

Report of the Committee appointed by the Admiralty to consider the humane slaughtering of animals, with appendix.

Contributors

Great Britain. Committee on Humane Slaughtering of Animals.
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COMMITTEE ON HUMANE SLAUGHTERING OF ANIMALS.

REPORT

OF THE

COMMITTEE

APPOINTED BY THE ADMIRALTY TO CONSIDER THE

HUMANE SLAUGHTERING OF ANIMALS

WITH

APPENDIX.

Presented to both Houses of Parliament by Command of His Majesty.



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1904.

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MEMBERS OF THE COMMITTEE.

MR. ARTHUR H. LEE, M.P., Civil Lord of the Admiralty (*Chairman*).

Colonel F. T. CLAYTON, C.B., A.Q.M.G., War Office.

MR. ALEXANDER C. COPE, M.R.C.V.S., Chief Veterinary Officer of the Board of Agriculture.

MR. CHARLES GAME, Chairman of the Cattle Markets Committee of the City of London.

MR. GORDON W. MILLER, C.B., Director of Navy Contracts.

MR. SHIRLEY F. MURPHY, Chief Medical Officer of Health of the London County Council.

SIR HENRY F. R. YORKE, K.C.B., Director of Navy Victualling.

MR. R. G. HAYES,
Secretary.

TERMS OF REFERENCE.

To ascertain the most humane and practicable methods of slaughtering animals* for human food, and to investigate and report upon the existing slaughter-house system.

* The word "animals" to include only the following:—cattle, calves, sheep, lambs, and pigs.

MEMBERS OF THE SOCIETY

Mr. James H. Lee, M.D. (London, 1871)

Colonel F. T. Clifton, M.A. (London, 1872)

The Hon. Mr. Justice Stirling, M.P. (London, 1873)

The Hon. Mr. Justice Stirling, M.P. (London, 1874)

Mr. James W. Stirling, M.P. (London, 1875)

The Hon. Mr. Justice Stirling, M.P. (London, 1876)

Mr. James W. Stirling, M.P. (London, 1877)

LIST OF REFERENC

To ascertain the most accurate and practical method of measuring
animals for human food, and to investigate the extent of the existing
laughter-house system.

"The animal" is brought up to the table, and the following steps taken

REPORT.

1. This Committee was appointed in January, 1904, at the instance of the Board of Admiralty; and included representatives of the War Office, Board of Agriculture, London County Council, and City of London. These Government Departments and Public Bodies showed their interest in the inquiry by the nomination of some of their principal officers to serve on the Committee, and an examination of the personnel will show its representative character.

OBJECT OF ENQUIRY.

2. The main object in instituting the inquiry was a humanitarian one, and the Committee, therefore, were solely concerned with the act of slaughter itself, and the conditions precedent thereto. The hygienic side of the question, whilst of the utmost importance, is beyond the scope of the Terms of Reference, and, moreover, has been exhaustively dealt with in scientific works such as Dr. Schwarz's "Public Abattoirs and Cattle Markets."

The Committee have clearly recognised from the first that it would be futile to recommend any methods of slaughter, however humane, which would be impracticable on the score of complication, time, or expense, or which would in any way depreciate the utility or market value of the carcasses for human food. To do otherwise would not only stultify their recommendations, but would do away with any justification for killing the animals at all. The Committee, therefore, make no recommendations which, in their opinion, are not strictly business-like and which have not been clearly demonstrated to be practical.

METHOD OF PROCEDURE.

3. The Committee have examined a large number of witnesses of unrivalled experience in the existing methods of slaughter and in supervision of the same. Amongst these may be mentioned the following:—

The Chief Veterinary Inspector of the Board of Agriculture at Deptford Cattle Market,	1.
The Chief Veterinary Inspector of the City of London at Islington Cattle Market,	604.
Dr. Carl Budding, Member of the Prussian Local Government Board, Coblenz,	1872.
Inspectors in the Public Health Department of the London County Council,	369.
The Chief Meat Inspector, City of Liverpool,	1447.
The Superintendent, Edinburgh Public Abattoir,	1577.
The Master Butcher in charge of the Army Abattoir at Aldershot,	118.
The Navy Master Butcher at Gosport.	233.

They have also examined witnesses nominated by the Association of Master Butchers, and the Royal Society for the Prevention of Cruelty to Animals, besides practical butchers and certain private individuals who have made a particular study of the subject. They have further had the advantage of consulting Mr. H. C. Monro, one of the Assistant Secretaries of the Local Government Board, as to the existing powers of Local Authorities with regard to slaughter-houses.

A verbatim report of the evidence is printed separately.

4. The Committee have further obtained full information as to the methods in use, and the regulations in force, in certain foreign countries, a summary of which is printed in Appendix A. Special attention is directed to the practice in Denmark, Germany, and Switzerland, where the whole business of slaughtering is systematised, regulated, and supervised to a far greater extent than in this country.

5. (a) In addition to studying the theory of the subject, the Committee have made several personal visits to slaughter-houses, and have witnessed various methods of killing actually in force, including the Jewish system, and have also conducted practical experiments to test alternative methods. In these investigations they have been assisted by the advice of Sir Michael Foster, K.C.B., F.R.S., M.P., and Professor E. H. Starling, F.R.S., Professor of Physiology at University College, London, a summary of whose reports will be found in Appendices B. and J.

(b) A Sub-Committee of the Committee was deputed to visit a number of representative abattoirs in Germany and Switzerland, in order to verify the conclusions derived from a study of the best foreign regulations, and to practically test the methods employed. The Report of this Sub-Committee is contained in Appendix C.

GENERAL RECOMMENDATIONS.

6. As a result of the foregoing inquiries and investigations, the Committee are of opinion that the methods of slaughter existing in this country are capable of considerable improvement, and they have come to the following general conclusions :—

506. (a) All animals, without exception, should be stunned, or otherwise rendered unconscious, before blood is drawn.

1759-60. This is actually the law in Denmark, many parts of Germany, and Switzerland, and therefore cannot be considered an impracticable condition. It has the great merit of comprehensiveness and simplicity, and, if carried out, makes the subsequent operations of slaughter of comparative unimportance from the standpoint of humanity. The detailed methods proposed to carry out this primary condition in the case of the various animals will be referred to subsequently. (*See* para. 10.)

455 ;
565 ; 575.
1029.
1050.
1273
1681.
(b) In the interests not only of humanity, but of sanitation, order, and ultimate economy, it is highly desirable that, where circumstances permit, private slaughter-houses should be replaced by public abattoirs, and that no killing should be permitted except in the latter, under official supervision. Such a change as this could only be brought about gradually and by legislation, but it cannot be described as impracticable, in view of the fact that this system is prescribed by law in several Continental countries and is actually enforced in the city of Edinburgh.

59-63 ; 1018 ;
1274.
(c) There should be an efficient system of inspection and supervision of all slaughter-houses, whether public or private, by the local authority, and uniformity in methods of slaughter should be introduced and enforced as far as possible.

52
99 ; 100-2.
600 ; 740-8.
858-9.
920 ; 1026 ;
1260 ; 1269 ;
1284 ; 1424 ;
1517 ; 1589.
(d) All slaughtermen, and others employed in or about slaughter-houses, should be licensed by the local authority. The Committee have carefully considered the question as to whether the licence should partake of the nature of a certificate of proficiency, but they recommend that, for the present at any rate, it should be merely permissive (like the present licence for motor drivers), having as its main value the power of withdrawal in case of cruelty, incompetence, or misconduct. Only a nominal fee should be charged for a licence. The Committee have received a good deal of evidence to show that the institution of licences would not only be desirable from a general standpoint, but would also be received with favour by the trade.*

1567.

360-3.
698 ; 706.
929 ; 1564.
1676.

* The Committee are glad to note that the class of men employed in slaughtering work, at any rate in large establishments, has greatly improved of late years, and for the greater part they now appear to be both highly trained and well paid.

DESIGN OF SLAUGHTER-HOUSES.

7. The Committee are of opinion that many of the slaughter-houses in this country are unsatisfactory in design, and present features which are objectionable from a humanitarian standpoint.

It appears to be the common practice, even in modern and well-regulated slaughter-houses, to keep the animals which are immediately awaiting slaughter in pens which are mere annexes to the slaughter-chamber itself, and in many cases in full view of all that goes on inside. Moreover, the drainage of the slaughter-chamber is often so arranged that any blood which is not caught and saved, together with other refuse, flows out of the slaughter-chamber into or through the waiting-pens, under the noses of the animals awaiting slaughter. The Committee have witnessed this in slaughter-houses of the largest kind.

8. The Committee have given careful consideration to the question of the best design for a slaughter-house, and make the following general recommendations:—

(a) The animals awaiting slaughter should be spared as far as possible from any contact with the sights or smells of the slaughter-house itself.

14.
29.
492; 640.
1389.

753-6; 1505;
1639.

There is no point which the Committee have more carefully investigated than the question as to whether animals do or do not suffer fear from this contact, and the evidence of those best qualified to judge is so conflicting that no absolute verdict can be given. As an animal cannot speak it is impossible to accurately determine to what extent it does or does not suffer from fear, but there is no doubt that cattle, especially, frequently show great reluctance to entering the slaughter-chamber, and can only be dragged in by the employment of considerable force. The presumption is that what they chiefly object to is the smell of blood, but whether this can be proved or not, it is obviously undesirable from a purely business standpoint to run any risk, as it appears to be an established fact that the flesh of an animal, killed whilst in a state of fear or excitement, loses some of its palatable and marketable qualities.

29-31;
151-156;
277-281;
415-419;
489-491;
641-647;
766-9;
807-810;
900-902;
1066-1070;
1153-1155;
1286;
1395-1404;
1508-1514;
1719; 1765-9

Apart from this, the question is of such vital importance from the standpoint of humanity that it seems clear that the animal should be given the full benefit of the doubt.

(b) With this object in view, the waiting-pens should be separated from the slaughter-chamber, (*see* plan A, p. 12.) and the latter should be shut off by sliding doors. It is also of great importance that the pitch of the floor, and the drainage of the slaughter-chamber, should be away from, and not run into, the waiting-pens, as is often the case at present. The common practice of depositing blood barrels, freshly removed hides, or refuse from the slaughter-house in close proximity to the waiting pens should also be prohibited.

1391.

(c) It is important that the floor of the slaughter-chamber, whilst necessarily impervious, should not be slippery.* The smooth concrete floors existing in most slaughter-houses become very greasy when wet, and as a result cattle, especially if restive, are very apt to fall down and injure themselves before they can be secured in the proper position for slaughter.

(d) Cattle should, when possible, be slaughtered screened off from their fellows.

This can be arranged in moderate sized abattoirs by dividing up the side of the slaughter-chamber, opposite to the entrance doors, into stalls somewhat similar to those in a stable, but considerably wider. For quiet home-grown cattle a width of ten feet is sufficient, but where wilder

410; 424;
492-7; 654.
1641.

* The selection of a pavement which affords a good foothold when wet or greasy, and which is both sanitary and impervious, presents some difficulties. In many foreign abattoirs slabs of roughened granite are used. This makes an admirable but expensive pavement. At the new Admiralty slaughter-house at Chatham a specially designed blue brick, with a grooved and roughened surface is being tried.

cattle have to be killed a wider space is probably desirable. It is important that these stalls should be so arranged as not to screen the operations of slaughter from the view of the inspecting officials. For further details see plan A opposite to page 12.

(e) Immediately after the carcasses have been bled, they should be moved on to, and "dressed" in an adjoining room, screened off from the view of animals entering the slaughter-chamber.

This is easily accomplished by hitching a rope (from the winch if necessary) round the head or forelegs of the carcase, and by dragging it along the floor for the short distance (15 feet or so) into the "dressing" room (*see* plan A). The slaughter-stall should then at once be flushed down with the hose, so as to remove all traces of blood.

This method leaves the slaughter-spaces clear for the next batch of animals, whereas under the existing system there is either a loss of time through the slaughter spaces being blocked up with the dressing operations, or else the next batch of animals on being brought into the slaughter-chamber are confronted with mutilated and disembowelled carcasses.

This latter circumstance, which is quite usual in existing slaughter-houses, is obviously objectionable from a humanitarian standpoint.

9. A model slaughter-house embodying the above provisions, and many others conducive to rapidity and economy of working, is now being constructed by the Admiralty at Chatham Dockyard, and a detailed description, with plans, is attached. (*See* Appendix, Plans A and B).

DETAILED METHODS OF SLAUGHTER.

10. As a result of their investigations, and proceeding on the preliminary assumption that all animals should be stunned, or otherwise rendered unconscious, before being bled, the Committee are of opinion that the following methods are the most humane, expeditious, and practical, and recommend that they should be prescribed by bye-laws, or otherwise enforced.

Cattle.

