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Reinstate cattle processing in the north.

Cattle Processing Swanwick 1958.

Bit of history.

We have an issue with cattle processing in Indonesia because it is different to ours. Our view of their system is unlikely to be welcome by them because we have no idea of what they could do with very little capital investment.

For various reasons the Australian Meat Industry has become a very highly capital intensive industry and horrendously expensive to operate. Employees are not particularly socially acceptable and it is not an attractive industry for them to be engaged in. Our local school kids were told if they didn't toe the line at school, they would have to work in the local Meat Works. Some three hundred local people did work for us. I believe the industry now uses many foreign workers on temporary visas; all the meat works are short of local labour.

The meat worker's were dominated by an anti foreign investment trade union hierarchy and the union was supported by the inspection service unions and its members. Better than average wages in the district was no guarantee of a smooth operation. Other Meat Works in the north had all the same industrial problems and difficulties. All are now closed.

After England entered the European Common Market and closed off the British market to Australia, we came to rely almost completely on the American Market. Their meat producers saw Australian meat as competition to their product and used the USDA to ensure it was not easy to be licensed to export to America. I met and got to admire most of the USDA inspectors because they appeared to know the meat industry, while our regulators just created and knew all the regulations. I am not sure the inspectors we send to Indonesia will know any more about the industry there than they did about the industry here.

Skills

What used to be a skilled artisan occupation that attracted folks to watch; has been made a mundane boring job by degrading all the skills. The biggest meat market in the world I have seen was Smithfield in London, where not one carcass was moved on an overhead rail, but thousands of carcasses passed through the market most nights. Beef sides were cheaper to unload at the market than beef quarters. There was no boss and no obvious management. Men worked as teams and contracted to get work done.

The biggest abattoir I have seen had few or no mechanical aids. Contractors booked time and space. The council manager put your livestock in the pipeline and their task was finished. We all charged a fee for the services we provided. The place could process a thousand head of cattle before lunch. My gang of four plus a gut cleaner treated a steady twelve to seventeen head of cattle an hour at home or away.

The current situation will end up with the Australian Taxpayers employing inspectors to visit places in Indonesia to ensure that acceptable procedures are in place. These inspectors will have had no experience of any meat-works systems, except those they have seen in Australia. My objective is to give these inspectors an idea of the old skills and practices.

I am not a fan of ritual slaughter, but I have killed thousands of sheep without stunning them, and I have seen thousands killed with those electric probes then have their throats cut. I would prefer not to be ticked up with the electric before somebody cut my throat.

I am aware that very few people will be interested in the old fashioned ideas and any methods that don't come from a book produced by the education industry, but the odd person may see some merit in the old skills.

My objective is to describe the old-fashioned "bed dressing" system I was engaged in for about fifteen years and before the advent of chain dressing. (Our Can-Pack dressing lines)

Food Safety inspection was carried out by the local authority visiting the abattoir as required, offal and carcasses were correlated and abnormal situations were isolated for the inspector. There was also a government subsidy system in place, which made identification of all livestock very critical. Identification was critical to the extent that the ears had to be left on the carcasses until after inspection and the subsidy claims paid. There could be a lesson in the system for Australia to identify our live cattle. When the FMC purchased any live cattle they issued tags to the farmer to be put in the animal's ears, hence all cattle were correctly identifiable after slaughter.

For thirteen years I was the foreman / leading hand of an operation that treated about 500 cattle, 300 pigs and 500 plus sheep each week. So it was not a small operation and not uneconomical.

We had a base team of five men on cattle and two on small stock. The operation employed stockmen, sales and delivery folks who were not paid from the slaughtering charges. Our biggest beef customer was Birds Eye TV Dinners, which padded out our domestic operation to the full capacity of the abattoir.

We dressed all stock for less than the value of a couple of kilos of the carcasses value, and made very good wages. We were not backyard operators. About twelve percent of out earnings were addition to the contract price and paid from an agreement that more than ninety percent of the hides and skins we removed were sound, not damaged by knife cuts or scores. To ensure that this payment was not abused by the employers or hide market; I trained and qualified as a "Hide Classer". Hides were sold at auction based on the Hide Classers assessments. All hides were marked with the Classers identification and his weight and grade determination.

I doubt there are few folks left alive who has worked on the old dressing systems, I am too old to demonstrate the old artisan skills but not too old to know how and why we did what. The inspectors and auditor we send to the small abattoirs would have little or no idea about the meat industry except that they have seen in Australia's big chain dressing systems. These systems are absolutely irrelevant to the small abattoirs in Indonesia. We basically can't afford to treat any cattle now in Australia. The small animals they send live to Indonesia; would hardly fill enough boxes to pay the labour costs of processing those cattle in an Australian operation.

General

PURPOSE.

Will detail production, techniques and processing plans, to describe the operation..
I can provide a manual, training material and written work instructions for employees.
It is not intended to be a complete operational manual for any purpose of accreditation, but one could be provided.

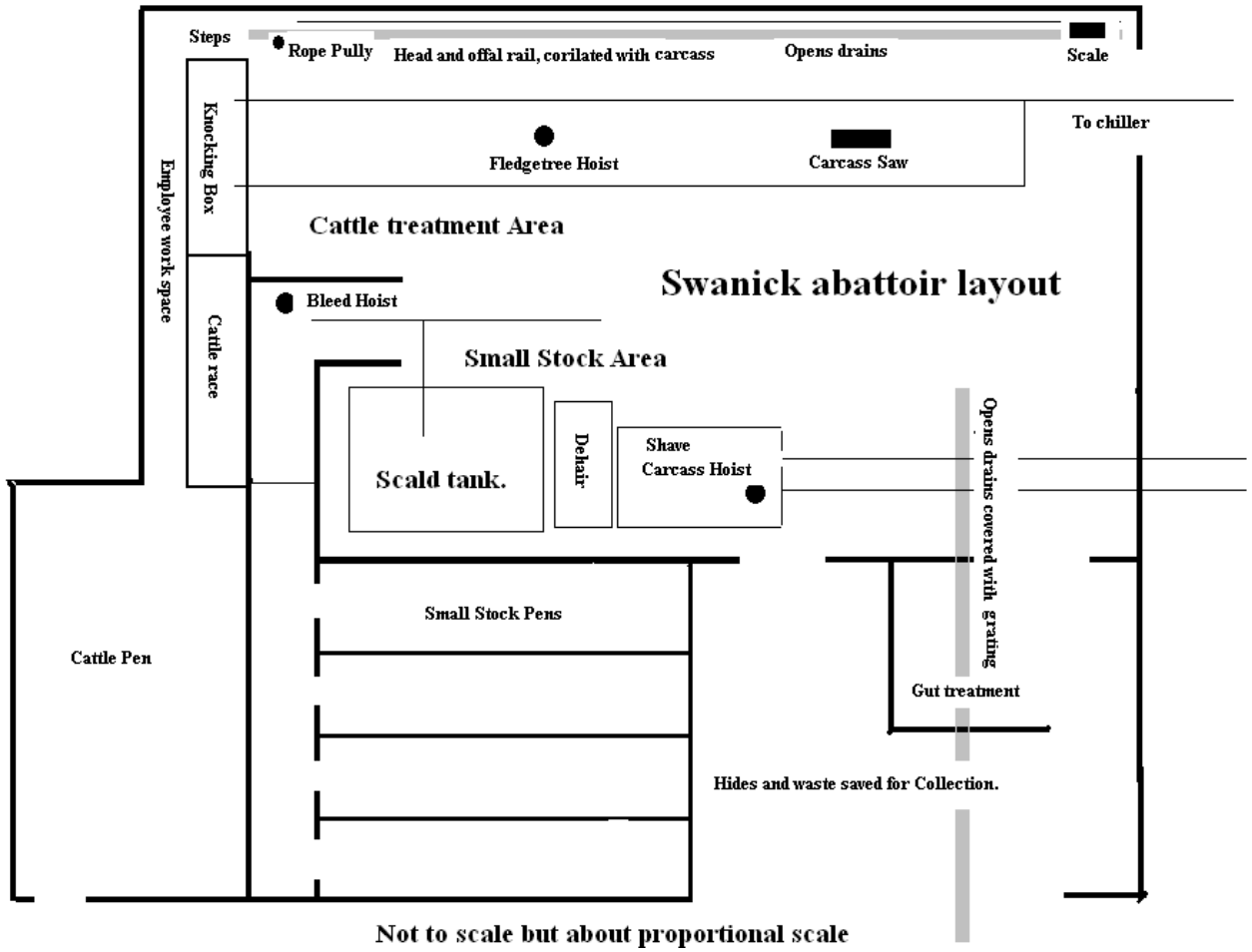
It describes the activities in the Slaughterfloor operation at Swanwick in 1958.

