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SCIENTIFIC AMERICAN SUPPLEMENT

No. 700.

For the Week Ending June 1, 1889.

Price 10 cents. For sale by all newsdealers.

THE NEW STEAMSHIP AUGUSTA VICTORIA.

The new Augusta Victoria, of the Hamburg-American steam packet line, reached this port on May 19 on her first trip, making very fast time. From Southampton to Sandy Hook her time was 7 days 2 hours and 30 minutes. This is equal to 6 days 8 hours and 30 minutes from Fastnet. The longest day's run was made on May 17—464 knots. The Cunard steamer Etruria left Queenstown a day later and arrived at the bar of New York harbor several hours behind the Augusta Victoria. On account of the greater distance traveled, the new ship went about as fast as the famous Cunarder.

The Augusta Victoria is a steel ship and was built at Stettin, Germany, by the Vulcan Shipbuilding Company. She is 460 feet long, 56 feet beam, and 38 feet depth of hold. She has three smokestacks of elliptical section, and is propelled by twin screws. Each screw is driven by a triple expansion engine; 12,500 horse power is developed by both together; 220 tons of coal are burned in a day. The two engines are independent. She carries only three masts, with fore and aft rigging. The ship is thoroughly protected by longitudinal as well as by transverse bulkheads. The longitudinal bulkhead runs from stem to stern and from keel to upper deck. The bottom is double and divided into chambers that can be filled with water and emptied at will, so as to modify the draught or trim of the ship. The rudder is of unusual size and is moved by steam. The saloons and staterooms are lighted by incandescent electric lamps. The decorations are very lavish, and the utmost luxury characterizes the saloons, music-rooms, and other divisions. The staterooms are unusually large and well provided.

On her trial trip the speed of 20 knots was attained. She was launched on December 1, 1888, and soon will have a companion in the Columbia, now approaching completion at Birkenhead, near Liverpool, England. She is of special interest from the fact that she is of German build, and her record will be watched with great interest. A short time before the Augusta Victoria was built, the Vulcan works had completed the last of the twin screw cruisers for the Chinese navy, which by their performance greatly added to their reputation.

TALK OF DISMANTLING THE FORTS.

The abandoning of most of England's fortified stations is a bold suggestion, and the leaving to means other than fortifications the coast defense of the country is a bolder one, yet both are made in all seriousness, and stoutly maintained, too, by one of her best authorities on modern warfare, Admiral Colomb, who, moreover, has a large following among military men. Of course, there is no dearth of authorities to espouse the other side, and vigorously, too, yet it is not going too far to say that the novel proposition is gaining more friends, the more it is discussed. Its effect on those considering it for the first time is a curious one, the first inclination being to ridicule it, as if it were on its very face an absurdity; a little more consideration, and the inclination is to regard it as an ingenious though a bold plan to enormously strengthen the Channel fleet, but not a practicable one. It is just here where the split comes, where various processes of reasoning lead to different goals; one following out the train of thought inspired to conviction, the other only the more sustained in his inherited belief that England's fleet should be scattered over the world.

Admiral Colomb and his *confreres* virtually ask what advantage it is to have fortified stations all over the world. For a base of supplies for the fleet? Well, then, if no fleet were kept there, no supplies would be needed, and consequently no fortifications.

A novel proposition this, and when carried to its conclusion it leaves a picture in the mind's eye of war fleets arriving in distant and hostile waters with no means of obtaining a fresh supply of coal and provisions. But the calculations that have been made show that since the introduction of steam on the sea there has not been an occasion where, during time of war, coaling stations could not be forcibly fortified. As it is, the greater part of England's fleet, often three-quarters of the number of effective ships—those out of the dockyards—are kept constantly in distant seas, and millions of dollars are spent yearly in keeping up military establishments in these far-away parts to supply them with coal and food. The best naval authorities have recently given it as their opinion that the Channel fleet should be more than equal to withstand the assault of the combined fleets of the two strongest naval powers. It never has been so, it is not so now, and, with the scattering of ships as under the present system, with the great powers constantly building, it is not likely to be so in the future.