(a) Each animal should be roped before being brought into the slaughter-chamber, which should be so arranged that the animal can be led in, straight up to the slaughter-ring, without having to be turned round. The turning round of a restive or excited animal, in order to get its head into the proper position for a right-handed blow, is not an easy matter, particularly if the floor is slippery, and, besides causing delay, is apt to lead to cruelty in the way of blows and tail twisting. The slaughter-ring should be affixed to the wall, about two feet from the ground, in such a position as to admit of a right-handed blow from the slaughterman. The common arrangement of fixing the slaughter-ring in the middle of the floor is not recommended, as it facilitates undesirable movement in the case of restive animals. The animal should be steadied by pressing his flank against the wall, and the head being secured to the ring at the same time, the possibility of movement is reduced to a minimum. This renders it more easy for the slaughterman to strike with accuracy.

(b) The Committee have practically tested a large number of appliances designed for felling and stunning animals previous to "pithing." Amongst these may be mentioned the Bruneau and Baxter masks, the Greener patent killer, the Blitz instrument, and the Wackett punch, all of which instantly stun and fell the animal and are recommended for use in the case of quiet cattle, or injured horses, particularly if the services of a trained slaughter-man are not available.

In the case of wild or restive animals, however, the adjustment of these instruments is very difficult and their use is not recommended.

Without going into further details it will be sufficient to say that, whilst the Bruneau mask* has much to commend it—especially with inexperienced slaughter men and when time is of little object—the Committee are of opinion that the poll-axe, when used by an expert, is, on the whole, the most satisfactory implement. In coming to this conclusion they must add that in the hands of a nervous or inexperienced man the poll-axe becomes an uncertain weapon, and may be productive of much suffering. The Committee, therefore, recommend that no man should be permitted to use the poll-axe on a living animal until he has gone through a thorough course of training, firstly, upon a dummy animal, and secondly, upon dead bodies. Detailed recommendations upon this point are made in Appendix D.

51; 81-5;
131; 1138;
1142; 1471.

67; 162; 955;
970; 1035;
1112; 1202;
1313; 1409;
1616; 1732.
53; 117; 700.
523-5.
214-6.
1688.

(c) Except in the case of very restive animals, which may have to be stunned by a first blow on the poll, followed by a second stroke to perforate the forehead, one blow with the poll-axe on the forehead should be sufficient† to fell the animal and to cause instantaneous loss of sensibility. The animal should then at once be "pithed" by thrusting a cane through the hole in the forehead and up the vertebrae, thus breaking up the spinal cord and ensuring absolute death. The animal should then be bled, and directly the bleeding is finished the carcase should be passed on into the "dressing" room, as described in para. 8 (e). The slaughter space can then be flushed down ready for the next animal.

19.
222; 735

16.
972; 1022.

Calves.

Calves should first be stunned by a blow on the head with a club (see Plan C, figs. 3, 4). A tackle can then be fastened to the hind legs, and the animal run up and bled, either by cutting its throat, or by cutting the head off. The usual practice in this country appears to be to run the animal up first, and then to stun it, previous to bleeding. This order of procedure is not so humane, and appears to be unnecessary.

399-407; 499-
503; 811-9;
905; 1058;
1344; 1410;
1526; 905;
992; 1735.

Sheep.

The Committee have very carefully investigated the various methods of killing sheep. The usual method in this country is to lay the sheep on a wooden "crutch," and then to thrust a knife through the neck below the ears, and, with a second motion, to insert the point, from within, between the joints of the vertebrae, thus severing the spinal cord. In the hands of an expert this method is fairly rapid, but somewhat uncertain, the time which elapses between the first thrust of the knife and complete loss of sensibility varying, according to Professor Starling's observations, from five to thirty seconds. In the hands of an inexpert operator it may be some time before death supervenes, and there can be little doubt that this method must be very painful to the sheep as long as consciousness remains. At the best it is a somewhat difficult operation, and yet in practice is often entrusted to the younger and less experienced hands in the slaughter-house, the probable reason being that sheep are easy to handle, and do not struggle or give trouble when stuck. In Denmark, many parts of Germany, and Switzerland the law requires that sheep shall always be stunned previous to being stuck, and the Committee have satisfied themselves by practical experiment and observation that this can be done expeditiously and without difficulty. A small club, with a

32; 103-9;
180; 285-93;
394-397;
504; 664;
820-26;
911; 1001;
1618; 1740.

527; 1001;
1366; 1488

1101; 1196

* This appliance is used by the Army Service Corps, and forms part of the butcher's equipment issued to the troops on active service.

† It is very seldom that an expert, or properly trained slaughterman, needs to strike more than one blow with a poll-axe. In any case, however, the first blow, if strongly delivered, is almost certain to fell and stun the animal, even if a second blow should be necessary to make the hole for the pithing cane.

507.
1102; 1366;
1409; 1486;
1630.

408; 1104;
1175; 1367;
1490.

heavy head* should be used (for details see Plan C, figs 3 and 4), and the sheep should be struck on the top of the head between the ears. *This point is important, as it is almost impossible to stun a sheep by striking it on the forehead.* The sheep are previously placed on the crutch, and directly they are stunned they are stuck with a knife and bled in the ordinary way. It was ascertained that complete loss of sensibility from the stunning alone lasted for at least twenty seconds, which allows more than ample time for the completion of the killing operation. It was also clearly demonstrated that the stunning caused no injury to the sheep's head, or to the "scrag of mutton," which could in any way depreciate their market value.

Lambs.

Lambs should also be stunned previous to bleeding, but a lighter club should be used.

Pigs.

464-7; 512-3;
566; 688;
846-56.
1005-1009;
1376; 1630;
1752.
864-70.

1493.

The Committee ascertained that it is the usual practice in large establishments in England to stun pigs by a blow on the forehead, previous to sticking them, and there is no difficulty in carrying this out, as the pig's head is soft as compared with that of the sheep. The Committee are of opinion that the preliminary stunning should be enforced in all cases, the evidence tending to show that this operation is often limited to pigs which are so large or strong as to give trouble to the sticker, or to cases where, owing to the location of the slaughter-house, the squeals of the stuck pigs cause annoyance to the neighbourhood. The Committee feel that considerations of humanity are at least as important as those above mentioned.

JEWISH METHOD OF SLAUGHTER.

11. The Committee feel it their duty to make a special reference to the Jewish method† of slaughtering cattle. They are aware that in dealing with this subject they cannot help trenching upon very delicate ground, but it has been their earnest desire to avoid, as far as possible, giving any offence to Jewish susceptibilities. They feel, however, that considerations of humanity must be regarded as paramount, and that no unnecessary suffering could be condoned on the ground that it was incidental to the observance of any religious custom. They are fully convinced that the Jews have no desire to kill their cattle in anything but a humane manner; the only question, therefore, with which the Committee had to deal was whether the Jewish method, as commonly practised, is, as a matter of fact, humane, or at any rate not less humane than other methods.

1798-1871.

12. The Committee have had the advantage of hearing the views of the Chief Rabbi of the Jewish Congregations, as well as of the President of the Shechita Board, on this subject, and they have also studied the able treatise prepared by Dr. Dembo in defence of the Jewish system. After the most careful consideration, however, and after receiving the Report of two such eminent physiologists as Sir Michael Foster and Professor Starling (see Appendix J), the Committee have been forced to the following conclusions:—

733; 782-3;
987.

(a) That the Jewish system fails in the primary requirements of rapidity, freedom from unnecessary pain, and instantaneous loss of

* The Copenhagen instrument, with which the Committee conducted successful experiments, has a wooden handle and a rounded iron head. The Swiss instrument is the one recommended for general use, as it requires less skill on the part of the operator and, consequently, is more certain in its effects.

† For detailed description see Appendices I and J.

sensibility, and that it compares very unfavourably with the methods of stunning recommended by the Committee in paragraph 10.

(b) That the preliminary operations of "casting,"* and of forcing the animal's head into position for the cut, are difficult, painful, and objectionable from a humanitarian standpoint. 987; 1217.

(c) That the subsequent operation of cutting the throat is at best an uncertain method of producing immediate loss of sensibility, and frequently causes great and unduly prolonged suffering to the animal. 1899-1909.

(d) That, until some method is devised, and adopted, for rendering the animal unconscious, previous to the "casting" and throat-cutting operations, the Jewish system of slaughtering cattle should not be permitted in any establishment under Government control. 1845-7.

NECESSITY FOR OFFICIAL SUPERVISION.

13. However humane and scientific in theory may be the methods of slaughter, it is inevitable that abuses and cruelty may result in practice, unless there is a proper system of official supervision. This can only be satisfactorily effected in public abattoirs, which it is hoped will eventually become the only legal places of slaughter, but the Committee are of opinion that much might be done in the meantime by the local urban and rural authorities, if they took full advantage of the powers entrusted to them under the existing laws. In this connection special attention is drawn to an interesting memorandum prepared for the Committee by the Local Government Board and printed in Appendix E. From this it will be seen that private slaughter-houses, even in country districts, are not altogether beyond the reach of the local authority. 735-7. 535.

PROPOSED REGULATIONS.

14. In many towns bye-laws have been drawn up regulating the methods of slaughter in public abattoirs, and, as an example, extracts from the bye-laws drawn up by the London County Council and other local authorities are printed in Appendix H. The Committee are of opinion, however, that the clauses dealing with the *methods* of slaughter could with advantage be further defined, and they suggest the following clauses which they would like to see universally adopted and strictly enforced.

(a). All † animals, without exception, must be stunned, or otherwise rendered unconscious, before blood is drawn.

(b). Animals awaiting slaughter must be so placed that they cannot see into the slaughter-house, and the doors of the latter must be kept closed whilst slaughtering is going on.

(c). The drainage of the slaughter-house must be so arranged that no blood or other refuse can flow out within sight or smell of animals awaiting slaughter, and no such refuse shall be deposited in proximity to the waiting pens.

(d). If more animals than one are being slaughtered in one slaughter-house at the same time, they must not be within view of each other.

(e). None but licensed men shall be employed in or about slaughter-houses.

* It should be mentioned that, as a result of the enquiries of the Committee, the President of the Shechita Board has now ordered twenty one india-rubber pavements to be laid down in the Deptford slaughter-houses, in order to break the fall of cattle when "cast" in the Jewish method.

† See footnote, p. 3.

535-9.

15. The power of regulating slaughter-houses by bye-laws can be conferred by the Local Government Board on a rural district council, which latter has consequently the power to regulate and supervise private slaughter-houses in country districts (*see* Appendices F and G). The Committee consider that this fact is of great importance, and they express the earnest hope that rural authorities will take fuller advantage of these powers than they have done hitherto, and will take steps to adopt and enforce bye-laws, in harmony with those suggested in the previous paragraph.

CONCLUSION.

16. In conclusion, the Committee beg to express their cordial thanks to all who have assisted them in their investigations, especially to Sir Michael Foster, K.C.B., F.R.S., M.P., and Professor E. H. Starling, F.R.S., and their acknowledgments are also due to their Secretary, Mr. R. G. Hayes, for the energy and ability with which he has discharged his duties.

ARTHUR H. LEE, *Chairman.*

F. T. CLAYTON (COLONEL).

ALEXANDER C. COPE.

CHARLES GAME.

GORDON W. MILLER.

SHIRLEY F. MURPHY.

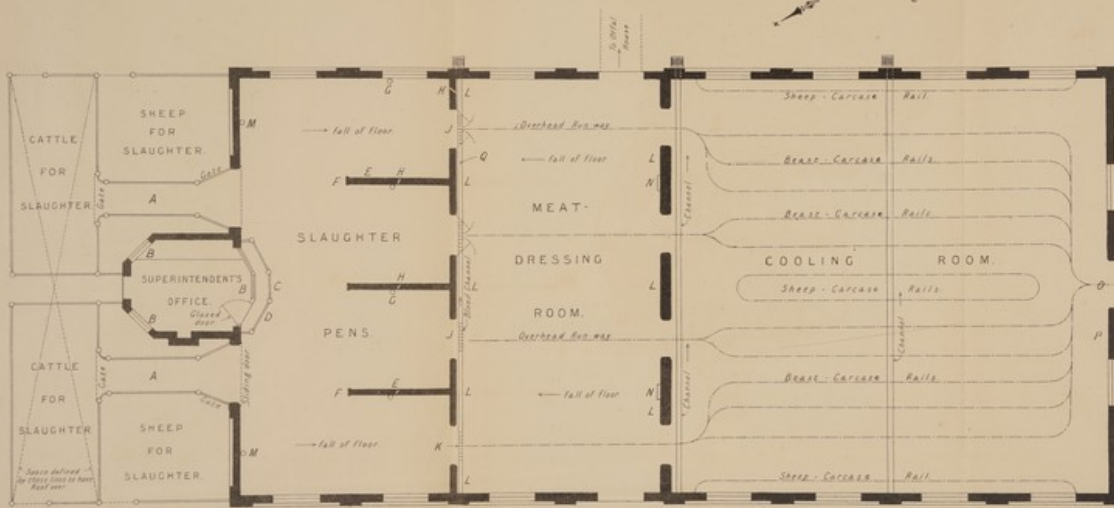
H. F. R. YORKE.