DIAGRAM OF WORKS AREA.

A diagram in the manual allows a desk auditor to see and under stand the flow lines through the buildings.

FACILITIES

Horizontally rotating side, cattle knocking/stunning box. Temple Cox, captive bolt pistol.
A wire coil "Pith Cane" was provided to assist in safe sticking after stunning.
Single wheel rope pulley block for hoisting the head to skin and remove the horns.
Loose water hose in the sticking area. The floor was flushed by buckets of water taken from the pig scald tank between carcasses.
A mechanical hoist and "fledgetree" was provides to lift the carcass to the overhead rails. A few tasks were performed on this hoist.
A tail grip was fitted to the "fledgetree".
A low flat barrow was provides to fit under the carcass as it was being hoisted, to remove the abdominal contents to the tripe opening room.
Along the wall at head hight was a rail for edible offal.
Empty trolleys were loaded onto the twin dressing overhead rails, which extended over the knocking box.
A simple "leg hook" was provided to lift the front leg horizontal and assist skinning the neck.
A carcass saw was provided. It operated between the two dressing rails avoiding all the complicated spreaders we use in Australia.
Carcass that were required to be split with a cleaver not sawn, were split on the "fledgetree hoist, and finished on the dressing rails.
Carcass scales were provided close to the chiller door.
Manufacturing carcasses for Birds Eye were washed with a high-pressure hose. The tender loins and kidneys were removed.
Smithfield and local trade cattle were never wet. Some local carcasses and all Smithfield carcasses were dressed with a brine soaked "cheese cloth"
Hot water was provided by direct steam injection from a gas-fired boiler.



The description only deals with cattle processing. The smallstock area is shown, to show the deposal of none edible product and the source of water for washing down the floor space between carcasses. The same gang did eighty to one hundred pigs an hour.

FLOW CHART.

PURPOSE.

To index the activities within the operation that will affect the efficiency of the operation.

1. Live cattle from yards to restraining area.
2. Stunning; sticking (Bleed and remove the head).
3. Bed Dressing.
4. Eviscerating and general labour.
5. Saw and trim carcasses.
6. Process abdominal contents can be provided if required.

1. LIVESTOCK RESTING & DELIVERY TO THE KILL FLOOR.

FACILITIES.

Various pens and stables, generally beef cattle were kept in buildings, which were deep in manure covered with clean dry straw daily. Cows were tied in stalls, which was similar to their normal winter lifestyle. The cattle were kept warm and dry. They had access to feed but limited access to water. They were not starved and hungry gulping water to satisfy their hunger. We had very few if any problems with ingesta and contamination of the head and tongue. I don't remember ever seeing a burst paunch or contaminated head.

Our effluent went to the local authority hence we had to remove all the paunch manure. We had a more effective system of removing paunch manure from the drainage system than I have ever seen in Australia. I will describe the system to anyone interested

Cattle were moved easily, not skidding and skating about on a washed, wet, concrete floor made slippery with urine and excreta. We did not see a lot of bruises and the excessive damaged carcasses we see in Australia. Of course we were not trying to push a hundred an hour to one killing point. I had no knowledge of ph and meat technology in those days, but stressed carcasses leak blood droplets on their backs in the subcutaneous fat. They are also more difficult to skin.

The holding pen in the abattoir, lead into a narrow race, which held four or five head. The narrow race, leads into a Knocking / Stunning box which held one animal.

The box was closed with a vertically sliding door. One side of the box was a horizontally hinged door. The floor of the Knocking Box was flat and about 200mm above the dressing floor. This height difference was filled with a sloped concrete fill. I do not remember any repairs or maintenance to the knocking box, but the concrete floor where the cattle horns hit the floor when they rolled out of the box wore through to the reinforcing rods.

The operator worked from a platform along the side of the race and box. Steps from the dressing floor lead onto the work platform from the dressing floor.

COMMENT.

Generally Australian Cattle travel a long way and travel for a long time. There is an obsession about getting them off the truck and onto the scales so they don't loose weight. In the yards, cattle are hungry and are given the opportunity, as required by regulations, to satisfy their hunger by filling up on water. Water, mixes in an empty stomach with the residual food, and makes a soup that easily runs out of the animal at the point of slaughter. In Australia, the DPI used to condemn ten to fifteen percent of the heads and tongues for contamination. This works back to two or three dollars lost per head on the total kill. When working a marginal buying price I only used eighty percent of the head offal value.

In the yards there is lots of hustle and pressure to deliver cattle to the dressing floor to meet the high numbers required to meet the "tally" speed. This is cruel, causes distress and plenty of bruising. So our humane slaughter system is not so good as we claim.

Task, 1. Stockman.

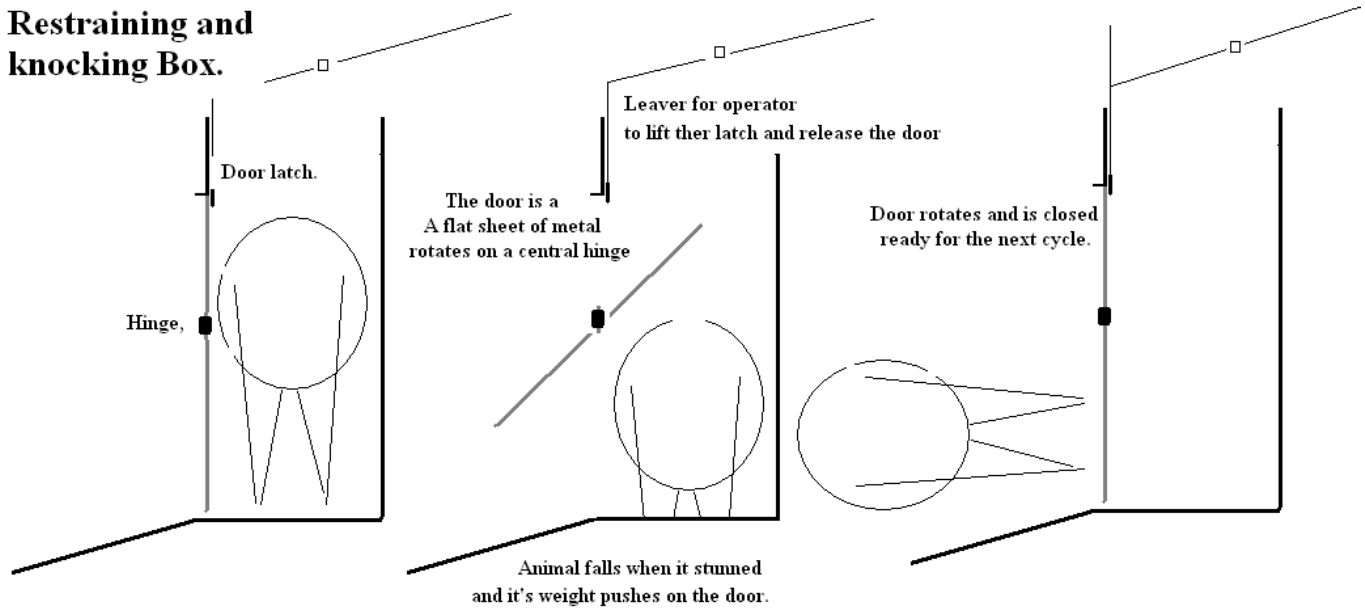
Deliver cattle to the holding pen and identified them to the Slaughterman.
Care for all stock in the holding yards.

