

on this subject as he conceives to be most interesting and consistent with the objects of the Institution.

The Paper is illustrated by an engraving of the *Abattoir Montmartre*, impressions of which, (Plate 4,) are permitted to be taken for the use of the Minutes of Proceedings, and by four drawings, (Nos. 4,399 to 4,404.)

Mr. CHADWICK said he had listened to the Paper with great satisfaction, as it was connected with a subject to which he had devoted his most anxious attention. The evils of this kind which Napoleon removed in Paris, still remained in great force in London, and he feared it would need a power as absolute as that of the Emperor to eradicate them.

The subject had attracted the attention of Mr. Chadwick's colleagues on the Sanitary Commission, and its consideration had only been postponed, on account of other, though not more important inquiries. The chief difficulty, both in the Metropolis, and in other parts of England, was, he believed, rather administrative, than arising from a want of perception of the great convenience which abattoirs would offer in avoiding dirt and filth, disturbance in the streets, scenes of brutality, and the existence of a number of ill-conditioned places where the present system was perpetuated. The great evil, however, connected with the actual existence of slaughter-houses in the interior of towns, was that arising from the various offensive trades, such as tallow-melting, cat-gut making, &c, which were necessarily established in the immediate vicinity, and which eventually became more objectionable than the slaughter-houses themselves. One of the most important effects to be anticipated from the removal of the slaughter-houses, would evidently be the transfer of all the trades connected with them to some less densely populated neighbourhoods.

The objection of the butchers in England, (who, as a body, were not so united as in France,) to such an establishment as that at Islington was, that they were only exchanging the control of one irresponsible body for another, namely, from the Corporation of the City to a Joint-Stock Company. Now the real danger to the public, might be in trusting the butchers themselves with too much power; but that objection could be removed by legislative enactments, and an adaptation of the foreign system to the English trade, which would no doubt take place.

It had been expected, that the railways would bring a large quantity of killed meat to the London market; hitherto, however,

that anticipation had not been realized, and it had been stated, that the meat did not travel well, in consequence of inadequate accommodation for its carriage; but such a reason could not be permitted long to interfere, as the ingenuity of the carriage-builder would soon remedy that defect.

He thought Mr. Grantham had done well to bring the general question before the Institution, and he hoped that good would result from its discussion.

Professor OWEN had great pleasure in offering his testimony to the accuracy of Mr. Grantham's account, as on more than one occasion he had carefully examined the question, particularly in the autumn of 1847, when as a member of the Metropolitan Sanitary Commission he inspected the abattoirs, and their dependencies in Paris, with great minuteness, receiving every possible facility from the authorities, and being much assisted in his inquiries by the admirable documents published annually by the Préfet de Police, and the Syndicat des Bouchers. The great feature which called for admiration in the abattoirs of Paris, was their bearing, in an economical point of view, on all the numerous classes who were affected by the supply of animal food; the graziers were benefited by extensive markets being provided for them, where their cattle were easily examined, and where the trade was enabled to go on directly between the grazier and the actual purchaser, without the system of middlemen, or meat salesmen, whose assistance became indispensable in London, on account of the difficulties of Smithfield. This was one of the direct taxes on meat, which the consumer had to pay.

A more important benefit was the arrangement of the markets, which rendered it almost impossible, that any diseased meat could enter Paris. By the excellent existing supervision, every tainted, or diseased animal was at once rejected, and its introduction entailed due punishment. Then, after the grazier, the master butcher derived a benefit, by receiving the cattle in the best-possible condition for killing, as they were not over-driven, the abattoirs being so placed and the system of conveying the fattened beasts to them being so arranged, that they came there in a totally different state from that in which they arrived at Smithfield. The contrast was extremely striking, and as a physiologist he conceived it to be of the greatest importance to the wholesomeness of the food.

