

Press Cutting on Verifying Thermometers

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THERMOMETERS.—At the last meeting of the Royal Society, Mr. F. Galton, F.R.S., described the new process of verifying thermometers at the Kew Observatory. So large a proportion of the various thermometric determinations made by English physicists are dependent for their accuracy upon that of the verifications made at Kew, that the subject is important. Up to the year 1875 the apparatus for this purpose at Kew was of the rudest character. It was simply a glass jar 9½ in. wide and 18 in. deep, filled with hot water and standing on a turntable, in which a brass frame was placed. On the frame the thermometers to be tested were hung. The observer read each thermometer as it passed, and as the frame was first turned from left to right and then from right to left, each thermometer was read twice; thus the chance of error owing to variations in the temperature by the cooling of the water during the process was lessened by taking the mean of the readings. Still the time occupied in the process was unnecessarily great, and the chance of error by cooling was larger than it need be. The number of thermometers sent to be tested is increasing, there being now some 3,000 annually. For greater accuracy and for saving time, Mr. Galton devised the present apparatus. The thermometer frame is circular, and will hold 40 at a time. The water vessel into which they are placed is a cylinder of stout copper 2 ft. 2 in. high and 1 ft. in diameter, and in the side is a slit 1 ft. 10 in. long and 4½ in. wide, which is glazed, and through which the thermometers are read as they are passed round. The cylinder is in an outer wooden case, and between the two is a packing of sawdust. The outer case is also provided with a glazed slit to read through. The lid of the case has also a covering of sawdust in kamptulicon. The object of these precautions is to prevent the escape of heat and maintain a fixed temperature during the testing. The regulation of the heating of the water before the testing is effected by a connected coil of tubing at the side and a cluster of Bunsen burners. So well does this apparatus act that a long series of experiments made at different temperatures shows a variation of but a part of a degree which is represented by a figure in the second decimal place. It is still found to be impossible to obviate differences of temperature at different levels. This, however, is a great improvement on the old method. It takes only about four minutes to read a set. At the same meeting of the Society Professor J. W. Mallet, of the University of Virginia, made a communication on the density of solid mercury. It has before been but vaguely determined, and the last experiments were in 1807 and 1808. The result of the means of his experiments is to fix it at 14.1932, this number representing the density of solid mercury at its fusing point as referred to water at 4 deg. C taken as unity.

TREASURE IN SPAIN.—Some swindlers in Spain having endeavoured to obtain money from a number of persons in various parts in Scotland by promising to reveal the whereabouts of large quantities of hidden treasure, a communication was addressed to Lord Derby, who has just replied that Her Majesty's Minister at Madrid had reported that such practices were far from being of rare occurrence in Spain. The French Minister likewise stated that he had received numerous complaints from France of frauds practised by the parties concerned in this case. Mr. Layard had brought the case to the notice of the Spanish Government, who had promised to take steps to put an end to these proceedings.—*Globe*.

THE BANK FORGERIES.—Few readers of French history can have forgotten that most pathetic history of the poor prisoner in the Bastille who wept when the gaolers deprived him of his one companion—a spider. Something like this was illustrated last week when the unscrupulous forger, Bidwell, being searched, was found to have a young mouse nestled under one arm and a young rat under the other, which he had tended and caressed as the companions of his solitude.—*Echo*.

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ing and consternation caused by the depreciation of the currency, and the impoverishment of the Provinces by the withdrawal of so large a part of the able-bodied population. These subjects of apprehension are, no doubt, of the highest importance, and they cannot but affect every one's calculations as to the final result. But, as they are fixed facts which we cannot alter, we must act to a certain extent independently of them. They may frustrate the best arrangement, but there is no reason for abandoning the hope of some arrangement. At any rate, the Russian Government will be pledged by the other European Powers to take no separate action against the Porte as long as the hope remains that the recommendations of the Conference will be accepted and applied. The Russian Government appears at least to be willing that some time should be spent in advising the Turks, and noting whether they are disposed or able to act on the advice. "The Protocol," says the *Nord*, "will perhaps close the present crisis; in any case it opens a new diplomatic phase of the Eastern Question in furnishing the procedure necessary for an effective safeguard of the destiny of the Rayahs. It may even be said that in their generality the stipulations of this instrument, which are not restricted to any delay or any term, will be more efficacious than the control, limited as to time, which the Conference had established," &c. The idea of this organ is that the Protocol will establish a permanent International Council, which will take upon itself to advise and instruct the Porte for the future in all matters which affect the position of the Christians; so that no abuse can occur without the Powers being liable, at the request of one of them, to take cognizance of it and consider how it can be best remedied. The Protocol would thus, according to the Russian notion, be a very real and very important step accomplished in the diplomatic field of the Eastern Question for the protection of the Christians.

If we take this to represent the views of the Russian Government, as is not unreasonable, a consequence of the signature of the Protocol might be that, either at once or after a certain time, and then from time to time, the Russian Government would bring before the Powers the grievances which it charges against the Turkish rule, and would ask their co-operation in removing them. The Powers would then be forced to deliberate on the *mesures* or the *moyens* most fitted to attain these objects. The *moyens*, as far as we are concerned, would limit themselves to communica-