2 STUN.

FACILITIES.

A captive bolt pistol and "pith cane" were provided to stun cattle and immobilise their forequarter to allow a safe working environment when cutting into the neck.

The animal leans on the horizontal door until the door is opened.



We used this system for more than ten years and in my time treaterd more than a quarter of a million cattle.

Our opening leaver was at tbe bottom of the door, but that will make the system more difficult to retro fit.

I cannot remember ever doing any maintenace on it, although we had a hole in the concrete where the horns hit the floor.

Most Australian boxes are much more complicated and not as reliable.

Task, 2. Slaughterman.

Ensure the landing area is clear and the Knocking Box horizontal hinged side is securely closed.

Load an animal into the knocking box and close the door behind it.

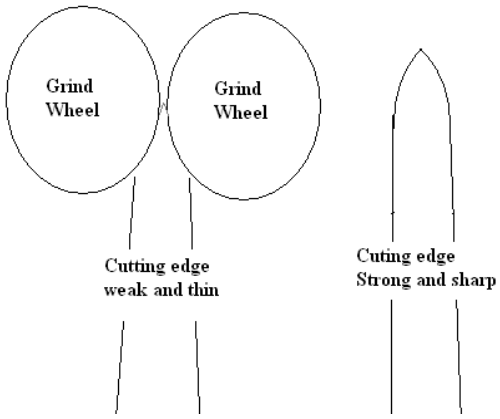
Attract the attention of the animal to look at the slaughterman and then shoot it in the centre of its forehead. The aspect of the head when it is stunned, will determine the side on which the animal will fall, we want the animal to fall with its back leaning on the horizontal door, so we want the animal to be looking at us when it is stunned.

Release the animal to the dressing floor.

COMMENT.

Knife sharpening

The Kosher killing box I saw was a million dollar job, which rotated the animal while it was enclosed in the box. The Rabbi who did the killing was as quick and sure. I was never one who took the micky when doing any work for him. He taught me much about knife sharpening and gave me a small piece of special slate to actually sharpen my own knives.



His explanation was to think of the knife steel blade as a wedge of cheese, if you grind the wedge with a hollow each side of the sharp edge the sharp edge will crumble and never stay sharp for long.

If you make the "lands" on each side of the sharp edge full and rounded, the sharp edge is likely to be sharper and stay sharp longer. He took the time to show me how to sharpen a knife.

First the cutting edge from tip to handle must be smooth and flat. The land that actually makes the cutting edge must be as short as possible keeping the maximum amount of steel as close as possible to the cutting edge.

The blade must be thick so it will not bend and flex.

The Sharpening Steel used to maintain the cutting edge must be as smooth as possible. The rabbi only used soft slate. My steel was smooth and cleaned up a couple of time a day with a fine emery cloth. The groves from the emery cloth were the abrasive aspect of the steel. The Barber used a leather strop

I picked the thickest knives I could lay my hands on. Stainless Steel never sharpens as good as the old Russel Green River skinning knives. The Stainless Steel blade will break off at the handle, or the tip break off. I have never saw an ordinary steel blade break.

The actual sharp edge is like a very fine saw blade.

All this becomes important later when I write about skinning or dressing cattle,

I have never seen the system, but I think it is now acceptable for the animal stand in the box and have its head lifted for its throat to be cut to satisfy kosher slaughter requirements. Most of the kosher animals killed in Australia are pre stunned; many are in Indonesia. Eventually they will pre stun all the animals because it is cheaper to stun them than wrestle them to the ground for the kosher butcher

Other Commets.

Personnel Safety.

A knife will cut you or someone else just as happily as it will cut meat.

The meat industry pays a horrendous price in workers compensation all charged back the producer. Accident is a missed used word. Injuries and mishaps happen in industry basically because of the employee's, at all levels, attitude to their work and time off at full pay. This is aggravated by a quangos of "safety officers" who have built an empire on blaming someone for everything, on the pretext of protecting workers. Mishaps do not happen if you concentrate on what you are doing and are aware of your own surrounding. All the safety officers cost and expense are charged back to the producer of the livestock.

Food safety.

We have a Quango of food safe officers making rules and regulations whom neither make the food any safer or the work place any safer. Their rules and regulations gave birth to the safety officer. Dressing cattle, one hand handled my tools and one hand handled the hide, my hands never touch the edible product.

The food safety regulator stopped us using a wooden handled knife, wood is the only material that don't slip about in your hand and you can chop it about to fit exactly in your hand. The end of the knife handle should fit in the palm of your hand, then your fingers can never slide down the blade. I never saw a cut inside any finger until I came to Australia and saw the folks using so called safety handles. I did see a man crippled for life because a stainless steel knife broke off at the handle. To compensate, and stop your fingers running up the blade they put a lump between the blade and the handle. There is no way this lump stops your hand slipping up the knife blade. BUT! it changes the technique you must use to work and causes more cuts to the other hand.

The safety officer jumps and compels the company to provide the employee with a mesh glove and the rubber and cotton gloves to make the steel glove comfortable. We also provide a steel apron, arm guards and tin hat. Again it's all charged back to the producer. My bet is you will find significantly more bacteria on this safety equipment than you ever found on a wooden cold steel knife.

Safe knife work.

Do it now, close your eyes and clap your hands. Where ever you try they will always come together. Having a sharp knife in one hand will not make any difference. Get a saw and a piece of wood. Mark a line on the wood, try to start the saw cutting the wood by the far end of the saw blade, you have no chance you will miss the mark or cut your hand. Now try again starting the cut nearest your hand, it's safer and more accurate. You start using a knife as close as possible to the other hand. I try to teach folks to get the knife there first then bring the other hand into play, but it is not natural. Now the quangos in their wisdom have a big lump on the knife handle that forces you to start cut half way up the blade.

Every cut should start with that part of the blade closes to the handle; that is not only safe working technique, it is also a productive technique. The hide is a fabric, if you pull on any part of the hide, the hide from the point of the pull will corrugate. Try it in bed or a table cloth. If you scape a knife towards these corrugations it will flay significantly more hide the length of your knife blade. The further way you start from the handle the less hide you will flay off the carcass.

My flaying knife was a seven inch green river knife cut back to about five inches, When I had enough hide off to hold and pull the knife took a cut about a foot wide. My seven inch knife took three blows between the back leg and the shoulder on one side and two on the other. When we tried with the knob on the handle, the area cleared with each cut dropped by a half.

Management in my time in amongst the Quangos.