In London the majority of the beasts were slaughtered in a state of fever, and when the blood was in an unnatural state. The microscope clearly demonstrated the shocking state of the animals, and it was a fact that he had never met with the blood of a calf, ox, or

sheep in a slaughter-house in his own neighbourhood, (Clare Market,) which he could pronounce to be in a thoroughly healthy state, and it followed of necessity that the quality of the meat was deteriorated.

There were a few first-rate wealthy butchers in London, who avoided this evil, by having their own fields, or turning their sheep into the Parks for a few days; but in Paris it was entirely obviated, by placing the abattoirs at the extremities of the city, although within the walls, on account of the municipal duties. It would be difficult to improve the internal arrangements of the Paris abattoirs, but if they were susceptible of amelioration, he was sure the suggestions would emanate from the Members of the Institution of Civil Engineers. At the abattoirs in Paris, the sheep were placed in small paddocks, the cattle had plenty of straw, and in some places grass yards, where they rested for some days, and were therefore in a perfectly healthy state when they were slaughtered; for it was of little real avail having the cattle apparently free from disease, if they were driven into a fever before they were killed, which was the case with nearly all the cattle brought into the Metropolis. In Paris too, there was no waste of the offal, all the parts of the animal being systematically converted into their immediate profitable use. Now that the blood was not entirely used for purifying sugar, the French adopted a chemical process, for converting it into a solid manure, which appeared to be equal to guano; and all those operations were carried on without that extent of injury and inconvenience to the neighbourhood which appeared inseparable from the system of this country.

Another advantage was, that the butcher, getting his meat in a better condition, was able to keep it fresh much longer than it could generally be kept in London, for he had seen in Clare Market, fine joints of meat thrown on to the offal heap and carted away, in thirty hours after the slaughter of the animal: this had been the case with carcases which had been suspended for only one night in the tainted atmosphere of the slaughter-house. The owners of these places appeared not to know, that a piece of fresh meat, placed within the atmosphere of tainted meat, would rapidly partake of the corruption, and seemed also not to be aware, that their filth and ignorance combined to make them pay a large fine out of their own pockets, in the shape of meat thrown away, if it could not be forced, by its cheapness, on the poor inhabitants of the district.

He wished, if the Parisian system was introduced into London, that its benefits should be enjoyed by all; but he feared, without due legislative control, that the benefit of it would be obtained only

by the spirited individuals who got up, on private grounds, the first movement in the right direction; it was right they should be rewarded, but he thought it was better that the movement should be so directed, as to insure a benefit to all classes. It was a fallacy to suppose, that Englishmen would not endure the restrictions, to which the butchers were subjected in Paris; there were other classes of men equally sensitive, and possessing the true spirit of Englishmen, who had for years, (until lately,) endured a more galling interference,—the supervision of the glass-makers, the distillers, and other trades, by the Excise. He had no doubt, that Englishmen would submit to such regulations as a wise Legislature deemed proper for the benefit of all, particularly when they did away with the evil and nuisance of such a place as Smithfield.

Mr. LESLIE conceived, that the passage of the cattle through London to the Islington market would still be a great nuisance; he had been told that a large number of the sheep which came to London, arrived from Kent, and the nuisance of their going through London to Islington, would be greater than that caused by their going to Smithfield. He also called attention to the fact, that the £42,652 paid over to the city of Paris was not clear profit, but was a return of about 6½ per cent. on the original cost of the abattoirs.

Mr. C. MAY conceived the subject was so clear to the common sense of every one, that it resolved itself simply into a pecuniary question, affecting the City of London, and when that was arranged, the whole matter would be settled. Bad as our system might be, he still thought better beef was to be had in London than in Paris: but he believed great improvements might be introduced, and that the best mode of carrying out their views would be, by impressing them on the public mind, and by showing the butchers the losses they sustained, in every way, by the present system.

Mr. ARMSTRONG begged to direct the attention of the meeting more directly to the Islington market, with which he was intimately connected, and of which the actual circumstances should be correctly known.

