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CANINE AND FELINE SURGERY.[1]

(*Continued.*)

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Operations on the Genital Organs.

Operations on the Prepuce and Penis. Tumours.—Tumours are frequently found inside the prepuce and around the base of the penis; they are usually very vascular, bleeding upon the slightest provocation. In stud dogs their presence is to be regarded with great suspicion, as one variety, at all events (sarcoma), is capable of being communicated to the bitch during copulation, the vagina of the infected bitch again being capable of infecting the penis of a healthy dog. The experiments of Smith and Washbourn[2] clearly demonstrate these facts.

Ordinary pedunculated tumours can be ligatured and readily removed with scissors or actual cautery, but the infective venereal tumours are exceedingly troublesome. If incompletely removed the remains of the growth increase very rapidly, and soon become larger than before. Smith and Washbourn obtained successful permanent results by snipping the mucous membrane around the base of the tumour and stripping it off with the attached growth from the underlying tissues, the wound in the mucous membrane being drawn together afterwards with fine silk.

Paraphimosis.—In cases of paraphimosis it is sometimes necessary, when all other means fail, to slit the extremity of the prepuce. This

[1] Copyright by the author.

[2] "Journal of Comparative Pathology and Therapeutics," Vol. XI., p. 41.

is done with a fine blunt-pointed bistoury, care being taken not to incise further than is absolutely necessary, on account of the risk of subsequent adhesion or stricture. Scarification of the penis may have to be resorted to in cases of extreme congestion. This is a very simple operation, and is done lightly in a longitudinal direction around the penis with a fine scalpel or small lancet, the wounds being afterwards covered with some antiseptic.

Castration.—This operation is performed in order to keep the animals from wandering; also in certain diseased conditions, such as orchitis and enlargement of the prostate gland; and in cats, in order to diminish the unpleasant odour possessed by the urine. Although it should be done under an anæsthetic, this is not always employed, as the operation is very simple, and completed within a few seconds. Before making the incisions the hair should be clipped or shaved off and an antiseptic used, particularly in the varieties of cats which have long hair; neglect of these precautions has been known to lead to septicæmia and death.[1] The dorsal position on the operating table is the most convenient. A cat, when no anæsthetic is used, may either be rolled up in an ordinary towel (care being taken not to cause suffocation), with the parts to be operated upon left

FIG. 68.
Showing method of holding cat for castration.

exposed, or held by an assistant, as shown in the photograph. An old-fashioned way used to be to put the animal head downwards in a topboot or the sleeve of an overcoat.

In the method illustrated above the cat is lifted up by the shoulders, the fore and hind limbs on each side being crossed over one another and grasped tightly. The first fingers are then crossed under the throat, and the thumbs are pressed firmly at the back of the head in such a way that the cat cannot get its mouth down or even sideways to use its teeth. The tail is pulled out of the way and the hind

[1] W. R. Clarke, "Veterinary Record," Vol. VIII., p. 449.

legs are held widely apart. The operator should never stand immediately behind, as the animal is apt to eject a stream of urine in that direction.

The operation is performed as follows: An incision is made over each testicle separately, the organ is withdrawn, and the cord is twisted several times and slowly scraped through. Another method commonly adopted is to employ traction on the cord until it gives way; with either of these methods the hæmorrhage is very slight.

In old dogs, those of large breeds, and those which have diseased conditions of the cord, more care must be used. For these cases an anæsthetic should always be administered, as the operation is necessarily to some extent prolonged. The testicle is exposed in the usual

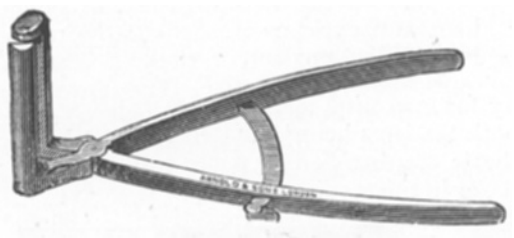

FIG. 69.

Torsion forceps.

way and removed either by slow scraping after twisting the cord several times, by excision after the application of an aseptic ligature, by an emasculator, by the clam and iron, or by torsion forceps and clam. Each method is good in its way, and the choice must be left to the discretion of the operator.

