

(D). The appearance and phases of the moon and planets, and the causes of the phases; their real and apparent movements.

Candidates will be required to show a competent knowledge of each of these subjects.

Optional:

(5). German (translation),

(6). Mathematics, viz.:—

(A). The binomial theorem; De Moivre's theorem.

(B). Cubic equations; numerical equations.

(C). Spherical trigonometry, and its applications to Astronomy.

(D). The differential calculus; including Taylor's theorem—small variations of plane and spherical triangles—fundamental differentials—fundamental integrals.

(E). Mechanics; including the parallelogram of forces—the mechanical powers—the centre of gravity—falling bodies—the pendulum.

(F). Optics; including the laws of reflexion and refraction—the formation of images by plane mirrors and single lenses—the theory of the eye.

Candidates are not required to pass in subjects 5 and 6, but great weight will be attached to a knowledge of them.

5. The successful Candidate will not be finally appointed unless on probation he shall satisfy the head of the Department as to his fitness in respect of the following, among other qualifications, viz.:—
Manual dexterity in the use and adjustment of instrumental mechanism.

Accuracy of eye in observation.

Distinctness of ear in time-reference.

Promptitude in decision.

Punctuality, contingent on variable circumstances.

6. The duration of the period of probation will be six months.

The Civil Service Commissioners further give notice, that an Open Competition for one situation of Junior Assistant in the Royal Observatory, Greenwich, will be held under the above Regulations forthwith; the Preliminary Examination in London, Edinburgh, and Dublin, on Tuesday, the 3rd of December, and the Competitive Examination in London only on Tuesday, the 10th of December, and following days. Persons wishing to compete should apply at once for the necessary form to the Secretary, Civil Service Commission, London, S.W.

NOTICE TO MARINERS.

(No. 93.)—NEW ZEALAND—MIDDLE ISLAND.

Sunken Rock near Akaroa Harbour.

INFORMATION has been received of the existence of a rock, lying about half a mile S.W. from the rocks off the south head of Akaroa Harbour, Bank's Peninsula.

The rock (*Wright Rock*) is pinnacle shaped, having, it is reported, about 11 feet water on it at low water, and only breaks in a very heavy sea. No kelp marks the locality.

[All bearings are magnetic. Variation 17° Easterly in 1872.]

By command of their Lordships,

Geo. Henry Richards, Hydrographer,
Hydrographic Office, Admiralty, London,
19th October, 1872.

This Notice affects the following Admiralty

Charts:—Cape Campbell to Bank's Peninsula, No. 2529; and Akaroa Harbour, No. 1575. Also, New Zealand Pilot, 3rd edition, page 191.

NOTICE TO MARINERS.

(No. 94.)—FRANCE—WEST COAST.

Alteration in Lights—St. Jean de Luz Bay.

THE French Government has given notice, that from the 1st day of November, 1872, the following alteration will be made in the lights in St. Jean de Luz Bay.

The *fixed green* light at the head of the port will be exhibited from a tower recently erected and now visible through an arc of 10 degrees on each side of the leading mark; it is elevated 52 feet above high water, and in clear weather should be seen from a distance of 7 miles.

The tower, built of stone, is 46 feet high, and is 491 yards behind the green light of the eastern jetty. Position, lat. 43° 23' N., long. 1° 40' W.

Socoo Light.—A ray of *red* light will be exhibited, visible through an arc of 17½ degrees, and indicating to vessels making the roadstead the point where the leading mark of the two green lights terminate, being the position to turn to starboard for the anchorage.

Siboure Light.—On the exhibition of the new light, the fixed red light now exhibiting at the jetty head will be discontinued.

Directions.—Vessels entering the roadstead in the night should keep the two green lights in one, and as soon as the red light of Socoo is seen steer S.W. by S., and anchor when Socoo light appears white.

[All bearings are magnetic. Variation 19° Westerly in 1872.]

By command of their Lordships,

Geo. Henry Richards, Hydrographer,
Hydrographic Office, Admiralty, London,
19th October, 1872.

This Notice affects the following Admiralty Charts:—Bidassoa River to Point d'Arcachon, No. 2665; and Bay of Biscay, No. 2728; also French Lights List, Nos. 258 and 259; and Sailing Directions for West Coast of France, &c., page 78.

NOTICE TO MARINERS.

(No. 95.)—MEDITERRANEAN—ADRIATIC.

Fixed and Flashing Light at Porto Re.

THE Austrian Government has given notice, that a light is now exhibited from a lighthouse recently erected on d'Ostro Point, south point of Porto Re, Gulf of Quarnero.

The light is a *fixed and flashing* white light, showing a flash *every three* minutes, preceded and followed by a short eclipse, elevated 54 feet above the sea, and in clear weather should be seen from a distance of 13 miles.

The illuminating apparatus is dioptric or by lenses, of the fifth order.

Position, lat. 45° 15' 20" N., long. 14° 33' 35" E.

Fixed and Flashing Light on Lucietta Rock.

Also, that from the 1st October, 1872, a light would be exhibited from a lighthouse recently erected on Lucietta Rock.

The light is a *fixed and flashing* white light, showing a flash *every thirty seconds*, elevated 128 feet above the sea, and in clear weather should be seen from a distance of 17 miles.

The illuminating apparatus is dioptric or by lenses, of the fourth order,

Position, lat. 43° 37½' N., long. 15° 34½' E.