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Scientific American.

SINKING OF THE BRITISH WAR SHIP VICTORIA.

On June 23, the British first-class battle ship Victoria, flagship of the Mediterranean Squadron, and carrying Vice-Admiral Sir George Tryon, K.C.B., was maneuvering off Tripoli. In the course of the maneuvers she came into collision with the British war ship Camperdown. The ram of the Camperdown struck the Victoria forward of the turret on the starboard side. In fifteen minutes the Victoria sank in eighteen fathoms of water. In sinking she turned bottom upward, and now lies in that position on the bottom. Announcing the disaster in the House of Commons, Mr. Gladstone said that there were 611 officers, seamen and boys, and 107 marines on board the ship. It was feared of this total of 718 souls, 430 had been lost. The Camperdown was injured in the collision and will require extensive repairs. The viceadmiral with a number of the officers were among the lost.

The Victoria had been several times illustrated and described by us, and on page 11 is a picture of the great ship, at one time the pride of the British navy. She was one of the most powerful battle ships in the world. Her length was 340 feet, beam 70, mean draught 26 feet 9 inches. The tonnage displacement was 10,470, the indicated horse power 14,244, speed developed in trial 173-10 knots. She was protected by a belt of compound armor, 18 inches thick, for about half the length of her hull, rising 2 feet 6 inches above the water. On the forward deck is the great turret, 17 inches thick, and inclosing the breeches of two 110 ton guns, mounted in parallel. These immense pieces of artillery carried 1,800 pound projectiles, the full charge of gunpowder being 960 pounds for each discharge. Aft of the turret came a strongly protected battery of 5 ton guns of 6 inch caliber, six projecting on each side through protected ports. Back of this structure came the stern gun-a 29 ton breech loader of 10 inch caliber. Triple expansion engines drove twin screws. She could carry a coal supply for 1,600 nautical miles, full speed, and at cruising speed for 7,000 miles. She was launched on April 9, 1887, from the Elswick yards of Armstrong, on the River Tyne; 150,000 persons witnessed the launch.

The above account is far from complete. Torpedo tubes, rapid-firing machine guns, a fighting mast, a most extensive system of hydraulic machinery, a heavily armored conning tower, and many other features in the ship cannot be more than mentioned within our limits. She was built to be the most powerfully equipped British war ship atloat. The Victoria was an example of the highest development of destructive capacity in a ship, and at the same time she illustrated the great weakness of these monuments of modern naval science. By accidental collision with a sister ship, in a quarter of an hour this vessel, representing £800,000 sterling of value, ignominiously turned itself. turtle and sank, bottom upward, carrying over 400 men with her. Not only was the weakness of an attacked ship shown, but the Victoria in being sunk with this dreadful loss of life was an instrument in showing the weakness of the involuntarily attacking vessel. It was only at the expense of damage to her own structure that the Camperdown, striking her sister ship below the armor, penetrated the iron hull with her ram. It is not long since the British ship Howe, with her bottom pierced by a rock, sank in the harbor of Ferrol. Spain.