When aseptic precautions have been rigidly adopted the scrotal wound may be sutured and covered with iodoform or orthoform and collodion, the sutures being removed in four or five days. To pre-

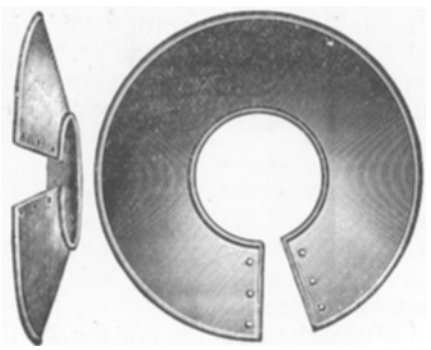

FIG. 70.

Elizabethan collar.

vent the animal from licking the wound the device known as an Elizabethan collar, made of some stiff material such as wood, leather, or tin, is very useful.

If asepsis has not been properly carried out the best plan is not to suture but to treat the part as an open wound, antiseptics being freely applied two or three times a day. Exercise is always beneficial, and the prognosis given may in the majority of cases be favourable. The chief precautions to take are: In the dog, to guard against hæmorrhage either at the time or afterwards; and in the cat, to carefully clip off the hair before making the incisions, to avoid asphyxiating the animal when holding it, and to be careful not to excise the penis by mistake. When the latter is done death invariably ensues.

Castration of Cryptorchids.—Cryptorchids are not uncommonly met with in dogs and cats, particularly cases in which one testicle is hidden. On account of the small size of the inguinal canal, unless the hidden organs happen to be close at hand, the best method of reaching them is to perform laparotomy and remove them through the abdominal wound.

The necessity for operating upon one such case occurred during the present year, both testicles being situated in the abdomen.[1] Under a general anæsthetic the incision is made either in the flank, at the side of the penis, or in the median line about half an inch in front of the prepuce, under the usual aseptic precautions. The operator inserts his middle finger and searches in the lumbar and pelvic regions for the missing testicles, withdrawing each one in turn, and excising it after the application of a ligature. The abdominal wound is then treated as already described (*see* laparotomy).

Amputation of Prolapsed Vagina.—In cases of prolapse of the vagina it is customary to try various remedies, such as the application of a pessary and sutures, together with certain internal remedies, before resorting to amputation, the object being to get recovery without injuring the vaginal walls. When, however, all hope of permanent return has been given up the prolapsed parts have to be excised. The operation is not a difficult one, and rarely gives rise to bad sequelæ if performed properly and the animal is not very much exhausted.

The patient is secured on the operating table in the abdominal position, or may be held securely in the standing posture by an assistant. The parts, having been thoroughly cleansed with some antiseptic solution, are dried carefully with cotton-wool and painted with a five per cent. solution of cocaine (unless the patient is already under the influence of some general anæsthetic). Amputation is performed either by the clam and iron, the écraseur, or the ligature and knife, according to the will of the operator.

Judging from several experiences of each way the ligature seems to be the best if it can be used, the écraseur being the least preferable on account of the amount of laceration caused. In all cases care must be taken not to include the opening of the urethra in the part excised.

After-treatment consists in plugging the vagina with wadding, or syringing with solution of liq. ferri perchlor. and water until hæmorrhage has ceased, and afterwards using an antiseptic solution as long as may be considered necessary.

Gray obtained permanent success in one case by performing

[1] "Veterinary Record," Vol. XII., p. 298.

laparotomy, replacing the prolapsed part and attaching it to the abdominal wall with sutures.

Oöphorectomy and Ovariotomy.—This operation, commonly spoken of as "spaying," is performed for certain diseased conditions of the genital organs and also with the object of preventing pregnancy and œstrum. Its effect upon the latter is by no means absolutely certain, as upon several occasions we have observed signs of œstrum in bitches and cats whose ovaries have been wholly removed, the animals even copulating with the male.[1] Leeney has also observed the same.[2] The term "oöphorectomy" is applied when the ovaries are healthy, and the term "ovariotomy" when they are diseased.

