

by the most wonderful exertions. These shot were of granite, and weighed 800 lb., and were 2 ft. and 2 in. in diameter. One of these huge shot stove in the larboard bow of the "Actiæ," and having then crushed the immense mass of timber, the shot rolled ponderously aft, and brought up abreast the main hatchway. One of these guns was cast in brass in the reign of Amurath, it was composed of two parts, joined by a screw at the chamber, its breech resting against massive stone work. Baron de Trott resolved to fire this gun, the shot weighing 1,100 lb., and he loaded it with 330 pounds of powder. He says, "I felt a shock like an earthquake, at the distance of 800 fathoms."

Driving a Business.

"Drive your business, but never permit your business to drive you," is a motto containing great wisdom, and yet few act in accordance with its teaching. To drive one's business is a proposition easily understood, but how to prevent its becoming the driver is a more difficult problem. Who does not meet every day merchants, worthy men, almost out of breath, and always under high pressure during banking hours? How often, too, do we see them bowed down with premature old age, resting under the pressure of heavy business cares. These men are all permitting their business to be the driver, and we undertake to say that very few of them really enjoy one moment of their lives, while more than four-fifths of them die poor. On the other hand, were these same men willing to do less, always seeing the end from the beginning they could show at the close of life their worldly work accomplished, without taking all their time from higher and better thoughts and works, a fair balance in money made, blessed with infinite satisfaction and comfort. The evil of the day is the desire to do a large business. "If" says the enthusiast, "I can net five thousand pounds out of a year's business, I can surely realise more than twice the business." This may or may not be true. If you triple your capital you may safely double your business, but not more. For it should be remembered that a larger business requires additional thought, attention, and work, and hence more capital than the proportionate increase of the business—for there will be less time for financing. We frequently forget that when we double our business we are doubling labours and cares which are already as great as ought to be undertaken. Unless therefore, we observe some such rule as the above we shall find that in increasing our business we shall only be increasing our troubles and leaving a balance at the end of life of simply so many obligations met, so much interest paid, so many extra steps taken, so many anxious days and sleepless nights passed, with nothing to the other side of the account except premature old age and disappointed hopes.

Steam Fire Engines.

Seventy steam fire-engines have been made up to this time by the Amoskeag Company, of Manchester, N. H., including some for almost every large city in the Union, two for Halifax, and one for the Russian city of Amoor.

Petroleum for preserving Wood

The oil wells near Prome, in Burmah, have been in use from time immemorial. Wood, both for ship-building and house-building is invariably saturated or coated with the products of those wells. The result is entire impunity from decay, and the ravages of the white ants that in that country are so generally destructive. M. Cromm, a Belgian Government engineer, who has tried experiments upon the relative advantages of creosote and sulphate of copper for the preservation of timber in marine constructions from the attacks of worms, &c., says that creosoting is the only process he has found to succeed for this purpose. He states that sulphate of copper affords no protection whatever against the action of salt water and marine insects. The Belgian Government now require that all the wood sleepers used in the State railways should be creosoted; and the Government of Holland have also made the same resolution, and upwards of 300,000 sleepers per annum are now being creosoted by the Dutch Government, and more by the Belgian Government.—*Scientific American*.

Mr. Glaisher's Tenth Scientific Balloon Ascent.

Mr. Glaisher made his tenth scientific balloon ascent from the Crystal Palace on Saturday last at 1.17 p.m. The descent was accomplished at Newhaven at 2.50 p.m. amidst circumstances attended with some considerable danger. The wind, which at starting was blowing steadily from the north at an estimated velocity of forty miles an hour, would have carried the balloon and its occupants out to sea, but for the intrepid conduct of Mr. Coxwell, who effected their descent, by using the valve so freely as to convert the balloon into a monster parachute. They descended the last two miles in four minutes: had they done so less rapidly they must have missed the land, the place where they descended being less than half a mile from the sea. The wind at the time was blowing at the rate of nearly a mile per minute directly out to sea; it is clear therefore that a stay in the air of half a minute more would have placed them in great peril.

Mr. Glaisher made a number of observations of the thermometer, and obtained a series of results which tend to confirm his previous experiments, and conclusively establish the necessity of rejecting the theory of uniform decrease of temperature with increase of elevation. From 2.15 to 2.31 numerous observations were made of the lines of the solar spectrum. When the direct light of the sun entered the slit the lines were, of course, present in great numbers, the spectrum being considerable lengthened at the violet end, and the nebulous lines II being distinctly visible. At the red end A was seen very clearly. The light from the sky in the immediate neighbourhood of the sun gave a shorter spectrum, the lines from B to G only being visible. From this point the spectrum shortened considerably, until the spot opposite the sun was reached, which gave no light at all.

The photographic observations made by Mr. Glaisher are interesting. He took with him slips of sensitized paper, having arranged that similar slips made at the same time should be exposed at the Royal Observatory, Greenwich, and the amount