints of the links are made by heating the wire in the fire, bending each end, allowing half an inch for soldering. Before soldering, I polish each piece of wire with emery paper, and tin it to prevent rusting. To the upper link I attach a strong brass swivel, two and a half inches long. I wrap the ends of the wire below the loops with fine copper wire, and finish the job with common solder. I use hooks two inches from tip to shank. To each of the three lower links I solder two hooks at a right angle. When completed, the hooks are in two lines. For bait, I cut a mullet in half from mouth to tail. I pass one hook through the eye, one amidships, and the other near the tail. Three hooks pass through the bait with points exposed, and the three others pass beyond the edge of the bait. In addition, I take a packing needle and fine twine, and tie the links to the bait. By adopting this course I make an attraction, and armed with hooks partially concealed and an almost invisible snood. Tackle rigged in this way possesses great strength, for the last time I was fishing at Mayport, I captured two sharks, one seven and the other nine feet in length, with my tarpon rig."

To give some idea of the almost resistless power of this fish in making "a rush," the story is told of a party of gentlemen, among whom was a lad fourteen years old, who were fishing in the surf at Pelican Island. To secure his line, the boy had tied it about his waist; whirling his weighted hook about his head, he threw it as far as he could out to sea. In a moment his bait was taken, and in another the screaming, struggling boy was dragged into the surf, from which he was with difficulty rescued by his companions. The fish had caught the boy.

The Art of Ancient Yucatan.

I recently passed an evening with Dr. and Mrs. Le Plongeon, who, after twelve years spent in exploring the ruined cities of Yucatan and the modern and ancient Maya language and character, are passing a few months in this country. The evening was passed in looking at photographs of the remains of architectural and plastic art, in examining tracings and squeezes from the walls of the buildings, in studying the accurate plans and measurements made by the Doctor and his wife of these structures, in reviewing a small but exceedingly choice collection of relics, and in listening to the Doctor's explanation of the Maya hieroglyphic system. Whatever opinion may be entertained of the analogies which the Doctor thinks he has discovered between Maya culture and language and those of Asia and Africa, no one who, as I had the privilege of doing, goes over the actual product of his labors and those of his accomplished wife, can doubt the magnitude of his discoveries and the new and valuable light they throw upon ancient Maya civilization. They correct in various instances the hasty deductions of Charney, and they prove that buried under the tropical growth of the Yucatan forests still remain monuments of art that would surprise the world were they exhumed and rendered accessible to students — *Dr. D. G. Brinton, in the American Antiquarian.*

The Jewish Population of the World.

The *Bulletin* of the Geographical Society of Marseilles estimates the total number of Jews in the world at 6,377,602—that is, 5,407,602 in Europe, 245,000 in Asia, 413,000 in Africa, 300,000 in America, and 12,000 in Oceania. The European Jews are distributed as follows: 1,643,708 in Austria-Hungary, 561,612 in Germany, 60,000 in Great Britain, 3,000 in Belgium, 3,946 in Denmark, 1,900 in Spain, 70,000 in France, 2,652 in Greece, 7,373 in Switzerland, 8,693 in Holland, 36,289 in Italy, 600 in Luxemburg, 200 in Portugal, 260,000 in Roumania, 2,552,145 in Russia, 3,493 in Servia, 3,000 in Sweden and Norway, and 116,000 in European Turkey. There are about 150,000 in the Asiatic provinces of Turkey, 15,000 in Persia, 47,000 in Asiatic Russia, in India and China 19,000, and 14,000 in Turkestan and Afghanistan. In Africa, there are about 35,000 in Algeria, 100,000 in Morocco, 55,000 in Tunis, 6,000 in Tripoli, 200,000 in Abyssinia, 8,000 in Egypt, 8,000 scattered over the desert, and about 1,000 at the Cape of Good Hope.