Under the proposed system, it might be accomplished. Such a fleet might be recruited from the distant fortified coaling stations. The Admiral might have cited some well-known illustrations of the danger of dividing the forces; a notable one being the dispatch by Octavius of the best troops on a distant expedition against the barbarians while the enemy was knocking at the gates of Rome. The Admiral's idea is that, when war threatened, a dash was to be made in the direction of its probable operations, and refitting stations fortified and provisioned there, thus saving the expense of a long list of fortifications in foreign waters. As to temporary troubles in time of peace, this very steam system, which many think requires fortified coaling stations, permits the quick dispatch of an effective force.

As to the system of immense and costly shore fortifications, both he and many others of the best military minds regard them as unnecessary and ineffective. Even the iron and steel plates now being spread along their seaward faces are regarded as impotent against the assault of the great marine guns. Such fortifications make too large a target, so it is said, all that is wanted being a platform of iron or masonry, with no obstacle in the path of projectiles from the sea, and a group of deep pits to contain disappearing guns. If these and other suggestions relative to armament and processes be adopted, there will take place something like a revolution in the present system of warfare.

POSITION OF THE PLANETS IN JUNE.

JUPITER

is morning star until the 24th, and after that time evening star. On the 24th, at 2 h. P. M., he is in opposition with the sun, the most interesting epoch in his course. This superb planet is then in his best estate for terrestrial observation, being nearest to the earth, rising at sunset, and continuing visible the entire night. He wins the highest planetary honors during the month, though Venus surpasses him in brilliancy when, in the early morning hours, she appears above the horizon. Jupiter approaching opposition will richly reward observation, as he comes darting above the southeastern horizon earlier every evening and growing brighter until his culmination is reached on the 24th. His great southern declination is a drawback to the brilliancy of his appearance, and shortens the time of his stay above the horizon. Jupiter rises on the 1st at 9 h. 5 m. P. M. On the 30th, he sets at 4 h. 2 m. A. M. His diameter on the 1st is 43".8, and he is in the constellation Sagittarius.

VENUS

is morning star. She reaches her period of greatest brilliancy as morning star on the 5th at 9 h. P. M. This event occurs about 36 days after inferior conjunction, when she is about 40° west of the sun, and when about one-quarter of her illumined disk is turned toward the earth. She will be fair to see in the small hours of the June mornings as she anticipates the coming of the sun. Keen-eyed observers may follow her course after sunrise, when, shorn of her golden glow, she appears like a point of intense whiteness. Venus rises on the 1st at 2 h. 44 m. A. M. On the 30th, she rises at 1 h. 43 m. A. M. Her diameter on the 1st is 40".6, and she is in the constellation Aries.

SATURN

is evening star. He is still visible in the west, and is slowly approaching Regulus, the bright star that has been his neighbor during the winter and spring. Saturn sets on the 1st at 11 h. 29 m. P. M. On the 30th he sets at 9 h. 43 m. P. M. His diameter on the 1st is 16".4, and he is in the constellation Cancer.

MERCURY

is evening star until the 19th, and then becomes morning star. He is in inferior conjunction with the sun on the 19th, when, passing to the sun's western side, he commences his course as morning star. His conditions for observation are so exceptionally favorable that he continues to be visible on the first week of the month to the naked eye, setting on the 1st nearly an hour and three-quarters after the sun. Mercury sets on the 1st at 8 h. 55 m. P. M. On the 30th, he rises at 3 h. 43 m. A. M. His diameter on the 1st is 9".6, and he is in the constellation Gemini.

MARS

is evening star until the 17th, and then becomes morning star. He is in conjunction with the sun on the 17th, when, appearing on his western side, he commences his approach to the earth and the much looked for opposition of 1890. His progress is so slow that he will be invisible for some time to come. Mars sets on the 1st at 7 h. 41 m. P. M. On the 31st, he rises at 4 h. 11 m. A. M. His diameter on the 1st is 4", and he is in the constellation Taurus.

URANUS

is evening star. He may be found a little distance north of Spica, by the unaided eye or with the aid of an opera glass. He sets on the 1st at 1 h. 58 m. A. M. On the 30th, he sets at 12 h. 3 m. A. M. His diameter on the 1st is 3".8, and he is in the constellation Virgo.

NEPTUNE

is morning star. He rises on the 1st at 4 h. 5 m. A. M. On the 30th he rises at 2 h. 14 m. A. M. His diameter on the 1st is 2".5, and he is in the constellation Taurus.

Mars, Mercury, Neptune, and Venus are morning stars at the close of the month. Jupiter, Uranus, and Saturn are evening stars.