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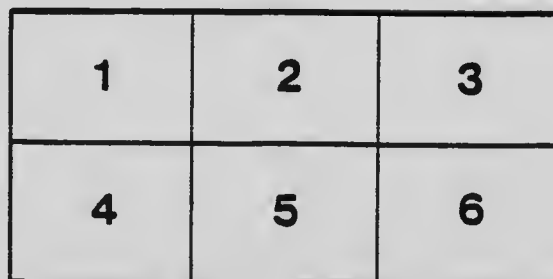
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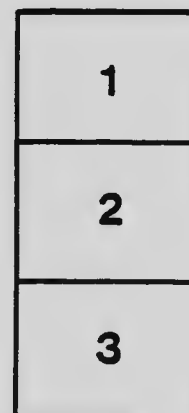
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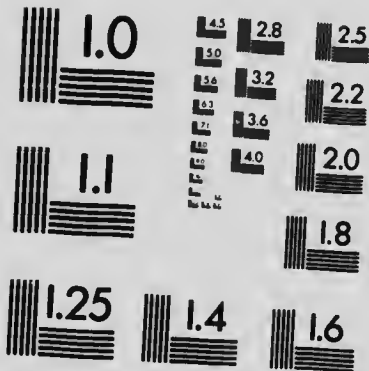
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Branch of the Live Stock Commissioner

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HORSE BREEDING  
AND  
REARING OF COLTS

BY  
J. G. RUTHERFORD, C.M.G.  
*Veterinary Director General and Live Stock Commissioner*

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BULLETIN No. 14

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PUBLISHED BY DIRECTION OF THE HON. SYDNEY A. FISHER, MINISTER OF  
AGRICULTURE, OTTAWA, ONT.  
MAY 1, 1911

OTTAWA, May 1st, 1911.

Sir,—I have the honour to present herewith a series of short articles on Horse Breeding and the Care of Mares and Colts, which I have prepared in the hope that they may be of some value to farmers interested in this particular branch of animal industry.

I would recommend that these should be printed in bulletin form for general distribution.

I have the honour to be, Sir,  
Your obedient servant,

J. G. RUTHERFORD,

Veterinary Director General and  
Live Stock Commissioner.

To the Honourable  
THE MINISTER OF AGRICULTURE,  
Ottawa.

# HORSE BREEDING

## AND

# REARING OF COLTS

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### THE BREEDING OF HORSES.

It is an old and true saying, never truer than it is to-day, that "there is always room at the top"; and this applies, not only to the human race, but to all the various species of domestic animals. Thus while the individual who breeds and raises scrub stock may, and doubtless often does, find considerable difficulty in disposing of his surplus, the man who successfully devotes his attention to the production of a first class animal is seldom found complaining for want of a customer. While this is true of all kinds of stock, it is for obvious reasons especially the case with regard to the horse; for while the beef from a scrub steer, the mutton from a scrub wether, the pork from a scrub hog, or the butter from a scrub cow, while not so remunerative as similar products from specially adapted animals, will, if of fair quality, generally find a purchaser, the scrub horse is always a drug in the market, and is sure to be less and less in demand as time passes and public taste in this respect becomes more fastidious. On the other hand, the good horse was never in greater request than he is today. All over the civilized world the prices paid for the good horse of any distinct class are on the rise, and the man who has him or can breed him is sure of his market and his money. This being the case—and that it is so, is capable of easy demonstration—it behooves us to do our best to find out how to obtain him.

Every man who owns a mare, ought, before stinting her, to draw a mental picture of the horse he wants to get from her, and in doing so must not, of course, lose sight of the mare herself, nor of the influence which she must, of necessity, wield in bringing his projects to fruition. Her size, shape, make and breeding must all be considered and carefully weighed before the sire of the future prodigy is selected, while he must be chosen with the view of perpetuating the good points and overcoming the deficiencies of the dam. The great initial law of breeding is that of "Heredity", or "like produces like"; and while, as will be shortly shown, there are many and frequent deviations therefrom, capable more or less of being guarded against, this is the sheet-anchor of the breeder, the basis of his calculations, and must be acted upon in all cases, except where some individual idiosyncrasy has been incontestably proved to exist. This principle of "like producing like" is so generally recognized that it is scarcely necessary to dwell upon it, except perhaps, to call attention to the little but salient fact, liable in horse breeding to be, by the beginner, overlooked, viz., that like really only produces like from like, or in other words, that in order to obtain a perfect production of the original type, both sire and dam must be of the same type, and also of the same type as to ancestry. In cases where

