

to be removed with the horn itself when dehorning is carried out. In animals at birth and until they are 3 months old the horn is only a bud with a solid core and does not communicate with the frontal sinuses. The ideal time to remove the horn-producing tissue is when animals are from 7 to 10 days old; little pain is inflicted, there is no infection of sinuses and pus formation, and no ugly high poll is left as in dehorned adults.

**Young Animals**

The methods used for animals a few days old are:—

1. The cautery or hot iron, which may be electrically heated or heated in a fire.
2. Chemicals, usually caustics.
3. Mechanical methods such as a gouge or curved knife.

**The cautery or debudding iron** is ideal. It consists of an electrically heated copper instrument of the shape shown in the diagram on this page or a fire-heated iron of the same shape. The iron should be heated to a cherry red and applied over the horn bud and moved back and forth until a copper-coloured ring of tissue shows right round the horn bud. This destroys the circulation to the developing horn and the bud eventually drops off. There is no wound, no infection, a poll of pleasing appearance, and, most essential, no horn growth.

**Chemicals:** Caustic soda or caustic potash are chemicals commonly used for destroying horn buds. A ring of petroleum jelly is smeared on the hair round the horn bud and the caustic stick applied to the bud until it bleeds slightly. Calves must be protected from rain for some days, as rain will carry the caustic down the cheeks or into the eyes, causing irritation and sometimes blindness.

Another chemical used is a flexible paint made of antimony trichloride (28 per cent.), salicylic acid (7 per cent.), and flexible collodion (65 per cent.). The hair round the bud is clipped, the horn bud cleaned with methylated spirit, and the paint brushed on and allowed to harden. If the paint is used on an animal more than a week old, the tip of the horn bud should be cut off before the paint is applied.



String tourniquet round poll of cow.

**Mechanical methods** are seldom employed in New Zealand. They involve the use of a curved knife or a double, cup-shaped pincer arrangement for removing the horn bud complete with a ring of hair. This method is painful and often unsatisfactory and leaves a wound which may become infected.

**Adult Cattle**

Dehorning in adult cattle can be carried out with a guillotine designed for the purpose, a saw, a flexible wire with handles, or rubber rings.

Of the various methods the properly designed guillotine, which is massive and strong and has a ratchet or multiple joint designed to aid the operator, is best if a large number of adult cattle require to be dehorned simultaneously. The horn can be removed cleanly and quickly, but great care



Head of debudding iron.

must be taken to prevent injury to the bones of the skull adjoining the base of the horn through applying weight and leverage on the heavy guillotine and through the struggling of the animal. Use of a local anaesthetic greatly lessens the pain of the operation and therefore reduces risk of injury through resistance of the animal. Sawing is done with a butcher's saw with coarse teeth, such as is used for cutting bone, but is slower and the animal may become unruly if not properly anaesthetised. An electric rotary saw has been designed for dehorning and has been used to some extent. It is quicker than the hand saw, but slower than the guillotine. The flexible wire method was used principally to avoid bleeding, but requires practice and is too slow. Rubber rings are unsatisfactory for dehorning, though some farmers claim excellent removals. They may slip up the horn itself with little or no effect. Their action is slow and must cause some continued pain to the animal. Such prolonged discomfort will lower milk yield for some time following the application of the rings. Variation in the diameter of the horns to be removed results in variable pressures from the rings and results are therefore uncertain.

Whatever method is used it is essential that the horn and a ring of hair be removed quickly and cleanly, that bleeding be prevented as much as possible, and that adequate restraint



Dehorning bail.

is available. A local or general anaesthetic prevents pain and reduces greatly risk of interference with production. Blood is often sprayed over a wide area when horns are removed, but bleeding is seldom dangerous and usually stops spontaneously. It can be prevented best by applying a tourniquet of strong string such as binder twine round the poll and both horns with two connecting strings to tighten up from front to rear over the poll between the horns. The tourniquet must be cut and removed after a few hours. Tourniquets are commonly used for dairy cattle, but not for run stock, which are more difficult to yard and bail up in a race or dehorning pen. With run cattle applications of a thin layer of cottonwool carrying a dusting of sulphanilamide powder should be made to the area from which horns are removed. This will clot the bleeding vessels in a short time and only in exceptional circumstances should further attention be necessary. Alternatively an animal could be restrained in a bail, a tourniquet applied as for dairy cattle, and the beast kept in the yards for an hour or two and released after removal of the cord.

Dehorning bails, either temporary or permanent, are best for restraining animals. They are designed for handling animals about the head while they are held firmly. Every farm carrying cattle should be equipped with a dehorning bail, which is useful for a number of operations other than dehorning.

General or local anaesthesia is used commonly by veterinary surgeons when dehorning adult animals. In Great Britain it is illegal to dehorn cattle over 1 month old without administering an anaesthetic. Local anaesthesia by blocking the appropriate nerve with a suitable injection is very effective and is used frequently.

Consideration should be given by all farmers, particularly cattle breeders, to the desirability of breeding polled cattle for all purposes. Meantime debudding of calves in the first 14 days of their life is the best method of dealing with horned cattle. However, where adults must be dehorned use of a guillotine, a local anaesthetic, and a tourniquet is the ideal method.