Animals may be operated upon at any age, but from six to twelve months for the bitch, and from three to nine months for the cat, seem to be the most favourable. The method of operating is as follows:—

Having previously had the abdominal wall around the seat of incision carefully cleansed and shaved, a pad of antiseptic material is put over the part and the animal placed on the operating table to be anæsthetised; when unconscious the patient is turned over and fixed on its back with the limbs well spread apart. The antiseptic pad is removed, the skin being lightly scrubbed with ether and again washed with antiseptic lotion. A longitudinal incision of from about half-an-inch to an inch long is made through the skin and muscular tissue on or close to the median line just behind the umbilicus, all blood vessels being carefully taken up with artery forceps before the peritoneum is pierced. The latter is done with the point of a scalpel, the incision being completed with the aid of a director. At this stage a blunt probe or flexible catheter is inserted by an assistant into the vagina; this generally penetrates as far as the *os uteri*, occasionally passing into one of the cornua. The operator introduces the fore or middle finger of his right hand, or a blunt hook, into the abdomen, keeping it close to the abdominal wall and pushing the intestines on one side, the object being to find the probe which an assistant is moving cautiously about. Having found this it becomes an easy matter to follow up each horn in turn until the ovary is reached.

In young animals the latter may be simply scraped off with a blunt scalpel, but in older ones it is advisable to ligature above and below the ovary with aseptic catgut or silk before excising. In either case care must be taken to see that the whole of the ovary is removed, or the animal will still be liable to become pregnant,[1] thus defeating one of the main objects of the operation. The cut ends of the cornua are returned into the abdomen, the wound in the abdominal wall being treated as already described (*see* laparotomy).

The percentage of successful results is high[3] if antiseptic precautions are observed. The chief unfavourable sequelæ to be feared are those of collapse, peritonitis, descent of the bowels, hernia, and persistent disinclination to feed. The first and last mentioned have given us considerable trouble in feline patients, several having refused to feed although apparently all right in every other particular, and

[1] "Veterinary Record," Vol. XII., p. 15.
[2] "Veterinary Journal," Vol. XXXI., p. 11.
[3] "Journal of Comparative Pathology and Therapeutics," Vol. X., p. 175; Vol. XI., p. 254. "Veterinary Record," Vol. XII., p. 14.

post-mortem examinations have given no clue as to the cause of death. Iodoform powder and other dressings which are at all poisonous should always be used very cautiously for wounds on small dogs and cats, and we have had good reason to suspect that iodoform dressings were sometimes at the root of the mischief. Peritonitis can be avoided by rigid attention to antiseptic precautions, and by putting the animals in a clean place after the operation. To avoid hernia and descent of the bowels the patient should be kept quiet, and not be allowed to jump from any height or go up steps for at least three weeks after the operation.

Hysterotomy.—In this operation, commonly known as "Cæsarean Section," the uterus is incised and the contents removed. The subject is prepared in the same way as for oöphorectomy, the abdomen being incised and the uterus exposed. The latter organ is then drawn to the edge of the wound or withdrawn altogether from the abdomen, being placed on a warm cloth which has been boiled or otherwise rendered aseptic. The uterus is incised in a longitudinal direction, the situation chosen being one as free from blood-vessels as possible, and the fœtus or fœtuses (with the placentæ) are removed. After their withdrawal the interior of the womb must be swabbed out with antiseptic solution, particularly near the wound. The edges of the latter are then drawn together by two or in some cases three rows of sutures; the first row consists of silkworm gut and is passed right through the wall of the uterus, the second and third are made of silk or fine catgut and are of Lembert's pattern, thus completely burying the first row and so lessening the risk of septic infection. When more than one fœtus is present the womb may have to be incised in several places, and this increases the danger. Before this is done an attempt should always be made to pass the fœtuses along towards the first wound and extract them in that way. The abdominal walls and skin are sutured and treated as in laparotomy. The chief sequelæ to be dreaded are collapse and peritonitis, and the percentage of successes is very low compared with those of hysterectomy. Successful cases have, however, been recorded, pregnancy afterwards taking place and successful delivery being effected without difficulty.[1]

Hysterectomy and Ovaro-hysterectomy.—By the term "hysterectomy" is meant the removal of the entire uterus, and the term "ovaro-hysterectomy" is employed when the ovaries also are included. The operation is occasionally performed for the same purpose as oöphorectomy. It may be necessary in some cases of dystokia, or where dystokia is to be feared, as when the female of a small breed has become pregnant by a male of some larger variety. The patient is prepared in the same manner as for oöphorectomy, the incision in the abdomen being of sufficient size to allow the gravid uterus (if this condition is present) to be withdrawn. Two catgut or boiled silk ligatures are placed above each ovary, and two others around the body of the uterus just below the junction of the two horns. The parts between are excised, and the uterus and contents lifted out of the abdomen, the ligatures effectually preventing any of the contents from escaping into the latter. The stump of the uterus is carefully disinfected and returned into the abdomen. It is not necessary to in

[1] Mathis, "Journal of Comparative Pathology and Therapeutics," Vol. II., p. 277.

any way fix the stump to the external wound. The external wound is sutured and treated exactly as already described (*see* laparotomy).