R. G. HAYES,
Secretary of Committee.

1st July, 1904.

PLAN "A".

H. M. DOCKYARD, CHATHAM.
NEW SLAUGHTER HOUSE.

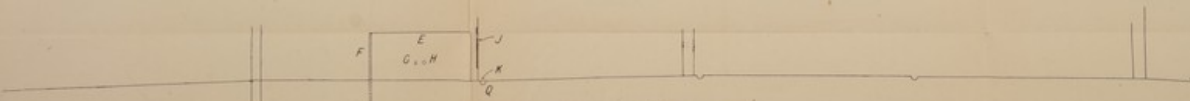
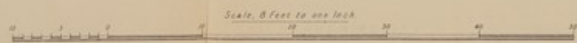


REFERENCE.

- A.A. Passage way from Cattle Pen to the Slaughter Chamber.
- B.B. Windows overlooking Waiting Pens and Slaughter Chamber.
- C. Iron guard-rail to keep Cattle away from windows of Superintendent's Office.
- D. Bar hinged for access to Office.
- E.E. Brick divisions 5'0" high by 11'0" long between Slaughter Pens.
- F.F. Iron channel-shaped posts with edges rounded and ends bedded firmly in concrete.
- G.G. Slaughtering-ring in wall 2'0" above floor.
- H.H. Tube through wall for rope used to haul wild or dangerous cattle up to Slaughtering Ring.
- J.J. Self-closing screen-doors 5'6" high from floor with bottom 18" cut off.
- K.K. 1 1/2" dia. bars 4 1/2" apart over gutter flush with floor as grating.
- L.L. Offal-hooks on walls.
- M.M. Hoses for flushing.
- N.N. Winches for hoisting Carcasses and for hauling dead Cattle from Slaughter Pens into Dressing Room.
- O. Weighing-Machine for Sides.
- P. Do. for Joints.
- Q. Blood-Channel having a sharp fall to ensure all fluid being carried off.

PLAN.

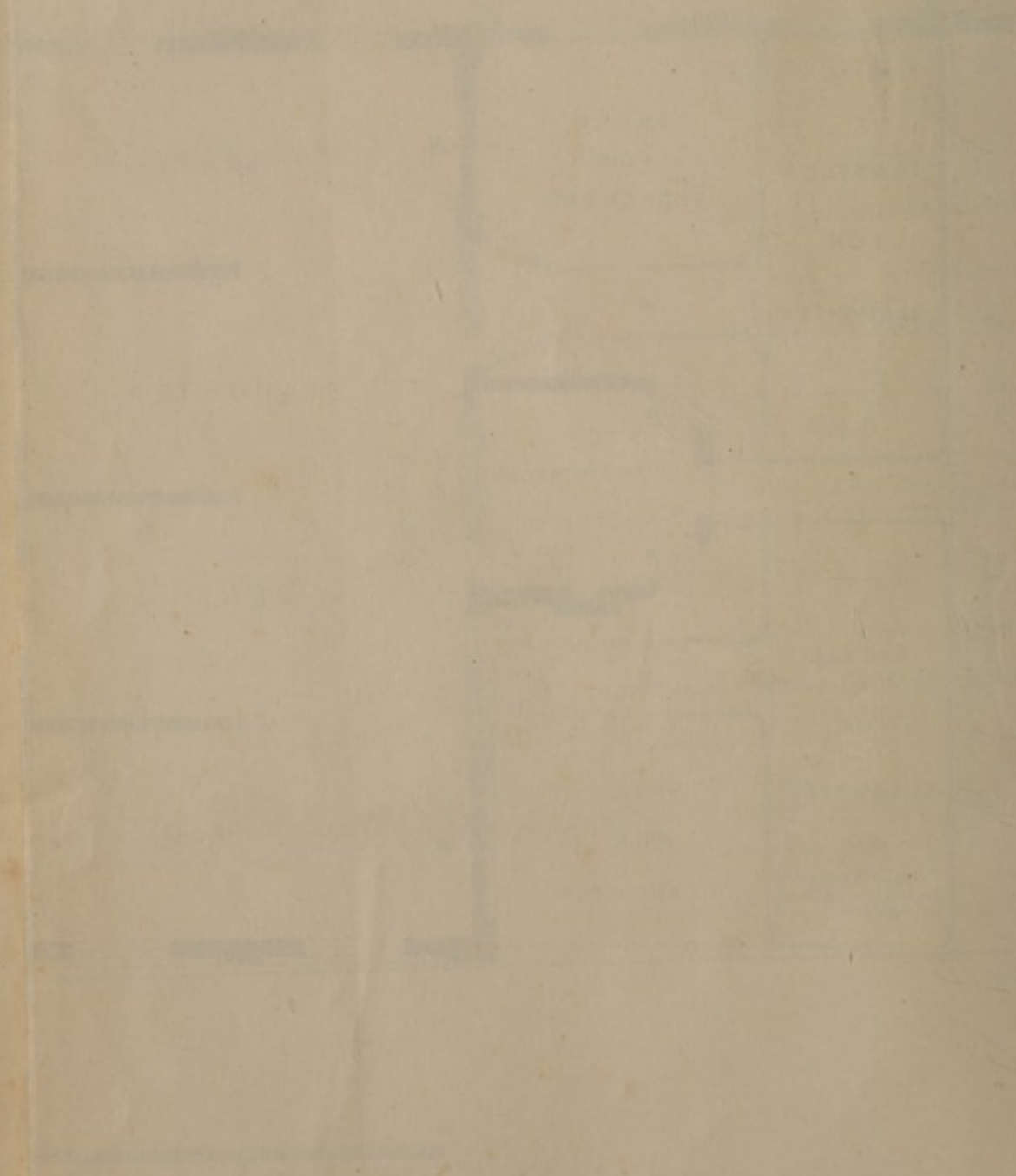
NOTE. Walls finished in glazed brick up to 5'0" from ground.



SECTION SHOWING FLOORS.

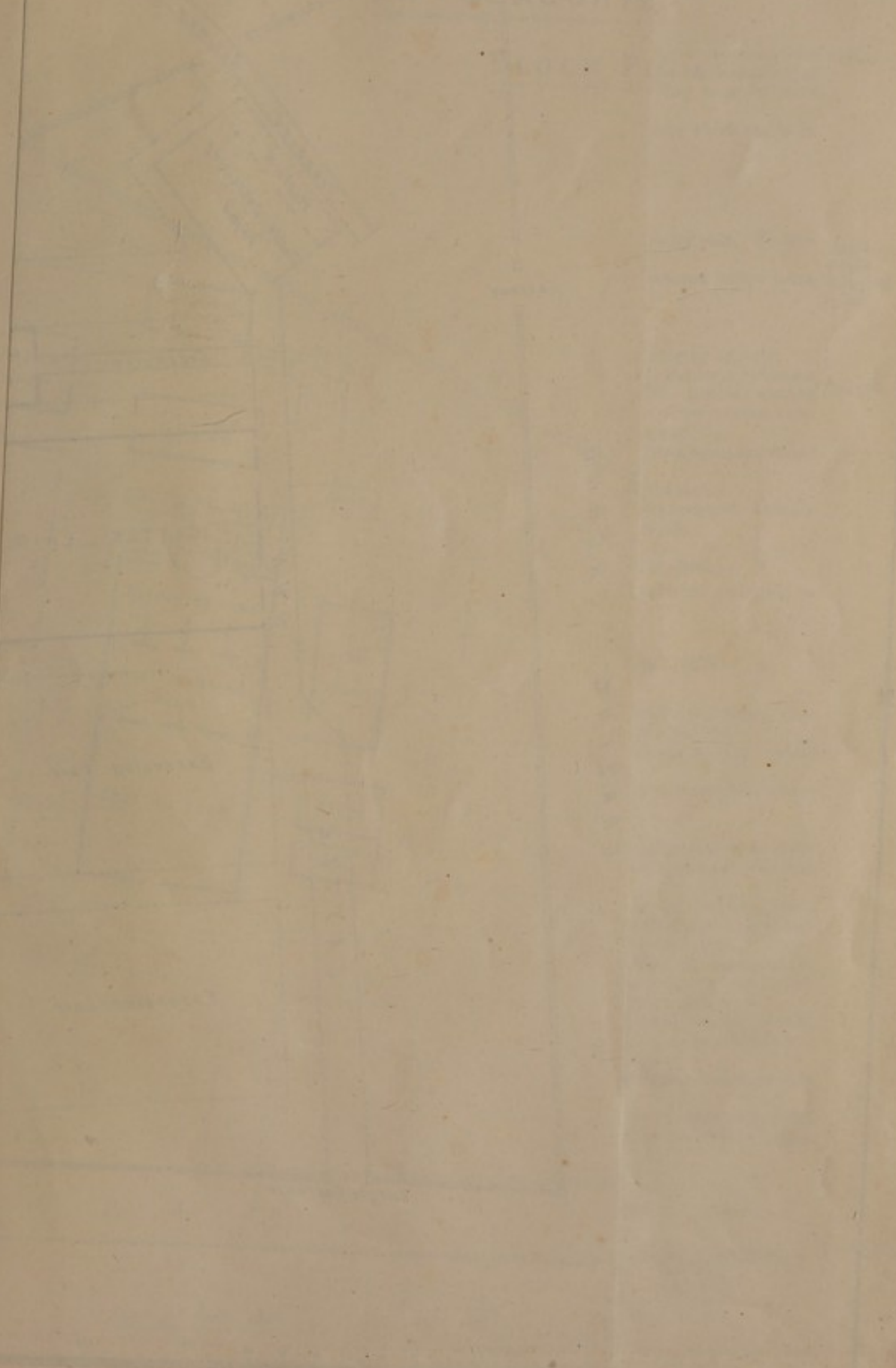
W. WOOD

NEW YORK



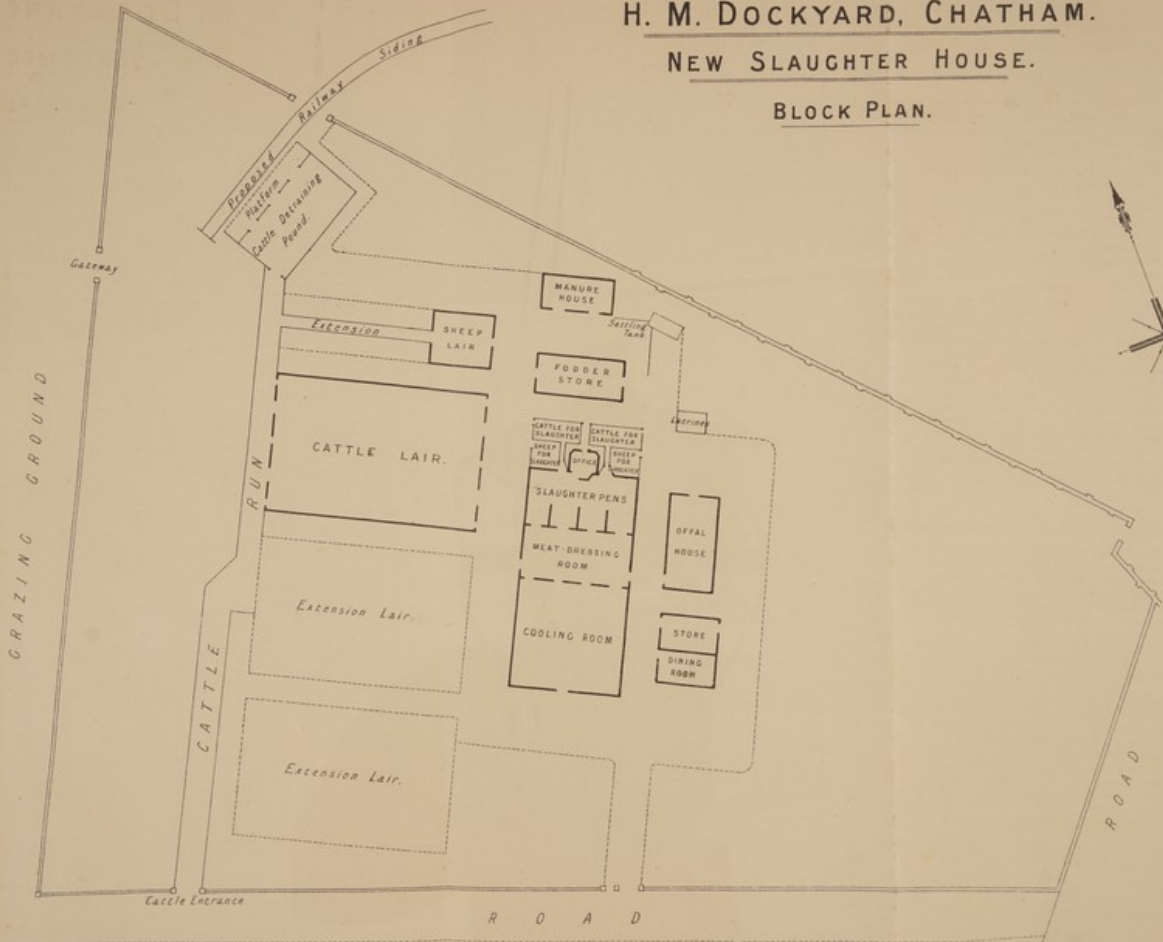
Н. М. Доскуда

М. М. Савицкий

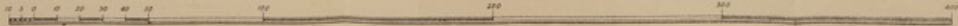


PLAN B

H. M. DOCKYARD, CHATHAM.
NEW SLAUGHTER HOUSE.
BLOCK PLAN.



Scale of Feet, 1/80"



APPENDIX A.

