

begun; and he believed that boxes, now made of wood, would frequently be made of paper, if our manufactures were unshackled. But there was, in his mind, an insuperable objection to this paper duty, and these paper fetters altogether. They formed a tax and a burden upon the literature of England. He believed that two-thirds of the paper manufactured were used for the purposes of printing. There was also this anomaly in the duty: much of our paper (especially the paper of which newspapers were made) was formed out of the sweepings of our cotton and flax-mills. There was no duty on these articles as raw materials; but they paid a duty when they entered the paper-trade. Turn cotton into calico, it was duty free; convert it into paper, it was taxed. The effect of the repeal of the duty on almanacks was an instance of the effect of repealing a duty upon literature, however lowly. But he held the mere duty on paper not to be so great an evil as the intermeddling with the paper trade. If these domestic restrictions were removed, our language and our literature would naturally expand. He next turned to an impost on a common article of great and increasing importance—he meant the Excise-duty on BRICKS. In this case, as in the case of soap, there was no duty on the manufacture of Ireland. Indeed, comparatively, there was scarcely any duty in Scotland, since nature had provided Scotland with an ample supply of valuable stone. But where the duty did fall in Scotland, it was, by comparison, the more oppressive. This duty was originally imposed by Mr. Pitt, in 1784, to meet the exigencies of the debt created by the recent war with America. At first it extended to stone, as well as to bricks; but the stone interest was successful in its rebellion against the duty. Mr. Pitt was obliged to yield. He left the brick duty alone remaining; but he acknowledged the impolicy and partiality of its character. In fact, he maintained that this was, in the language of the Commissioners of Excise Inquiry, 'among the most objectionable of the duties of Excise.' Since the glass-duties had been abolished, how great had been the development of that most beautiful fabric! The window of every glass-shop indicated that science and art combined to improve and to embellish it. Few would suppose that there was a connection between the arts and the making of bricks; but he remembered that when it was asked in a committee on the connection of art with manufactures, of which he was chairman, in 1816, why we did not make bricks of various shapes, as in the time of Henry VII. and Henry VIII.? the answer was, that the restrictions of the Excise prevented us. He found this evidence singularly corroborated by the valuable testimony of Mr. Wood, the chairman of the Excise Board in the last session of Parliament. That gentleman, in his evidence before the Committee of the House of Lords, on 'The Burdens on Land,' stated that some of the excise regulations on the manufacture of bricks had been relaxed, and that 'the consequence of this alteration was, that great facility had been given for making bricks of ornamental shapes, and enabling architectural ornaments to be made in brick, previously in effect prohibited.' He (Mr. Ewart) had no doubt that so ordinary a trade as the brick trade, when emancipated, would be made still further obedient to the purposes of art. He had limited the foregoing suggestions to duties of Customs and Excise. He admitted the injustice and impolicy of other duties also. The window duty was one of a most unequal and impolitic character. The insurance duty was a tax on the foresight of the parent and the resources of the family; and other duties were, in various ways, objectionable. But he principally assailed those duties which obstructed or choked up the sources and springs of labour.

TABLES FOR ESTIMATING EARTH-WORK.
—Mr. Charles Sibley, son of the district-surveyor for Clerkenwell, and Mr. Rutherford, of Woolwich, have recently published an elaborate set of tables for estimating the contents, in cubic yards, of the earthwork of railways and other public works, which appear to have advantages over others, and will be found useful. We shall take an early opportunity to look to them more closely.

* Longman and Co. Paternoster-row.

IMPROVEMENT OF SMITHFIELD MARKET.

We have received, with the following, from a naval officer of high standing, drawings, exemplifying his proposal, but think it unnecessary to engrave them.

I would suggest that a platform be built on arches, occupying the whole extent of the present site, leaving a street, or road-way, all round, 60 feet broad. That the elevation be such as to allow of a piazza of shops all round, vaulted; that in the centre of the platform two or three, or more, arched ways should pierce the platform from side to side, of sufficient height and capacity to receive water-tight waggons on four wheels. That leading to the platform above there should be a sloping road-way at each angle, with balustrades; and that the platform be roofed in, in square compartments, open on all sides, supported on iron pillars; one-half of the space to be apportioned to the sale of cattle, the other half to the slaughter of them.

That each of the said compartments be floored with broad flags, laid in cement, the whole having a slope to a perforation of a foot square, corresponding to one of the central arches, under which a waggon, as before described, is to be placed, to receive all the droppings and offal of the cattle. That the waggons, when full, be removed by means of a railway landward, or a souterrain railway, leading to the river, as the ground affords sufficient fall to conquer the *vis inertiae*, when the waggons are once set in motion. Arrived at the river, the contents of the waggons to be delivered into barges, prepared to receive them on board at once, and their contents to be entered into the barges by a trap-door in the centre of the waggon. Empty waggons to immediately supply the place of those removed.

Advantages of the Proposed Plan.—1. All nuisances would be removed when once the cattle ascended the platform. 2. The air would cease to be contaminated, as all offensive matter would be speedily removed, and previously remain covered in waggons. 3. The meat, when ready for the market, would at once be received into the vaulted shops, and thus escape being shaken when carried over the pavement. The shops would be always cool, and from both these causes the meat would remain sweet much longer. 4. Business would be transacted much more expeditiously, and at less expense, nor would there be any interruptions from vicious characters. 5. The value of the manure, which at present runs to waste, would be such as in a short time to pay all expenses, and return a large revenue.