The prognosis of this operation, if the patient is not too poor or exhausted, is excellent,[1] recovery being very rapid.

As after oöphorectomy, we have known œstrum to occur and even copulation to take place when the two ovaries and the whole of the uterus as far as just above the junction of the horns with the body have been cleanly taken away.

Operations on the Limbs.

Operation for Overgrown or Ingrowing Nails.—In dogs that have insufficient exercise it is common to find the nails very long, the animal suffering a good deal of pain and becoming lame in consequence. The dew claws, in particular, if neglected, grow to considerable length and often curl round so that the points become embedded in the flesh. They are shortened by merely cutting a portion off with instruments similar in pattern to bone forceps or wire nippers. The

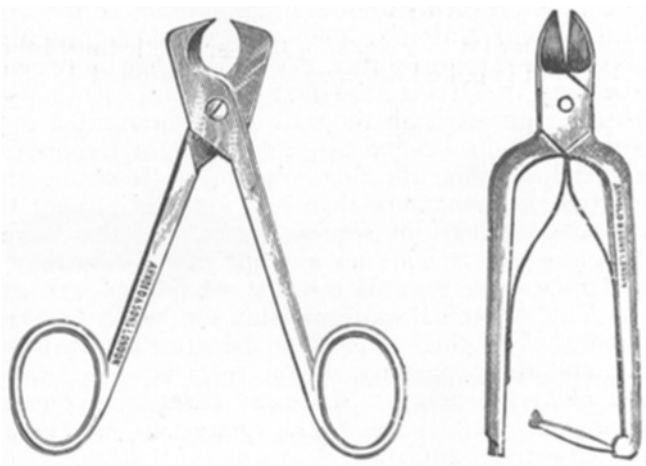

FIG. 71.

Two Patterns of Nail Forceps.

instruments should always be applied in a vertical direction, not transversely, as there is less danger of splitting the nail. The claws should not be cut too short or they will bleed and remain sore for several days; when cut to the sensitive structures the application of fomentations containing some sedative or antiseptic drug is beneficial.

Removal of Dew Claws.—In some dogs the dew claws are continually becoming injured and require to be amputated. Sometimes the nail has no bony attachment, being united to the limb merely by a piece of skin. In these cases, after removing the hair and thoroughly cleansing the part, the claw is snipped off with a strong pair of

[1] "Journal of Comparative Pathology and Therapeutics," Vol. X., p. 176; Vol., XI., p. 252. "Veterinary Record," Vol. XI., pp. 463 and 652.

scissors, and the edges of the skin united by sutures. When there is a distinct bony union the skin is drawn down towards the nail and incised by a circular sweep; it is then pushed back and the protruding bone removed as high up as possible. The skin is sutured and the wound treated antiseptically.

In the majority of cases a local anæsthetic is all that is necessary, and for securing on the operating table the abdominal position (*see* Fig. 9) is the most convenient.

Amputation.—For this operation a general anæsthetic should always be given. Wherever possible the parts around the site of incision are carefully shaved, cleansed, disinfected, and bandaged an hour or two before the animal is secured for the operation. The position in which the patient is placed must be arranged according to the discretion of the operator.

In cases where one leg is injured it is a good plan to secure the three sound legs with hobbles, and instruct an assistant to gently, but firmly, keep hold of the injured one above the seat of the accident until anæsthesia is complete. When this has taken place the bandage is removed and the injured leg placed on a cloth which has been boiled or otherwise rendered aseptic.

After having placed a tourniquet of tape or elastic above the seat of operation, the skin is pulled downwards as far as possible and incised with a sharp-pointed scalpel or long thin-bladed amputation knife. The incision may be either circular or flap shaped, the latter being the one which has given us the best results. The circular incision is made

FIG. 72.
Amputation Knife (Liston's).

with one sweep of the knife all around the limb, the flap method being done by incising the skin in the form of a wedge. The skin is pushed back and the muscles are treated similarly, being dissected off the bone so as to expose the latter as high up as possible. The bone is then removed with a saw.

