

No. 5. Our Industries: The Gear Meat Preserving and Freezing Co., Ltd.

NEW ZEALAND may not have attained the notoriety that the United States of America have in the matter of the meat industry; she may not have welcomed the visitor to any of her meatworks with the startling intelligence that "Yes sir, we can everything and find a use for everything—except the squeak!"; but she certainly prides herself on the fact that canning and the other processes inseparable from modern meatworks are conducted on principles which have always been open to daylight criticism. We are, therefore, unpelled by events in America in publishing an article of this kind, for its *motif* lies solely in the plain treatment of a great concern, whose conditions of carrying on business have always been in the interests of public health and to the credit of New Zealand.

The Gear Meat Preserving and Freezing Coy. of N.Z., Ltd., was founded in 1882, to acquire the business previously carried on by Mr. James Gear, and from its inception shows a record of steady progress in all branches. When the directors decided to commence freezing operations they purchased the barque "Jubilee," then lying at Newcastle, N.S.W., and on her arrival in Wellington this vessel was dismantled. In the meantime a contract had been let to Messrs. Coxon & Greenstreet for insulating the hulk and installing machinery, which consisted of a Haslam cold-air machine with a capacity of 45,000 cubic ft., and capable of freezing 250 sheep per diem. On May 1st, 1884, the hulk was towed to Petone, where a wharf had been built to run the sheep from the slaughter yards to the hulk. After being frozen the meat was conveyed by hulk to alongside the Home steamers, and there transhipped. In a year or two the trade was found to be expanding so rapidly that it became necessary to duplicate the machinery, and in a short time thereafter the figures had grown sufficiently to warrant the erection of buildings on shore. A contract was let to Messrs. Carmichael & Son, and a machine of 150,000 cubic ft. was installed on the completion of the new building. Further additions to both buildings and plant have from time to time been made, and advantage has been taken of the latest and most economical freezing machinery. The cold-air process has been superseded by carbon dioxide, or C.O.₂; and from a modest 250 frozen carcasses per day, in former times, 5000 can now be conveniently handled, and storage is found for 180,000 carcasses. From wooden buildings covering a small area in the early days the brick additions at the works have now extended to over ten acres.

It is appropriate, before proceeding to examine the various departments at Petone, that we make some allusion to the general features with which a visitor is impressed. The Company is fortunate in having a splendid artesian water supply, the natural pressure of which is augmented by pumps, and all departments are supplied with an average total of 2,000,000 gallons per diem. The ventilation throughout is a remarkable feature, and it is quite possible for a visitor to pass through the whole of the works without experiencing any particularly obnoxious odour. Indeed, the evaporation of ammonia added to the decomposition of the pelts, in the fellmongery, is the only local odour to be met with, and even this is considered to be healthful. Scrupulous care is taken in maintaining perfect cleanliness, not to please visitors but to safeguard the meat against taint—a trouble which arose to the cost of all meat companies in the early days; the mode of inspection by Government veterinary experts is such that once the animal has been killed and examined it is condemned forthwith if found unfit for consumption. If the meat is intended for preserving freezing or the Company's retail shops it must all undergo this rigorous treatment.

The fire brigade is a very active branch of the works, and in such an establishment its services are liable to be utilised for the suppression of a fire at any moment. There are twenty members who receive 1/- an hour extra for the period in which they are engaged quelling an outbreak.

BEEF AND MUTTON HOUSES.

Three years have marked considerable changes in the disposition of the slaughter houses. Those originally reserved for the killing of beef and mutton are now utilised as Cooling Rooms; slaughtering being carried out in two fine well-lighted structures, one 200 x 60 ft. and the other 200 x 35 ft. Contiguous to these is the Tallow House containing nine digesters. In the Mutton House provision

is made for eighty butchers who, in full working time, are able to dispose of 8000 carcasses per diem. Hot and cold water are both laid on for the use of each operator, and the ventilation is admirable. The offal and skins disappear down shoots placed conveniently in the floor, thence on to endless conveyors, which in turn remove them to their respective plants. The Beef House is well-equipped with modern devices for handling heavy weights, there being several electrical friction hoists for raising the "bled" carcass, in place of the antiquated block and tackle—a system used not so very long ago. Here again is a liberal water supply and ample ventilation—two factors which so greatly conduce to the sweet-keeping of such places. The capacity of the Beef House is 150 carcasses per diem.

