LAE CENTRAL ABATTOIR

By Harry Doorn, Abattoir Co-ordinator, Lae Central Abattoir

INTRODUCTION

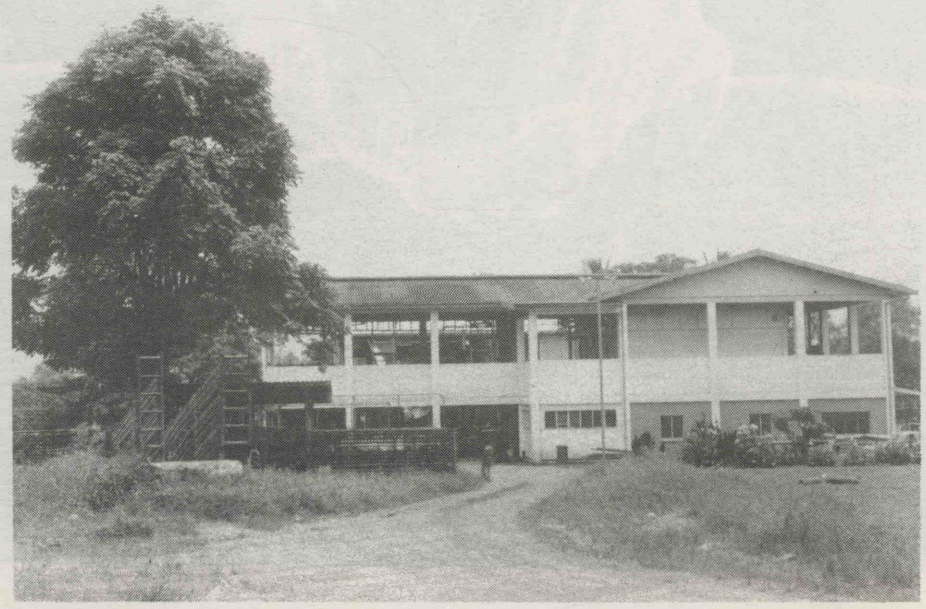
Lae Central Abattoir is owned and operated by the Department of Primary Industry. It is the largest Abattoir in Papua New Guinea. Like the other D.P.I. owned units, it provides the service of slaughtering (killing), dressing (preparing for eating) and chilling cattle, pigs and sheep. Next to the abattoir there is a dry rendering plant, where all the parts of the animal which cannot be eaten are processed to make useful products.

THE ABATTOIR

The Abattoir opened in 1965. It is in a bushland setting about 5 km outside Lae, close to the Markham river. It consists of holding paddocks, yards, slaughter floor, chillers, load out area and boning room. Cattle arrive by barge from Finschhafen and Popondetta and by road from the Markham Valley, Situm and Wau areas.

The through-put is about 7500 cattle per year and 1500 sheep and pigs per year.

Anyone may bring in a food animal to the abattoir where it will be processed for a fee. Slaughtering and meat inspection fees are K16 per animal for cattle, and K3 per animal for sheep, pigs and goats. The owner receives back all meat and edible offal passed for human consumption. The abattoir keeps the inedible offal.



The Central Abattoir, Lae

Slaughtering and processing

Every animal delivered for slaughter is first given a code number, and details about the animal and its owner are recorded in a master record. Throughout slaughtering and processing, the animal is tagged with its code number and so can be easily identified.

After delivery, animals are rested for at least 12 hours in the holding pens without food. This allows the animal time to calm down and to relax its muscles. The meat will then be better quality.

Cattle are first stunned using a .22 rifle or a special type of bolt pistol. The body is hoisted free of the floor and bled for 7 minutes. At this stage a blood sample is taken from each animal. The samples are sent to the National Veterinary Laboratory at Kila Kila for analysis.