No man can work for two masters. Regulators pushed QA, Accountant's put the QA put the costs in the supervisors cost centre, Hence we reduced supervision to compensate, after an awful lot of protest, but the school boys knew best.

Safety Officer wandered around giving advice to employees and went home where mummy cut up the meat for them on the dinner plate. Meat Inspectors gave advice and instructions; they supported the Union's views not the company or producer. Each read the book of rule and looked for areas where they could challenge their supervisors. A blue with any of them cost the company more in lost working time.

The unions rejected all efforts to improve technique because if we made their jobs easier we would claim a higher tally. In my early days, we said, they did or went home. As management became more educated, and the bosses came from university not the trade, the unions took more control of the system. I have graph over a long period, or did have, of the percentage of the kill achieved compared to the attendance of the senior works delegate. It is criminal, but the manager dare not challenge the delegate.

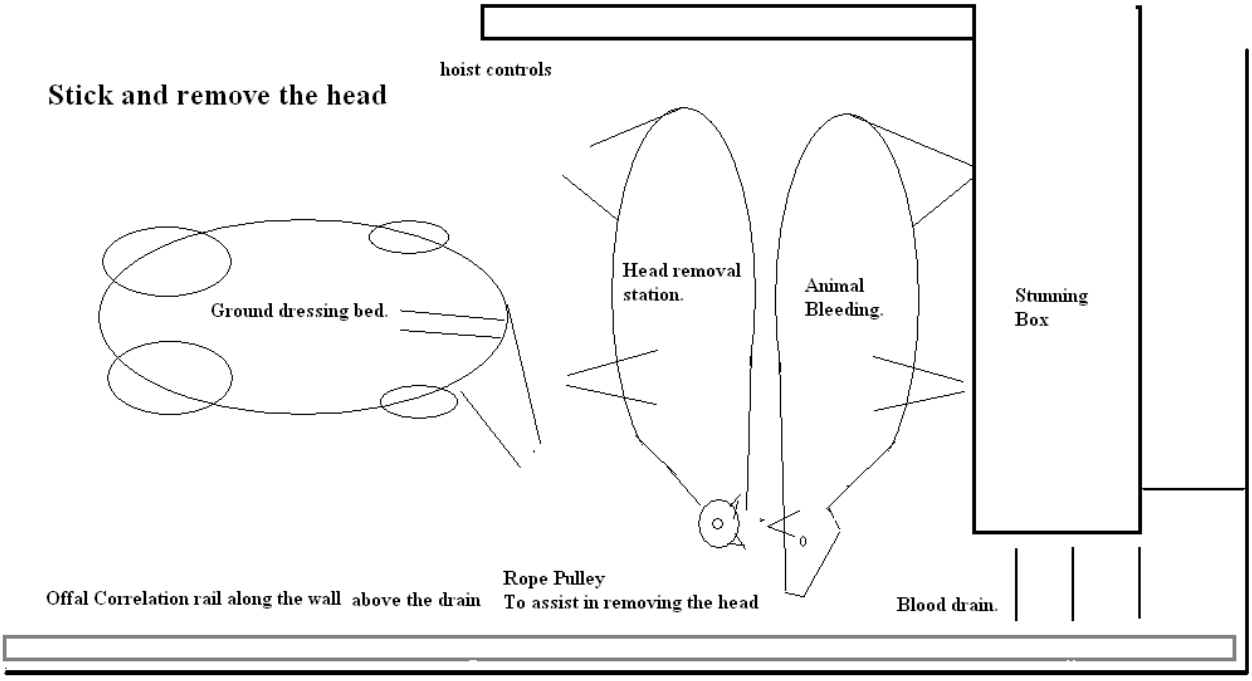
I have absolutely no doubt that most of the public sector work for a boss providing his union allows it. And I have absolutely no doubt an employee who make a lot of effort is pulled in to line by his union.

There is a place for QA as monitors, but they should not be allowed to comment to anyone except the senior supervisor.
There should be no such thing as a Safety Officer. I have idea on the compo situation.
Hassles over unfair dismissal are easily avoided if the supervisor and management diligently record misdemeanours.
As a boss I never gave an instruction to an employee I had allocated to a supervisor

Safety in food, and personnel is about good technique and interest.
No man can work for two masters

BLEED and REMOVE THE
FACILITIES.

The animal falls with its feet facing the knocking y



Task, 2. Slaughterman.
Sticking.

To ensure each animal is effectively stunned by touching its eyeball with a finger. If it reacts, the animal must be shot again. If it is not shot again the pith cane is unlikely to find its way into the spinal column to immobilise its forequarter.

Thread the pith cane through the hole made in the head by the captive bolt pistol. The animal's chin may need to be pushed towards its feet for the shot hole to align with the spinal column.

The pith cane must be pushed into the head for its full length of about one metre. Once the animal is pithed with the cane, its fore quarter is immobilised.

The slaughter man stands over the neck with one foot holding the front legs away from the neck and the other foot pushing the head away from its legs. The neck is stretched straight. *After any kosher killing this is still a task to be performed but can be done with the animal on its back.*

Sticking an animal is about dividing the neck into two even, equal sides. There are no veins, blood vessels or muscles that cross the neck. Open the hide along the central line, locate the windpipe "Trachea" and follow the windpipe to the point of the brisket. The major arteries are in the neck at the point of the sternum. The arteries can be seen. The heart is still beating and will still pump all the blood out of the carcass.

The animal now needs a minuet or so to bleed out and die.

Head removal.

Cut under the top lip, to make a handle to fit a hook attached to the pulley block. Hoist the head to a convenient working hight. Remove any horns with an axe. Skin off the face piece, that's the hide from the nose to the ears, taking the top eyelid from each eye. Open the hide from the sticking cut to the point of the chin. Fleece of the cheek hide off the head, Bad butchers hit the teeth and blunt their knives, good butchers have learnt to fleece off the hide not skin the head.

Remove the head at the atlas joint, free the tongue from the bottom jaw, and leave hanging. Cutting close to the inside of the jaw-bone is the opening cut for boning out the head. Head boning can be described if required, we boned the cold heads for a shilling each.

Rinse the head with loose cold water. Hang the head in sequence on the offal rail.

Comments.

It is unlikely that any hides produced in Australia are the correct shape. Leather is sold in square feet, the shape of the hide determines haw many square feet of leather a hide will produce. If you watch a sticker working on rail he will start his cut two or three inches from the side of the point of the brisket and cuts across the neck. A machine could be made to split the hide accurately through the floppy "dew lap". In our meat works "bad sticking", can be seen after the carcass saw as lean meat in the fat trimming trays. In the UK we had little or no neck trimming after the saw, our boss would have gone barmy.

GROUND'S MAN. Bed dressing.

FACILITIES.

A "pritch" or prop, which is an inch steel pipe, sealed at both ends. One end pointed to grip the concrete floor, one end pointed with a washer welded about an inch below the point to fit into the brisket when carcass position was changed.

The front foot or a house brick placed just behind the shoulder for the animal to lean on when it is laid on its back. *Bos-indicus cattle may need a fancy wooden block to take into account the Brahma hump.*

Skinning animals.

A hide is perfectly flat. It has no folds, lumps or wrinkles. An animal is allsorts of complicated shapes and sizes. Hence the only constant in the business is the hide. About eighty percent of the carcass can be scrapped off the hide. The other twenty percent is that where muscle is attached to the hide by the "cutaneous trunci" which the animal uses to shake the flies off.

Terms.