this similarity of type does not exist however, and where one parent has a preponderance of line breeding, the prepotency thus acquired will stamp the progeny with his or her characteristics in a marked degree. The transmissibility of disease, or of that tendency towards disease known as hereditary diathesis, frequently appears to evade this last clause of the law, as no amount of sound line breeding or individual soundness on one side seems to avail in preventing the perpetuation of congenital faults through the other parent, even when the latter is of very inferior pedigree. Apart from the question of disease, however, it may be accepted as a general rule that the straighter the pedigree of an animal the greater will be the prepotency exhibited in marking the progeny.

In-breeding, though by no means to be commended, was a great factor in the earlier days of scientific breeding in conferring the power of perpetuating a distinct type upon various families of both horses and cattle, although in such cases I have always been of the opinion that it partakes to some extent of the nature of the next phase of our subject with which we have to deal, viz., "Atavism" or "reversion," better known, perhaps, as "breeding back." "Throwing back," the bug-bear of the cross-breeder, has never been fully explained, although the researches and discoveries of Mendel have, of recent years, thrown a flood of light upon the subject. It is undoubtedly due to dominant ancestral influence but without a thorough and complete knowledge of the lineage direct and collateral of both sire and dam, it is, in most cases, practically impossible to account for its occurrence in line bred stock. Many apparent freaks and sports of nature are due to Atavism and it is the strongest possible argument in favor of pure bred sires and dams, as, in the case of such animals, the reversion, when it does occur, is to an ancestor of the same type and of, perhaps, as good individual quality as the more immediate progenitor, while in breeding from mongrels the chances are all the other way. In short-pedigreed stock also the tendency to throw back is very much stronger, owing to lack of the prepotency conferred by a long line of ancestors of similar type. This is very clearly shown in breeding to the so-called general purpose and agricultural stallions, many of them remarkably fine individuals, but seldom, even when bred to equally fine mares of similar short breeding, getting colts at all equal in any particular to either the sire or the dam, who doubtless obtained their excellence from one or more crosses with pure-bred stock. The stinting of cross-bred mares to cross-bred sires is, for this reason, the most rapid and effectual mode of deteriorating horse-flesh yet discovered, as the large number of shapeless, unsaleable plugs which disgrace this continent amply demonstrates. What intelligent breeder wishing to improve his herd of cattle, would use a grade bull, and yet what better right to public patronage has the grade stallion?

Climate is also responsible for many variations from the law of heredity; although, inasmuch as the change is more gradual and not much noticed in one generation, it does not attract the same attention as the more striking phenomenon of reversion. One finds, nevertheless, in almost every country, that the original or native horse has adapted himself to the conditions, geographical or topographical, peculiar to his surroundings. The Arab, at home in the sandy desert, wiry and spare as the scanty herbage which forms its food; the Icelandic pony, with his rough bone and wool-like fleece; the flint-footed, deer-legged, mountain ponies of Scotland and Wales; the ponderous wide-soled draught horses of the Low Countries; the active mustang of South and Central America, the hardy French-Canadian and the much-enduring Shagginappi are all living proofs of Dame Nature's wonderful power of adapting herself to circumstances.



Variation from the type anticipated is also occasionally brought about in a way but seldom taken into consideration, viz., through the nervous impression produced on a female at the first service, stamping her subsequent progeny in a greater or less degree with the characteristics of her first mate. This phenomenon, termed scientifically *Telegony*, is, as most dog-fanciers know, frequently observed in the bitch, being, of course, more noticeable, owing to the remarkable divergence of canine types; but it is also, recent pronouncements to the contrary notwithstanding, patent to the close observer of horses. Frequently, in the Middle States, I have noticed horses which, at a short distance, strongly resembled mules, and, upon inquiry, have invariably found such animals to be the progeny of mares which had first been used in breeding that useful but unpretentious hybrid. Though too generally entirely disregarded, the possible occurrence of this form of variation should be taken into consideration by the careful and ambitious breeder, especially when a pure type is sought to be attained.

