

mouth would be perfectly unendurable; and we might have prolonged our stay for hours. Having thus far perfected the instrument, I wrote to Captain Shaw, the chief officer of the Metropolitan Fire Brigade, asking him whether such a respirator would be of use to him. His reply was prompt; it would be most valuable. He had, however, made himself acquainted with every contrivance of the kind in this and other countries, and had found none of them of any practical use. He offered to come and test it here, or to place a room at my disposal in the City. At my request he came here, accompanied by three of his men. Our small room was filled with smoke to their entire satisfaction. The three men went successively into it, and remained there as long as Captain Shaw wished them. On coming out they said that they had not suffered the slightest inconvenience; that they could have remained all day in the smoke. Captain Shaw then tested the instrument with the same result. From that hour the greatest interest has been taken in the perfecting of the instrument by Captain Shaw himself. He has attached to the respirator suitable hoods. The real problem is practically solved, and I can only say that if a tithe of the zeal, intelligence, and practical skill were bestowed on the cotton-wool respirator that Captain Shaw has devoted to the fireman's respirator the sufferings of many a precious life might be spared, and its length augmented.*

The lecture was concluded as follows:—"Thus have we been led from the actinic decomposition of vapours through the tails of comets and the blue of the sky to the dust of London, from the germ theory of disease down to this fireman's respirator. Instead of this trivial example, I could, if time permitted, point to others of a more considerable kind in illustration of the tendency of pure science to lead to practical applications. Indeed those very wanderings of the scientific intellect which at first sight appear utterly unpractical, become in the end the wellsprings of practice. Yet I believe there is a philosophy embraced by some of our more ardent thinkers (who I fear on many points commit the well-intentioned, but fatal mistake of putting their own hopeful fancies in the place of fact) that would abolish these wanderings of the intellect and fix it from the outset on practical ends alone. I do not think that that philosophy will ever make itself good in the world, or that any freedom-loving student of nature could or would tolerate its chains."

A short time before the lecture I had an opportunity of inspecting the apparatus of Mr. Sinclair, which has been tested and highly spoken of by the superintendent of the Manchester Fire Brigade. The original idea is due to Von Humboldt, who proposed it for the Hartz mines. Galibert constructed the apparatus in an improved form, and it has been still further improved by Mr. Sinclair, who has purchased Galibert's patent. It consists of an air-tight bag, from which issue two tubes that unite on a single one with a respirator mouth-piece. The bag is filled with air, and the wearer inspires through one valve and expires through another. The expired breath is carried to the bottom of the bag, and is stated to remain there in consequence of the chilling experienced in its passage downwards. A bag of not inordinate size is stated to be sufficient to supply a man with air for twenty minutes. Mr. Sinclair's apparatus was exhibited during the lecture.

J. T.

NOTES

WE are able to state that the Council of the Royal Astronomical Society are considering the steps necessary to be taken to insure observations being made of the Total Solar Eclipse visible

* Mr. Ladd has also proposed a form of mouth-piece which promises well, and Mr. Cottrell has attached to it an ordinary fencing-mask. This will probably be the form of apparatus finally adopted.

in Ceylon next December. We need scarcely remark that there is no subject which is at present engaging the attention of scientific men more important than that of the nature of the Corona, and it will be a disgrace to the science of the age if the next eclipse is allowed to pass over without every effort being made to increase our knowledge.

THE Astronomer Royal requests us to state that he will be obliged for the loan of any unpublished observations made during the recent total eclipse. Communications to be addressed to him at the Royal Observatory, Greenwich.

WE are glad to learn that the Right Hon. Mr. Robert Lowe has been elected a Fellow of the Royal Society. We have before in these columns stated our belief that Science has every reason to expect a favourable recognition of her claims from him as Chancellor of the Exchequer if proper claims are put forward in a proper manner, and we reiterate the assertion. It was unfortunate that the first grant of public money for which Mr. Lowe was asked, for scientific purposes, was allocated in a way which made Mr. Lowe somewhat indignant, a feeling which was however shared by many men of science. It was also unfortunate that the requirements of science in the matter of the Eclipse Expedition were not properly put before the Government in the first instance, but it is now a matter of history that Mr. Lowe was satisfied with a semi-official statement of the claims of Astronomy, and not only at once granted the required aid, but threw all the power of the Government into completing the necessary arrangements. The same may be said of the Dredging Expeditions. The willingness of a Chancellor of the Exchequer after all, however, is not the only thing requisite for State recognition of the claims of Science. We want a proper scientific organisation, and proper scientific representation. That Science here is in a chaotic state, is the well-founded opinion of many of our scientific men; and if this condition of things is allowed to continue, students of Science must expect that their wishes shall be ignored or lost sight of in the rush of other more emphatically asserted claims.

THE official statements made under the head of "University Intelligence" in the daily papers have been lately very remarkable. We noticed, not very long ago, that Prof. Max Müller was called Professor of Comparative Physiology! What will Dr. Rolleston say to this? A few days afterwards it was announced that Mr. Reinold, the Lee's Reader of Physics at Christ Church, would give a course of lectures on Statistical Electricity!! Surely no one but Mrs. Malaprop herself could have made such blunders; while to cap all, a day or two ago we were informed (again in the official "University Intelligence") that the Commemoration at Oxford was an "interesting event!" Surely this is rather hard on Alma Mater!

ASTRONOMY, may we say astrology, like many other things, is being put on a new footing at Constantinople. For many years the chief functionary in this department of science has been the Sultan's chief astrologer, but we believe he is now little called upon by Abdul Aziz to cast horoscopes for a lucky time, as the Sultan starts at a punctual hour, and the astrologer has chiefly to cast the ephemerides for the Salnameh, or official almanack, a periodical growing in respectability. Lectures in Physical Science are given in Turkish by Mussulman Professors at the Darul Funoun, or University, though there are godly men in Islam who maintain that such teaching is contrary to scripture. The time in Constantinople is a sore puzzle. As the day begins at sunset, and has to be divided into twenty-four hours, at sundown begins a general setting of watches, because steamboat departures and other incidents are regulated by Turkish time. The chief object for which expensive clocks and watches are bought by the Turks is for working out the canonical hours of