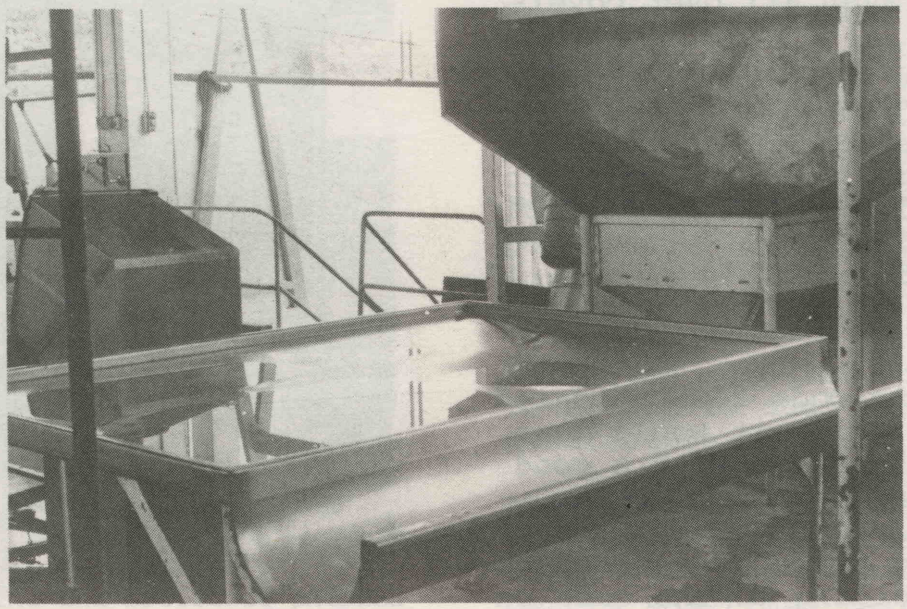
Next, the head and feet are removed and the animal is skinned. The body is eviscerated (internal organs taken out), then split down the chine (backbone) into two sides of beef. The carcase is washed down with a high pressure water spray, and weighed to obtain the 'hot' weight.

Finally, the carcase is chilled for about 24 hours in chillers at about 2°C. During this time it cools down to less than 10°C.

The carcase is quartered for collection. Customers are asked to pick up their meat after 24 hours.

All this work is done on a line basis by 18 men. The carcases are at all times hanging on roller hooks on the beef rail and pass from man to man. Each man has his own task to perform, with a minimum of moving around. During slaughtering and processing, special attention is paid to cleanliness and hygiene. A very large volume of water is used to wash away rubbish and to keep the carcases clean.

Each animal is inspected three times: after removal of the head, after evisceration, and after the final washing before weighing and chilling. Three qualified meat inspectors work at the abattoir.



The meat inspection table

All maintenance of machinery, boilers, water and power supply is carried out by the National Works Department.

CLASSIFICATION OF BEEF CARCASES

A system of meat classification was introduced in 1980. Every carcase which leaves the abattoir carries a weight-slip which also shows the classification code. The system of classification is as follows:

Age: age is set by the number of big teeth, 0 2 4 6 or F (full set).

Sex:
S - steers (castrated or young bulls)
H - heifers (females with 6 big teeth or less who have not calved)
C - cows (females with 8 big teeth, or who have calved)
B - bulls (non-castrated males with 2 big teeth)
V - vealers (young animals with no big teeth and under 90 kg cold weight).

Fat:
O - overfat
F - fat covering over 1 cm thick
G - good, even all over covering
L - lean, little fat covering
P - poor, no fat covering.

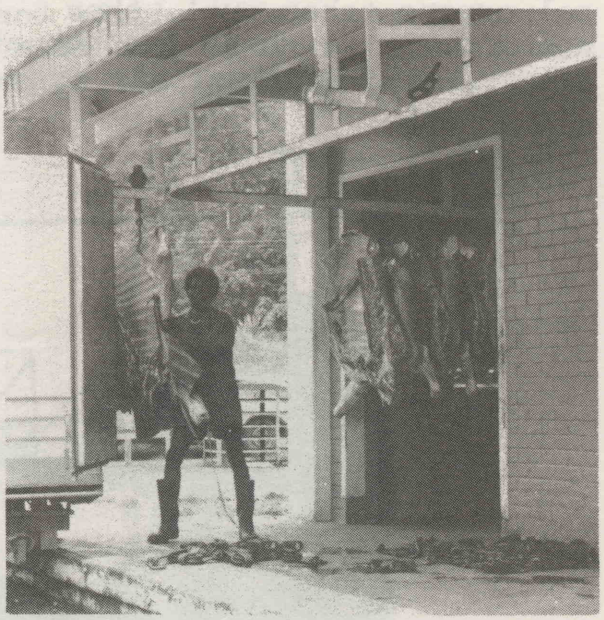
Bruising
H - heavy; L - light; N - none.

