



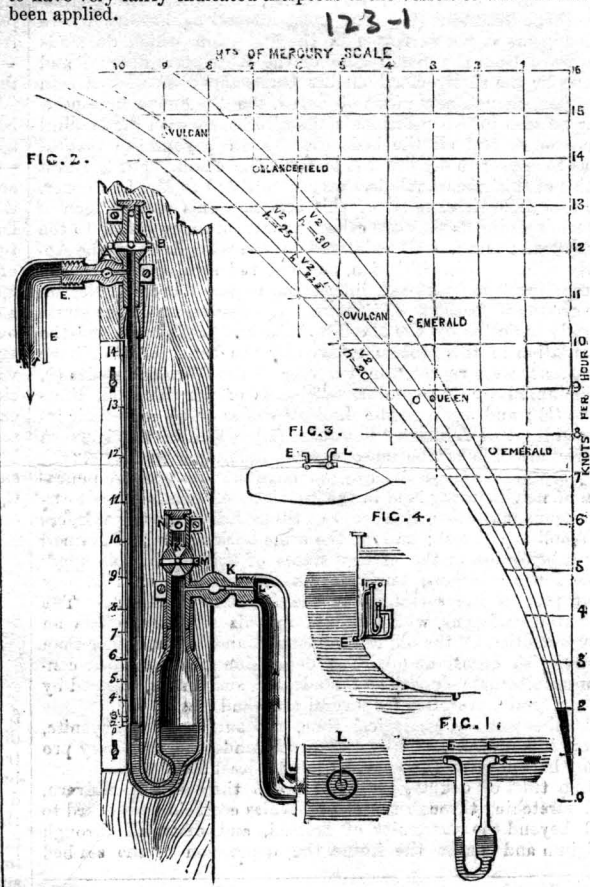
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INSTRUMENT FOR MEASURING THE VELOCITY OF SHIPS, CURRENTS, &c.

This instrument has been arranged by Mr. James R. Napier, of Glasgow, who has forwarded to us a sketch and description. It appears to have very fairly indicated the speeds of the vessels to which it has been applied.



A bent tube with its orifice exposed to the passing water will, by the height to which the water rises in the tube, indicate the velocity of the

vessel or current. Tubes of this description have been tried, but the difficulty of ascertaining the zero point, or the level of the surrounding water from which to measure the height, especially in a boisterous sea and with every varying immersion of the vessel, has hitherto rendered this simple construction unsatisfactory. In the instrument as now arranged, Mr. Napier has overcome this difficulty by using two bent tubes, the one having its orifice looking forward, and the other having its orifice looking aft, their other extremities being connected with a bulb containing a little mercury. The velocity of the ship is indicated by the height to which the mercury rises, and, as when the vessel is at rest or moved vertically, the pressures on both the exposed orifices are, and always continue equal, neither the varying immersions nor boisterous seas can have any influence on the heights to which the mercury will rise.

Fig. 1 shows the principle of the instrument, the motion of the vessel causing the water to enter one limb of the tube, as at L; Fig. 2 shows a section of the instruments one-quarter of the real size; Fig. 3 represents the plan and cross section of a vessel showing the position of the instrument. The bent pieces L and E are fastened to the side of the vessel well under water, and may be fixed at any part, though they have hitherto been placed about the middle, in the engine compartment of steamers. The instrument itself may be placed in any situation where it can be most conveniently seen,—as, in the captain's cabin, for instance. It is found that it is most effective when placed below the external water level, as when placed above this level the indications become uncertain from the accumulation of air which disengages from the water. The stop-cocks B and M, and the short tubes at C and N, are for the purpose of allowing air to escape if such is suspected to be present; and the stop-cocks A and K for regulating the size of the orifice, so as to prevent the oscillations of the mercury. The pieces E and L were connected with the instrument by block tin and India-rubber tubing. A scale of tenths of an inch placed alongside the glass tube, with its zero level with the mercury in the bulb, shows the heights to which the mercury rises, when the vessels are propelled at different speeds.