If the sharp-bladed amputation knife is used the point is thrust through the skin and muscles alternately on each side of the leg, and the flap made by two rapid downward incisions.

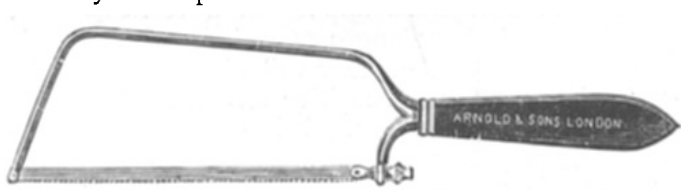

FIG. 73.
Amputation Saw.

The vessels are sought for and twisted or ligatured; the edges of the wound are drawn together with boiled silk or aseptic catgut, the muscles and skin being treated separately.

After-treatment consists in carefully keeping the parts clean by the aid of antiseptics and bandages, or, if the stump is too short for these to be put on, the wound may be covered with iodoform collodion. The stitches should be removed about the fourth or fifth day, or sooner if it is suspected that pus is present.

False legs consisting merely of a plain leather socket or a more elaborate arrangement, as shown in Fig. 74, can be fitted afterwards,

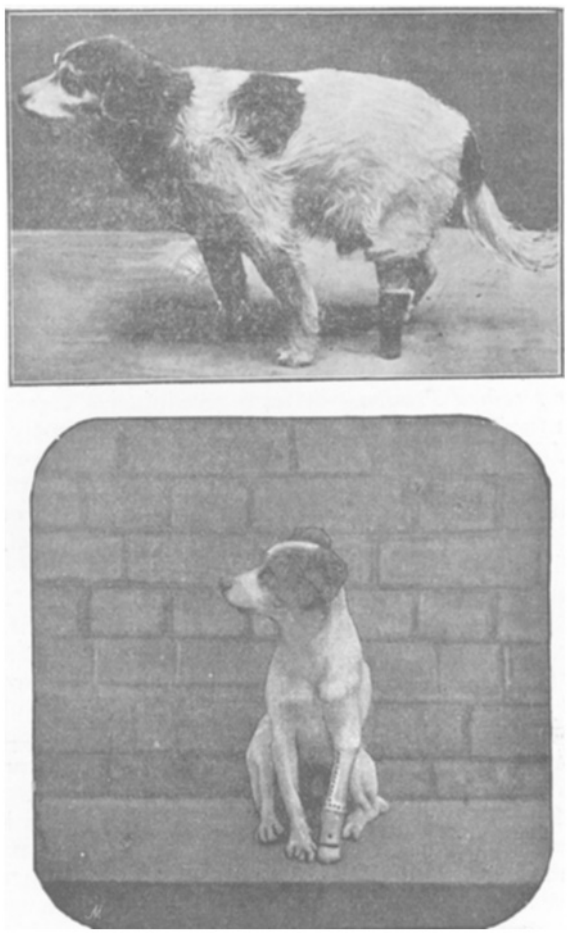

FIG. 74.[1]
Showing two Patterns of Artificial Limb.

but it is astonishing to see how soon an animal can reconcile itself to the loss of a limb and how well it soon learns to walk about on the remaining three. In one case which occurred last year a very valuable whippet's life was saved at the expense of the two fore-legs, which were becoming gangrenous owing to compound complicated fractures, the wounds being completely healed within ten days.[2] The animal

[1] This figure has already appeared in the "Veterinarian," Vol. LXVIII., p. 400.
[2] "Journal of Comparative Pathology and Therapeutics," Vol. X., p. 362.

soon learned to hop about like a kangaroo, and has since been used successfully several times as a stud dog.

Operations on the Tendons.

Tenotomy.—A contracted condition of one or more tendons in connection with a fore paw is occasionally met with, the paw being deformed and the animal lame in consequence. This can be remedied by tenotomy, performed at the most convenient and superficial place of whatever tendon is supposed to be contracted. The operation is not a difficult one and gives very satisfactory results. An anæsthetic is used, the parts are shaved, and strict attention paid to antiseptic precautions, the patient being secured on its side or back. An incision is made through the skin at the side of the tendon, and a blunt-pointed tenotome is introduced flatwise whilst the leg is flexed; the cutting edge is turned towards the tendon, the leg is straightened and the tendon cautiously cut through. Care must always be taken not to wound any of the blood vessels and not to cut through the skin at the other side or back of the tendon, on account of the trouble which is likely to ensue from excessive granulations. The wound is then sutured and covered with iodoform collodion and a bandage.