The British turret ship Captain went down at sea. To descend from greater to less calamities, numerous instances can be cited of collisions between war ships and the minor vessels of commerce, the war ships suffering in the encounters. Even during the recent naval review on the Hudson, some damage was done to the ships of war by these collisions. It is evident that one point of construction is insufficiently provided for by modern naval engineers in war vessels. This is the rendering them unsinkable. They are necessarily topheavy, and their enormous weight and relatively small freeboard in many cases makes them peculiarly expenses. ('The Ship,' by Francis Steinitz. W. H. liable to destruction by sinking and capsizing. The Allen & Co., Leadenhall Street, London, 1843.) "From several official sources it is made evident efficacy of the ram as a weapon is also exemplified in this deplorable affair, the Camperdown giving a that the practical application of the steam engine to actical example of the use, or rather misuse, of the marine propulsion was an accomplished fact three cenhip as a quasi-projectile. A very thorough system of turies and a half ago. Seagoing steamers date from ulkheading, both longitudinal and transverse, seems the building of the James Watt by John Wood & Co., be the only suggestable way of disposing of the in 1818, for the Leith and London trade. The Soho and Monarch were subsequently constructed for the oints of weakness. same company. All three ships were built at Greenock, the birthplace of James Watt, and of William THE GREAT FAIR. Laird, who settled in Liverpool and established a line One of our weekly New York papers, justly noted of steamers from the Mersey to Dublin in 1822. The or the excellence of its illustrations, prints the follow-James Watt, Monarch, and Soho were purchased by g as a caption to an editorial, "A Fair or a Fiasco?" the General Steam Navigation Company, and emuch articles have a tendency to do harm. If the Fair ployed in their service for many years. Hull and maa failure, the press of America will have its full share | chinery did their work admirably. They were built blame to answer for. From the very first the papers of wood, and had paddle wheels. All three were in ll over the country, not even excepting those of Cook existence a few years back as coal hulks. The James ounty, have poured forth their vials of wrath upon Watt was the first deep-water steamship built in e devoted head, not of a "Chicago Fair," but on the Europe. The Savannah, American-built boat, which orld's Columbian Exposition. came to Europe, can scarcely be called a machine-pro-During the first days of the Fair there were no pelled vessel, but may be classed as an auxiliary-driven doubt many just causes for complaint, nearly all of ship."

which are now settled in a satisfactory manner, and even the photographic nuisance has been abated. After the Fair has been in operation over six weeks, or one quarter of the allotted period of exhibition, it really seems time to call a halt. It is now time to sit down and enjoy the rare treat which has been prepared at such cost of labor and money. Good natured banter or just criticism will not injure the Fair, but when every altercation at the gates is magnified into the proportions of an international episode it ceases to be a joke and tends materially to injure the Fair. The stories of extortion, quarrels among officers and the incomplete state of the Exposition have kept many thousands away during one of the most charming months in which the gates will stand open. Take the advice of the circus manager, who at the close of the afternoon performance said (in reference to the evening), "Come yourself and bring your children." Let it be said to the credit of the American people that the great Exposition, which has cost in round numbers \$34,000,000, is the grandest affair and the grandest success of our day and generation.

-PROPOSED SUBMARINE WAR BOATS.

The Fifty-second Congress appropriated the sum of \$200,000 to build and experiment with a submarine torpedo boat. Nine bids for a submarine boat have been opened and referred to the Naval Ordnance Bureau for examination. Secretary Whitney asked twice for similar bids, so that this is really the third call which has been made for such a boat, and it is noteworthy that this call has brought out a larger number of bids than before. Only three out of the bids submitted contemplate the actual construction of the boat, for the advertisements for proposals were so worded that a poor inventor might submit his design, which, if accepted, the government would buy and contract for the construction of the vessel where they chose. There is no doubt a good submarine torpedo boat would do much to revolutionize modern naval warfare.

A surface torpedo boat, owing to the high speed re. quired, must of necessity be built very light, which of course exposes it to the destructive fire of the machine guns, for the torpedo range is very short as compared with that of a naval gun. A submarine torpedo boat should have the advantage of being able to sink when approaching avessel, so that the fire of the rapidfire guns can do no harm. A semi-submerged torpedo boat can be easily constructed with an armored turret, but the aim of inventors should be to produce a boar which can be instantly submerged, capable of maintaining a good speed under water, the course to be directed accurately, and to be able to fire the torpedo in an effective manner without danger to the boat

Early Steam Navigation.

The Liverpool Journal of Commerce has the following article on early steam navigation:

"With the increase of trade and population there is a progressive demand for steam navigation facilities. Without sufficiency of cargo and passengers to make a venture pay, or no help of a bounty or subsidy when traffic is sparse, financial success is out of the question. Prejudice or ignorance may, however, serve to stop progress.

"The Grand Treasurer of Spain did not believe in the safety of vessels propelled by steam, and he retarded the introduction of ships propelled by that agency. On the 17th of June, 1543, the La Santissima Trinadada, of 200 tons, was driven at the rate of one league per hour in the roadstead of Barcelona, in the presence of the Emperor Charles V., his son, Philip II., and several high dignitaries. The Treasurer, Ravage, believing that a boiler used for such a purpose would burst, denounced the enterprise, but paid the inventor, Don Blasco de Garragher, his

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