Cattle Injuries
Caused by Ingesting
Foreign Objects

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DON'T LEAVE your watch where the cow can get it; she may think it is an appetizer. Cattle manage to swallow an amazing number of things that cause serious trouble with their insides.

FOR SOME UNKNOWN REASON, cattle have a tendency to chew and swallow foreign objects. Among those which have been found in their stomachs are pieces of baling wire and barbed wire, bristles from wire brushes, hairpins, hatpins, knitting needles, pocketknives, different kinds of nails including horseshoe and roofing nails, staples, and scraps of various kinds of metals with sharp ends or cutting edges (fig. 1). Besides such objects as these, which are capable of causing considerable damage, other things which probably cause little injury have also been found in bovine stomachs, such as coins, metal tags and badges, watch chains, parts of watches, keys and key chains, buttons, beads, rings, charms, and necklaces.

On reaching the first stomach or rumen—more commonly called the paunch—an occasional foreign body may pierce the stomach wall. In most cases, however, the object passes on to the second stomach, or reticulum, from which it may penetrate the surrounding or related tissues (fig. 2).

After penetrating the wall of the reticulum, a pointed object may go in one of several directions. In rare cases such an object has been known to work its way through to the external surface of the body. Occasionally it passes toward the liver, causing injury to that organ. The most frequent direction, however, is forward, toward the heart. This is thought to be due in part to the breathing and chest action,
FIGURE 1.—Metal objects recovered from the stomachs of cattle, including pieces of wire, various kinds of nails, staples, a key ring, a bleeding needle, metal tags, and other miscellaneous articles.

FIGURE 2.—A portion of a cow’s diaphragm which has been penetrated by a piece of wire.
together with the muscular contractions of the reticulum. The reticulum lies in close proximity to the pericardium, or heart sac, from which it is separated only by the thin diaphragm. After passing through the wall of the reticulum and the diaphragm, the sharp object continues to be forced forward, piercing the heart sac, and may eventually reach and cause injury to the heart itself (fig. 3). In fact, foreign objects in some instances may even invade the heart cavities.

The condition resulting from penetration of the tissues of the heart region by foreign objects is called traumatic pericarditis, which means injury resulting in extreme inflammatory changes in the pericardium, or heart sac, and related tissues. Such injuries lead to a train of symptoms and complications which in most cases are extremely serious.

Figure 3.—The heart from a cow with traumatic pericarditis. Note the piece of wire embedded in the heart wall and also the roughened and thickened condition of the myocardium (the muscular part of the wall of the heart) resulting from the chronic inflammatory changes.
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SYMPTOMS

Symptoms are not always readily apparent, as is indicated by the fact that of the cattle condemned on account of pericarditis under Federal meat inspection, fewer than 10 percent of the live animals shows evidences of the condition, which becomes apparent only on post mortem inspection.

When recognized the symptoms may vary somewhat, depending on the location and extent of the injury resulting from the presence of the foreign object. At first there may be only some evidence of digestive disturbance. In some cases there may be tympanites, or distention of the rumen, eructations of gas, and indications of colicky pains. The animal may show an anxious expression, avoid motion, and keep the back arched. Pain may be evidenced by grunting on sudden motion. The head is stretched forward, elbows spread outward, and hind feet drawn under the abdomen. The pulse is rapid and the breathing short, difficult, and abdominal in character. There is loss of appetite and little tendency to rumination. In the more advanced cases there are marked frictional heart sounds which may be heard at a distance of several yards and which afford a valuable diagnostic symptom. Frequently there is also a certain amount of liquid around the heart, and in these cases a gurgling or splashing sound is heard in addition to the frictional sound. The presence of large amounts of fluid may cause a venous distention, noticeable in the jugular veins, which stand out like cords on the neck and in which wavelike motions may be seen following the heartbeats.

In the later stages, edematous (dropsical) swellings develop on the chest, dewlap, and anterior (front) abdominal region. There may be some rise of temperature. As the symptoms increase, respiration becomes more labored, and complications such as pneumonia may occur. Diarrhea is in evidence in some animals. A general loss of condition and emaciation occur. The disease may run a course of several weeks to several months after the first symptoms are observed, but cases of spontaneous recovery are rare. Death may result from direct injury to the heart by the foreign object or from complications resulting from infections.