Variation may also be due to extrinsic causes, as when monstrosities are borne by females injured or frightened during pregnancy, causing violent nervous shock; or in a less marked form by an impression produced upon the imagination of the dam by some unusual sight not necessarily of a frightful or terrifying nature. Most of us have read of the smart trick which Jacob played upon his father-in-law; and in somewhat more recent years Mr. Warfield, the eminent cattle breeder of Kentucky, relates that an Alderney heifer grazing in the same field with a number of army horses, produced a heifer calf with the letters U.S. distinctly marked in white hairs on the left shoulder, which peculiarity was also noticeable in her heifer calf. While variations of this description are interesting, they are not so frequent among the domestic animals as they are in the human species and may therefore be held to scarcely affect practical breeding operations. The two last mentioned variations are, needless to say, much more likely to occur in animals of a highly sensitive, nervous temperament than in those of a more lymphatic and lethargic nature.

Having now briefly mentioned the laws which govern the science of breeding, it may be well to devote a few words to their application. By the careful selection of good individuals of proven prepotency all the varieties of the horse now known as pure breeds have been brought to the present standard of excellence; and by using the standard thus made ready to his hand, I believe it is possible for the modern horseman to breed any kind of horse he may fancy. While I do not propose to advise farmers as to the particular kind they ought to breed, I may here formulate a few brief rules, the observance of which will, I am certain, take no money out of their pockets:—

1. Use only pure-bred sires; or, at least, such as have sufficient line breeding to insure prepotency. In this way an amount of certainty in experiment, so to speak, is obtained, and the danger of reversion to an inferior type is greatly lessened.

2. Do not club your mares, even at greatly reduced rates, to any one horse; but carefully study the good and bad points of each, with the object of stinting her to the horse best adapted to improve her good points and remedy her defects.

3. Watch carefully the horse markets of the world, and study the questions of supply and demand in horse-flesh, so that you may be able, in the near future, to command the highest price for the produce of your labor and skill.

4. Avoid violent crossing. All deformed colts are not caused by mental impressions, very many being due to the foolish but too common practice of stinting small light mares to heavy draught sires. It is well known that some stallions are notorious for this sort of thing; and it is a curious but instructive fact that the worst offender I ever knew was himself a small horse, but bred from extra heavy Clydesdale stock on both sides of the house. While this is, perhaps the most objectionable, all violent crossing will be found, as a rule unsatisfactory.

5. Breed only from sound stock. I cannot impress this maxim too strongly upon you. The Royal Agricultural Society of England, acting upon the advice of the Royal College of Veterinary Surgeons, disqualifies for premiums, horses suffering from any of the following diseases; roaring or whistling, ring bone, side bone, navicular disease, curb, bone spavin, hog-spavin, grease, shivering and cataract; and, under certain circumstances, splint, string-halt, contracted feet, weak feet and bursal enlargements, such as thoroughpin and wind galls. You will be wise, then, to look out for these maladies and to refrain from breeding from animals of either sex afflicted with them, as also from parents of faulty conformation or weakly constitution, there being quite enough unsound and shapeless horses now in the country without your deliberately adding to the number.

## THE TREATMENT OF MARES IN FOAL.

As the foaling season approaches, owners of pregnant mares are naturally somewhat concerned for their welfare, and as many Canadian farmers have a comparatively limited experience in horse breeding, a few hints as to the proper diet and general treatment of prospective equine matrons may not come amiss. The mortality among both mares and foals in this country is very much larger than it ought to be, and while in some instances doubtless, loss is unavoidable, in a great majority of cases the death of either dam or progeny is directly traceable to the ignorance, carelessness or cupidty of the owner.