Mr. Napier imagined that the velocity would be indicated by the usual formula $v = n \sqrt{h}$, h being the height of the mercury, and that when v is taken in knots per hour, and h in inches, n would be a constant quantity, if not for all ships at all velocities, at least for the same ship at all velocities, and, if constant, its value would be nearly 5, found by reducing the formula $v^2 = gh$ from feet per second to knots per hour, and to h inches of mercury instead of feet of water. The results recorded, however, do not exactly corroborate this; but the experiments are perhaps too few, and some of them not taken with sufficient care, as in the first experiments Mr. Napier says he was not sufficiently acquainted with the working of the instrument to take the necessary precaution for freeing it of air, as in the trials it was generally placed above the water-level. In the ship Fiery Cross these objections were removed.

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	Values of n in the formula $v = n \sqrt{h}$	Knots observed. Velocity in knots per hour.	Height of Mercury. Inches.
River steamer Vulcan	4.61+	10.05	4.75
Do.	4.80+	14.32	8.9
Screw steamer Queen		8.8	3.5
Do.		not observed.	4.5
Screw steamer Emerald	5.63	7.54	1.8
Do.	5.86	10.48	3.2
Screw steamer Lancashire		13.66	7.4
Screw steamer Fiery Cross	5.44	13.66	6.3

The curves on the accompanying diagram are drawn for different values of n from the formula $v = n \sqrt{h}$ to facilitate the formation of scales.

The working of the instrument on board the Fiery Cross is shown in the following table:—

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Time.	Revolutions of screw per minute.	Pressure on boiler lbs.	Height of Mercury in speed indicating inches.	Velocity calculated by the formula $v = 5.4 \sqrt{h}$ knots per hour.
9.30 p.m.	52	..	5.2 } full steam.	12.3
11.50 "	47½	8½	4.6 } " "	11.5
12.1 "	51½	12	5.15 } expansively.	
12.25 "	54	15	5.5	
12.27 "	55	16	5.55	12.7
12.45 "	50		4.85 } calm weather.	11.8
1.5 a.m.	52		5.15	
2 "	49		4.5	
9.55 "	49		4.2 } ship rolling.	11
10 "	48½		4.2 } blowing fresh.	
2 p.m.	48½		3.95 } with heavy seas.	10.7

The Fiery Cross is a screw-steamer of about 1,100 tons, the results given in the table being those obtained on a recent voyage from the Clyde to Cardiff. The particulars were taken from her log.

LONDON GENERAL OMNIBUS COMPANY.

The adjourned annual meeting of this company was held in Paris, M. Vaconsin in the chair. The report, which was of considerable length, was read. It stated that the company commenced operations on the 7th of January, 1856, by receiving its first omnibuses, and they continued to receive others until the number reached 600. The profits realized in the year 1856 amounted to 12½ per cent. of the capital. The result of the working of the first three months of 1857 is stated to be equivalent to 15 per cent. on the capital. The balance-sheet shows a total of 1,035,280*l.*, including unissued shares on both sides to the amount of 200,000*l.* The funds of the company are composed of issued shares to the amount of 800,000*l.*, and unissued shares to the amount of 200,000*l.*, together 1,000,000*l.* The 600 omnibuses, with all their appurtenances, cost 10,000,000*f.* (400,000*l.*). In addition to this, the sum of 1,202,714*f.* (48,108*l.*) has been expended for the purchase of new omnibuses, for the increase of the number of horses, and for various improvements in the stock. The report explains that the company have in reserve 26,312 shares for payment of 210 omnibuses, which were agreed to be delivered to the company, but, as they run on rather poor lines of road, and as some of them would expose the company to considerable loss, it is proposed to enter into arrangements with the contractors to modify the original agreement, so as to enable the company to reduce the number of omnibuses still to be delivered; and also the capital of the company to the extent of 120,000*l.* The receipts from the omnibuses during the year, amounted to 11,370,749*f.* (454,830*l.*), being at the rate of 70.19*f.* (2*l.* 16*s.*) per day for each omnibus. The number of horses employed averaged 4,541 per day. The advertisements in omnibuses realized 31,592*f.* (1,263*l.*). The interest on the unemployed capital produced 380,562*f.* (15,222*l.*). The sundry receipts, which form together a sum of 485,819*f.* (19,432*l.*), added to the products of the traffic, bring the total revenue to the sum of 11,856,568*f.* (474,262*l.*), so that each omnibus earned 73*l.* 18*s.* and each horse 7*l.* 2*s.* per day. The working expenses of every description amounted to 9,996,577*f.* (399,863*l.*). The general expenses, including rents and management, amounted to 19,040*l.*, the wages of drivers and conductors to 77,680*l.*, Government duty, licenses, and tolls to 51,631*l.*, compensation for accidents to 418*l.*; inspection, 238*l.*; maintaining and renewing omnibuses, &c., 35,466*l.*; feeding horses, 171,840*l.*, or 2*s.* 1*d.* per day for each horse. The other expenses connected with the horses, shoeing, attendance, and depreciation amounted to 43,547*l.*, or 5*s.* 4*d.* per day for each omnibus, making, with the food, 1*l.* 6*s.* 7*d.* per day. The whole of the expenses average 61*l.* 7*s.* 0*d.* per day for each omnibus and 6*l.* 11*s.* for each horse. The number of omnibuses averaged 450 per day. Each omnibus had run 54 miles, representing for the 450 omnibuses 24,300 miles per day. The average work of each horse had been 12 miles per day. The net profit earned by each omnibus was 11*l.* 4*s.* per day for the year ending December 31, 1856. 600 omnibuses, having 5,879 horses to work them, formed now the working stock. They embrace the best routes comprising 63 lines.