I will talk about a "fast side" and a "loose side". Standing facing a carcass hanging by both hind legs, only the uterus and tongue, is attached to both sides of the carcass. All other attachments are on your right hand side. The right hand side is the "fast side" your left hand side is the "loose side". Our god and their god made cattle for right-handed people to take to pieces.

(Comment) On the floor or on a cradle.

Bed dressing is permitted in Australia, but the animal must be laid in a cradle. Hence we need plenty of height in the building, a heavy structure to carry the animal's total weight and a big hoist to lift the animal. We need a lot of space and a major operation to position the animal on the cradle. When it is on the cradle it is in a fixed vertical position. This takes as long as it takes to actually skin the animal on the ground. It also cost thousands of unnecessary dollars.

A "Grounds Man" needs to be able to alter the position of the animal. An animal on a cradle is fixed and upright, at about "hip" high. At that height, we can only use our arms and toes to lift. We need power to flatten the hide so we can cut along the side of it or scrape the flesh off it. We need to be able to tilt the animal from side to side. To skin a "side" or drop a side, the hide needs to be screwed, and pulled hard enough to almost lift the animal off the floor. On the floor we can lift with our legs, on a cradle we can really only lift with out arms.

If an animal is on the floor on its back, we can tilt it to one side or the other. We stand on the "loose side", pull the animal onto its back, with a foot or brick under its shoulder and use its neck bent towards the loose side to help make the animal lay on its back. Hence the "fast side" is tight, under the hide, the carcass is bent in and arc, and tilted towards the Groundsman, the hide is loose. On our rail dressing system all the hide is tightly fixed to the carcass. Hence we have a million dollar facility to solve the problem.

(Comment) General knife work)

A least eighty percent hide can be scraped off the carcass. The only that part of the hide that is attached to the carcass is that over the "cutaneous trunci" which needs cutting off the carcass. This bit is called "siding", and it is the "gun" job in the system usually performed by the best butcher or leading hand. It is the pattern seen on the fresh carcass in the chillers. It's the "wow" factor.

Every cut made starts with a minor sawing motion; the knife starts like a saw. The blade starts at about a five-degree angle to the hide, the hide is pull as tight as possible towards the knife, as the knife starts to move the angle is gradually changed until it is close to ninety degrees to the hide and scrapping the flesh off it. The knife can be made to travel more than half the length of the carcass. The width of the cut should be about two inches wider than the knife blade is long. The skill is in pulling the hide flat and tight so the knife hand can work the knife on the hide.

No butcher should use any knife too long for him to use the full length of its blade. The first inch closest to the handle works for the boss, the rest works for you. Safety handles are not as efficient for actual working on the carcass because the safety lump stops the blade getting to the hide and the handles are to long for safe working. A knife handle should be short to sit in your hand so your little finger can get behind the end of the handle, then when you stab into anything the palm of your hand stops your hand running up the blade. Safety is about concentrating on what you are doing. In my life, if you cut yourself you paid yourself, the boss paid you to dress cattle, not to cut yourself. I never lost any time with a cut.

We need three knives to dress cattle.

A straight, six inches, boning knife we see in the Australian meat works. This is used to cut off leg joints and open the hide. A rough work knife.

A skinning knife. Mine was a well-worn, old Russel Green River cut back to about five inches long. The blade was almost straight and curved to the point. It did not have an actual point.

A siding knife, special, Green River Seven Inch. Very thick. Very sharp, could take newspaper print off a newspaper. This knife cut the hide off the sides leaving the red meat of the "cutaneous trunci" on the carcass and it's covering membrane on the hide. These cuts were the showmanship of the trade.

We had an aluminium knife pouch. Narrow: One space for the siding knife, and a space for the other two knives. Some had separate spaces for the two other knives. Mine did. The pouch and sharpening steel were slung low, so the tools were close to hand when we were bent down.

Carcass Condition.

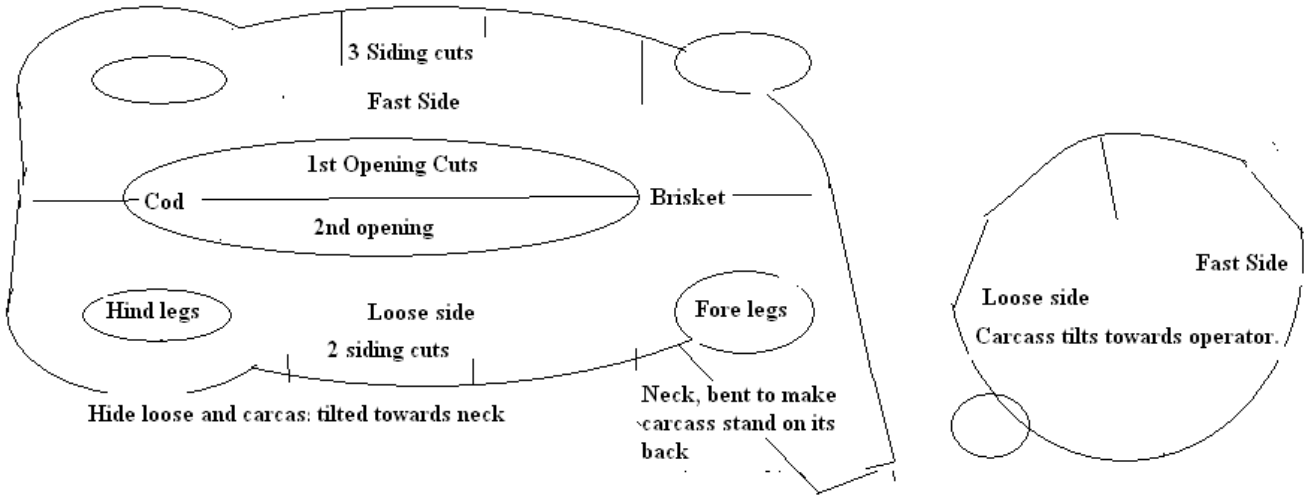
Cattle that are quite and "well slaughtered" are relaxed and "warm". The texture of the carcass under the hide is moist and soft. Cattle excited, distressed or electrically stimulated are stiff and feel cold to touch. The texture under the hide is sticky. These cattle are much harder to dress. (skin). The legs and body structure is stiff. In Australia we see many cattle with stiff legs at the first legging station because we stimulate as a "requirement". Stimulation is said to make meat tenderer because is speeds up the rigor process. Another few thousand dollars invested on the whim of the experts from school. In my view, any benefits that are gained from stimulation, is lost after twenty-four hours. We interfere wit edible meat production by not allowing nature to run its course, and we chill to hard to early which interferes with the chemical process of turning muscle into meat.

Bed dressing.

Skinning

Ground works starts by cutting the front feet off. One is used to prop the carcass under the shoulder and bent the neck towards it. We hinged the hind legs, and later used them to alter the position of the hide quarter. *Again it cost a few thousand dollars to take the back feet off in our systems. On the ground they fall off.*

Standing on the loose side, the hide is opened along the centre line from the sticking wound to the anus. The flesh on the brisket is cut down to the bone, loosening the hide at the side of the brisket and under the front legs. The abdominal cavity is opened a few inches to fill with air and loosen the abdominal walls.



Open the hide on the "fast" or topside of the carcass.

The operator stands on the "loose" side and reaches over the carcass to the "fast" side. The first skinning moves are to make a hand hold space on the hide on the fast side opposite side between the brisket and navel. The hide is pulled towards the operator, almost on the same contour as it sits on the animal. The hide is flayed or scrapped off to expose all the belly and flank and sufficient to throw the hide to hang off the carcass side. The belly and flank are skinned to expose the start of the cutaneous trunci.

