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SCIENTIFIC AMERICAN SUPPLEMENT

No. 574.

For the Week Ending January 1, 1887.

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HIRING SHIPS TO CARRY THE FLAG.

Many naval officers and shipping merchants have recently expressed themselves in favor of subsidizing a fleet of American-built steamers, which in times of peace should carry the mails, and when war threatens be used as commerce destroyers, transports, and the like. According to the proposition, the ships should be built after plans prepared by the Navy Department, these plans to anticipate the easy transformation of the ships into swift-footed cruisers, capable of carrying a battery of one or more guns. It is, of course, at once apparent that ships built to carry passengers and freight could not possess all the essential requirements even of light-armored cruisers, for they would be top-heavy for large guns, and the placing of the engines below the water line would interfere with cargo carrying; but there is reason to believe that they could be so constructed as to become valuable aids as auxiliaries to a fleet of regularly constructed fighting ships.

The English transatlantic liners are regarded as a valuable addition to the British navy, into the service of which they may at any time be called; and the French, imitating the English plan, have recently built some splendid vessels for their merchant service, with a careful eye to their use in time of war. These ships—La Bretagne, La Bourgogne, and La Gascogne—are now plying between this port and Havre, and others are being rapidly put together at the yards at Saint Nazaire and Saint Chamond. They are built in the strongest possible manner for such constructions, and are so swift of foot as to have already become formidable rivals to the English "greyhounds."

Without going into the question of the desirability of subsidies for ships, such a fleet as that proposed would, it must be said, be an important and a valuable acquisition. It is not, however, easy to see how, as the friends of the project allege, these ships would, to any appreciable extent, encourage or lead to the building of a sea-going merchant fleet.

It is not likely that the appearance of these ships on the ocean would lead to the building of others, unless the subsidy scheme were extended to reach them, and this would, of course, be simply hiring ships to carry the American flag. It is not sentiment that prevents the American merchant from carrying his own goods. It is because he finds he can have them carried by foreigners cheaper than he can carry them himself. That is all. English, Italian, and German crews are paid small wages, and are content to live upon cheap food. Add to this the fact that good freight steamers can be purchased abroad for much less than they cost, and the futility of trying to compete with the foreign freighter is immediately obvious. Again, admitting the excellence of native workmanship, it is not at all likely that our shipbuilders could, for some time to come at least, rival the English builders of iron and steel steamers, with their years of experience in such construction. The idea that we could build steamers capable of averaging twenty-one statute miles an hour—faster, be it said, by a mile an hour than the average speed of the swiftest of the noble fleet now plying across the Atlantic—certainly seems to be preposterous and unworthy the serious consideration of a practical people. If there is any evidence to be had to sustain such an assertion, we should like to know where it may be had. Yet those who propose the plan under discussion say we can and ought to do this.

Here is a list of the fastest steamers afloat, and the average speed of each in statute miles:

Cunard Line, New York to Queenstown.—Number of miles per hour: Umbria, 20; Servia, 18; Etruria, 19.

Cunard Line, Boston to Queenstown.—Gallia, 15; Cephalonia, 14; Scythia, 14.

Anchor Line, New York to Glasgow.—Furnessia, 18; Ethiopia, 14; Devonia, 13.

North German Lloyd, New York to Southampton.—Trave, 19; Saale, 18; Eider, 18.

Hamburg American Line, New York to Plymouth.—Hammonia, 19; Wieland, 19; Lessing, 19.

American Line, Philadelphia to Queenstown.—Indiana, 18.

Guion Line, New York to Queenstown.—Alaska, 18; Arizona, 17; Wisconsin, 18.

Inman Line, New York to Queenstown.—City of Berlin, 15; City of Chicago, 15; Baltic, 15.

National Line, New York to Queenstown.—America, 18.

White Star Line, New York to Queenstown.—Germanic, 17; Celtic, 15; Britannic, 17.

General Transatlantic Line to Havre.—La Champagne, 20; La Gascogne, 20; La Bourgogne, 20.

Red Star Line, New York to Antwerp.—Noordland, 14; Westernland, 15; Rhynland, 14.

This list was compiled by Superintendent of Foreign Mails Bell, and shows the average speed of the ocean steamers carrying the mails.