Adjoining these departments are of course, the Cooling and Freezing Chambers, with an aggregate space of 320 x 300 ft., and the Yards. The Freezing Chambers, of which there are fourteen, average a daily treatment of 4000 carcasses, and possess a storage capacity of 180000 sheep. The yards offer a clean, completely roofed, and brick-

ing thirty-six bins, where it has to remain twenty-four hours before being packed. The pelts, having lost their fleece, are next washed in the Pelt Room not without first being immersed in a solution of lime. Stacking in heaps of 4000 is next resorted to, in which state the pelts remain for from four to five days to drain. They are now ready for "fleshing," i.e., removing the grease and cleaning; two of Vaughan's No. 7 fleshing machines being capable of carrying on this work at the rate of 3800 each day. Next follows the throwing of the fleshed pelts into clean, warm water, to be "dolloed" until all traces of lime are lost. From this they are transferred into warm drenches preparatory to "scudding," which, in other words, is the scraping of the outside of the pelt. Then comes the trimming and making ready for pickling in sulphuric acid and salt, after which each pelt is ready for a place in one of fourteen classes. The capacity of the fellmongery is about 6000 pelts per diem, the majority being casked and exported to the United States.

PRESERVING WORKS.

The spacious building in which the much-discussed canning of meats is carried on is 50 x 170 ft. and has two stories. Boned and trimmed meat enters this department direct from the Cooling Room, and may have originally consisted of over-fat or heavy-framed sheep, which would not find a ready sale in the retail shops. As this is the most important reason for consigning beef or mutton to the cannery it makes little difference to us so long as we are sure of the absolute soundness



THE DEPARTMENTAL MANAGERS.

BACK ROW — MESSRS. T. H. BROWN (SHOPS), E. C. CORNER (SLAUGHTER YARD AND TALLOW DEPT.); A. CARTER (CHEMIST AND ANALYST, MANURE DEPT.)
FRONT ROW — MESSRS. J. G. CASTLE (PRESERVING), W. G. LODDER (CHIEF ENGINEER, FREEZING WORKS); S. V. BURRIDGE (FELLMONGERY).

floored shelter for 12,000 sheep. The advantages gained by this arrangement are self-evident, for in the old days sheep and cattle were driven in wet weather along the muddy thoroughfares of the town, and, being further subjected to the slush inseparable from much-trampled yards, they "killed" with a great deal of bother to the slaughtermen. Now every animal goes to the shambles clean and fit.

FELLMONGERY.

The Fellmongery covers an area of about 32,000 square ft., and, like all other departments at these huge works, is replete with the most efficient devices for handling its particular material. The skins are conveyed from the slaughter house by an overhead tramway to cold-water wash dollies that remove the blood. They are then placed in a Broadbent hydro-extractor which, at 800 to 1,200 r.p.m., prepares the pelts for hanging in the Sweat Room until the wool slips. This accomplished, the pelt is despatched to the Pulling Room furnished with 14 pullers that clear the pelt of fleece. After being classed, the wool is transferred to the Drying Room. Here are two five-table Petrie drying machines, both equal to treating 650 to 700 lbs. of wool per hour, according to the grade. Thereafter the wool is sent to the Packing Room, contain-

and good quality of the meat. This, once it has arrived by an endless conveyor from the slaughter house, is immediately placed in pickle tanks; and after sufficient time has been given to salting, it is subjected to the first scalding, and is as yet untanned. From the scalders the meat is passed to rotary-filling machines, where scoured tins are awaiting it. The filled tins are next checked, weighed and put through the initial stage of hermetic sealing. A "bridge" is inserted on the inside of the round aperture at the top of the tin, and over it is placed the cap having a small perforation called the "broghole," in the centre. The tins are now placed into retorts, or "process kettles," in order that the remaining moisture in the meat and any deleterious gases may be expelled. Here the "bridge" keeps the meat in position while the gases are driven off through the "broghole" in the cap. Still the work is not complete, for the "broghole" has to be closed, and the tins put through the final cooking under a higher steam pressure, before being transferred to the Test House, and this not before they have been dipped into a caustic solution to remove coatings of grease. In the Test House the tins are dried in sawdust, and are then allowed to stand for about two weeks in order that faulty soldering may be detected. This stage of the canning is