Cold weight:
This is calculated from the hot weight by subtracting 3%.

Thus, if the code 2SGN appeared on a weightslip, it would mean a 2 year old steer with a good fat covering and no bruising.

The selling price of a carcase varies according to the code on the weight-slip.

A high quality beef carcase



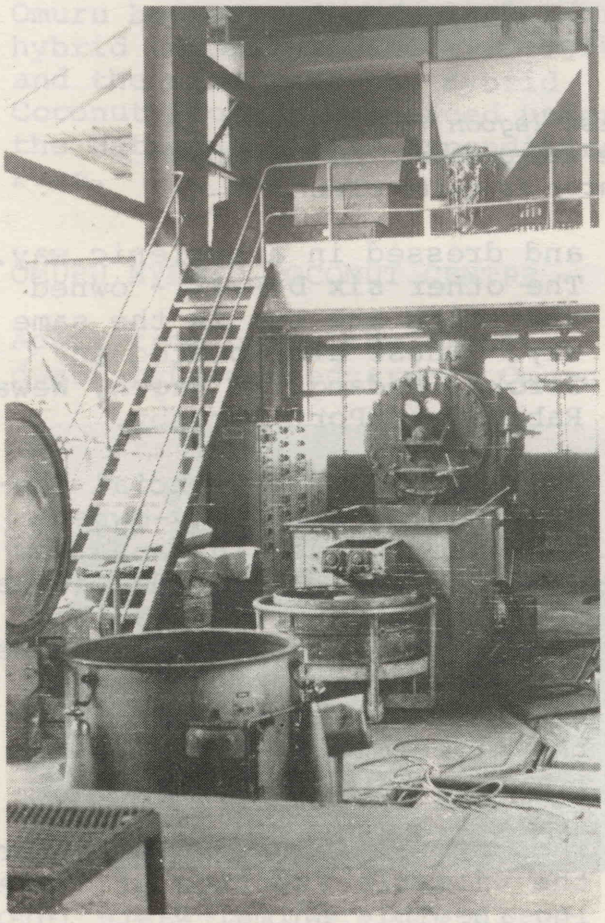
Loading processed and chilled carcases onto a butcher's van

THE DRY RENDERING PLANT

The dry rendering plant was completed in 1977 at a cost of K270,000. It is situated alongside the abattoir. It is fully automated and requires only two operators to produce tallow, meat/bone meal and blood meal. Four men are employed to work the plant, on a shift system.

All inedible offal from the slaughter floor not containing bones is cut up finely by a 'hasher' machine. The pieces are washed and carried by elevator to the dry-rendering plant.

All inedible offal containing bones is cut up in a 'pre-breaker' machine, and carried by the same elevator to the dry rendering plant. The two sorts of waste are mixed and put into the dry-renderer.



The dry rendering plant

The dry-renderer works in the same way as a pressure cooker. It cooks things quicker because under high pressure, water boils at a temperature higher than normal. The mixture of offal is cooked for about 3 hours, until all the water has evaporated.

The cooked mixture is emptied into a perculator. From here the hot fat, called tallow, drains out to a tallow sump and is pumped into tallow tanks. The tallow is washed with water to take all the fine pieces of meat to the bottom. The clean tallow is run off into drums to be sold.

The mixture left in the perculator, meat and bones, is moved to a centrifuge where any tallow left in the mixture is spun off for about 20 minutes.