In the first place a great many mares are annually bred which ought not to be put to the horse at all. The farmer who has but one breeding female and who calculates generously to give his mare a week's rest at foaling time, would in most cases find himself in pocket by either keeping her religiously from the stallion, or if unable to resist the temptation, by trading her for a gelding. No mare can be reasonably expected to work hard at all kinds of drudgery from year's end to year's end and at the same time develop, deliver and rear a foal at all likely to prove an ornament to his species or a source of profit to his owner. Mares used in this way are the victims of gross injustice, and such a system of horse breeding can end only in disgust and disappointment. Only such animals should be stinted as can be spared from the rougher and more arduous tasks of the farm both during pregnancy and for some time after foaling. The man who puts a good mare to the horse, rattles her through a stiff harvest, lifts an engine or separator with her several times in the fall, trots her sharply home from the elevator, hauls wood and hay with her all winter over all sorts of roads, her sole respite being in stormy weather when she stands tied up in a none too comfortable stable, on the hardest of hard feed, puts her into spring work and only removes the harness when labor pains make their appearance, is often the first to complain of bad luck because his breeding operations are not a success. The confidence of such men in Providence and in the procreative powers of their long suffering mares is apparently unbounded, for they never seem to profit by experience, failure appearing only to stimulate them to fresh experiments on the same lines. The number of abortions and premature births among mares handled in this unreasoning and unreasonable fashion is enormous, while malformation, malnutrition and malposition of the foetus are frequently induced in this manner. Of five mares which I noticed, some years ago now, one morning in March, tugging and straining over bare roads with big sleigh loads of wood, two aborted, one dropped a dead foal, one had the foal removed piecemeal, while the fifth after considerable difficulty actually succeeded in rearing a creature in some few general characteristics resembling the species to which he belonged.

In sharp contrast to the above-mentioned manner of handling mares is the pampering system, and while slightly preferable it is very far from being correct or advisable. In this case the pregnant mare is kept entirely idle during the winter; she is in foal, therefore she must not only do no work, but she must not leave the stable, lest she catch cold, lest she slip and fall, lest she run about and over exert herself. She is overfed with stimulating food, the system becomes loaded with fat, the muscular tissues are flaccid, the excretory organs are torpid, the circulation is languid, and when at last the foal sees the light it is puny, weak and undeveloped, more likely to die than to live, while if any trouble or

obstacle presents itself during the act of parturition the mare herself is apt to fall a victim to the mistaken kindness of an over indulgent owner. Many mares also are treated in this fashion all winter, and with the system weakened throughout by lack of proper exercise and other means mentioned above, are turned into hard exhausting work on the advent of spring, in some cases when they are within a very few weeks of foaling.

There is, however, a medium course, by which a great deal of useful work can be obtained from a brood mare, not only without injury, but with positive benefit to both dam and progeny. Steady—mark the word—not too heavy employment, is even better for a pregnant mare than total idleness, but especially during the last half of pregnancy, it ought to be one thing or the other, either the collar should be taken off and kept off for good or it should be worn more or less every decent day throughout the winter. The far too frequent custom of allowing mares to stand idle on full feed for periods varying from one week to four, and then suddenly starting them off to the distant hay stack or wood lot, perhaps ploughing through snow up to the belly or straining across bare spots with a big load behind them, can not be too strongly condemned. Such treatment is hard enough on any horse, but when meted out to heavy brood mares it is cruelty to animals in the first degree. It is little wonder that so many foals are annually quietly interred in barn-yard manure heaps, and that so many mares prove “not in foal” when the expectant stallion owner puts in an appearance to claim his reward.

Every man who wishes to raise foals successfully ought to have a yard, well sheltered by straw if nothing else, in which his mares when otherwise idle may exercise themselves for several hours a day, thus keeping the muscles developed and the vital organs in full and healthy play, so that when called upon, should necessity arise, to do a little work, no shock may be given to the system. A good, roomy, clean and well ventilated loose box should also be provided for each matron, so that perfect rest may be nightly obtained, and in case of abortion from any cause the isolation thus secured may be the means of preventing similar misfortune to some other member of the stud. When brood mares are worked they should be driven only by reliable and trustworthy men; over exertion, sharp backing or rough handling of any kind should be unknown, the single-trees should be longer than those in ordinary use, deep snow or other bad footing should be sedulously avoided, riding forbidden, and the whip entirely banished from the neighborhood.