The most common situations for tenotomy are just above and behind the carpus and the under surface of the deformed toe.

Suture of Divided Tendon.—After severe injuries, especially wounds and cuts on the legs, some of the tendons are frequently found to be severed. Unless the divided ends are re-united the animal is apt to become a permanent cripple. The ends must be carefully sought for and brought into apposition, being first lightly scraped or roughened. They are then united by fine sutures of catgut or silkworm gut, the latter being the most suitable as they remain in position for years without becoming absorbed. The limb must be fixed so that no strain is put upon the tendon for some weeks until firm union has taken place, and antiseptic dressings are applied to the wound. Occasionally, although such cases must be comparatively rare, a ruptured tendon will be met with when there is no external wound of the skin. An instance of this was met with a short time ago, the patient being a fox terrier dog whose gastrocnemius tendon was found to be completely divided, without any history whatever of injury. The animal showed no sign of pain, but walked on its tarsus like a rabbit. Under chloroform and antiseptic precautions an incision was made through the skin, and the divided ends were sutured; after-treatment was the same as already advised above, and the result was a complete and permanent success.[1]

Dislocations and Fractures.

Dislocations.—A dislocation is distinguished from a fracture by the fact of the swelling occurring at a joint, the absence of crepitus, and, as a rule also, of pain during movement. The limb is also perceptibly shorter than the other. The most common dislocations met with are those of the elbow, stifle, shoulder, and toe joints. They are most frequently seen in young dogs and are most troublesome conditions to deal with on account of the tendency to relapse after reduction has been effected. The prospects of cure are much better

[1] "Veterinary Record," Vol. XII., p. 310.

if treatment is adopted immediately after the injury has occurred. The principles of treatment are as follows: Chloroform or some general anæsthetic is of service in severe cases because it relaxes the tissues and because after reduction it is easier to keep the parts in their proper places until external supports are affixed to keep them in position. The patient is placed in a lateral posture on the operating table, three legs being fixed and the injured one placed in the most convenient position for the application of traction. An assistant takes a firm hold above the dislocation (when the shoulder joint is affected a broad bandage or handkerchief is passed under the axilla and held from either side), the operator then grips the limb just below the injury with one hand and employs steady traction in whichever direction he deems necessary to replace the affected parts in their normal situation; at the same time with the fingers and thumb of the other hand he endeavours to adjust the joint. In old standing cases a successful result is often impossible but in recent cases reduction can generally be effected. The most difficult task is to retain the parts in position, and the attempt to do this frequently ends in failure. Bandages and strappings of different kinds covered with gum, plaster of Paris, starch, some preparations of pitch, etc., are most commonly used, but the difficulty is to get them to fit closely without causing gangrene, and especially with the elbow joint. Poroplastic felt, cardboard, brown paper moulded to the limb, are each sometimes used with success, but with each the prognosis as to a complete cure should always be guarded.

In one very troublesome elbow dislocation which occurred this year in a toy Manchester terrier, we attained a successful result so far as the dislocation was concerned by wiring the radius and ulna into place, but the patient never satisfactorily regained full use of the leg. Under chloroform and strict antiseptic precautions holes were made through the radius and ulna with a fine gimlet. Fine wire was passed through these and the skin wound treated in the ordinary way.[1]

Fractures are termed *simple* when there is no external wound, *compound* when the skin is broken, *comminuted* when the bone is broken into several fragments, and *complicated* when there is serious injury to some artery or the structures in the vicinity. The term "greenstick" is applied to a fracture such as frequently occurs in puppies or kittens in which the bone is bent and only partially fractured. In a *simple* fracture reduction is effected and the ends brought into apposition by grasping the limb firmly with one hand above the seat of injury and placing the lower portion into position with the other hand, the animal being held firmly by an assistant or placed under the influence of a general anæsthetic. The divided ends are then maintained in place by the application of bandages and splints, the latter being made of wood, metal, leather, cardboard or poroplastic felt. In order to prevent chafing of the skin the limb is first covered with lint, wadding, or a bandage, especial attention being paid to all bony prominences; the splints (also carefully protected) are then laid on in such a way as to keep the limb rigid. One or two narrow bandages which have been smeared with solution of gum, glue, pitch, starch or plaster of Paris, are then neatly wound

[1] "Veterinary Record," Vol. XII., p. 344.

round the whole. Gum is particularly valuable on account of the objection the animal shows to attempting to bite it off. Solutions of those substances should be made thick, care being taken that the external bandage dries and is hard before the patient is allowed to put the limb to the ground. It is always a wise precaution, if the severity of the case needs a tight bandage, to include the foot, as if this organ is left free and circulation is impeded above it the result is that the toes become swollen and, if not attended to, gangrenous.

