

Veterinary Department.

Digestive Organs of the Ox.

In the ox and most other ruminants whose food consists principally of leaves and plants, the stomachs are very complicated, and consist of a true digestive stomach, preceded by three dilatations, all the four distinct receptacles being regarded as stomachs. The first is called the rumen or paunch, and is a very large compartment, situated towards the left side, and, when full, this organ occupies about three-fourths of the whole abdominal cavity. It is the receptacle for the un-masticated food, which is returned to the mouth and re-masticated. The interior of the rumen is divided by fleshy pillars into numerous sacs, and presents a number of eminences that are termed papillae. When this organ becomes distended with gas or gorged with food, it is plainly seen rising above the level of the spine.

The second stomach is the smallest of the four, and is called the reticulum, so named from the peculiar net-like character of its lining membrane, which is drawn into numerous folds, arranged so as to form hexagonal cells. The outer or muscular coat is very powerful, and its fibres are so formed as to allow of very energetic contraction. There are two openings into this compartment, one from a canal called the oesophagean canal, and the other is in communication with the rumen.

The third compartment is situated towards the right side, is somewhat ovoid in form, and is called the omasum. It also receives the name of manifold, from the peculiar arrangement of its inner coat. The interior shows a number of folds which resemble the leaves of a book. These folds are of three sizes, and in number about one hundred. The free edges are turned downwards, and they show a number of hooked papillae, which appear of great use in acting upon the coarser portions of food, which is moistened by the secretion from these leaves.

The organ in which the true process of digestion takes place, and where the gastric juice is secreted, is called the abomasum. In it the food, after being prepared in its course through the other compartments, is changed into the elements of nutrition. In the calf, this fourth stomach is very capacious, and, when dried, forms what is familiarly known as the rennet, which is used largely by dairy-men to coagulate milk in the manufacture of cheese. The food is conveyed into the true digestive stomach by means of a canal commencing at the termination of the oesophagus, and it has been termed the oesophagean canal. From the peculiar arrangements of the various organs, the process of rumination is exceedingly complicated.

When the food is first taken into the mouth it is masticated slightly and swal-

lowed, and passes directly into the rumen; pellet after pellet is swallowed until repletion of the paunch is produced, where it remains for some time, and is being continually thrown about by the action of the muscular bands, and becomes thoroughly macerated. After rumination commences, the food is forced up the gullet into the mouth, where it is re-masticated and well mixed with the saliva. When re-swallowed, the greater portion passes through the second and third into the fourth compartment, where it is acted upon by the gastric juice and converted into chyme.

Injuries and Diseases of the Digestive Organs of the Ox.

The tongue and mucous membrane lining the mouth occasionally become inflamed either from direct injury to the part, or from the eating of poisonous herbs or grasses common to some lands. The symptoms of this affection are a loss of power in the process of prehension, and a continual flow of saliva from the mouth; the food is quitted and thrown out; the tongue is swollen and very tender, and the animal soon loses flesh.

The above symptoms are best relieved by gently scarifying the surface of the tongue and gargling the mouth with a mild astringent, as alum water; and in some cases a mild dose of laxative medicine has a beneficial effect. Plenty of liquids should be given, and the diet confined to food that requires but little mastication. Sometimes foreign substances become lodged in the angle of the jaw, and give rise to symptoms similar to the above. Therefore, in all cases, a careful examination of the mouth is necessary.

The mouth occasionally presents a sore and ulcerated state, arising from the formation of small vesicles, the result of a deranged condition of the digestive organs proceeding from various causes. This disease is called aphtha, or thrush, and although bearing some resemblance to epizootic aphtha (or "foot and mouth disease") it is entirely different in its nature, and not of a contagious character.

The prominent symptoms are a great discharge of saliva from the mouth, the tongue and lining membrane are reddened and increased in temperature; small pustules appear on the inside of the lips and cheeks. These eruptions soon break and discharge matter, giving the mouth an ulcerated appearance. In some cases there is considerable swelling, causing the lips to be everted.

In the treatment of aphtha a gentle aperient should be given, such as four ounces of Epsom salts dissolved in a quart of water; the mouth should be gargled with alum water or some other mild astringent. In severe cases it is necessary to touch the ulcers with a mild caustic. To correct the disordered digestion, the bicarbonate of potash may be given daily in doses of one drachm.

Obstruction of the gullet, or choking, is very common in cattle, and may occur in

first effort of swallowing, or from the regurgitation of the food during rumination. The offending agent is very often a piece of turnip or potato, or even hay or straw, and the obstruction is oftener situated in the cervical than the thoracic portion of the oesophagus. The symptoms are coughing more or less, and the head and neck are protruded; there is spasmodic action of the muscles of the larynx and pharynx, and dribbling of saliva from the mouth. Accompanying the above symptoms, in many cases there is swelling of the left flank, arising from the tympanitic condition of the rumen, and causing great difficulty in breathing.

In cases of choking, a careful examination should be made by the hand of the whole extent of the gullet from the throat to the chest; and when the situation of the obstructing body can be detected from the outside, gentle manipulation with the hand may remove it. A small dose of oil also tends to lubricate the parts, and the patient in his effort to swallow will sometimes dislodge the obstruction.

When these measures fail recourse must be had to the probang, which must be cautiously introduced into the mouth and passed down the gullet until it reaches the obstructing substance, when equal and gently increasing pressure should be made, which in most cases will give instant relief. When the rumen is greatly distended, it is sometimes found advisable to puncture that organ with the trochar and canula before passing the probang.

Infertility Amongst Cows.

Domestication, according to some authorities, is said to impair fertility, but this is a mistake. Cultivated plants are many times more prolific than their corresponding wild varieties. The hen of the wild "Gallus Bankiva," from which our many and diverse breeds of poultry spring, lays but from six to ten eggs. So small a layer is unknown amongst any of the domestic sorts. The tame goose lays from thirteen to eighteen eggs, or double the number of the wild goose, and besides, often lays a second time. Wild rabbits and sows neither breed so early, nor have so many young at a birth, as the tame varieties. In a natural state sheep have seldom more than one lamb at a birth. Amongst the wild American herds the heifers seldom have calves before they are three years old. In the West Highlands and Islands the little starved wild cattle scarcely ever calve until they are four years old. Shorthorn heifers in this country, on the other hand, often enough drop their first calf when they are little over two years old, and occasionally go on breeding a calf every year until they are fifteen or sixteen. I have had a vigorous Shorthorn matron present me with a live calf when in her nineteenth year. Domestication, of course, acts injuriously in reproduction when