The diet should be generous but judicious, if too dry and stimulating it may cause constipation, with torpidity of the liver and other organs, seriously affecting the development of the foetus, while if too relaxing it will produce a looseness and flaccidity of the whole system, and a general lack of vigor with a tendency to abortion on the slightest provocation. Coarse, bulky, indigestible foods should be avoided, as also any sour, musty, frozen or fermented articles of diet, while all sudden changes are to be condemned. Bran may be given with freedom, but flax seed, oil meal or oil cake, ought to be used with great caution, and only when a decided tendency to constipation is known to exist. A liberal supply of good hay, a little oats and bran twice a day, with soft feed at night, and a regular allowance of salt is fair feeding for any mare, but common sense must be employed and the system regulated by a gradual and judicious adjustment of the component parts of the diet. Ice cold water occasionally induces abortion, and when possible the chill should therefore be taken off. All surgical operations are attended with danger, and medicine should be entirely tabooed, save in case of vital emergency—physic especially, having a tendency

to relax the womb as well as the bowels, ought to be given only when absolutely necessary. Young mares should be often gently handled all over and accustomed to having the udder and flanks touched, this simple precaution frequently obviating a great deal of subsequent trouble and annoyance. As the time approaches for the mare to foal she ought to be closely watched, so that should assistance—not mischievous interference—be required it may be furnished without loss of time.

With regard to the symptoms of approaching parturition, no rule can be laid down, as many mares will loosen up, make bag, form wax and even run milk wecks before they foal, while others will do none of these things, but simply lie down and institute proceedings without any warning whatever. As a general thing, however, when the teats are full and the piece of wax on the end is succeeded by a drop of milk, when the hips have sunk and the vulva has relaxed, while the animal shows symptoms of more or less uneasiness, the act of foaling is not far off. The treatment to be afforded to the foal and to its dam after the act of parturition has been accomplished may conveniently be considered in another chapter.

## THE CARE OF YOUNG FOALS.

It is well known among breeders that it is very difficult to catch a mare in the act of parturition, and that if the foetus is in proper position, and everything else favorable, birth occurs very quickly and easily. Should you, however, happen to be on hand when your mare foals, and the youngster is coming right, but not progressing as fast as he might, it will do no harm to rupture the membranes and help a little, pulling only when the mare presses, and always in a downward direction or towards the hind feet of the dam. It would appear on first impression that breath is a necessary and indispensable adjunct to life; but in the unborn foal such is, of course, not the case—the first inspiration is taken upon the advent to the open air of the little animal, and it is of importance that nothing shall interfere with the supply of oxygen to the lungs as they begin to assume their vital functions. Many foals are lost through the nasal passages being occluded by the foetal membranes or otherwise, the first feeble attempts at respiration proving of no avail, the blood fails to become oxygenated, the next effort is weaker still, the heart's action, at the best uncertain owing to the sudden change in the course of the circulation, soon ceases entirely, and independent existence ends before fairly begun.

As soon as the foal has emerged, free the head from the envelopes, see that the air passages are clear of mucous or other fluid, and lay the little animal on his right side. If the umbilical cord or navel string is not ruptured at birth, it may be tied with a stout cord a couple of inches from the navel and cut off below the ligature, and to prevent blood poisoning, or the absorption of septic germs, it may be dressed with a strong solution of carbolic acid, care being taken not to injure the surrounding tissues, or it may be temporarily smeared with carbolic oil. Should animation appear to be suspended while the heart still beats, an attempt may be made to resuscitate the little creature by pouring cold water in small quantities on the head, slapping the body with a cold wet cloth, holding ammonia to the nostrils or even by what is generally more convenient, puffing a little tobacco smoke into them. Should these measures fail, a little blood may be taken from the navel, but when syncope is present there is no great hope of bringing about recovery.

I would like here to interpolate a little advice regarding foals "coming wrong". If there is any malposition of the foetus not of a serious nature, you may, if you are at hand, be able to rectify it, using judgment and common sense, bearing in mind that a mare will not stand much rough handling, and, above all, keeping cool and endeavoring to avoid excitement, which at such times is very natural and very dangerous. Should you find yourself unable to remedy the evil, lose no time, but send at once for professional assistance if such can be procured, and, meanwhile, allow no interference save by some intelligent and thoroughly experienced stockman who understands the vital importance of absolute cleanliness and who will know, after making an examination, whether he can do any good or not, and will guide himself accordingly. Great harm may result from well meant but mischievous interference with these cases, and the veterinary surgeon often finds on his arrival a well nigh hopeless subject which, if let alone, he might have handled with one tithe of the trouble and with far greater certainty of saving life.