PRECIS OF INFORMATION RECEIVED AS TO METHODS OF SLAUGHTERING
ANIMALS IN FOREIGN COUNTRIES.

AUSTRIA.

A Decree of the Ministry of Commerce of 1850 states that sanitary and hygienic considerations demand that slaughtering shall be exclusively carried on in city abattoirs under administration of municipality: not enforced in cases of calves, lambs, sheep and goats. Most large butchers possess their own slaughtering houses for these animals. Vienna

Sanitary Law of 1870 imposes on municipality duty of providing abattoirs, which are to be erected in open places and to be well provided with hot and cold water.

Poll-axing of horned cattle is compulsory.

GERMANY.

Animals to be slaughtered in usual professional manner and without unnecessary pain. No new appliances to be used without permission. Hamburg

Larger animals to be fastened by chains to slaughter ring in floor and stunned before being killed, only practised persons being employed. Public Slaughter-house

Smaller animals to be slaughtered on a slaughter bench.

Animal's head must be kept fastened down after the throat has been cut.

Sheep and calves stunned before slaughtering, stunning being performed only by experts.

All animals must be tightly secured and stunned before being slaughtered. For large animals a mask is used, through which an iron stem is driven into the brains with a mallet. Another method is by employing an apparatus by which animals are shot, used only in the case of very strong bulls. This method is considered dangerous, as the bullet sometimes "goes the wrong way." Cologae.

Butchers are not allowed to handle the mask or shooting apparatus, special men being appointed by the authorities.

Pigs are stunned with a special instrument; used only by specially appointed men.

Smaller cattle, sheep and goats are allowed to be stunned by the butcher or his assistant. Animals must be laid on a trestle, legs tied together, and hit on the head with a sort of club.

Fetters must not be taken off before convulsions have entirely ceased.

After animals have been stunned their throat is cut so that they can bleed to death.

NOTE.—The foregoing regulations do not apply in the case of animals slaughtered according to Jewish rites.

ARRANGEMENTS IN FORCE IN THE COPENHAGEN ABATTOIRS.

All animals must be rendered insensible before the blood is drawn off.

Calves, sheep and lambs must be rendered insensible by means of a small slaughtering club made for the purpose. Cattle, horses, and swine, must be killed by means of a poll-axe.

Experiments are being made at present with various explosive apparatuses and there is a possibility that the use of such apparatus will be made compulsory in future.

Before bulls are let loose in the stable a front ruptor shall be affixed to the head and they are to be killed by means of this apparatus.

Before swine are killed they must be stunned by a blow on the head.

From May 1st this year it will be made obligatory that any butcher apprentice, before he stuns cattle with a poll-axe, shall undergo an examination, showing his skill on an apparatus provided by the municipality.

The apprentice who after May 1st next stuns an animal by means of an axe before he has obtained the necessary preliminary permission from the appointed officials (which permission may be cancelled if he is not found competent for this work) will be fined thirty kroner (about £1 13s.)

Stunning the above mentioned and other animals must only be effected when all arrangements for the cutting up have been made and only one animal must be stunned at a time (except in the case of lambs where two may be stunned at a time) so that the blood can be drawn off at once.

The legs of calves, sheep and lambs shall be tied together and the animals shall be placed on the stand made for the purpose before the stunning takes place. Skinning, etc., must not be commenced before the quivering of the muscles has ceased and death has taken place.

The officials may at any time prohibit slaughtering being carried on by persons, who are, according to their judgment, unfit for the work.

Should in any case cruelty to animals take place by the slaughtering or by the transport of the animals to the slaughtering yard, the police will be informed of such cases in the event of their being discovered.

EXTRACTS FROM THE REGULATIONS IN FORCE IN SWITZERLAND.

1a. Order of the Swiss Confederation of the 29th May, 1874.

1. The slaughtering of animals of any kind and in any way without first stunning them previous to bleeding is forbidden without exception. Article 28,

Canton Zurich.

Article 28. 1 of the Order of 29th May, 1874, of the Swiss Confederation above quoted is in force.

As a means of rendering animals insensible, the head stroke or the use of the cartridge mask only is allowable.

Any method adopted must be unattended with any torture to the animal.

Canton Berne.

The slaughtering of the larger or smaller kind of animals without rendering them insensible prior to bleeding is forbidden. In particular any torture to the animal is to be avoided. The killing of a beast for slaughter must be done quickly and surely by a sufficiently heavy blow on the head or by the use of a properly constructed slaughtering apparatus.

The Town of Berne.

Animals brought into the place of slaughter are to be slaughtered immediately, and are not to remain tethered there for a lengthened period.

In killing, all such precautions are to be taken as will tend to prevent unnecessary pain to the animals and cases of accident.

Swine must be rendered insensible by a blow on the head before being stabbed. Cruelty to animals in slaughtering is dealt with by the Regulations laid down in the Land Law.

Canton Lucerne.

All animals must before bleeding be rendered insensible by the stroke of a club on the skull, or must be so rendered insensible or killed by means of proper apparatus such as pin mask, slaughter mask, or cartridge mask.

Canton Uri.

The slaughtering of any kind of animal and in any way without rendering them insensible before bleeding is expressly forbidden.

For rendering animals insensible the blow on the head or the cartridge mask are to be adopted.

The procedure must in any case be unattended with cruelty to the animals.

Canton Nidwalden.

The slaughtering of any kind of animal in any way without rendering them insensible before bleeding is expressly forbidden.

In slaughtering the process of bleeding may not be commenced before the animal is absolutely insensible.

The rendering insensible is effected according to the kind of animal, either by a cartridge apparatus or by a blow between the horns, the forehead or the nape of the neck.

Canton Glarus.

The killing of an animal in an unusual and at the same time unnecessarily painful manner, and also the slaughtering of animals without rendering them insensible before bleeding is a punishable offence.

Canton Zug.

The slaughtering of any kind of animal in any way without rendering them insensible before bleeding is expressly forbidden.

It is accordingly forbidden to adopt the Jewish method of killing or to kill the smaller kind of animals without first rendering them insensible by means of a blow, shot, or neck blow or other method declared suitable by the authorities.

Canton Solothurn.

In slaughtering beasts of the larger and smaller kind they must before bleeding be either killed by a proper slaughtering apparatus or must be rendered insensible by a sufficiently powerful blow on the head. The Jewish method of killing is forbidden.

Canton Basle City.

In the transport of animals and in their slaughter all such measures are to be taken as will tend to prevent accidents and to spare the animals unnecessary suffering. The users of the slaughter-houses must observe the regulations and directions in this respect issued by the management of the slaughter-house.

Namely, the following orders must be observed :—

Bullocks must only be allowed on the premises of the slaughter-house when in harness or tethered, and only in the slaughter chamber when provided with a mask.

Oxen and bullocks must only be killed with the cartridge slaughtering apparatus and also cows and heifers which are frightened, vicious or otherwise difficult to slaughter.

All other animals to be killed must be rendered insensible by a blow on the head before bleeding. It is forbidden to hang up small animals while living.

The cartridge mask for large animals is available for every butcher without charge, and can be obtained from the manager's office.

Whoever by clumsy killing or otherwise in wilful or careless manner causes unnecessary pain to an animal or prolongs its death agony is subject to a fine imposed by the manager, or in bad cases by the police.

Canton Schaffhausen.

Whoever tortures animals or immoderately over-exerts them in their use, ill-treats, or roughly treats them, or withholds from them the necessary care and nourishment, is punishable by fine or imprisonment or both.

The slaughtering of animals of any kind or in any way without stunning them before bleeding is expressly forbidden.

Especially is the so-called Jewish method of killing and the killing of smaller animals without prior stunning forbidden.

As a means of stunning, a blow on the head or a properly constructed cartridge apparatus must be used.

The procedure must be such as to avoid any kind of cruelty to animals.

Canton St. Gallen.

The slaughtering of animals of any kind without stunning prior to bleeding is expressly forbidden.

Accordingly, the Jewish killing is forbidden and also the slaughtering of any of the smaller animals without prior stunning by means of a blow, shot, or other method of stunning declared suitable by the authorities.

Town of St. Gallen.

Breeding cattle and other vicious cattle must be tethered or fastened with fall ropes when brought to the slaughter-house and must be masked when led to slaughter. All large animals must be bound before being shot or stunned. All precautions must be taken to avoid giving offence in the neighbourhood of the slaughterhouse.

Oxen, breeding cattle, and all vicious cows and cattle are to be killed by the cartridge mask—other large animals with the "stroke" mask.

All other animals to be slaughtered must, before bleeding, be absolutely stunned by a blow on the head. The hanging of animals while alive is forbidden.

Whoever by clumsy slaughtering or in a malicious, wilful, or careless way causes unnecessary pain to an animal, or prolongs its death agony, is liable to punishment.

The Town of Aarau.

The killing of animals must be carried out as follows:—

In the case of bullocks with the cartridge mask.

In the case of other large animals with the Bruneau mask.

In the case of small animals by a blow on the head with a subsequent stab.

When animals do not fall dead at the first blow when the Bruneau mask is used, the slaughterer is punishable by a fine of 5 francs.

If the absolute insensibility of the animal does not ensue after the second blow the slaughterer must be brought before the authorities for cruelty to animals.

Canton Thurgau.

The slaughtering of animals of any kind or in any way without stunning before bleeding is expressly forbidden.

Accordingly, the Jewish method of killing is forbidden as also is the killing of small animals without prior stunning by means of a blow or shot (cartridge mask or other method of stunning declared allowable by the authorities).

Canton Fribourg.

The bleeding of animals for slaughter without first having stunned them is expressly forbidden. This applies to every kind of animal and every kind of slaughter.

The killing of animals for slaughter without previous stunning is punishable by law.

Before bleeding all animals should be stunned according to the mode authorised by the police.

A sub-inspector is specially charged to visit the slaughter-houses frequently to prevent the ill-treatment of animals, and to report all violations of the law.

Canton Lausanne.

The slaying of animals, whether privately or in the public slaughter-house, must be done in such a way as to avoid all unnecessary suffering to the animals.

He who fails in the blow intended to stun the animal, or who through clumsiness or cruelty causes the animal unnecessary suffering, is punishable by law.

The employment of the Bruneau mask or the Siegmund mask is obligatory in the slaying of large cattle, except in the cases provided for in the regulations (not stated).

Calves are not to be suspended alive but must be stunned at once.

Canton Neuchatel.

It is expressly forbidden to kill any kind of animal for slaughter in any way without stunning it without bleeding.

Throat cutting is permitted immediately the animal is stunned.

Larger cattle and horses must be slain by employment of the frontal mask with penetrating pin called—the Bruneau or the Siegmund firing apparatus.

Pigs must be stunned by means of the penetrating iron pin or peg (Kleinschmidt of Erfurt or Blattner of Neuchatel).

The bleeding should take place immediately after stunning the animal.

Calves, sheep or goats must be stunned by a blow with a club or by the employment of a suitably constructed apparatus.

The Calame Catapult Mask has been authorised for a period trial for the slaughter of larger cattle.

Pigs must be stunned before bleeding.

The inspector or attendant has the right to forbid the slaughter of pigs by young apprentices if unaccompanied by their master or a workman.

APPENDIX B.

REPORT ON METHODS USED IN SLAUGHTERING ANIMALS.

In judging of the relative value of various methods of slaughtering, it is essential to determine how long consciousness lasts after the commencement of the operation. In any method of killing we may say that consciousness, which is a function of the *upper* brain, will disappear first; later on the shutting of the eyelid on touching the eye, an act which is carried out by the *lower* brain, and last of all, the power of movement of the limbs, since this is dependent on the spinal cord. If, in any given method, the sensibility of the eye disappear at any period, we may be certain that some time previously consciousness has already disappeared.

Where death is more slowly brought about, as by bleeding, some considerable time may elapse before the disappearance of the sensibility of the eye. In this case we may assert from experience on man that consciousness disappears shortly before the onset of general convulsions.

These general conditions enable us to judge of the relative humanity of the various methods of slaughtering investigated by the Committee at Deptford on February 15.

(a) Slaughtering of Cattle.

Three bullocks were slaughtered before the Committee. The first two were struck with a poll-axe towards the front of the skull; the animal, in each case, rolled over with eyes widely open. At once an assistant pushed a cane into the opening made by the axe, towards the base of the skull, in order to destroy the brain and upper part of the spinal cord. This process gave rise to convulsive movements due to direct stimulation of the nerves leaving the brain. The instant that the animal rolled over the eyeballs were found to be insensitive. There is no doubt that in this case death was instantaneous and was preceded by no instant of pain, since the shock to the brain, *which is itself insensitive*, would put it out of action before it could feel even the pain of the wound of the skull.

