

per week each, is annually 757,120 tons, and deducting 250,000 tons for local consumption, leaves over half a million for export, but with existing means that quantity could be greatly increased, and the yield gives an aggregate annually of probably 60 000 tons over this statement. The difference between February and present prices if the latter can be maintained is, therefore, equal to £800,000 annually to the meders.—*Expositor*.

**NEW THERMOMETER FOR MAXIMUM TEMPERATURES.**—Some three centuries have now passed since the invention of the thermometer by Sartorius and Drebell, in which but little improvement has been made on the original. Since the introduction of the registering thermometer no advance has been, and the steel index has been depended upon, although always liable to great incorrectness, either from becoming fixed in the tube, and the mercury passing it; or from its falling back with the mercury, and not registering at all. In the thermometer just introduced Messrs. Negretti have no needle, the mercury registering correctly itself. About an inch above the bulb a small cylinder of glass is forced into the tube, which is then bent at right angles, the graduated portion lying horizontally. With an increase of temperature, the mercury finds its way through the capillary pores left between the cylinder and the circumference of the orifice; but on a decrease, the mercury left horizontally in the tube cannot get back to the bulb, and remains at the index of the highest point of temperature it had reached since it had been previously set. In the construction of the instrument much delicacy is required; it being so arranged that the mercury, from the effects of heat, passes the glass valve, but on cooling cannot return, the resistance offered being greater than the attraction of cohesion between the particles of mercury above the bend and those below it. This instrument is most admirably adapted for ascertaining the temperature of shafts and levels in deep mines, the sea at various depths, and other like purposes. To ascertain the temperature at any moment, it is only necessary to place it vertically; the mercury instantly subsides, and a few seconds will show the precise heat of the atmosphere. This instrument has given the most complete satisfaction to the Astronomer Royal, and many other philosophical and scientific individuals and bodies, and the Council of the Meteorological Society stated that "this thermometer is the best which has yet been constructed for maximum temperatures, and particularly for sun observations; for as the reading is determined by the entire mercurial column being detained at its highest point by simple contrivance within the tube, the necessity for an index is avoided, and with it the constant and distressing recurrence of derangement attendant upon the employment of those generally in use." Almost the first important improvement made in the thermometer—that of enamelling the back of the tube, was introduced by Messrs. Negretti, but for which, as is too commonly the case, we believe they have not had that justice awarded which the idea deserved. We are led to make these observations, knowing the difficulty frequently experienced by inventors in the introduction of a new instrument, however important, when it is their wish to retain the credit of their own discovery; many objects present themselves—as the jealousy of the trade, settled prejudice against what is termed "innovation," and private interest—so that in but few instances the desired end is attained. The Exhibition Jury, in this particular class, evidently took much care in discriminating the works of different exhibitors; for here we have a firm comparatively unknown to the scientific world, proclaimed, to the surprise of many, as manufacturing instruments of this description superior to any in the Exhibition of all Nations [vide Report, page 654]—an assertion which we see fully borne out, by their now having perfected an instrument which had long been attempted in vain, most completely supplying a scientific requirement long severely felt.—*Mining Journal*.

**ELECTRIC TELEGRAPHS IN INDIA.**—It has been announced that the East India Company have determined to establish immediately a very extensive system of electric telegraphs in India, under the superintendence of Dr. W. B. O'Shaughnessy, of their medical establishment. It is intended to connect Calcutta, Agra, Lahore, Bombay, and Madras, and as many of the principal towns and stations as can be embraced in the routes between these places. The distance to be traversed is upwards of 3000 miles, and it is intended to proceed with such expedition in its construction that its completion may be expected in three years from the present time. Dr. O'Shaughnessy has lately been employed in India in carrying on experiments with the electric telegraph, in order to discover the best system which could be adopted.

**CHARITY.**—Modern London contains, for its nearly three millions of inhabitants, thirteen general hospitals, all of them well appointed with every appliance for the relief of suffering humanity. In this list we include St. Bartholomew's, St. Thomas's, Guy's, the Westminster, St. George's, the London, the Middlesex, University College, Charing-cross, King's College, the Royal Free, and St. Mary's. The thirteen hospitals contain a collective staff of from 140 to 150 physicians and surgeons, all of whom we must suppose to be fitted for the highest

duties of the profession. Besides the accredited medical staff of each hospital, at least an equal number of qualified medical practitioners are attached to them as resident medical officers, pathologists, registrars, and assistants of various kinds. The poor persons and others—for all hospital patients are not poor—seeking relief from our hospital system, amount to no less than the astounding number of 300,000 annually. We have extracted this amount, without any wish to exaggerate, from the best returns, as furnished by the hospitals themselves. The figures will be accredited when we state that the largest of our nosocomial establishments, the Royal Hospital of St. Bartholomew, succours nearly 5,500 in-patients annually; and that its in and out patients nearly reach 80,000 in the year. Yet this vast system of relief, and the immense amount of medical and surgical skill consumed in its bestowal, are nearly—we had almost said, entirely—gratuitous. Was ever such a spectacle of gratuitous toil exhibited as that which is involved in these figures?

**TURKEY IN EUROPE.**—The projected English railroad through the northern Turkish European provinces excites much attention there, and is pronounced by the *Wanderer* to be a matter even more important than the Egyptian Railway. It appears that six English engineers have already been examining the country between Constantinople and Belgrade; and in a letter from the latter city to Agram, a hope is expressed that the Servian government will also construct a line from Alexinac (probably Alexinitza, near Nissa, on the western frontier of Bulgaria) to Belgrade.

**TRANSMISSION OF MOTIVE POWER.**—M. Fontaine-Moreau, of South-street, Finsbury, has patented a plan for the transmission of power in lieu of cog-wheels and pinions, straps and bands. This is effected by means of an angularly grooved wheel, with another working therein of a wedge form, and by the grip to be obtained any description of machinery may be set in motion.

**RAILWAY TRAFFIC IN GREAT BRITAIN.**—The general results of traffic over all the railways in the united kingdom show that the aggregate number of passengers conveyed in 1850 amounted to 72,854,422; in 1851, to 85,391,095; being an increase of 14,536,673, or 17½ per cent. The gross receipts from passengers in 1850 amounted to £6,827,761; in 1851 to £7,940,764, showing an increase of £1,113,003, or 16·3 per cent. The gross sum received for the transport of goods amounted, in 1850, to £6,376,907, and in 1851, to £7,056,695, showing an increase of £679,788, or 10·6 per cent. The gross revenue of all the railways, arising from traffic of all descriptions, which in 1850 amounted to £13,204,668, amounted, in 1851, to £14,997,459, or very nearly £15,000,000, showing an increase of £1,792,791, or 135 per cent.

**THE DEBT OF THE UNITED STATES.**—According to a calculation by the *New York Times*, the total amount of the debt of that country amounts to 270,000,000 dollars. The minimum estimate of that portion of the above owned or advanced on, abroad, is as follows:—Federal loans, \$40,000,000; State loans, \$143,000,000; county loans and bonds, \$24,000,000; country loans and bonds, \$2,000,000; railroad bonds, \$20,000,000: total, \$225,000,000.

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