When ocean freighting is so brisk that an average of seven or eight per cent can be made on money invested in ships, after deducting losses, or when a European war shall drive the English freighters from the seas, American merchants will no doubt try their hand at the business, but it is not likely that they will do so until that time comes.

The Conservation of Force.

The subject taken by Mr. R. Howson, the president of the Cleveland Institution of Engineers, for his inaugural address at the meeting of the Institution on November 22 was "The Conservation of Force, and Some of Its Possibilities." The author explained that all the natural powers which were employed depended upon the development of potent or static energy into the energy of motion. When that motion had been utilized, the energy was lost, and could not be recovered except by a renewal of its source. The principle was traced in the case of falling water, the steam engine, in voltaic electricity, and in the dynamics of animal life, and it was shown that in every instance the force developed and used up represented so much waste of original power, which waste would have to be made good, otherwise the system would come to an end. The balance was invariable, so far as could be ascertained in our laboratories and workshops. Nevertheless, it was contended that outside our terrestrial sphere the conditions were different, and therefore the results would be different. In one case it was pointed out that we actually know this to be true, viz., that the principle of gravitation, which brings everything to a standstill here, is, in the planetary system, one of the components of two forces which are the cause of unceasing orbital motion. After referring to permanent magnetism as in some respects falling into the same category as magnetism, the president entered into some speculations as to other cosmic possibilities which might be true, although, owing to our environment, these possibilities could not be realized here. Among those was the question of the radiation of the sun, whether that was really in process of decay or not. The doctrine of the dissipation of energy leads to the appalling result that the universe must ultimately come to one dead level of coldness, darkness, and desolation. The author contended that this doctrine might not after all be true, but that there was a law of compensation coexistent with the process of radiation.

The Masses and Distances of Binary Stars.

In a paper recently read before the Liverpool Astronomical Society, Mr. J. E. Gore, F.R.A.S., said:

When the parallax of a binary was known, and the elements of its orbit satisfactorily computed, it was easy to find some of the masses of the component stars in terms of the sun's mass, and the real dimensions of the orbit. The parallax of a few of them had been ascertained. First, there was the famous binary star α Centauri, which, as far as was known, was also the nearest star to the earth. From its orbit, computed by Dr. Hind in 1877, combined with a parallax of 0·928″, he found the mass of the system = 1·79 times the sun's mass, and the semi-axis major 23·49 times the earth's mean distance from the sun. Assuming the latest elements found by Dr. Elkin (a = 17·50″, and period = 77·42 years), and his parallax of 0·798, he found the sum of their masses = 1·759, and the semi-axis major = 21·13 times the sun's mean distance. Second, η Cassiopiæ. Dr. Duner found for this binary a period of 176·37 years with semi-axis major = 10·68″. Combining these elements with O Σ parallax of 0·154″, Mr. Gore found the mass of the system = 10·722 times the sun's mass, and the mean distance = 69·35. The magnitude of the components was about 4 to 7·6; so they had a star of the 4th mag. with a mass about six times as great as that of α Centauri. The calculations of the elements of the well-known companion to Sirius were still more interesting, and there was no doubt that it was in rapid orbital motion round its primary, probably with a period of about 49 years. He had found the mass of this system = 71·63 times the sun's mass. Assuming the attraction of the companion to be the cause of the observed irregularity in the proper motion of Sirius, Auwers found that its mass must be about one-half that of Sirius; thus, we have the mass of a 10th mag. star absolutely greater than that of the sun.

William Cross, Glasgow.

With the death of this gentleman, which lately occurred in his 82d year, Glasgow loses a famous shawl manufacturer, and Scotland a man of letters, an artist, and a poet. For many years he was a pattern drawer in Paisley, his native town, and gained a wide reputation for his exquisite taste in designing. This artistic ability afterward enabled him, when established in Glasgow as a manufacturer of shawls, to achieve remarkable success in business. One proof of his exquisite work is the fact that at the great exhibition in 1851, the whole of his exhibits were purchased by the Empress Eugenie. In the world of letters, however, he was equally well known as a poet and a humorist, and many of his songs and poems will hold a permanent place in the literature of his country. He was also the author of a novel, "The Description," which went through many editions, and is still much sought after. The deceased gentleman's personal qualities endeared him to all who knew him, and his loss will be widely felt.