In the case of the third bullock, the first stroke of the poll-axe was given further back on the poll. The animal dropped as before and immediately two more strokes were given towards the front of the skull before the cane was inserted to destroy the brain. The process lasted two or three seconds longer than the first two cases before the brain was destroyed.

I am of opinion that in this case as well death was free from pain, though I was not able to test the sensitiveness of the eyes after the first blow, and could not be certain that some form of dulled consciousness did not persist till the second blow was given.

Carried out under the conditions observed at the visit of the Committee, this method of killing could hardly be improved upon.

(b) Slaughtering of Sheep.

To slaughter sheep, they are placed on a trough, their necks forcibly extended, and a knife passed in behind the ear and in front of the spinal column with its edge directed backwards. By this stroke the membrane between the spinal column and the skull is divided, and the joints opened, and the blade of the knife *should* cut through the upper part of the spinal cord* (or lower brain) at this point. The edge of the knife is then turned forwards and the blood vessels and throat cut.

When this operation is successfully carried out, unconsciousness and death occur instantaneously on dividing the spinal cord, *i.e.*, within two or three seconds of plunging the knife into the neck. In two cases out of the six shown the first movement of the knife was not sufficiently extensive, and the spinal cord was only nicked instead of being divided. In these two cases the eye remained sensitive for sixty or seventy seconds, and consciousness was probably present until the onset of convulsions, which occurred fifteen to twenty seconds after dividing the vessels of the neck. In two cases the head was bent forcibly back after withdrawing the knife. This had the effect of breaking and crushing the spinal cord at its junction with the brain, as occurs in hanging, and at once induced unconsciousness and death.

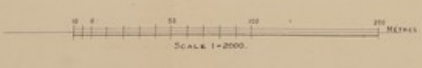
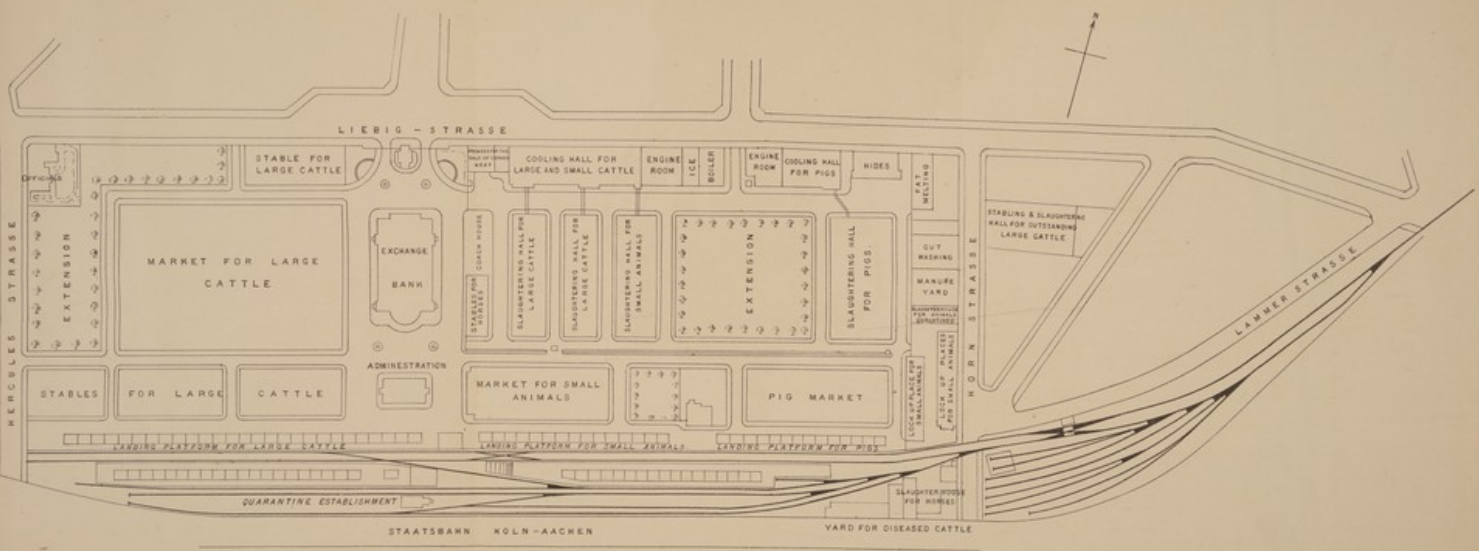
When the neck is broken in this way, the duration of consciousness after commencement of the operation would never exceed ten seconds, and would in most cases be less than six seconds.

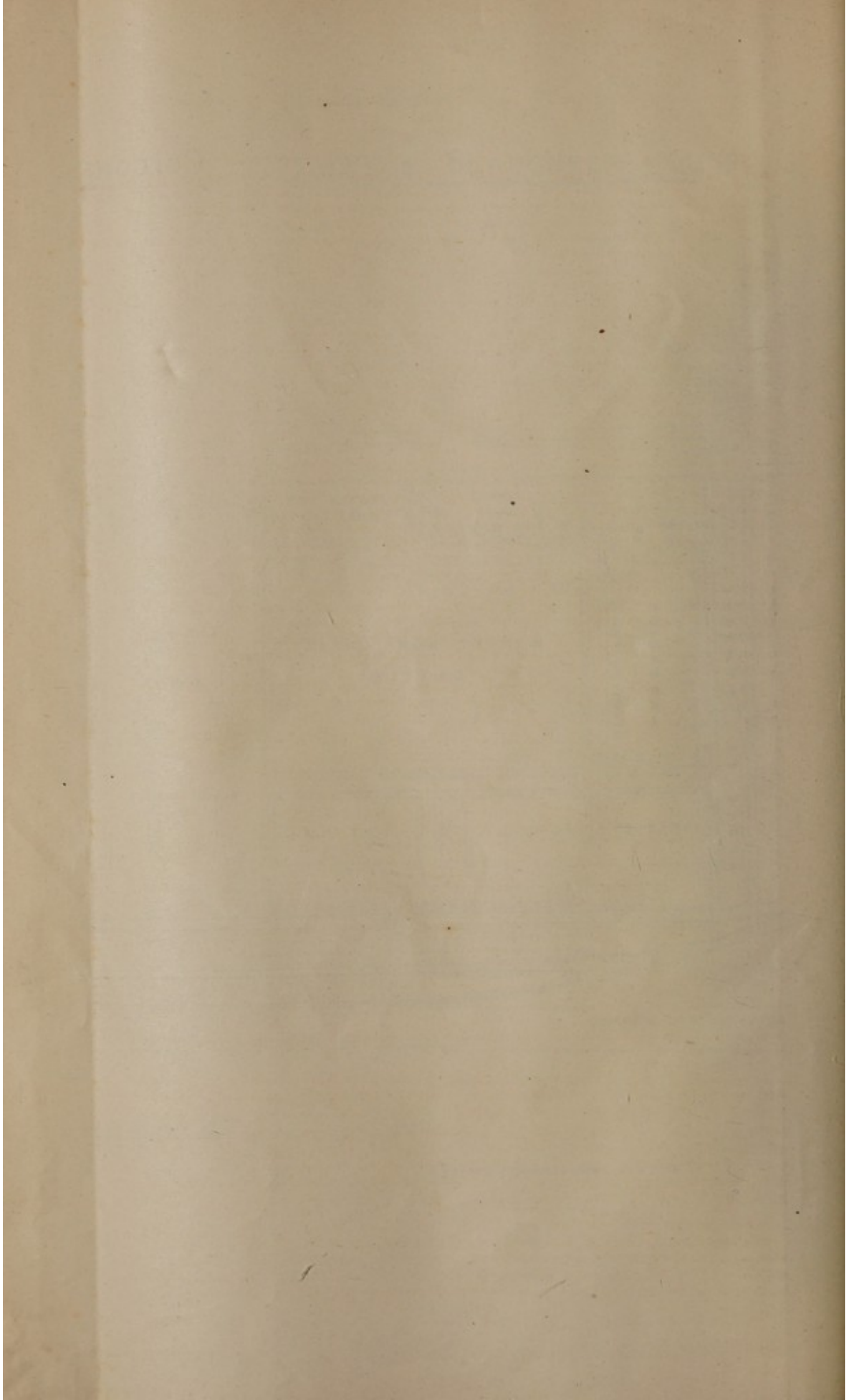
(Signed) ERNEST H. STARLING.

17th February, 1904.

* The so-called "medulla oblongata."

PLAN. D.
COLOGNE CATTLE MARKET & SLAUGHTER-HOUSE.





FURTHER REPORT ON METHODS EMPLOYED AT ALDERSHOT ON 4TH MARCH.

Oxen.

Five different methods were employed for making the preliminary hole in the skull corresponding to the first operation in poll-axing the animal. All the methods showed themselves satisfactory in the fact that consciousness was immediately abolished, and the choice between the various methods is therefore a question of convenience and ease of application rather than of humanity. The first ox was killed by means of the "Bruneau" mask, a bolt being driven into the front part of the skull by a stroke of the mallet. Unconsciousness was immediate; the cane was introduced by the opening and the animal pithed, the cane evidently passing easily down to the upper part of the cord. The subsequent convulsions which ensued only affected the hind limbs, namely, those supplied by the lower part of the spinal cord.

In the case of the second animal the "Baxter" mask was employed. Here, also, loss of consciousness was immediate, but there was some difficulty in introducing the cane for the pithing operation. This question is of some importance, since the mere punching of a hole in the front part of the skull would not, as a rule, be sufficient to kill an animal. The shock of the blow does produce unconsciousness, but unless there is damage to the lower parts of the brain this state would only last a certain time, and it is therefore important that the pithing operation should be carried out immediately after the animal has fallen.

For the third beast the Greener Cartridge was used. The hole produced by the entry of the bullet was too small to admit of the pithing cane being introduced. This, however, does not matter if the Greener cartridge is applied at the right spot, since the bullet passes to the base of the brain and therefore destroys the vital centres of the medulla. Although a considerable time elapsed while fruitless efforts were being made to introduce the pithing cane, the movements of breathing did not return, showing that the lower part of the brain had been destroyed by the bullet. Under ordinary circumstances this method need not be put to so severe a test, since it is possible to introduce a wire through the hole left by the bullet to carry out the pithing.

For the fourth animal the "Blitz" instrument was used. In this instrument a bolt is driven into the front part of the skull by means of a small cartridge. It seemed to me that this method was not quite so satisfactory as those previously tried. The state of shock of the animal after it had fallen from the driving in of the bolt did not seem to me so profound as in the other methods demonstrated. There was, however, no difficulty in introducing the pithing cane, and the brain was destroyed before the animal could be said to have recovered consciousness.

In the fifth case the "Wackett" punch was held by one man by means of a handle and was driven in by the stroke of a mallet delivered by a second man. So far as regards abolition of consciousness this method was also satisfactory.

The question as to the choice to be made among these various methods is therefore to be determined by the ease of their application. All can be said to be equally satisfactory when properly carried out.

(Signed) ERNEST H STARLING.

APPENDIX C.

REPORT OF SUB-COMMITTEE ON VISITS TO ABATTOIRS IN GERMANY AND SWITZERLAND.

We have, as desired, visited the abattoirs of several towns in Germany (Cologne and Constance) and Switzerland (Basle, Zurich, Lucerne, and Geneva), with the object of ascertaining whether the laws that require an animal, intended for slaughter, to be rendered unconscious before blood is drawn, are carried into effect, and especially as to the method of killing sheep, and we have to report as follows, viz. :—

2. Speaking generally, our investigations and inspections point to the conclusion that these laws are in operation, although we noticed that in Switzerland the methods adopted in the several abattoirs to secure unconsciousness were not altogether uniform.

3. The abattoirs themselves differ in design, arrangement, and organisation, but those at Cologne and Basle may be looked upon as typical of the requirements of the law of each nation and illustrative of the principal features that could be considered with much advantage in regard to any large public abattoirs to be constructed in future. (A plan of the Cologne abattoir is attached to this report. See Plan D on opposite page.)

Firstly.—As regards the slaughtering :—

Although the mask is not infrequently used, it is the general practice to kill cattle by shooting with an apparatus similar to the Greener. Both methods work satisfactorily, death being, to all appearance, instantaneous, and, in consequence, the pithing cane is not used. As far as could be ascertained, the shooting had no deleterious effect upon the meat, either as regards the bullet

or the gas generated by the ignition of the powder, and it was distinctly stated that no element of danger to attendants was apprehended. It is right to notice, however, that the cattle—possibly home-bred—were sufficiently quiet to permit of this type of apparatus being used without difficulty, although it was mentioned that exceptional measures had occasionally to be taken to deal with wilder animals.

