THE "DESTROYER."

The accompanying illustration represents a foreshortened view of the submarine gun of Captain Ericsson's torpedo vessel *Destroyer*. This novel piece of ordnance is thirty feet long, sixteen inches calibre, and, owing to its great length, is made in three sections, which are bolted together, the breech section being reinforced by a series of steel hoops. It will be seen that the breech is represented closed, the mechanism for handling the breech-plug and for operating a sea-valve at the muzzle of the gun being shown in perspective. The forward end of the projectile torpedo is represented in the place it occupies previous to being inserted in the gun. The projectile torpedo is twenty-five feet six inches long, sixteen inches in diameter, its weight being 1,500 pounds, including 250 pounds of explosive matter. The initial velocity is fully 160 miles an hour, while the recent trial shows that it traverses the first 310 feet in three seconds.

The *Destroyer* is intended to supersede the English steam-rams. It attacks bows on, and being protected by inclined transverse armor, it defies the opponent's fire. The explosive charge of the projectile torpedo being sufficient to shatter the hull of any vessel, it is supposed that this formidable weapon is capable of destroying armored vessels of all classes. In addition to the enormous velocity of the projectile, the *Destroyer* is capable of overtaking iron-clad ships.

HUMAN TREES OF INDIA.

BY DANIEL C. BEARD.

All those who feel a sufficient interest in the subject to study or notice the facts must at times be struck with amazement at the wonderful resemblance of certain insects and other animals to vegetable and inanimate objects. So exact is this resemblance in some instances as to deceive the most experienced. Wallace, the great naturalist, was very anxious to secure a specimen of a certain brilliant butterfly, but was unable for some time to capture one on account of the creature's sudden unaccountable and mysterious disappearance. He finally discovered that the outside of this insect's wings was an exact representation of a leaf. When the butterfly alighted upon a shrub and closed its wings it completely deceived even this experienced scientist. Some species of lobster found at Bermuda so closely resemble submarine stones, even to the coating of sea weeds, that I have passed by an aquarium containing them supposing the tank to be uninhabited. The common katydid, whose constantly repeated notes, late in summer, warn us of the approaching frosts, has a representative in South America, whose wings not only resemble a green leaf, but, to add to the deception, the tips of the wings are ragged and discolored, having the exact appearance of a leaf that has been disfigured from the attacks of caterpillars. I once had one in my studio, and it was with great difficulty that I could convince visitors that it was not an artificial insect with wings made of real leaves. In the snow-covered regions of the North the foxes, hares, bears, and birds, with very few exceptions, assume the prevailing white color of the surrounding objects. Man has not been blind to these hints. There are various tribes of savages who successfully imitate stumps and stones by remaining immovable in crouched positions so as to baffle their pursuers.

This mimicry is carried to a wonderful degree of perfection in India. That strange country, as Dr. Latham says, "of a teeming, ingenious, and industrious but rarely independent population. It is a country of an ancient literature and ancient architecture," and he might have added, of a modern degradation. A country where such a society as that of the murderous Thugs is possible; a country where robbers are educated from childhood for the profession in which they take great pride, openly boasting of their skill. One of our most skillful and adroit bank robbers would be considered by these India experts but a bungling amateur.

The scientific manner in which these robbers prepare for their raids shows a thorough knowledge of the dangers of their calling, and the best guards against the same, choosing darkness for their forays. When their dusky bodies are least observable they remove their clothes, anoint themselves with oil, and with a single weapon, a keen-edged knife suspended from their neck, creep and steal like shadows noiselessly through the darkness. If detected, their greasy and slippery bodies assist them in eluding capture, while their razor-bladed knife dexterously severs the wrist of any detaining hand. But the most ingenious device to escape capture is that shown by the Bheel robbers in the accompanying illustration. It often happens that a band of these robbers are pursued by mounted Englishmen, and unable to reach the jungle, find themselves about to be overtaken upon one of those open plains which have been cleared by fire, the only shelter in sight being the blackened trunks of leafless branches of small trees that perished in the flames. For men so skilled in posturing this is shelter enough. Quickly divesting themselves of their scanty clothing, they scatter it with their plunder in small piles over the plain, covering them with their round shields so that they have the appearance of lumps of earth and attract no attention. This accomplished, they snatch up a few sticks, throw their body into a contorted position, and stand or crouch immovable until their unsuspicious enemies have galloped by.

When all is safe they quickly pick up their spoils and proceed upon their way.

The Rev. J. D. Wood gives an interesting account of these marvelous mimics. I quote the following:

"Before the English had become used to these manoeuvres, a very ludicrous incident occurred. An officer, with a party of horse, was chasing a small body of Bheel robbers, and was fast overtaking them. Suddenly the robbers ran behind a rock or some such obstacle, which hid them for a moment, and when the soldiers came up the men had mysteriously disappeared. After an unavailing search, the officer ordered his men to dismount beside a clump of scorched and withered trees; and the day being very hot, he took off his helmet and hung it on a branch by which he was standing. The branch in in question turned out to be the leg of a Bheel, who burst into a scream of laughter, and flung the astonished officer to the ground. The clump of scorched trees suddenly became metamorphosed into men, and the whole party dispersed in different directions before the Englishmen could recover from their surprise, carrying with them the officer's helmet by way of trophy."

Notes and Clippings.

ELECTRIC LIGHT IMPROVEMENT.—One of the great drawbacks to the economical use of the electric light is the waste of light attending the use of ground glass, no proper substitute for which has been suggested until now. A Frenchman, M. Clemandot, has been trying recently to use fine spun glass, or "glass wool," for diffusing the light of the electric arc, his object being to decrease the waste usually attending the employment of ground glass. He builds up his globe, which is conical in shape, with a number of tubes placed side by side, and well closed at the top and bottom, to exclude the dust. These tubes are filled with glass spun by a peculiar process, so as to yield fibers very much finer thay the finest cocoon silk. It is stated that he succeeded in reducing the absorbption of light from 30 per cent., with ordinary globes to 15 per cent., by the use of his improved apparatus.

LUMINOUS PAINT.—According to the London *Building News*, luminous paint is getting into quite extensive use in England. Mention is made of offices coated with the paint which give great satisfaction to the occupants. The effect is that of a subdued light, every object in the room being clearly visible, so that in a room so treated one could enter without a light, and find any desired article. The luminous paint is excited by the ordinary daylight, and its effect is said to continue for about thirteen hours, so that it is well adapted for painting bedroom ceilings, passages that are dark at night, and other places where lamps are objectionable or considered necessary. For staircases and passages a mere band of the paint will serve as a guide, and costs but a trifle. For out-door purposes the oil paint is used, but for ceilings and walls the luminous paint mixed with water and special size, can be used the same as ordinary whitewash, and presents a similar appearance in the daylight. But the recent discovery that it can be applied as ordinary whitewash considerably expands the field of its usefulness. Sheets of glass coated with the paint are in use in some of the vessels of the navy, at the Waltham Powder Factory, at Young's paraffine works, and in the spirit vaults of several London docks; and now that, by increased production and the use of water as the medium, its cost is reduced by one half, it will probably be extensively used for painting walls and ceilings. The ordinary form of oil paint has already been applied in many ways, to statues and busts, to toys, to clock faces, to name plates and numbers on house doors, and to notice boards, such as "mind the step," "to let," etc. The paint emits light without combustion, and therefore does not vitiate the atmosphere. Several experimental carriages are now running on different railways, the paint being used instead of lamps, which are necessary all day on account of the line passing through occasional tunnels.