The above plan is not only applicable to London, but to all towns in the kingdom, and the offal thus made available as manure of the best kind, with little labour or expense.—A. D.

IRON TUNNEL OVER THE MENAI STRAITS.

A CORRESPONDENT of the *Mining Journal* calls for further investigation before the iron tunnel be put up. He says:—"According to my informant, its length is to be 460 feet, clear of the points of bearing—so that I presume the entire length cannot be far short of 470 feet; its diameter 30 feet, to be constructed with wrought-iron plates, varying from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. thick—therefore, supposing the average thickness to be $\frac{3}{4}$, and including the needful powerful ribs and stays to resist the vertical and lateral pressures and strains, together with the interior framing and rails, I estimate its weight at upwards of 30 cwt. for every foot of its length, or about 700 tons. Now the depth of the tube is 30 feet, which is about $\frac{1}{10}$ th part of its length, therefore, according to my machine, the strain by its own weight at the middle will be equal to $\frac{7}{8}$ times its weight—viz., 5250 tons—and suppose a train with the engine and load to be 100 tons, equal to 750 tons—together 6000 tons. According to Barlow's theory, the safe capacity to resist such a strain ought to be equal to 12,000 tons; and to Tredgold's, 24,000 tons. Now let us see what is the capacity of this projected tunnel, or tube:—The circumference is (say) 90 feet; the tension property in the lower half, 45 feet. Suppose the plates average five-eighths of an inch thick, it would give $\frac{7}{8}$ square inches on each foot; say, that each inch would sustain, before

breaking, 20 tons; this would make 150 tons to each foot, which, multiplied by 45, gives a capacity of 6,750 tons; so that its own weight, and the load, would, according to this calculation, produce a strain nearly equal to the breaking point. Now, as wrought-iron will begin to stretch at the strain of 10 or 12 tons to the inch, it must be manifest that little more than half its weight would produce a permanent set, and render it perfectly unfit and unsafe for the desired object."

PROGRESS OF THE HEALTH BILL.

In accordance with the prospect of perseverance in the determination to carry out something like the sanitary initiative during the present session, Lord Morpeth's bill was fairly launched into committee on the 1st instant; and, in face of a rather sulky than obstinate 'opposition,' one clause after another was telled over into the shape of incipient law, either by majorities ranging from 91, for going into the committee itself, down to 42, the lowest majority gained on the highest opposition offered; or *nem. con.*, onwards rather slowly to clause 21, on the 6th instant.

During the progress thus made, however, two clauses, Nos. 17 and 21, were postponed for consideration or modification by Government, and two others, formerly Nos. 19 and 20, were found to have been omitted altogether. The omission of these two latter clauses, Lord Lincoln declared would render the bill, in all but a few cases, either nugatory or inoperative, or altogether absurd. It would even, his lordship alleged, lead to the exclusion of such 'hives of industry' as Liverpool and Manchester; and accordingly Lord G. Bentinck, at once taking the credit to himself of reasons only that moment suggested to him, declared that he was justified in, and that the country would perceive he had good reasons for, throwing himself as a stumbling block in the way of this bill; and he accordingly forthwith called on Lord Morpeth to abandon at once so 'heterogeneous a mass of confused and blundering legislation.' His lordship (Lord Morpeth), however, assured his noble friends that as the boundaries of Liverpool and Manchester had been fixed by the Incorporation Act of 1835, 'those two hives of industry could at once have the benefit of this measure applied to them.' The reason why Government had thought proper to exclude the two clauses in question was, that the one conferred a power of extending boundaries to her Majesty in council, which should if possible be dispensed with, while the other provided for an increase in the number of a council dependent on the exercise of the first; whereas it was now conceived that the more proper mode of procedure would be to pass a separate Act, analogous to other boundary Acts, allowing the sanitary bill to operate in the meantime wherever it properly could, and which it still would do to a much more general extent than was imagined. As to the allusion to 'districts' surrounding towns in clause 6th, the withdrawal of the word was agreed to, and a modification promised, so as still to include suburbs while excluding rural districts. It is proposed to have but one paid commissioner, the expense of the commission to be confined to 1,000*l.* per annum. Clause 13th, if necessary to clear meaning, is to be amended.

In allusion to much reasonable grumbling against the exclusion of the metropolis, Lord Morpeth explained that, by the advice of the Health of Towns Association itself, he had excluded the metropolitan district from the operation of this bill, in order to reduce the risk of excluding the whole country till another session; and Lord John Russell remarked that honourable gentlemen opposite spoke of this question as if it were proposed to exclude the metropolis from any sanitary regulations, when the fact was, that the intention of the government was, to introduce a measure with respect to the metropolis in the next session of parliament. Honourable gentlemen opposite had expressed extreme zeal for the sanitary reform of the metropolis, as well as of the various towns throughout the country, and would no doubt be sorry were the result a defeat of both of the ends in view. He therefore hoped they would, at least, be defeated in their present object, as they might rest assured that the metropolis itself, as well as the country