At some places the shooting of cattle was effected by a member of the staff, while at others it was done by the owners. The former method appears to be suitable when the animals are dealt with in a large open hall as at Cologne and Basle, but it might be difficult of arrangement in abattoirs where large numbers are dealt with, and in separate chambers. Certificates of qualification for employment as slaughtermen in such cases may suffice, subject to power of exclusion, on the part of the governing body, in cases of irregularity.

While the practice as regards cattle is universal, it was noticed that at Geneva (the least up-to-date of the abattoirs we visited) there was a marked difference in regard to the treatment of calves and sheep, in that, before they were rendered unconscious, they were hung by one of the hind legs upon a hook on the wall after no little struggling, on a slippery floor, between the animal and the slaughterman. This hanging-up process appears to be without advantage except that bleeding may be more rapid.

At Geneva also sheep were not stunned, but before cutting, the sharp point of the knife was inserted behind the head, with the object of pithing the animal, but we think that this operation is too uncertain in results, especially in the hands of a novice, to be satisfactory, and it cannot be recommended.

The general practice as regards small calves and sheep is to lay them on a crutch on their sides with their heads hanging over, or held in a position favourable for the blow, and then to stun them. In some cases, the legs of the sheep are tied, in others not, but it is doubtful whether any advantage is derived from tying. In the case of calves placed on crutches prior to stunning, the tying of legs appeared to be necessary. With calves and sheep the throat is completely cut after stunning, and with sheep the neck is broken (after cutting the throat) by forcing the head back on the edge of the crutch.

At Cologne, a new type of single crutch is being brought into use fitted with a notch to fix the sheep's head and prevent movement. (See Plan E.) It also facilitates breaking the neck. In most places the long crutch is used, the sheep being pushed along after stunning and throat cutting.

Stunning was effected either by a small-headed hammer or a round wooden staff. (See Plan C., Fig. 4.) In the case of the hammer, greater precision (which could only be gained by experience and practice) is required to ensure that the blow is delivered in the right spot, but with the staff there is less liability to failure, and for that reason it seems the better instrument.

As has proved to be the case by experiments in this country, it is necessary that sheep should be struck in the region behind the ears and not on the forehead. This should be made quite clear in any instructions upon the subject, because in stunning pigs the blow must be struck differently, viz., on the forehead, and misunderstandings might arise. All failures to secure unconsciousness in sheep, that we witnessed, were due to striking on the forehead.

We are strongly convinced from what we have seen in this country and on the Continent that the stunning of small calves and sheep is the most humane method of dealing with them, and that it should be done after laying them on crutches, and certainly before they are hung up. Large calves can best be dealt with by a mask.

It was noticeable that the stunning is a help to the butcher, who is then able to bleed the sheep promptly and without the struggling that may otherwise occasion inconvenience.

In the case of pigs, we noticed that the animals were rendered unconscious by the use of a punch applied to the forehead and struck by a maul. This is often effected by an apparatus applied to the forehead and kept in place by projections made of spring steel that grip the neck behind the ear. A cutter (like that of a poll-axe) at the end of a handle similar to that of the "Wackett" punch is also extensively used with a maul. It is doubtful, however, whether these processes are preferable to stunning as practised in this country.

Secondly.—As regards the abattoirs:—

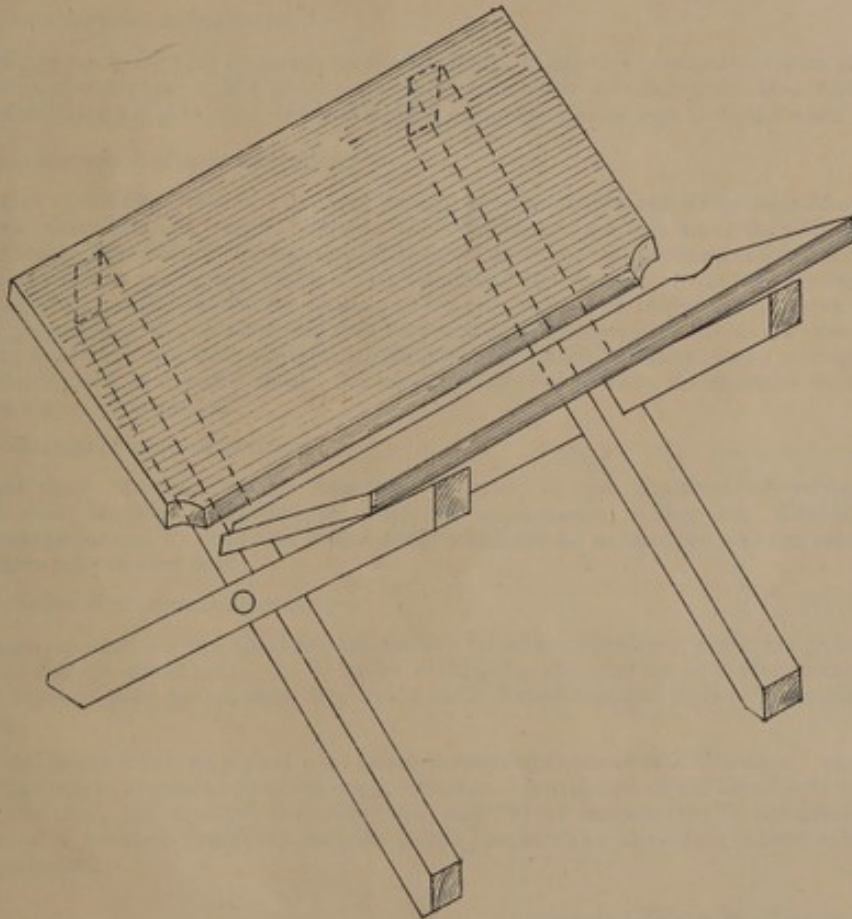
From a humanitarian point of view great importance is to be attached to construction and organisation of the abattoirs. Possibility of detection is the best preventive against cruelty, and due weight has been given to this consideration in the design of the most up-to-date abattoirs we visited. Excepting at Geneva the slaughtering was effected in large halls. We had many opportunities of witnessing cattle being brought in, especially at Basle, where the entrances to the slaughtering hall are at each end only, and the animals are brought direct from the lairs. Some hesitation was occasionally evinced when the animals reached the entrance, but it appeared to be momentary (possibly due to the noise and unusual sights) and when once in, they allowed themselves to be led by a rope to the required position and stood quietly until shot. We saw no case in which it was necessary to haul in a struggling animal, or bring the animal's head to a ring either on the wall or floor, but as we have stated, the animals were docile. We mention this chiefly in connection with the question whether the animal experiences fear on entering the slaughter chamber rather than as any recommendation for adoption in this country as to procedure before slaughter, because special measures may be necessary when animals wilder than those we have seen have to be dealt with.

PLAN E.

CRUTCH FOR SHEEP KILLING.

USED AT COLOGNE.

Scale $\frac{3}{4}$ - 1 foot.



General and Special Kings

and of Kings

The high standard of cleanliness maintained in these well-lighted slaughter-houses, the immediate removal of all traces of blood, the free ventilation removing all smell, and the ample space provided which obviated the necessity of the slaughter of animals in too close proximity to others being dealt with, certainly seemed, in the case of those animals we saw entering the slaughterhouse, to sufficiently remove conditions which were referred to in the evidence of some witnesses, the smell and the sight of blood, as causing alarm to animals taken into a slaughterhouse. Another point which may have contributed to this result was the fact that before slaughter the animals were tethered away from the doors and approaches to the slaughterhouse.

Beyond this we could not fail to recognise that the opportunity which the construction of the slaughterhouse gave for all parts to be seen at once by the officials, provided for the animals a safeguard against ill-treatment, a point not to be ignored in a municipal slaughterhouse where the men engaged in the work of killing are not in a public service.

The principal features of the abattoirs we visited were :—

Scrupulous cleanliness and constant washing down of floors, walls, etc.

Ample floor space.

Ventilation and height from floor to roof.

Clear walls, with instruments hung up and absence of fixtures, such as cupboards, etc.

Absence of wood-work where brick-work, stone, or iron can be used.

Light—window or electric—and from overhead when practicable.
and, what appeared to us to be of much importance—

Roughened floor to prevent slipping, for which granite seemed to be by far the most suitable material.

No offensive smells of any kind were noticeable where cleanliness was closely observed.

Thirdly.—As regards administration :—

There can be no doubt that humanity in the treatment of animals is coincident with efficient organisation and discipline in the abattoirs. Apart from other considerations these desiderata result in establishing a higher tone and in attracting a superior class of men to do the work.

Fourthly.—Inspection of meat at abattoirs :—

The subject of the inspection of meat was brought prominently to our notice as it formed an all important administrative feature. In view of the necessity for safeguarding the public health against the consequences of the consumption of diseased meat, we are of opinion that the organisation of an abattoir is incomplete unless it can command the services of qualified Professional Officers with the requisite laboratory appliances for the purpose of inspecting all meat before removal is permitted. We consider this step very expedient, although we are aware that unless slaughtering at other places than public abattoirs is strictly prohibited there can be no immunity from the distribution of diseased meat. No meat was allowed to leave the abattoirs we visited without the stamp of inspection.

Fifthly.—Storage of meats at abattoirs :—

We would draw attention to the important adjunct to the abattoirs of refrigerator plant and cold chambers sufficient to meet all requirements. They are divided into compartments (separated by open iron lattice work) which are let to butchers who can store and withdraw their meat as they desire.

Sixthly.—Scales of charges at abattoirs :—

All services rendered by the abattoirs are subject to scales of charges which are published by authority and are compulsory. As far as we could judge the rates are so moderate that the cost to the butchers must be less than they would incur if they arranged their own slaughtering and dressing.

The establishments which we visited were under the supreme control of a "Director" who is a Veterinary Surgeon (a profession to which much importance is attached on the Continent) and to whom, we observed, the greatest deference was paid by all concerned. To our minds the appointment of a qualified Veterinary Surgeon to the charge of an abattoir is indispensable to efficient organisation.

(Signed) GORDON W. MILLER,

SHIRLEY F. MURPHY,

R. G. HAYES (*Secretary*).

June, 1904.

APPENDIX D.

(1) It seems very desirable, from a humanitarian standpoint, that slaughtermen should receive some preliminary training in the use of the poll-axe before they are allowed to operate upon living animals.

(2) The common custom appears to be to allow apprentices to get their hands in by chopping off the horns of dead cattle with an axe and, occasionally, by using the poll-axe on an animal which has already been felled.

(3) This is useful practice as far as it goes, but the Committee are of opinion that a man should undergo a more systematic training before he is called upon, or permitted, to poll-axe a living animal, and the following procedure is suggested :—

701—2.

(a) No man who is under eighteen years of age, and no man who has not been employed in a slaughter-house for at least three months, should be allowed to fell an animal, even in the way of practice.

(b) The candidate for employment as a slaughterman should not only obtain the preliminary practice with the poll-axe described in par. (2) above, but should also be required to show his ability to strike a mark with accuracy, before being permitted to demonstrate on a living animal.

(c) The German authorities have designed a special instrument for this purpose, and the Committee recommend its adoption, in a somewhat improved form. The target consists of a rough lignum vitæ model of a bullock's head, with a thick rubber pad in the centre of the forehead. This is immovably fixed to the spring piston of the instrument, and on being struck the force of the blow is registered on a scale. A poll-axe with a rubber guard on the point is used, and the latter should be chalked so as to indicate the exact point hit.

An illustration of this instrument is shown on the opposite page (Plan C).

(d) This instrument is especially suited for the preliminary training of Marine and Army Service Corps butchers, and the Committee are of opinion that its use would obviate a good deal of unnecessary cruelty in the training of slaughtermen generally.

(4) The Committee further recommend that free instruction in slaughtering and dressing animals could with advantage be given in public abattoirs, in order to afford private butchers or slaughtermen from country districts opportunities of making themselves acquainted with the most approved methods.

APPENDIX E.

MEMORANDUM BY LOCAL GOVERNMENT BOARD ON REGULATION OF
SLAUGHTER HOUSES (ENGLAND AND WALES, EXCLUDING LONDON).

I. PRIVATE SLAUGHTER-HOUSES.

The chief statutory provisions of the general law applicable to private slaughter-houses in England and Wales outside the Metropolis are contained in Sections 125 to 131 inclusive of the towns Improvement Clauses Act, 1847 (10 and 11 Vict., cap. 34) which are incorporated with the Public Health Act, 1875 (38 and 39 Vict., cap. 55) by Section 169 (second paragraph) of that Act, and Sections 29, 30 and 31 of the Public Health Acts Amendment Act, 1890 (53 and 54 Vict., cap. 59).

The material provisions of Section 169 of the Public Health Act 1875 are as follows :—

* * * * *

For the purpose of enabling any urban authority to regulate slaughter-houses within their districts the provisions of the Towns Improvement Clauses Act, 1847, with respect to slaughter-houses shall be incorporated with this Act.

Nothing in this section shall prejudice or affect any rights, powers or privileges of any persons incorporated by any local Act passed before the passing of the Public Health Act, 1848, for the purpose of making and maintaining slaughter-houses.