Open the hide on the "loose" or bottom side of the carcass.

The second area is similar to the fist on the loose or closest side. Starting between the cod and navel, the hide is scrapped off to clear the flank and belly as far as the "cutaneous trunci". We did a minimum of work in these two areas, because we wanted to show off with massive cuts on the sides; all a bit of showmanship. The cod and inside of the flank has a membrane that covers the subcutaneous fat. Pride came from this membrane remaining intact. No subcutaneous fat was exposed in the flanks. The finished side had a skewer located below the cod to show off the smooth inside of the hind leg.

Springing udders were "kettled" to close up the texture of the udder. Boiling water was poured into the hole left after removing the teat.

Loose or bottom leg.

The loose leg was held by the operator's knees, the hide was opened by a spear cut made from the shank to the centre line hide opening. This spear cut is by the shortest route. The shorter the opening on the inside of all four legs determines the maximum area of hide and the smallest outside edge of the hide. Hence the maximum square feet of leather the hide can produce.

(Comment)

All hides are machine fleshed at some stage during processing. Fleshing takes off any membrane and fat from the hide, allowing the chemical treatment to be even over the whole hide. Badly fleshed hides make patchy leather and the value of the leather is reduced. A fleshing machine is thick pipe with a threaded axle. One end of the axle has a right hand thread and the other end a left hand thread. Hence when it rotates on a hide it stretches the hide away from the centre. The thread is sharp; square, cutting on a right angle which scrapes off all none hide tissue.

If the hide is not taken off square, the action of the fleshing machine chews up some of the body of the hide. Dressing chain systems in Australia demand a big area of hide is removed with the udders. If you watch a fleshing machine, it works perfectly across the

body of the hide, but when it gets passed the gap made by removing the udder, the remanning leg piece flaps about and is chopped up and wasted.

Meat works manager's value cattle on the potential saleable lean meat yield. Tanners do the same for saleable leather. With a firebrand and poor shape, Aussie hide are not a premium product.

The loose leg is held to allow the hide to be removed from the butt, then the knife turned and skins the outside of the leg, from a new position of the inside is carefully flayed and the a vee shape is pulled off the flank. There is no work over the patella. No other work is performed on the loose side until the animal is vertical and the neck straightened.

Fast or top leg.

The fast or top leg is treated differently; it is hinged and manipulated between the operator's knees. The inside of the leg is skinned with small cuts until the cod is exposed. The skinning continues over the "knuckle" and patella. Then skin along the outside of the leg to skin the shank. The foot is removed. We leave hide attached to the carcass as close as possible to the foot, later when skinning the back of the carcass, this attachment carries the weight of the hide and makes scraping it off the back easier.

Over the cod fat, inside leg and flank over the flank steak is a membrane that locks in all the fatty tissue, the hide can be pulled off to some extent leaving the inside of the hind quarter smooth. We used a skewer to wrap the flank inwards, which polished up the appearance. These are artisan skills and showmanship. We strived to leave a membrane to enclose the cod on cattle, skinned and left the nipples on lambs and leave the feathers on cooked game birds.

Siding. Fast side,

Skinning the side of the animal is the only part where the meat is actually cut off the skin. A large knife is used. The best is a seven-inch Russel Green River. Stainless steel break. During sharpening, the last movement on the steel is on the hide side, bending any loose metal away from the hide. Remember the cheese! The point or end of the blade is pushed away from the hide on the steel.

The siding knife is held horizontal. The hide is twisted and pulled to where it belongs on the carcass. The stronger the lift the greater the area of hide skinned and the safer the hide is from cuts and scores.

The cut starts with a sawing or forward movement and the knife is moved as though in a circle. There are only three cuts on the fast side to reach the front leg. The front leg is open by a cut from close to the brisket point to the foot. The shin is not totally skinned. The trunci pattern is exposed over the shoulder with forth siding cut, which then trails all the way to the butt skinning of a large portion of the back.

There is no work performed on any part of the neck. The neck will drag on the floor during hoisting.

A prop or "pritch" is placed close to the brisket behind the front leg and the animal tilted onto the pritch. The neck is pushed straighter.

Siding. Loose side.

The hide on the front leg is opened on the shortest possible route to the brisket. Enough of the front of the leg is skinned to allow a pocked to be made to expose the fancy pattern of the cutaneous trunci over the shoulder blade. We make a sort of pocket with a vertical side. This work is done with a your skinning knife.

The siding knife is held horizontal. The hide is bunched and pulled to where it belonged on the carcass. The cut starts with a sawing or forward movement, then pushed down vertically along the flat tight hide. There are two cuts to skin the whole side.

(Comment).

A close inspection of the hide where siding cuts have been made will show a thin membrane left on the hide. There are no noticeable marks on the hide. Inspection of the carcass will show the cuts made by the siding knife cuts into the cutaneous trunci. Bad workmanship leaves white lines to identifying the shape of the cuts on the side of the carcass; these white lines are hide tissue. They may not be cuts through hide but they are cuts through the "Croopon"

To make metallic tanned or soft leather, the hides are split into layers. The hair side / grain side, is the valuable side for shinny shoe leather and upholstery. This leather will stretch a little to fit round your feet. The inside layer is for packing layers, or sausage skins. Leather for shoe soles or harness is vegetable tanned and will not stretch.

The whole ground work issue took less than three minutes. We did a steady thirteen or fourteen head per hour, and more on good trade cattle.

Open the body cavity.

Brisket.

The sternum can be sawn, more often than not it probably is. We chopped the sternum bone with a cleaver. My boss called a saw a carpenter's tool. When cutting the brisket, the objective is to avoid damage to the cartilage at the belly end of the brisket bone "sternum". We need to leave that cartilage intact on the fast side to keep the stomach contents high inside the carcass until we have the barrow ready to collect it. Open the diaphragm on the loose side for a few inches.

Wind- pipe. "Trachea"

The neck never completely leaves the floor during evisceration. Hence the Trachea must be freed from any attachments in the neck. It is basically pulled from the neck.

Hitch Bone.

On the floor, most can be cut with a knife. There is a seam between the two (Gracilis) muscles that cover the Aitch Bone. No lean meat need be shown. If you see no lean meat you will find the exact centre of the joint within the Aitchbone. A knife will cut along this seam. If the aitch-bone can't be cut on the floor; it is cut on the hoist. Tapped with a cleaver from both ends will make this bone break on the oldest of cattle. The first tap us from the tail end.

Comment.

In Australia we have monster carcass saws to reach through and cut the aitch-bone. We only need a saw half as big to cut the spinal process.

Abdominal Fats.

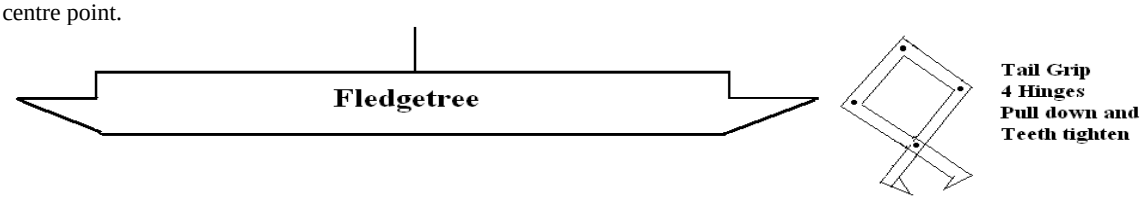
A flat sheet of fat connects between the abomasum and rumen. This sheet of fat holds the small intestine in place. When removed, the intestines and tripe will not come out tangled. This fat was used for edible purposes hence it was remover before there was any chance of contamination. It is taken out as soon as the abdominal cavity is opened and hung up to cool and set. This fat was ground and used as suet in the same manner as the fat from around the kidneys.