TREATMENT

In certain cases, surgical intervention has given very good results and has brought about some spectacular recoveries. The success of surgical treatment depends on the skill of the operator and the proper selection of cases. Some experienced veterinarians have achieved considerable success in diagnosing and selecting suitable cases for removal of the offending foreign body by an operation. Obviously, advanced cases or those in which there is a fever or other evidence of marked poisoning of the system should not be chosen.

Medicinal treatment is of little or no value, and when a radical operation cannot be undertaken, it is most economical to slaughter the affected animal as soon as possible after a diagnosis has been made.
POST MORTEM FINDINGS

On autopsy the foreign body may be found penetrating the heart wall or free in the accumulated fluid in the pericardial cavity. In some instances the object may pass through the heart wall into a ventricle. Usually the heart sac is much thickened as a result of the inflammatory changes and may in some cases be more or less attached to the heart. Also, as a result of these chronic fibrous changes, the pericardium, diaphragm, and reticulum may have firmly adhered to one another. A clear or cloudy fluid exudate, or discharge, may be present, but most frequently the heart sac is filled with a creamy pus, due to the invasion of pus-producing bacteria which usually accompany these injuries. The puslike material may have an offensive odor.

Most cases of pericarditis caused by foreign bodies are found on post mortem inspection at slaughtering establishments. In some cases there have been no outward symptoms to indicate the presence of heart lesions, or tissue injuries, found after slaughter. Because of the extensive heart lesions, the large amount of pus, the possibility of absorption, and the generalized pyemic conditions, or distribution of the infection through the body, many of the carcasses so affected are condemned at slaughtering establishments under Federal inspection.

When symptoms of pericarditis are discernible in cattle shipped to market, such animals are sold on a subject-to-slaughter agreement, which means a loss to the owner. Cattle that exhibit no external evidence of the condition but are later condemned become a loss to the packer. Because of the large percentage of condemnation in such cases, traumatic pericarditis is a problem of considerable economic importance. At one station under Federal supervision, for example, it accounted for 22 percent of all condemnations for inflammatory diseases in cattle.

P. B. Becker, of the Florida Agricultural Experiment Station, has reported, in a personal communication, that 59 out of 1,097 dairy bulls on which careful records were kept died from traumatic pericarditis or other traumatisms of stomach, liver, lungs, or other organs caused by nails, baling wire, or other foreign bodies. In 1940, post mortem examinations conducted by Federal veterinarians on 128,979 cattle slaughtered at one station revealed 6,385 abscessed livers, in 120 (approximately 2 percent) of which pieces of wire or nails were found.

PREVENTIVE MEASURES

Since treatment is of little avail, preventive measures become of extreme importance. Because of the tendency of cattle to pick up various metallic objects, cattle owners, dairymen in particular, should make a special effort to rid their premises as far as may be practicable of the more common metal objects, particularly baling wire, barbed wire, staples, nails of all kinds, and any scraps of tin or other metal that might cause injury if swallowed by animals. It should be possible very largely to prevent traumatic pericarditis in herds.
by giving thorough and systematic attention to keeping the surroundings free from such objects, particularly around dairies, barns, and feed lots.

The importance of paying attention to such details as the careful collecting and safe disposal of all materials that may cause injury when ingested by cattle cannot be stressed too strongly. When repair work is being done about barns, sheds, or yards, nails, staples, and pieces of barbed-wire or other wire fencing that necessarily become scattered about should be gathered up before the cattle are re-admitted. That this pays good dividends is shown by a single example out of many that have come to the attention of the Bureau of Animal Industry. On one large dairy farm under the supervision of a veterinarian, traumatic pericarditis was common and caused the loss of a number of very valuable cattle during a period of about 10 years. After the inauguration of a strict system of surveillance over the “foreign-body enemy” the trouble disappeared, and no new cases have since occurred there.