

THE plans for the rebuilding of the Tay bridge have been laid upon the table of the House of Commons. An examination of the foundations of the old bridge convinced Mr. Barlow that it was requisite to make more allowance than had been before done for the scour of the river, and that the safest and best plan would be to put in piers for a double-way bridge entirely independent of the old piers. The erection of the bridge on this slightly altered site will require the construction of two or three short pieces of railway, and from the shore to their junction solid stone piers will be employed. The total length of the new bridge is a little over 10,000 ft. or about two miles. It is similar to the old bridge with regard to the number of large openings. Each pier is opposite a pier of the old bridge. The calculations are made for double the wind-pressure that will ever be brought to bear on the holding-down bolts. In reply to a question very pertinently put by Viscount Folkestone, Mr. Barlow said that the wind-pressure was calculated at 20 lb. per square foot, and that in point of fact, the design allowed for 56 lb. pressure of wind and train. This is close upon the allowance made by American engineers, and is ample, if it be regarded as a probable strain that is not unlikely to come upon the bridge—the breaking strength being at least double. It would not, in our opinion, be safe if the breaking tension is put at less than 120 lb. per square foot of surface on which the wind can lay hold, so as to exert a leverage against the resistance; and no doubt this is what is meant by the evidence. The piers are to be solidly connected with the girders. The parapet will be of wrought iron, as a precaution in case of any vehicle leaving the rails. There are also strong balks of timber placed as fenders outside the rails. It is intended to use some portion of the old girders, after proper testing, in the new structure.

AN accident which recently occurred at the Union Iron and Steel Mart Furnace Works in Chicago, goes far to point our remarks upon the superiority of the new glass roofing to the sheet iron coverings now in vogue. About twelve o'clock on Wednesday, the 20th ult., seven or eight laborers were at work in the casting room when a vivid flash of lightning, immediately followed by a tremendous crash of thunder, and a crashing sound overhead, caused them to look up. They were horrified to behold the roof over their heads swaying and quickly giving way. They were literally paralyzed with terror, and were brought to their senses by the foreman, who was standing near the door, shouting: "Quick, men, for your lives; for God's sake." Simultaneously they all rushed for the door, and the last man had barely reached the threshold when the heavy roof fell in with an awful crash, taking with it, in its fall, about twelve feet of the south wall, the break extending the entire length of the building. The casting room is a large hall standing directly on the ground, and has no floor, but is full of pits dug in the ground, where the pig iron is cast. The wooden roof was completely covered with sheet-iron, which gave way in the general wreck and broke into bits like fractured glass. The damage to the building is estimated at between \$4,000 and \$5,000, and the company will lose besides about \$2,000 by loss of time and labor. Immediately after the storm a gang of men were put to work with pick and barrows to remove the debris and the work of building a new roof will commence

immediately. This new roof will in all probability be built as before, and may never of course meet a similar accident, but the conductivity of sheet iron will always render it a dangerous roofing in a violent thunderstorm such as that alluded to.

#### SIR JOSIAH MASON, THE ENGLISH PHILANTHROPIST.

By cable the death is announced of Sir Josiah Mason, the great penmaker and philanthropist. He was the founder of the Mason Scientific College, at Birmingham, England, and will be most widely remembered by that foundation. But he was long before that time an illustrious example of the use of well won fortune for the good of others. He was born at Kidderminster, February 23, 1795, of poor but worthy people. When a boy he worked as a shoemaker, then as a baker, and next as a carpet weaver. At the age of twenty he went to Birmingham and worked hard for ten years as a jeweller and gilt toy maker. At thirty he was connected with the manufacture of steel split rings and key rings, in partnership with Samuel Harrison the inventor, and at his death he succeeded to the business and added to it the manufacture of steel pens. In 1829 a superior steel pen of his making gained an introduction into the market, won a high reputation and enormous sales. He went into the business of electroplating and gilding, then into copper smelting, establishing for this latter industry in 1850 a large manufactory at Pennbury, in Wales, which grew up under his enterprise from an obscure village to a flourishing town. By his numerous manufactories he amassed enormous wealth. His first great work of benevolence was the erection and endowing of almshouses and an orphan asylum for boys and girls at Erdington, near Birmingham. This was done at an expense of \$300,000 on the erection of the buildings alone, and he afterward endowed the institution with real estate valued at \$1,000,000. Neither race nor religion is allowed to exclude the little ones who need its care. In addition to this noble charity he established and richly endowed a college for the study of practical science, with a distinct application to the industries of the midland district, in which his life had been spent and his fortune made. In recognition of his many benevolent and philanthropic works in 1872 Queen Victoria conferred on him the honor of knighthood. He had passed his eightieth year when he announced the matured and well-considered plan of his science college; and, being still vigorous and active in body and mind, had the satisfaction of seeing its buildings and equipments completed under his own eye, an able faculty selected for it, and of hearing from Professor Huxley an admirable setting forth to the public of its purposes and plans, on the occasion of its opening, on the first of October, 1880. The college is a magnificent Gothic edifice, with a frontage on Edmund street of 148 feet. The buildings cover an area of about two thousand four hundred square yards, but in the course of time, when the original plan of the founder is carried out, they will occupy nearly double that area. This institution has also endowed to the extent of \$1,000,000. It should be remembered that all departments of the college were thrown open by its founder to both sexes on the same terms; and also that, with the absolute exclusion of party politics, theology and mere literary instruction and education from its curriculum, there is given to its trustees a large freedom of action to secure, with whatever changing condition of the future, a sound, extensive and practical scientific knowledge to all who may need and seek its benefits. Beyond the fact that Sir Josiah's noble gift must become of incalculable value to the great, crowded midland manufacturing district of England lies the wider one of the practical example it gives to other men of wealth the world over, who having, like him, risen "from the ranks," may desire to bestow efficient aid on those who come after.—*New York Herald.*

An Agricultural and Industrial Exhibition is to open on the 14th of September, 1881, at the exhibition grounds, Mile-End, Montreal. The prize list fills a pamphlet of 200 pages. Twenty-five thousand dollars in prizes are to be distributed to exhibitors. It closes on the 23d of the same month.

A tramcar has been driven in Paris by means of Faure's accumulators. It conveyed forty persons at the rate of six miles an hour, the motive-power being 160 Faure batteries, weighing 181b. each, altogether 2,880lb.—a nice little load. It is naively stated that the work could have been done by two horses.