An Act of Parliament was in existence, for establishing that market, and allowing certain limited rates of tolls to be levied; it was only proposed to establish one abattoir at that spot, and there was no idea of monopolizing the whole trade of London, which indeed would be impossible. This was proved at Paris, where, in a city so much smaller, it was found necessary to have five abattoirs; it therefore did not require much argument to show, that a larger number of establishments would be required for London, and those

should be so placed, as to intercept all the droves of animals arriving in the Metropolis. It was proposed, at the Islington market, to attach to the abattoir small sheds, to be let, at a certain rent, to the butchers, where their own servants might kill the animals. If by any mutually advantageous arrangement, the Company could take from the butcher those parts of the offal, &c., which were used for various manufactures, the public would rather be gainers.

When other abattoirs were established, it would be competent for a butcher to select that one which afforded him the greatest accommodation, and if the Islington Company should demand too high a rent for their shops, competition would spring up, and thus the matter would speedily find its level. Seven-eighths of the cattle arriving in Smithfield came from the northern counties, and were mostly carried by railway; and even with regard to the sheep from Kent, they might be ferried across the river, and brought by the West India Dock Junction Railway, which now came within less than four hundred yards of the Islington market, into which there would soon be a branch formed; or by the railway bridge constructed across the river at Richmond, by which means, the passage of cattle, through the streets of London, would be entirely avoided.

MR. ALLEN RANSOME said he was intimately acquainted with the views of the farmers on the subject, as he had heard the question discussed at their club. The unanimous feeling appeared to be, that an establishment outside the Metropolis, with adequate room for the animals, where they could be free from that state of excitement to which they were subjected, from being driven through the streets, would necessarily be advantageous; the main thing that opposed itself to the plan, was the actual scarcity of buyers there, and he much feared that as long as the interests, which then surrounded Smithfield market, were made to tell, as they now did, on the butchers and salesmen, so long buyers would be deficient there; he thought the best way to remove that objection, was to get up a feeling of willingness in the minds of the farmers, to trust their stock in a better place, and he had no doubt, that purchasers would then go to a place where the cattle could arrive without the loss, or damage, to which they were now subjected. The salesmen were the parties who really interfered most, to prevent this desirable improvement for the farmers and the public, and they were actuated solely by the principle of self-preservation, because from the moment that the butchers could easily come into actual contact with the farmers, and purchase directly from them, the occupation of the salesman would be gone. It must be self-evident, how desirable it

would be to do away with the present system, and there could not exist any reasonable doubt of the proposed improved measure being soon fully carried out.

Mr. C. FOWLER said, his experience in markets convinced him of the great evils attending the mode in which beasts were now slaughtered, and of the degrading tendency of the proximity of such places. On visiting a slaughter-house, he had been surprised to find young tradesmen in the neighbourhood attending and officiating as amateur slaughterers. He was happy to see the present movement, which, however, he thought had been taken up with more spirit in the provincial towns than in London.

A very interesting report had been published by a Commission from the late French Government, which had visited London, as well as most of the principal cities of Europe, in order to collect information on this subject. In that report, the Commissioners commented somewhat severely, but courteously, upon the actual state of the butchers' trade in London, and made many interesting remarks upon the subject.

The great opposition to any alteration in the present system, was the vested interest of those supporting it, because they were in turn supported by the system. These vested interests should be met by some strong measure of the authorities, and if the public expected to be benefited, they must adopt strong measures, to impress upon the Legislature, the necessity for the consideration of these crying evils, and of the adoption of some mode of remedying them.

Mr. ELLIOTT thought it right to mention some objections urged by the trade against the general establishment of abattoirs in this country; these were, that it would be necessary to send their servants to the abattoirs to slaughter the cattle, and they might possibly be at some distance from their shops; that they might collect there in numbers and form bad habits; and also that the butchers would not have so well-regulated a supply of meat as at present. If the supply was now deficient, they had but to send to their slaughter-house, and kill one, or two sheep, to meet the wants of their customer; whereas under the proposed system it might be necessary to send several miles for the purpose.

