

Navy of Japan was likewise laid by the products of this remarkable scheme. It is only natural, therefore, to inquire what are the fundamental characteristics of a system that has achieved such a unique success. The details are described in the pamphlet already mentioned; but it may be stated that the underlying principles consist in the adoption of a military form of organisation dependent almost exclusively upon individual merit, and a method of admission to its ranks as broad as democracy itself. Apprentices enter the Royal Dockyards as the result of a competitive examination, and they are compelled to continue their education by attending the Dockyard schools for twelve hours a week (two afternoons and three evenings), of which seven and a half hours are given by the Admiralty. Apprentices pay no fees for attending the schools, are provided with text-books and stationery free of cost, and are paid their usual wages for the afternoons on which they are at school. Perhaps the most astonishing feature of the whole system lies in the fact that this remarkably democratic scheme was quietly inaugurated in the least expected of our national institutions, and in a time when practically every other form of high professional training in the country was a class privilege. In a crisis like the present, therefore, when the whole of the virtues of a nation are powerless without outstanding leadership and genius, the moral is plain.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, September 4.—**M. Camille Jordan** in the chair.—**G. Bigourdan**: The conference of longitudes of 1634. A historical account of Morin's proposals.—**P. Zeeman**: Direct measurement of the axial velocity of water in Fizeau's experiment. The axial velocity was formerly determined by measuring the whole of the water passing through the tube, giving the mean velocity, and using the coefficient 0.84 to determine the axial velocity. As this coefficient is liable to uncertainty, a new alternative method is described, based on the introduction of very small air bubbles into the flow, and observing their trajectory by means of a rotating mirror. This has led to an unexpected result: the axial velocity varies in a complicated manner along the tube, so that there is no one axial velocity. The extreme variation is more than 10 per cent. Finally, a standardised Pitot tube was used to measure the velocities at a large number of points, with satisfactory results.—**J. Bougault**: The preparation of acylsemicarbazides, starting from the semicarbazones of α -ketonic acids. The oxidation of semicarbazones by iodine and sodium carbonate, by a quite unexpected reaction, gave a semicarbazide according to the equation, $R.C(CO_2H):N.NH.CO.NH_2 + O = CO_2 + R.CO.NH.NH.CO.NH_2$. The reaction is completed at the ordinary temperature, and its generality is shown by the examples given, in which R is $(C_6H_5.CH_2)$, $(C_6H_5.CH_2.CH_2)$, (C_6H_5) , and $((CH_3)_3.C)$. Of the four semicarbazides thus prepared, three are new.—**M. Lnizet**: Shooting star with a persistent luminous track. This meteor left a line of light which, after taking a wavy form, broke up into several fragments. Some of these combined together, taking the shape of an elongated bulb. This disappeared four minutes after the first disruption of the meteor.—**J. L. Dantan**: Observations on the larva of *Ostrea edulis*.—**M. Ranjard**: The first hundred cases of deafness treated by Marage's method at the *Centre de rééducation auditive* of the 8th district. The treatment of deafness by the method of Marage has been proved to be useful from the military, financial, and social points of view. Only 16 per cent. of the cases gave negative results

under the treatment.—**J. Danysz**: The causes of the disturbances observed after the injection of products of the arsenobenzene group, and anaphylactic crises. A study of the conditions producing a precipitate in the veins after injection of arsenobenzene derivatives.—**L. Camus**: The preparation, properties, and advantages of a homogeneous vaccine.

BOOKS RECEIVED.

The Punjab, North-west Frontier Province, and Kashmir. By Sir J. Douie. Pp. xiv+373. (Cambridge: At the University Press.) 6s. net.
 Le Principe de Relativité. By E. M. Lémeray. Pp. 150. (Paris: Gauthier-Villars et Cie.) 3.75 francs.
 Cours d'Hydraulique. By Prof. J. Grialou. Pp. vi+536. (Paris: Gauthier-Villars et Cie.) 20 francs.
 The Influence of Joy. By G. Van Ness Dearborn. Pp. xviii+223. (London: W. Heinemann.) 5s. net.
 Wratten Light Filters. Third edition. Pp. 72. (London: Kodak, Ltd.) 1s.
 The Photography of Coloured Objects. Second edition. Pp. 118. (London: Kodak, Ltd.) 1s.
 The Birds of Shakespeare. By Sir A. Geikie. Pp. x+121. (Glasgow: J. Maclehose and Sons.) 3s. 6d. net.
 Rev. William Hall's Visible Astronomical Compass. (London: J. D. Potter.) 1s. net.

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