It will be noticed that the incorporation is limited to the purpose of enabling any urban authority (i.e. the Council of a Borough or Urban District) to regulate slaughter-houses within their district. The sections of the Towns Improvement Clauses Act are not, therefore, applied generally to rural districts.

The Local Government Board are, however, empowered by Section 276 of the Public Health Act, 1875, and otherwise to invest Rural District Councils with all or any of the powers, etc., of an Urban District Council, and in a large number of cases the provisions of the Towns Improvement Clauses Act, 1847, with regard to slaughter-houses, have been thus applied to the whole or parts of rural districts.

A specimen order illustrating the mode in which the powers of the Act are conferred will be found in Appendix G.

PLAN C.

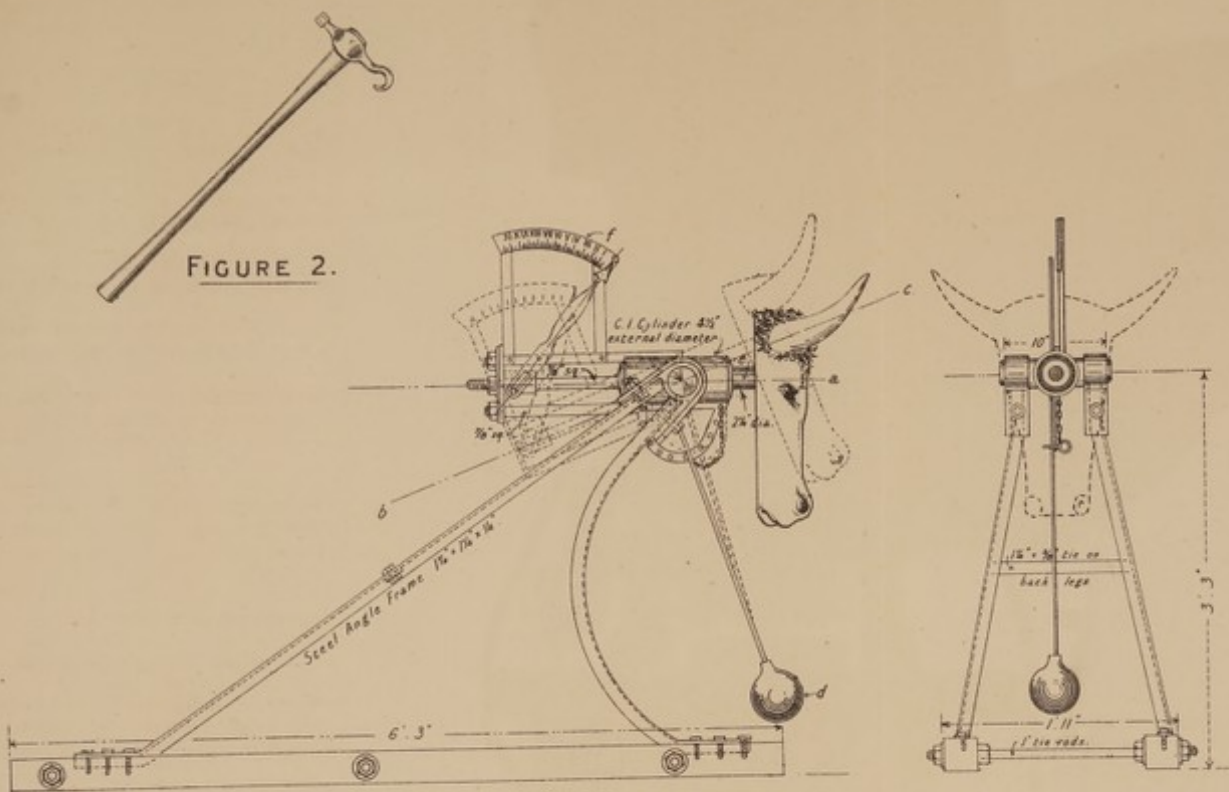


FIGURE 2.

FIGURE 1.

Scale, $\frac{1}{4}$ Inch = 1 Foot.

FIG. 1. Improved Form of Instrument for Training.

- a. Rubber Pad, 6" in diameter.
- b.c. Dotted lines showing how the head can be adjusted to any angle.
- d. Weight for adjusting the position of the head.
- e. Spring Piston.
- f. Indicator showing force of blow.

FIG. 2. London Pole-axe with rubber guard.

FIG. 3. Copenhagen Instrument for stunning smaller animals such as sheep, pigs, &c.

- Handle - Ash. 16 in. long
- Head - iron. 3 in x 2 in.
- Total weight. 3 lbs.

FIG. 4. Instrument for a similar purpose from Lucerne.

- Material - Ash.
- Total Weight, 4 lbs. 2 oz.
- Length of head 10".
- bound with strap of hoop iron.
- and with a stout iron ferrule at each end.

- Diameter of Head. 3"
- Length of handle. 18"
- Total Length. 28"



FIGURE 3.



FIGURE 4.

701-

Section 170 of the Public Health Act, 1875, is as follows :—

170. The owner or occupier of any slaughter-house licensed or registered under this Act shall, within one month after the licensing or registration of the premises, affix, and shall keep undefaced and legible on some conspicuous place on the premises, a notice with the words "Licensed slaughter-house," or "Registered slaughter-house," as the case may be.

Any person who makes default in this respect, or who neglects or refuses to affix or renew such notice after requisition in writing from the urban authority, shall be liable to a penalty not exceeding £5 for every such offence, and of 10s. for every day during which such offence continues after conviction.

Under the Act of 1847 there was no limit of duration of a licence granted to a slaughter-house. Provision for remedying this defect, and also for providing for notification on change of occupation of a registered or licensed slaughter-house, and for revocation of a licence on conviction for the sale of meat unfit for food was included in Sections 29, 30 and 31 of the Public Health Acts Amendment Act, 1890 (53 and 54 Vict. c. 59). These provisions only apply in boroughs and other urban districts where Part III. of the Act has been adopted by the Town Council or the Urban District Council, and in rural districts where they have been put in force by an Order of the Local Government Board. Part III. has, however, been very extensively adopted.

Section 128 of the Towns Improvement Clauses Act, 1847, authorises the making of bye-laws embodying regulations for the licensing, registering and inspection of slaughter-houses and preventing cruelty therein, and for keeping the same in a cleanly and proper state and for removing filth at least once in every twenty-four hours, and for requiring them to be provided with a sufficient supply of water.

In pursuance of Section 184 of the Public Health Act, 1875, bye-laws made for this purpose in order to have effect require to be confirmed by the Local Government Board. That Department has drawn up a series of model bye-laws* suitable for adoption by a local authority and a large number of series of bye-laws conforming generally with the model series have been confirmed.

II. Public Slaughter-houses.

The first paragraph of Section 169 of the Public Health Act, 1875, is as follows :—

Any urban authority may if they think fit provide slaughter-houses and they shall make bye-laws with respect to the management and charges for the use of any slaughter-houses so provided.

No separate model series has been issued by the department for adoption under this section, but the bye-laws* usually follow closely the model for private slaughter-houses.

Besides the confirmation of bye-laws with respect to slaughter-houses the only mode in which the Local Government Board are ordinarily concerned with the question of slaughter-houses is in connection with an application by a local authority for sanction to borrow money for the erection of public slaughter-houses. In these cases the plans of the building come before the Department.

There are in some localities local Acts in force† which provide for the supersession of private slaughter-houses and the provision of adequate slaughter-houses by the Local Authority. It is the practice of Parliament in such cases to require compensation to be paid by the Local Authority to the owners and occupiers of private slaughter-houses who are injuriously affected by the provisions of the local Act.

Appendix H contains particulars as to the number of rural districts in England and Wales in which the Rural District Council are invested with powers of regulating slaughter-houses and in which bye-laws with respect to slaughter-houses have been made.

Local Government Board,
March, 1904.

* These bye-laws do not prescribe any particular *methods* of slaughter.

† *Compulsory Supersession of private Slaughter-Houses by Public Slaughter-Houses.*

The sections in local Acts are generally in one of three forms—

- (a) Section 209 of the Leigh Corporation Act, 1903.
- (b) Section 42 of the Rhyl Improvement Act, 1901.
- (c) Section 62 of the Wigan Corporation Act, 1902.

Forms (b) and (c) are in some respects preferable to form (a).

Besides the three cases above mentioned, the local Acts of 1898–1903 contain the following—

- (a) Edmonton Urban District Council Act, 1898, section 75, and Southport Corporation Act, 1900, section 108.
- (c) Farnworth Urban District Council Act, 1900, section 50; Ripon Corporation Act, 1901, section 94; Knaresborough Improvement Act, 1902, section 10; and Hyde Corporation Act, 1903, section 145.

Clauses in different forms, more or less special—Devonport Corporation Act, 1900, section 90; Wakefield Corporation Market Act, 1900, section 28; Blackburn Corporation Act, 1901, section 125,

29th April, 1904.

APPENDIX F.

SPECIMEN FORM OF ORDER INVESTING A RURAL DISTRICT COUNCIL WITH URBAN POWERS IN REGARD TO SLAUGHTER-HOUSES.

To the Rural District Council of

And to all others whom it may concern.

WHEREAS under Orders issued by Us, the Local Government Board, in pursuance of the Public Health Acts, the Rural District Council of _____ are invested with certain of the powers, rights, duties, capacities, liabilities and obligations of an Urban District Council as regards the contributory place of _____, in their District.

And whereas We have received and duly considered an application under Section 276 of the Public Health Act, 1875, and under Section 5 of the Public Health Acts Amendment Act, 1890, from the said Rural District Council for the issue of an Order putting in force in the said contributory place certain provisions of those Acts as hereinafter mentioned :

NOW THEREFORE, in pursuance of the powers given to Us by the Statutes in that behalf, We hereby Declare and Order as follows :—

Article I. Until we by Order otherwise direct, the undermentioned provisions of the said Acts shall be in force in the said contributory place, and the said Rural District Council shall accordingly be invested with all the powers, rights, duties, capacities, liabilities, and obligations of an Urban District Council, under those provisions, in the said contributory place ; that is to say :—

The Public Health Act, 1875 :—

Section 169, the second paragraph, which, for the purpose therein mentioned, incorporates the provisions of the Towns Improvement Clauses Act, 1847, with respect to slaughter-houses. Section 169, the third paragraph ; and Section 170.

The Public Health Acts Amendment Act, 1890, Section 29.

Article II. The expenses incurred or payable by the said Rural District Council in the execution of the powers conferred upon them by Article I. of this Order, except so far as such expenses may relate to their establishment and officers, shall be deemed to be Special Expenses within the meaning of the Public Health Act, 1875, chargeable upon the said contributory place.

Article III. This Order shall come into operation on the _____ day of _____ and the said Rural District Council shall cause it to be published once in some newspaper circulated within their district before that date.

GIVEN under the Seal of Office of the Local Government Board, this _____ day of _____ in the year _____

Assistant Secretary

President.

APPENDIX G.

Powers in force in Rural Districts in England and Wales in respect of the provision and regulation of slaughter-houses.

Public Health Act, 1875, or the corresponding provisions of the Local Government Act, 1858, (Section 45 (7)), have been put in force as regards :—

(a.) The whole of sixty Rural Districts.

(b.) Parts of 163 Rural Districts.

In the whole of one Rural District and part of another Section 169 (1st paragraph) also is in force ; in part of one district Section 169 only is in force ; and in part of two other districts the powers of Section 169 (2) only are in force.

Some of the foregoing provisions are also in force in combination with one or more of Sections 29, 30, and 31, of the Public Health Acts Amendment Act, 1890.

(a.) The whole of fifteen Rural Districts.

(b.) Parts of twenty-two Rural Districts.

Bye-laws with respect to slaughter-houses have been confirmed in the case (wholly or partly) of 222 Rural Districts.

APPENDIX H.

EXTRACTS FROM LOCAL BYE-LAWS.
LONDON COUNTY COUNCIL.

1. An occupier of a slaughter-house—

(d) Shall not keep in any pound, pen, or lair, any animal for a longer period than may be necessary for the purpose of preparing such animal for slaughter.

(e) Shall provide every animal in a pound, pen, or lair, with a sufficient quantity of wholesome water and food.

2. An occupier of a slaughter-house—

(a) Shall not slaughter or permit to be slaughtered any animal in any pound, pen, or lair, or in any part of the premises other than the slaughter-house.

(b) Shall in slaughtering any animal use such instruments and appliances, and adopt such method of slaughtering, and otherwise take such precautions as may be requisite to prevent unnecessary suffering to the animal.

(c) Shall not slaughter or permit to be slaughtered any animal within public view, or within the view of any other animal.

BRECON TOWN COUNCIL.

No person shall proceed to slaughter any bull, cow, or ox, or heifer, until the same shall have been effectually stunned, and before and during the stunning and slaughtering of such animal the person engaged in slaughtering shall cause the animal to be properly secured by means of a rope or chain attached to the ring provided for that purpose in the floor or wall of the slaughter-house.