Space will not allow of our entering into the details of the various abnormal presentations to which the equine foetus is liable, and of the modes of manipulating them to effect delivery, and such is not the object of this article. We will suppose that the foal is dropped safely and lying breathing and sneezing behind his dam, who has just had the gruel with which she ought always to be rewarded after the termination of her labor. The mare will generally, on rising, turn round and begin fondly to nose and lick her progeny, a process, by the way, of great importance and value to the latter; but young and nervous mares, especially if delivery has been protracted and painful, will often act in an entirely different manner, snorting, pawing and evincing fear and irritation at sight of their offspring. Under such circumstances it is well to protect the foal for a time by a small hurdle or gate placed across one corner of the roomy, airy, dry and warm loose-box, in which, it is presumed, he has first seen the light, to rub him smartly but gently with soft rough towels and to endeavor to induce the mare to begin the licking process by sprinkling the youngster with a little dry bran or meal and salt. Such measures are not, however, often necessary, kind considerate treatment and judicious letting alone generally proving effectual in bringing about a reconciliation in the family.

Plenty dry, clean bedding should be furnished, the shorter the better, for the foal will soon begin to tumble about in repeated attempts to get his long and shaky legs under him. If he does not succeed after a reasonable time in getting on his pins, a little assistance may be given, and his dam proving friendly, he will soon, if let alone, find his way to the maternal font; but if he is unable to stand, or the mare is touchy and restive, she ought to be held while he is guided to the teat and allowed to obtain nourishment. If the foal is weak and quite incapable of supporting himself, the mare may be milked and the fluid thus obtained given to him slowly and very carefully, it being a matter of great importance that the little chap obtain if possible some of the very first milk secreted by the mare. When once friendly and confidential relations have been established between mare and foal, they should be left alone for some time, care however being taken to remove the placental membranes from the stall as soon as they are dropped.

If the mare has gone much over her time and especially if she has lost much milk, it will be necessary to watch the foal closely for symptoms of constipation, which will be manifested in the first place by continued elevation of the tail accompanied by straining without the passage of faeces. This will be succeeded by dulness and then by evidence of pain, the abdomen will become bloated, the little animal will show great uneasiness and begin to perspire and the pulse and respiration will be accelerated. In the early stages a few ounces of soapy warm water or a little raw linseed oil introduced by a syringe into the rectum will generally afford relief, but should acute pain and distress make their appearance, the administration of two or three ounces of castor or linseed oil with twenty or thirty drops of laudanum and half a teaspoonful of turpentine well shaken up, will be in order; a small enema should also be given from time to time, and the abdomen covered with a woollen cloth wrung out of hot water. These measures if adopted in time will usually be sufficient and it must not be forgotten that the administration of medicine to newly born foals is fraught with great danger so that the mechanical remedies, viz: the injections and the stupes to the abdomen are much preferable to large or repeated doses of physic.

Diarrhoea may set in, either spontaneously from septic causes or as a result of the too free use of medicinal agents, the mortality among young foals from this affection being very great. The treatment will depend on the origin of the

trouble—if from medicine little can be done save in keeping the strength supported by stimulants and concentrated nourishment, and for this purpose an egg beaten up with a tablespoonful of brandy and a few ounces of milk from the mare will be found very effective—this mixture may be repeated from time to time as the condition of the patient may demand. Should the diarrhoea on the other hand, appear to originate spontaneously, it is possibly due to irritation of the bowels, and in such cases no treatment is more successful than the exhibition of one or two table-spoonful of castor oil with a little laudanum to allay any tendency towards griping. No relief being afforded by these measures it is advisable to try an antacid, and for this purpose a table-spoonful of lime water may be given in two or three ounces of milk from the mare every three or four hours, while the strength of the patient is to be sustained by stimulants and nourishment as recommended above.