With a compound fracture, particularly in the cat, much difficulty is often experienced; in many cases the quickest way to recovery is to amputate the limb above the seat of injury. When an attempt is made to treat it otherwise, the wound is carefully cleansed with an antiseptic and dried thoroughly, a bandage and splints being applied as for a simple fracture, but a window being left in it in order that the wound may be dressed; this "window" can be formed by placing a pill box lid over the wound when bandaging and afterwards removing it by cutting out the parts above with scissors. Particular care must be taken to dress the wound frequently, and to see that none of the discharge runs downwards underneath the bandage.

FIG. 75.
Photo showing characteristic attitude when both fore legs are broken.

Fractures of the ribs are treated by placing a broad bandage around the chest and abdomen as tightly as possible without causing inconvenience to the patient.

Fractures of the jaw necessitate a special splint cut or moulded to the required shape, and kept in position by tape or a wire muzzle,[1] the patient being fed artificially by mouth or rectum on liquid nourishment.

Fractures of the tail are treated in a similar manner to those of the limbs, particular care being taken that the bandage is not put on too tight.

Fractures in the region of the shoulder, pelvis, and hip, when too high up for bandaging, are treated by the application of a "charge" or plaster, consisting of some such mixture as resin, one part; Venice turpentine, three parts; Burgundy pitch, five parts, and put on with a spatula whilst hot. The layers may or may not be interspersed with tow cut up very fine. The exterior should

[1] Hodgkins, "Veterinarian," Vol. LXIX., p. 902.

always be covered with a piece of calico or some material to prevent it from sticking to the ground when the animal lies down.

The time for which a permanent bandage requires to remain in position varies from three to six weeks. The patient should be kept as quiet as possible, on no account being allowed to run up and down steps or to jump from any height. The principal untoward sequelæ to be feared are:—

1. That the limb may not be straight afterwards. This frequently happens when the bandage is not sufficiently stiff and the patient attempts to bear weight on it too soon.

2. That union may not take place, or that the union may be a fibrous instead of a bony one. The latter condition gives rise to what is termed a false joint, and not infrequently happens after comminuted fractures or when the injury has not been attended to during the first few days. The internal administration of phosphate of lime in the form of Syr. Phosphat. Co. is beneficial.

3. Gangrene, owing to severe injury to the principal vessels or to the bandage having been put on too tightly or insufficiently padded. A fœtid, sickly smell from the bandaged leg must always give rise to suspicion of this, and the bandage should at once be removed.

4. Septicæmia, especially in compound fractures.

Operations upon the Tail.

Amputation.—This is performed in full-grown dogs in a similar manner to that described for amputation of a limb, the flap method giving the most successful results. When performed at the root of the tail healing usually takes place without much trouble, but when performed near the extremity the healing process is apt to be very slow, and much retarded by the action of the animal in licking or biting the parts, or by banging the tail against the walls, floor, etc. In amputating near the end, it is better to take the end of the tail off at a joint rather than to go through one of the coccygeal vertebræ.

In order to prevent undue irritation by the tail being banged against the external surroundings, the patient should be tied to the centre of a rope placed across the middle of a loose-box or large room, sufficient length of rope being allowed for the animal to lie down without its being able to reach the hind quarters. Another plan adopted is to place a strap round the loins or ribs and another round the neck, a stick being firmly fixed between the two in such a way that the body cannot be bent; the tail itself may be ensheathed in a case of leather or tin. The Elizabethan collar (Fig. 70) is also useful here.

Very often, especially in large breeds, such as boarhounds and St. Bernards, all methods adopted to preserve the tail are unavailing, amputation at the root having to be resorted to before healing can be effected.

In puppies the operation is a very simple one, the tail merely being snipped off with a pair of scissors when they are a few days old.