HOIST WORK. Tails and evisceration.

FACILITIES.

An electric hoist, used to be hand winch job. The hoist is in a fixed position above and between the dressing rails. The controls were chain pull with a little weight to hang on the chains so the hoist could travel without a man's attention. It was set to lower when we had finished skinning the animal on the ground. The winch was not a fast hoist.

The "fledgetree" was a flat steel bar 4 x 1 inch and about three foot six long. The ends were cut to fit into the space between the Acheilus tendon and shank bone. Where we put the skid hooks to hang the carcass on the dressing rail. The fledgetree was attached to the hoist at its centre point.



On the hoist wire to the fledgetree, was a tail grip contraption. This would grip the tail tip and tighten on the tail as any pressure was applied to the tail hide.

Primary hoist.

One end of the fledgetree was stuck into the Loose back leg, and tree pushed to have the other end located in the Fast leg. When the hoist starts to move the carcass the "pritch" was kicked out and the animal falls over onto the fast side. The exposed side on the animal falls onto the hide; the neck was not skinned at all. There was no contamination of the carcass on the floor.

Skin Butt and tail.

As the carcass was lifted it reached a position where worked could be performed on the butt. The Aussie term is "pocket silversides". Again hide over the silver side is almost be scraped off. It gets more difficult as you get near to the tail. The "butt fat" on the tail is removed by very tiny small cuts for a few inches to leave the lump of fat on the tail. There is some left hand work in this part of the operation.

Skin the tail.

Cut round the anus and drop it back between the aitchbone into the body cavity. The carcass and tail is still at only waist high, so the hide between the anus and tail can be removed, lifted and pulled back against a knife that will run all the way to the tail tip on one motion. Dig the very tip of the tail from the tail twitch. Hook the tip of the tail in the tail grip and pull the hide off the first six or eight inches of the tail. Relocate the tail grip down the body of the tail and pull the hide completely off the tail. We pulled it so far then dropped your knee on the hide to pull it a few inches down the back and rump. The tails were not contaminated, the hair was not cut; in fact the method was really two spear cuts to open the tail.

Remove the tail.

The tail is removed from the tail grip and held vertical. In a vertical position the bone segments of the tail are spaced for a knife to cut through between the spaces. On our cattle the tail was removed and hung with the offal, on other peoples cattle it was left attached to the fast side of the carcass, and eventually lay in the Aitchbone cavity.

Back off.

The carcass was hoisted the hang vertically, still touching the floor. The hide was pulled down off the loose leg. A belt with the elbow freed the hide onto the edge of the remaining contentious trunci. You may see one man hold the hide and the other chop it with the back of an axe.

The hide is again scrapped off the back with the knife almost at a right angle to the hide. More care is required over the bottom of the rump and top of the sirloin. The secret is leaving the hide high on the fast leg so you don't have it fall down, if it falls you have to lift and carry all the weight of the hide.

Most of the fast side is skinned from the loose side. All right handed work. The hide is removed across the loin to the fast side. The last job is to pull the hide down off the fast leg. The hide is not removed too much below the third or longest spinal process. The higher the hide is left the less weight there is to lift when skinning the necks.

Evisceration.

The carcass is lifted high enough to fit a flat barrow under the brisket. The small intestine will spill out of the carcass. The omasum needs pulling out and over the brisket point. The anus gut can be pulled, the rumen pulled into the barrow. A knife is required to cut some attachments to the liver/gall bag and cut through the weasand. The barrow boy holds the whole lot in the barrow with his fingers in the hole made to cut the weasand off. I never saw ingesta spilt on a carcass before I came to Australia. The carcass is hoisted higher and the barrow taken from under it. The abdominal contents were taken to gut room.

Rumen	In the UK used as Tripe, plenty sold into the hospital system..
Reticulum	Tripe more expensive tripe..
Omasum	Bible opens in pages, I imagine it is a delicacy. In the UK a lot went to the rose growers.
Abomasum	Never seen it process, but makes very thin sheets of tissue that may be wrappers for other products,
Small Intestine,	Sausage skins
Large intestine.	Makes thicker sausage skins and maybe some edible "chick-lings".
Gall.	Concentrated for news print, or used as a fat removing detergent.

Comment

Most parts of the abdominal offal are edible. Correct opening procedures keeps the various fats clean and edible. I suspect all the parts are used Indonesia. I was told there were no rendering facilities in Indonesia hence they must use most of the animal as an edible product.

If a description of all offal processing is required it can be provided.

SPLITTING. Skin neck and split the carcass.

FACILITIES.

Twin rails run overhead form the steps behind the knocking box to the chillers. The rails are maybe three feet six inches apart. The hoist and carcass saw is located between the rails. The hoist lifts the carcass so each leg can be attached to the dressing rail.

Leg hook. Was a stainless steel hook, about nine inches long with one round end and one square end, the round end fitted into the shin and the square end went into the brisket to lift the shin horizontal.

A small set of steps was available to stand on and the start the saw-cut. These steps were kicked about to where they were required.

The carcass saw was on old back and forward saw, the saw blade was sharpened each night. There are plenty in use in Australia. (the small "buster band saw" if a far superior machine for the job)

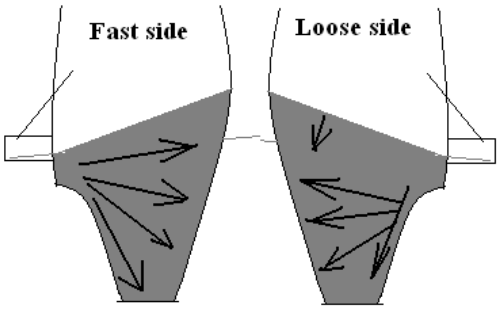
A high-pressure hose was used for manufacturing carcass, domestic and Smithfield cattle were never wet. A brine tank and cotton shrouds were provided for Smithfield carcasses.

Smithfield carcasses were split with a cleaver, not sawn with an electric saw. The difference was about two pence a pound when the carcass was worth two shilling a pound.

Brine tank and cheese cloth.

Skin Necks

The hide is in situ from about the longest spinal process bone to the tip of the front legs, again to leave the attachments to carry most of the hide weight. No part of the neck has been skinned. No part of the carcass has been contaminated.



Fast side.

With a leg hook, lift the fast leg until it is almost horizontal. This creates a triangle of hide between the shin end, longest chine bone and neck end. Undo the tangle of hide inside the leg at the point of the brisket. The hide is removed by horizontal cuts from the leg to the chine. This hide is scrapped off with the knife almost at right angle to the hide. They are very easy cuts. The final cut is to remove the hide along the sticking wound. As with all hide removal the secret is pulling the hide tight and flat, in this area the hide is pulled upwards.

Loose side

The leg hook is used in the same manner as on the fast side forming a triangle. Skinning this side of the neck starts with cutting along side of the sticking wound and pulling down on the hide. The secret is to start and cut as close to horizontal as possible, pulling the hide down.