Where veterinary assistance is not available, five to fifteen grains of grey powder given twice a day will often be found beneficial.

In severe and protracted cases of septic origin formalin has been successfully used. This agent must however be used with caution, the best mode of administration being as follows: Dissolve one fluid ounce of commercial formalin in 10 ounces of water and give of this solution a teaspoonful or a teaspoonful and a half, according to the size of the colt, in one pint of milk, twice or at most three times a day.

Small injections of flour gruel or very thin starch containing a little laudanum are also useful.

The greatest attention should be paid to the sanitary conditions; the stable as well as the patient and the dam should be kept scrupulously clean while the diet of the latter should be closely watched and changed gradually from time to time. The facts that animals on pasture are seldom affected and that the malady once established in a stable, appears to recur regularly, are strong arguments in favour of the adoption of all possible hygienic precautions.

Another and perhaps the most fatal disease to which young foals are liable is suppurative inflammation of the navel and joints often erroneously termed inflammatory rheumatism. The first symptom of this malady is a difficulty of motion, accompanied by swelling in the region of the navel or in one or more of the joints, the swellings rapidly increasing in size and terminating in large abscesses containing enormous quantities of unhealthy pus. The progress of the disease is characterised by high fever, rapid emaciation and great weakness followed by stupor, foetid diarrhoea, general marasmus and death. Curative treatment does not appear to be of much avail: the opening of the navel if inflamed should be frequently dressed with carbolic lotion, or other suitable antiseptic, a mild anodyne liniment applied to the swellings, the bowels gently moved by a small dose of oil and the strength sustained by concentrated nourishment and the judicious use of stimulants, while the abscesses when ripe are to be freely opened and the cavities injected with an antiseptic solution. The disease is septic and an ounce of prevention is worth a pound of cure. It is almost invariably due to the absorption of germs (*streptococci*) by the exposed end of the umbilical cord or navel thus affording good reason for the treatment of that part recommended above. With a view to the prevention of this disease also, the most scrupulous cleanliness should be observed in the housing of young foals and their dams; the all too common customs of letting them lie on a couple of feet of heating manure thinly covered with straw, or on a cold wet earthen floor, cannot be too strongly



condemned. The floor and bedding should always be dry and clean while an occasional sprinkling of lime will not cost much and will add greatly to the healthfulness of the inmates.

Where the existence of infection is suspected the floors and stalls should be thoroughly scrubbed with boiling water and subsequently treated with a reliable disinfectant such as crude carbolic, creolin, or a solution of corrosive sublimate of a strength of one part to 1000 parts of water.

Occasionally the urine continues to dribble from the navel opening owing to the duct from the bladder having failed to close after birth. In such cases the parts should be thoroughly cleansed and rendered aseptic after which a subcutaneous ligature is to be applied but this like all other operations requiring surgical skill, and in fact all really serious or acute conditions should, when possible, be relegated to the qualified veterinarian.

There are of course numerous other ailments and accidents to which young foals are liable but those mentioned are responsible for the needless loss of many valuable animals and should therefore be carefully guarded against and promptly but cautiously dealt with on the first indication of trouble.

## THE CARE OF WEANLINGS.

To some, advice on this head, is of course, superfluous, but others, less experienced, may be glad of a few hints as to the most approved methods of starting the youngster on an independent career. In the first place, be certain that your foal is old enough to wean, that he is in fair condition, thriving and healthy, that he knows what grain is and what it is for, and that, should you have any cow's milk to spare, he will not be above drinking it. As to age, no colt should, if at all possible, be permanently separated from his dam until he is at least four months old, while another month, or even two, by her side will make him a better horse and lessen considerably the risks of his first winter. Many farmers, however, who are trying to raise colts can ill afford to let their mares suckle so long, and while it might, in many cases, be more profitable for such men to refrain from breeding altogether, the fact remains that they must use the mares on the farm, and the foals have to suffer accordingly.