There could be no doubt of these objections being eventually overcome, but they must at once be met in the proposed arrangements of any establishment, for it was essential to receive the co-operation of the butchers, which could only be obtained by meeting their views liberally.

Professor OWEN explained, that no persons were permitted to congregate in, or about the abattoirs of Paris, excepting those who

were actually employed there, and that the internal arrangements were so excellent, that no bad conduct would be tolerated. In Paris, in addition to the general cleanliness observed in the shop, and the rapid removal of the offal, the butcher brought to his shop in the abattoir vans, excellently constructed for the purpose, only the meat which was required to be sold within a given time, whereas in London the whole live beast was brought home, although only two-thirds of it was available for food; the hides lay about, and were irregularly taken away, and the blood was collected in the 'blood-hole,' which was not regularly emptied, nor was the other offal and dung conveyed away quickly enough. All these combined to render the present system seriously prejudicial, not only to the sanitary condition of the immediate neighbourhood, but to the whole Metropolis.

It was remarkable that in England, where the advantages of the introduction of machinery and tools were so fully appreciated, such a stubborn adherence should be shown, to an antiquated and vicious course with respect to their markets, and such a want of perception of economy. By the present system, the drover was actually paid for depreciating the value of the animals, by his treatment of them, and it was deemed preferable to pay for the risk of an accident in the crowded streets, than to send the beasts for sale to a convenient spot in the suburbs. This was blindness enough, but it was difficult to imagine how, or why, the public would continue to submit to the annoyance, danger, and inconvenience to the traffic, as well as to the filth in the streets, caused by the passage of these droves of animals, when they had eventually to pay for it, in the shape of an increased price for meat, which really amounted to an enormous tax upon the public at large.

Mr. GRANTHAM stated that in a treatise he had written on the subject,* he had alluded to the propriety of all the manufactures connected with the use of the offal, being included in, or concentrated around, one establishment. The establishment of abattoirs, would also be of use, in ascertaining accurately the consumption of meat in London, which at present was not practicable. In Paris every butcher who killed meat paid a duty per pound on the meat leaving the abattoir: this he conceived to be a good system, as the butcher could lock up his meat in his store at the abattoir,

* *Vide* "A Treatise on Public Slaughter-Houses, considered in connection with the Sanitary Question; describing the practice of Slaughtering in France and England, with an Historical and Statistical Account of the Abattoirs of Paris." By R. B. Grantham. 8vo. London. 1848.

without its being under the control of the Company; there was also a strict police at the gates which prevented anything like theft. He had no doubt, that when abattoirs were established in the Metropolis, along with the different trades in connexion with them, the butchers would find that they could kill their meat more economically than at present, and instead of the expense being three shillings and sixpence a head for cattle, it would not be more than one shilling and sixpence.

He thought abattoirs were desirable in every point of view. The offal was disposed of with much more difficulty in the country than in London; but if central establishments like these were formed, *thère* would be a certain sale for everything.

The contrast between the system of private killing of animals in London and the abattoirs of Paris, was not more striking than that between the markets of Smithfield and Poissy, and in neither case was it to the advantage of England.

MR. C. MAY could not help remarking, that there would be great objections to including any of the offensive trades within the walls of an abattoir, as the tendency must evidently be, as had been stated by Professor Owen, to taint the meat, and thus do away with one of the great advantages of the proposed establishments, which he sincerely wished to see commenced immediately.

MR. GRANTHAM said, with reference to the observation made by Mr. May, as to the evil of connecting offensive trades with the slaughter-houses, he thought the modes proposed in the pamphlet, which he had laid before the Institution, would quite meet that difficulty; the ventilating towers would carry off most of the offensive ingredients that would arise, in addition to which they would be well partitioned off, so that the draught could not carry any of the effluvia to where the meat was kept; and another important part of his plan had reference to the preservation of meat during the summer, in rooms properly ventilated and cooled by dry air and other artificial means.