KENDAL TOWN COUNCIL.

Every person who shall keep or cause to be kept in the slaughter-house any animal, for the purpose of slaughtering, shall, during the confinement of such animal, provide the same with a sufficient quantity of wholesome food and water.

Every person employed in the slaughter-house, in the slaughtering of cattle, shall, before proceeding to slaughter any bull, ox, cow, heifer, or steer, cause the head of such animal to be securely fastened, so that such animal may be felled with as little pain or suffering as practicable, and shall, in the process of slaughtering any animal, use such instruments and appliances, and adopt such method of slaughtering, and otherwise take such precautions as may be requisite to secure the infliction of as little pain or suffering as practicable.

BLACKBURN TOWN COUNCIL.

No person shall slaughter, or attempt to slaughter, any animal in the slaughter-houses in sight of animals in the lairs.

LLANDUDNO URBAN DISTRICT COUNCIL.

No person shall proceed to slaughter in the abattoir any bull, cow, ox, steer, heifer, or calf, until the same shall have been effectually stunned, and before and during the stunning and slaughtering of such animal the person engaged in the slaughtering thereof shall cause the same to be properly secured by means of a rope attached to the ring provided for that purpose in the floor or wall of the slaughter-house.

STEVENAGE URBAN DISTRICT COUNCIL.

Every occupier of a slaughter-house and every servant of such occupier, and every other person employed upon the premises in the slaughtering of swine, shall before proceeding to slaughter any pig, cause such pig to be effectually stunned, so as to enable such pig to be stuck with as little pain or suffering as practicable.

APPENDIX I.

DESCRIPTION OF THE JEWISH METHOD OF SLAUGHTERING CATTLE AND SHEEP AT THE FOREIGN ANIMALS WHARF, DEPTFORD.

To the wall of the slaughter-house, about seven or eight feet from the ground, is fixed a double sheave pulley, the bullock is placed alongside the wall underneath the pulley, a short chain is looped round the lower part of the fore leg furthest from the wall; a similar chain is looped round the lower part of the hind leg on the corresponding side; to the end of each of these short chain

a rope is attached and passed through the pulley fixed to the wall. Everything being in readiness, traction is put on both ropes, the animal's legs are pulled from under him and he falls on his side on to the slaughter-house floor; the ropes being pulled taut prevent his rising again. A loop of another chain is then placed round the bullock's jaw; through this loop an iron crowbar is passed, one end of the crowbar resting on the floor. An attendant holding the other end of the crowbar uses it as a lever, by which the animal's head is forced into a position, in which, the poll of the head resting on the ground, the nose is in a vertical position and the throat fully exposed for cutting; the Jew butcher then slaughters the animal by cutting the throat, severing at one cut the large blood-vessels of the neck. When the carcass is sufficiently bled it is dressed in the usual manner. An official of the "Board for the affairs of Shechita" then examines the carcass and viscera, to which, if found free from disease, he fixes a seal. The meat is then "Kosher," and as such is suitable food for the orthodox Jew.

Sheep are placed on a table, known in the trade as a "crutch," and held by an attendant. The Jew butcher, holding the jaw of the sheep in his left hand, draws the head into position and slaughters by severing the blood-vessels of the neck, as already described in the case of cattle.

WILLIAM W. SMART.

Inspector of the Board of Agriculture.

April 25th, 1904.

APPENDIX J.

REPORT ON THE JEWISH METHOD OF SLAUGHTERING.

In the Jewish method of slaughtering animals, the animal is killed by cutting its throat and allowing it to bleed to death. In order that the operation of cutting may be performed in an efficient manner, it is first necessary to "cast" or throw the animal and to forcibly extend the head. This being done, a Jewish official divides all the structures of the neck, including the blood vessels down to the spinal column, with one stroke of a broad bladed knife. A discussion of the advantages and disadvantages of this manner of slaughtering falls naturally under two heads:

- (1) The preliminary operations of "casting" and extension of the head.
- (2) The mode of death as produced by cutting the throat.

The following discussion and conclusions are based on the results of two visits to Deptford, at the first of which* two animals, and at the second, on May 4th, nine animals were slaughtered in the Jewish fashion.

(1) THE PRELIMINARY OPERATION OF "CASTING" THE ANIMAL AND EXTENDING ITS HEAD.

The animals (bullocks) were in a pen adjoining the slaughterhouse. A running noose in a chain was thrown over the head of a bullock, the other end of the chain being passed through a ring in the slaughterhouse near the floor. The animal was then driven and pulled into the slaughter house, the noose being pulled tight, and was pushed so as to stand against the wall. Chains were then passed round the two feet furthest from the wall and connected by ropes to a pulley fixed high up on the wall. These ropes were then pulled upon while three men standing by the animal helped to pull it over on to its side, and the animal was thrown. In this operation of throwing comparatively little difficulty is experienced with quiet animals or animals in a bad state of nutrition. In several cases, however, the animal resisted this operation violently. It dashed its head to and fro in its effort to escape, even striking the ground violently with its head. We were informed that with wild cattle the operation might take seven or eight minutes, but in none of the cases which we saw did the operation take more than two minutes. Even under these conditions the process of throwing was often violent, and when the carcass was skinned large superficial bruises were in some cases seen on the thighs, hips, and along the back. In order to pull the head down in the operation of throwing we noticed that in some cases, at least, one of the men introduced his fingers between the eyeball and upper eyelid and dragged upon the upper eyelid in order to force the head back. The head being thus secured, a rope was placed in the mouth round the lower jaw, an iron crowbar was passed through this rope and under the jaw, and by the leverage thus obtained, it was possible to extend the animal's head forcibly and to hold it steady while the incision in the neck was made.

Under no conditions could this preliminary operation as seen by us be regarded as painless. Even with the quieter animals the dragging on the eyelid and the thrusting of the head back by means of the iron crowbar, bearing on the ring round the soft tissues of the lower jaw, must cause a considerable amount of pain. With stronger and more violent animals the operation of throwing resolves itself into a struggle for life on the part of the animal which is handicapped by the securing of its head and two legs by iron chains through rings in the wall, and one cannot but think that, under such conditions, the animal suffers not only a large amount of physical pain but also that in the hopeless struggle against superior force, it is the subject of such painful emotions of fright as it is capable of experiencing. We are informed that various forms of apparatus have been devised for effecting the operation of throwing in a more humane fashion, but have never come into general use. It is easy to understand that the use of such apparatus would materially lengthen the operation, while it is doubtful whether any apparatus for securing and throwing a powerful bullock could be devised which would not subject the animal to an agony of fright, at least equal to that it at present suffers under the more rough and ready methods above described.

* Professor Starling only was present on this first occasion.

(2) THE OPERATION OF CUTTING THE THROAT.

The animal being thus secured and the head strongly extended, the slaughtermen call for the Jewish official who alone is licensed to give the death cut. This man is armed with a knife shaped like a large table knife. It is kept very sharp. He comes to the animal, and with one cut divides all the tissues in the front of the neck, subsequently passing his finger through the wound to make certain that the vessels are divided. Some little time after, in some cases, another man, with a smaller knife, makes a second incision, with the view of cleaning out the veins. In the cases which we have classed as *satisfactory*, the primary and main incision is at once followed by a great rush of blood, and for ten seconds there may be little or no movement on the part of the animal. Then strong convulsive struggles began, which later on became regular and conform exactly to the type recognised by all physiologists as produced by anæmia of the brain and spinal cord. It has been stated by advocates of the Jewish method of slaughtering that in this method consciousness is abolished either immediately after the incision has been made, or at any rate within five seconds. We have therefore paid strict attention to the phenomena presented by the animals after the incision. Criteria for the existence of consciousness are notably difficult to obtain. (See first part of this Report.) As indicative of the continued existence of consciousness, we regarded the continuation after incision of the movements of escape which the animal had been making immediately before its head was secured for the cut. These were called in our notes *purposive struggles* and are easily distinguished from the spasms due to anæmia of the brain and nerve centres, which come on rather later. In the cases where these purposive struggles were absent or prevented by the manner in which the animal's head was fixed, we may regard consciousness as disappearing a second or two before the onset of the twitching of the superficial muscles of the animal. Disappearance of the sensibility of the eyeball or the onset of the typical asphyxial spasms always denote that consciousness of the animal has been abolished some time previously.

We may here give the notes of the symptoms displayed by the animals slaughtered on the occasion of our second visit to Deptford. All the animals were bullocks. They were of American origin and were regarded by the attendants as quiet beasts.

Bullock 1. This animal looked ill and was in bad condition. It was thrown without difficulty. After the first cut, the first twitching of muscles occurred in twenty seconds. Deep respirations and general twitching in one and a half minutes. Sensibility of eyeball disappeared in three and a half minutes. General convulsions then ensued, but were feeble and of slight duration. Consciousness lasted less than twenty seconds.

Bullock 2. A more powerful animal. Directly after the throat was cut the animal, its head being loosed, made "purposive" struggles, dashing from side to side and against the floor, as it had done immediately before the head was secured. These struggles lasted thirty seconds. At this point spasmodic movement of breathing began; sensibility of the eyeball disappeared in three minutes. General spasms began in five minutes.

Duration of consciousness—twenty to thirty seconds.

Bullock 3. In this case the cut was very free and was followed by a great rush of blood, the animal's head being kept in an extended position. It seemed to one of us (M. F.) that immediately after the cut the sensibility of the eyeball was temporarily abolished, returning again, however, later. The first spasmodic movement of respiration occurred at twenty seconds.

Duration of consciousness—probably less than five seconds.

Bullock 4. In this case the cut was not so free. The blood spurted out in streams instead of coming at one rush, showing that for some time there must have been sufficient pressure in the arterial system to force blood to the brain through the vertebral arteries which are never divided by the cut. The first general struggle occurred in forty seconds and the sensibility of the eyeball was abolished in one minute twenty seconds.

Duration of consciousness—less than forty seconds.

Bullock 5. This was a strong animal and resisted violently when thrown. The cut was not free enough and a second cut was made at twenty-five seconds after the first. The first cut was followed by purposive struggles. The first respiratory spasm occurred at thirty-five seconds and the sensibility of the eyeball disappeared at two and a half minutes.

Duration of consciousness—twenty to twenty-five seconds.

Bullock 6. In this case the cut was very free, and the discharge of blood was very full and rapid. In this case, again, the sensibility of the eyeball was apparently gone in ten seconds, returning later.

Duration of consciousness—probably less than ten seconds.

Bullock 7. General spasms began fifteen seconds after the cut. There was no immediate abolition of the sensibility of the eyeball, though the cut was fairly free.

Duration of consciousness—probably less than fifteen seconds.

Bullock 8. Twitching of the surface muscles began twenty seconds after the cut. The first spasmodic respiration occurred at forty-five seconds.

Probable duration of consciousness—just under twenty seconds.

Bullock 9. The cut was free with a rapid escape of blood; superficial twitching began in twenty-five seconds. Sensibility of the eyeball lasted for some time later.

Probable duration of consciousness—less than twenty-five seconds.

As a result of our investigation we were struck with the variability of the symptoms displayed by the different animals and the uncertainty of the method for producing the rapid disappearance of consciousness. Of the cases enumerated above, two may be regarded as satisfactory, viz., Bullocks 3 and 6. In each of these the cut was very successful, the outflow of blood very free,

and the momentary pain of the cut must have been immediately followed by a loss of consciousness. If a humane method could be devised for the preliminary operation of throwing, and extension of the neck and the cut could be always equally as effective as in these two cases, this method of slaughtering animals might be regarded as little inferior to any other.

But it does not seem to be easy to ensure that the cut shall be always equally free. In two of the cases, namely, Bullocks 2 and 5, consciousness certainly lasted for twenty seconds; in the other five cases it was more difficult to be certain of the precise moment at which consciousness was abolished, but in these also it was our impression that consciousness was not abolished in less than ten seconds, and probably lasted between fifteen and twenty-five seconds.

It is claimed by the advocates for this method of slaughtering that the wide opening of the vessels of the neck cause such a lowering of blood pressure that the access of the blood to the brain is absolutely shut off and that this sudden anæmia of the brain must induce instantaneous loss of consciousness. This is perfectly true, provided that the outflow of blood from the divided vessels is sufficiently free—a condition, however, which was only fulfilled in the minority of the cases recorded above.

In no case, however, can the Jewish method be regarded as of equal humanity with the methods in which a poll-axe is used to secure insensibility. With the poll-axe insensibility is immediate and supervenes before the pain of the blow itself can be felt. In the Jewish method, supposing that a humane method of casting could be devised, the great incision in the throat must cause pain, which would last, even in the most favourable circumstances, five to ten seconds.

M. FOSTER.
ERNEST H. STARLING.

May 10th, 1904.





The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. The second part outlines the procedures for handling discrepancies and errors, including the steps to be taken when a mistake is identified. The final section provides a summary of the key points and offers advice on how to prevent future errors.

Yours faithfully,
 [Signature]