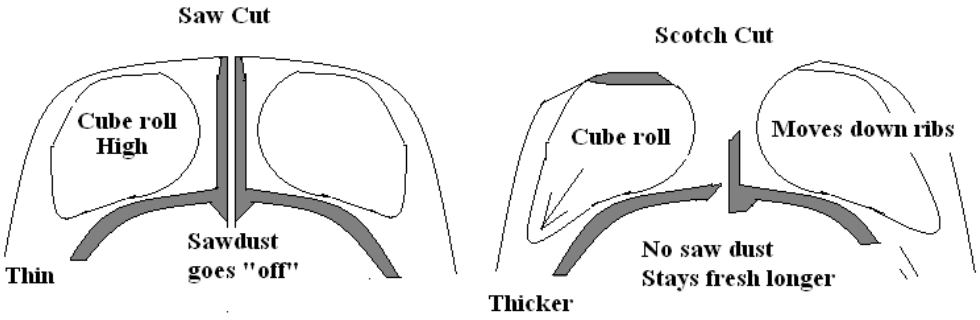
Back of.

The hide is wrinkled and heavy, attached to the carcass in a strip close to six inches wide. The only way to skin this area is by cutting on the fold and allowing the hide to fall away. This is the most likely area of the hide to get cut and scored.

Splitting the carcass into two sides.

Cleaver,

It is unlikely that many carcasses are now split with a cleaver. *(But maybe lots are in Indonesia).* My boss called a saw a carpenter's tool. We used to see High Class butchers shops in the district. Our shops were high class and we had no meat to sell until it had been in our chiller for three weeks. Chopped carcasses stayed bright and cheerful for the three weeks. Sawn carcasses went black in the sawn areas. Brains and brain tissue deteriorates faster than any other part of an animal. The saw spreads spinal cord tissue across the sawn surface. Anybody interested in the subject of splitting with a cleaver may contact me. The best I did was 220 head before lunch.



Carcass saw.

We used an ordinary back and forward saw, hand sharpened. It was a course cut saw and nothing special. Modern Band saws are special but blades cost more than we could expect the Indonesian industry to pay.

Trimming sides.

We left all fats and the kidneys in the carcass. The arteries under both kidneys were opened longitudinally to form a drain for any blood seeping out of the hindquarter.

Trimming sides. (cont)

The artery in the neck from the brisket point to the head was opened longitudinally to form a drain from under the shoulder. Opening this artery had the effect of taking the fold out of the neck. In Australia we see big slabs of meat in the trim trays and lots of blood clots in the neck meat on the chuck boning tables. There is no trimming of the neck required in carcasses that have been stuck correctly and there are no blood clots.

Brine Shrouding.

Ordinary cotton "butchers" stockinet bags was used. These were unravelled and counted out into a dustbin of high brine solution. The wet stockinet was wrapped around the side of beef from the neck up and tied round the hind shank.

We used wooden skewers to screw the stockinet tight onto the carcass. It had the effect of bleaching to some degree, and making the fat on the back almost resemble skinned pork fat.

(comment)

Some years ago we put chilled beef carcasses into a shop in PNG, the customer took a load every three weeks, so there is a possibility of putting chilled carcasses and all the bits and pieces the Indonesian wet beef market uses into containers.

Chilling.

We had a wet sorting room prior to the chillers. Different climate I know. But on cold days the carcasses warmed the room. Product destined for the London Smithfield trade were never refrigerated. The same thing happens to cold meat as happens to a cold stubby from the fridge. Moisture condenses on the bottle and wets it; moisture condenses on the meat in exactly the same manner. All bacteria need moisture, and don't like brine.

(comment)

In my view, Australia chills meat too quickly and too cold for muscle to naturally turn into good meat. Perhaps we've all have had a rib eye fillet in a restaurant that as been too tough to eat on the outside edge.

Jeffrey Allen.
20 Christison Street.
Bowen 4805

Ex The Fatstock Marketing Corporation UK.
Periodically demonstrated for the Hide and Allied Trades Society in various abattoirs..
Ex Thomas Borthwicks and Sons Australia /

Gulf Cattle Association. Att. Mr Hughes.

Sir.

My interest is in finding a way to make cattle processing in the north a viable operation. When an exporter or local wholesaler enters a sale yard or bids for your cattle, he bids on the strength of a marginal buying price. You, the producer, pay's all the cost of the building, processing and inspection charges incurred by the processor.

It is my view that the livestock producers should take more interest in processing your own cattle. The above description of processing cattle in the UK was processing for showmanship. The carcasses were on display to the public in shop windows in the early part of each week and the butcher needed his product to look special. In the north the customer never sees the carcass; hence the workmanship need not be so special. It needs little skill to scrape the hide off a carcass. If we allow the operators to break through the cutaneous trunci and scrape the hide off the sides we could produce carcasses quite cheaply. The skill required to "drop the side" is unnecessary if the carcass is going directly to a hot boning room.

Again my view is that the northern producers need a process to treat old cows and rubbish that is uneconomical to send off to a coastal meat works. Providing the project is restricted to old and micky bulls a system can be established that is significantly cheaper to operate and cheaper to build than the $92,000,000.00 they have just spent in Darwin. The interest payments alone will cost more than thirty dollars a head if they actually achieve the numbers they budget for.

I have seen the operation that was in Cloncurry, Cloncurry was mentioned in a news paper article that talked of assistance to the livestock producers from the banks a few weeks ago. I have used this location in my thinking because it is close to the rail line to the coast.

I have a proposal the produce corned beef from bush cattle with the "Aboriginal Affairs" department, this proposal is basically to set up work that totally unskilled labour could perform. The kill would be about ten per day, mainly to find work in the bush.

I have a proposal the send whole dead cattle to Indonesia in containers because the country markets in Indonesia use the whole animal hence they want it alive. This project is currently with AMLC who look for problems more than solutions. The live exporters "feed lot" all the cattle for Indonesia and this could be the site for this type of operation.

I was involved in establishing an operation in Tenant Creek, This operation was badly designed .by Meat Eng who had little or no idea about a balanced production line. We had a four hundred head kill floor, a two hundred head boning room and a one hundred head freezer all approved by AQIS. We sorted most of these problems. The operation became further complicated when the cattle were too good and the company wanted all the fancy products. The operation printed money on bad cattle and went broke trying to process good ones.

Hence my proposal is to find a market for cattle that are uneconomical to send to the coast.

My proposal is to start and produce one container of CFH per day plus shins and skirts to Taiwan, tenderloins to the domestic market and any reasonable Cube Rolls for the domestic market. All would be frozen. I am not sure if any offal would be worth recovering except the cheeks and tongues, I propose that rendering system would be wet rendering, with would be much cheaper to set up than a dry rendering plant. I would send all the tallow we produce to the boiler and turn the residue of the cook to "blood and bone meal" which is probably much more profitable than meat meal. Dry rendering is preferred in the industry because the effluent is more difficult to treat. In a small operation this can be manageable,

The basis of the viability is:-
Cows dressed average 190kg. Yield boneless 67%

Products recovered.

USA	CFH.	58.77%	@ $-----	We will require about 160 head to fill one container of eighteen tonne
	Flank Steak	0.38%	@ $-----	
Taiwan	Shin/shank	4.5%	@ $-----	The rest would go to one container, be sorted and assembled in Tvl
	Thick thin Skirt	3%	@ $-----	
	Chuck tender	1.2%	@ $-----	
Domestic	Tenderloin	1.35%	@ $-----	

Cheek Meat.
Tongues.

I have drawing of a kill floor similar to Swanwick. I do not like dressing cattle on a cradle but the regulations will be easier to comply with, if we go a cradle system. The higher the animal off the floor the less pull you put on the hide, and the carcass cannot be tilted and bent to where you want it. Dressing on a cradle is no cleaner than dressing on the floor. My object is to have as few mechanical aids as possible and use a small contract teams along two processing lines to treat 60 head plus per day.

Attached is an operational detail and the drawing of a plant layout and some other related information.

No interest shown