Resolutions were passed, adopting the report, declaring a dividend of 6*l.* 2*s.*, or 5*s.* per share, authorizing the directors to make arrangements respecting the 210 omnibuses mentioned in the report, and for the reduction of the capital. Other formal resolutions were passed, and the proceedings terminated.

THINGS IN NEW YORK.
New York, Oct. 1, 1856.
The President of the United States, early this morning, very quietly left his apartment at the Astor House, and in company only of Sidney Webster and Mr. Hoover, got into a private carriage and drove down to the Worcester boat, on

The Cunard steamer Asia, for Liverpool to-day, took 104 passengers, among them the following: Prof. Salisbury, New Haven; Hon. Robert Lowe, of London; Mr. Daniel Le Roy, U. S. Consul at Rome; W. Richards, C. Richards, two Mrs. Richards, Dr. and Mrs. Matier, and Frederick Graff, of Philadelphia. Sped on board, \$950-695 35.

...disapproving of all these laws.
A communication was presented from the Chief Engineer of the Water Works, containing estimates for a new reservoir at the Schuylkill Works, at the elevation of the present one, and also for one 10 feet above it. The first is estimated to cost \$57,943 27, and the other \$36,333. The reservoir to contain 28,975,252 wine gallons. A resolution of the Committee on Water reported a resolution

PERSONAL.

TO THE PUBLIC.—In an advertisement in the Sunday Transcript of yesterday, Mr. Joshua M. Raybold charges that I have a bitter animosity against him, and that I have been for years doing all I could to injure him. This charge is made at this time evidently with the design to injure my chances for the nomination for Judge of the Court of Common Pleas, to be determined by the Democratic Convention on to-morrow or next day.

I became Mr. Raybold's neighbor in March, 1846, since which time until the first of May last we have lived in the same ward and the same election division, and during this period of more than eleven years, we have been on terms of personal and social intercourse. I have occasionally chided him for his political tergiversations and his proneness to oppose party nominations, but I defy him to point out a single act done by me to injure him, or that evinces any animosity on my part towards him.

Prior to his first appointment in the Water Department, I was consulted, and my reply was, that I had no objections to his appointment to a clerkship—that he would do as a clerk if he could be kept at work. I did oppose his appointment as Register of Water Rents, because, knowing him well, I believe that the peculiar qualities he possesses are not adapted to the position of a collector of the public revenue, and I think he has acted unwisely in not accepting the clerkship Mr. Ogden has offered him. I^r ANDREW MILLER.