It is a good plan to teach the foal to eat out of the same box as his dam, and it is astonishing how little tuition, even with very young colts, is necessary when the food is placed within easy reach. For some time also before the foal is actually weaned he should be schooled to drink milk, if there is milk to be had, and it is well to remember in this connection that milk drinking is an accomplishment of no little value for any horse to acquire, nothing being more advantageous to an animal suffering from any febrile or debilitating disease, than the voluntary absorption of milk in lieu of other fluid when the appetite for solids is capricious or altogether lost. As regards the diet best suited for young foals, many different opinions are promulgated, but in the experience of the writer nothing is equal to good sound oats with a moderate admixture of bran twice a day, and a well scalded, not too bulky, mash of the same materials, seasoned with a tablespoonful of salt, and perhaps a handful of crushed oil cake for the evening meal. Many recommend crushed oats, but repeated trials have convinced the most successful breeders that whole oats are more nutritious, and if properly masticated as they generally are when fed with dry bran, more easily digested than chopped feed of any kind.

Colts should be halter broken and taught to lead when yet with the dam, as this renders them much more tractable and easily controlled during the excitement inseparable from weaning, and also facilitates housing when the accommodation is limited, and there are several to be kept together. Loose boxes are preferable to ordinary stalls for young stock, but provided the stable is clean, airy and well lighted it will do no harm to have them tied at night, taking it for granted that they enjoy for the greater part of every day the freedom of a roomy, and in winter, well sheltered yard. This latter point is of very great importance. Your youngster must have a chance to develop bone and muscle, and in no other way than by lots of exercise can he be reasonably expected to properly assimilate the generous diet recommended above, while despite all old-fashioned ideas to the contrary, without a liberal grain allowance he will not likely be much to look at when the sun begins to melt the snow in the spring. When two or more colts are kept together it is better to have them separated at feeding times, or the strongest of the lot will be apt to wax fat at the expense of his weaker or less voracious companions, many backward colts being literally starved by careless neglect of this simple precautionary measure.

Weanlings are frequently troubled to a considerable extent with intestinal worms of various kinds, especially if grazed on low lying pastures in late summer or early fall. Some of these parasites are more to be dreaded than others, but none of them are desirable guests or in any way beneficial to their involuntary hosts, and it is therefore advisable to take measures for their removal. The old farmer's remedy of wood ashes and salt is not to be laughed at in this connection, and if persevered with in small doses for some time will often have the desired effect, but where a more speedy and certain riddance is desired it is well to give a course of anthelmintic powders, as iron sulphate 1 drachm or powdered arceanut 2 or 3 drachms twice a day in a little soft food for a week, to be followed by a drench composed of turpentine 1 oz., and raw linseed oil from 10 oz. to a pint, according to the size and condition of the patient. This mixture should be given on an empty stomach and all dry food withheld until the bowels have responded to its action. In all cases of intestinal worms, benefit is found from occasional injections of tepid water strongly impregnated with soap, and for this purpose Gamgee's enema funnel, a cheap and convenient instrument easily turned out by any tinsmith, will be found suitable. Some varieties of worms demand for their successful removal a repetition of the medicinal treatment but those most commonly met are generally satisfactorily disposed of at the first attempt.

External parasites should also be guarded against. Many a good colt has gone to skin and bone from the constant irritation and uneasiness produced by lice, and whenever a young animal shows unaccountable loss of condition and want of thrift it is advisable to examine him closely for signs of the presence of these undesirable companions. Should they be detected, the sufferer may in reasonably mild weather be washed well with carbolic soap and soft warm water, and after thoroughly drying the skin, carefully and closely dressed, more particularly about the roots of the mane, with a good insecticide. For this purpose an ointment composed of equal parts by weight of sulphur and lard will be found effectual, as also safe, cheap and easily procured. In cold weather the washing must of course be dispensed with, but the ointment may be applied without risk in a moderately warm stable at any season of the year.

When colts are debarred from taking much outdoor exercise their hoofs very soon become deformed, and great harm is often done to the bony and tendinous structures of the limbs from neglect to properly trim and regulate the growth of the horny coverings of the feet. Accidents of various kinds are liable to occur, and in all such cases the advantage of having the patients halter broken, thoroughly domesticated and free from fear of their human friends is incalculable. This state of affairs can only be brought about by the most careful, systematic and painstaking handling of the young animals from the time they are foaled, but more especially during the first week or two after weaning.