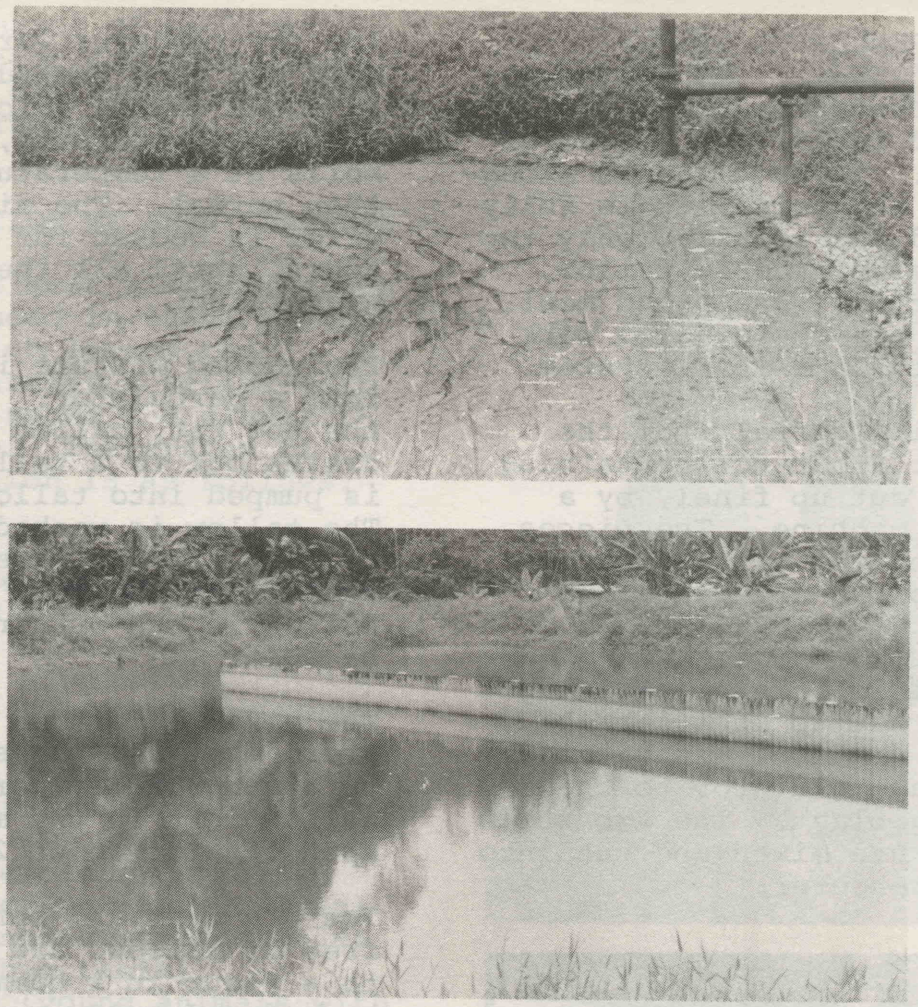
The dry meat and bones, now free of tallow, are ground down to a flour in a hammer mill, bagged and sold.

Animal blood is pumped from the abattoir to the dry rendering plant where it is boiled. Boiled blood settles out into solids and water. The solids are dried in the dry renderer, then put into bags.

Blood meal contains about 87% protein and is sold for K390 per tonne. Meat/bone meal contains about 51% protein and 30% ash and is sold for K250 per tonne. Both meals are used in the manufacture of poultry feed.

Tallow is sold for K320 per tonne and is used mainly in the manufacture of soap.

Animal skins are usually salted, then sold to tanneries in Hong Kong, Japan or Singapore. Owners sometimes take their animals' skins for their own use. The price for an unsalted skin



The sewerage lagoons. The first lagoon (top picture) is covered with a layer of sludge and grease. In the third lagoon (lower picture), the water is quite clean.

in Lae is K2.00.

WASTE DISPOSAL

Floor washings and sewerage from the abattoir and dry rendering plant are pumped out to a series of three sewerage lagoons about 50 m from the abattoir buildings. Water overflows from one lagoon into the next and by the time it reaches the third lagoon it is quite clean.

CONCLUSION

Lae Central Abattoir provides an important service because it ensures that meat supplied to retailers has been slaughtered and dressed in a hygienic way. The other six D.P.I. - owned abattoirs are run in the same way. These are located in Goroka, Madang, Mt Hagen, Wewak, Rabaul and Port Moresby.

There are some Provincial Government and privately-owned slaughter houses in Papua New Guinea. D.P.I. provides a meat inspection service to all of them. Meat inspection is done by field officers who have received special training at the Livestock In-Service Training Centre in Lae.

The dry-rendering plant performs the valuable function of converting inedible animal waste into useful by-products.