

DOCTORING LIVESTOCK

BY A. S. ALEXANDER.

Every farmer should have, in a dustproof case or satchel, not only the instruments necessary for simple livestock operations, but the appliances and dressings used in that connection. For operation and diagnosis, a veterinarian should be called, but so often there is none within reach.

There should be a roll of sterile absorbent cotton, some rolled bandages of unbleached muslin, or preferably those prepared ready for use by surgical supply houses. In addition have four Derby bandages and four flannel bandages for use in lameness, "stocking" of the legs, and surgical cases, or to give support and comfort in sickness. Also keep on hand for packing abscess cavities and for use on the soles of the hoofs. Plaster of Paris bandages and a supply of suture silk and surgeon's tape or plaster will also be needed.

Some of the instruments needed are: Knives for the castration of young calves and lambs; curved scissors and clippers for the removal of hair; suture needles; shoe's hoof nails; rasps and a foot pick; a bone saw or dehorning shears, where sheep are handled; nose rings and a ringing instrument for hogs; milking tubes; a test dilator and air inflation outfit for milk fever in cows; a trocar and canula for tapping a bloated cow and for inserting bull rings (one or two of which should be kept on hand); a two-ounce metal syringe and a vaginal irrigating apparatus; a nose twitch for restraining horses; ear markers or punch; a rectal injection pump, or hose, nozzle and funnel; a drenching bottle and a noosed cotton rope, pulley and overhead ice-thing hooks, for use when administering a drench to a horse.

MEDICINES NEEDED.

All medicines for animals on the farm should be kept in a trunk, or close, dark, locked cupboard. Powdered drugs should be kept in airtight containers, such as sterilized fruit jars. Fluids should be kept in stoppered or tightly corked bottles or jugs. All drugs should be plainly labelled and, if dangerous, should be marked "poison." Throw away any drug if the label is lost and you are not sure what the drug is.

A glass graduate will be needed for measuring liquids; a scales for weighing quantities; a pestle and mortar for powdering and mixing; a flour sifter for mixing powders and removing lumps and coarse particles; a plate glass or slate slab and spatula for mixing ointments; tin boxes as containers, and a supply of clean bottles and corks. The veterinarian may need and use these conveniences on many occasions.

All drugs kept on the farm should be simple and safe. The trained veterinarian uses many strong drugs, alkaloidal poisons and biologic preparations called serums, vaccines, and bacterins which can not properly be given by the stockman. It would be well to get from a veterinarian some colic drenches for use in cases of emergency.

DOSES FOR LIVESTOCK.

Doses (alkaloids excepted): One-half as much again for cattle as for horses; one-half as much again for sheep and goats as pigs; one-half as much for cats as dogs. In other words, horses, 1; cattle, 1½; sheep and goats, 1-5; pigs, 1-8; dogs, 1-16; cats, 1-32. The dose of most powdered drugs for the horse is about one dram, except the alkaloids. The dose of most fluid extracts for the horse is about one dram, not including poisons, such as ricinole. The dose of tinctures is about one ounce. A teaspoonful represents about one dram; a dessert-spoonful, two drams; a tablespoonful, about one-half ounce; a wineglassful, two ounces; a coffee cup, five to eight ounces (one-half pint).

One dram equals 60 drops; one ounce, eight drams; twelve ounces, one pound. Apothecaries' weight (16 ounces, 1 pound. Avoidrupis). In proportioning the dose of medicine to the age of the animal give a horse 3 years old and upward, 1 part; 1½ to 3 years, ½ part; 9 to 18 months, ¼ part; 4½ to 9 months, ⅓ part; 1 to 4½ months, 1-16 part. Cattle and sheep take medicine in the same proportions stated for the horse, but starting with an animal 2 years old and upward for the one-part dose. Pigs of 1½ years and upward take 1 part; 9 to 18 months, ½ part; 4½ to 9 months, ⅓ part; 2½ to 4½ months, 1-9 part; 1 to 2 months, 1-18 part.

MAKING UP SOLUTIONS.

A 1 to 100 solution contains 1½ drams to 1 pint.
A 1 to 500 solution contains 15 grains to 1 pint.
A 1 to 1,000 solution contains 7½ grains to 1 pint.
A 1 to 2,000 solution contains 7½ grains to 1 quart.
A 1 per cent. solution contains 1.28 drams to 1 pint, or 1.28 ounces to 1 gallon.
A 5 per cent. solution contains 6.4 drams to 1 pint, or 6.4 ounces to 1 gallon.

PURGATIVES AND LAXATIVES.

Purgative or laxative drugs in crystal or powder form are: Glauber's salt, a saline salt suitable for all animals and especially to stimulate activity of the liver. It should be dissolved in hot water, well sweetened with molasses, if to be given in large quantities, as a drench, or may be added in small doses to the soft feed or drinking water, if the

animal will take it in that way. Purgative dose: Horse, 16 to 24 ounces; cattle, 1 to 2 pounds in 3 pints of warm water; sheep, 2 to 4 ounces or as a laxative, repeated 3 times daily, give ¾ to 1 ¼ this dose; pigs, 1 to 4 ounces.

Epsom salt, a saline laxative or purgative for all animals, sheep and swine. Dose: Horse, when repeated several times daily as a laxative, 2 to 4 ounces; as a purgative, 16 to 24 ounces; cattle, laxative, 3 to 6 ounces; purgative, 1½ to 2 pounds; calves, 1 to 4 ounces; sheep, 4 to 6 ounces; pigs, 3 to 6 ounces.

PURGATIVE OR LAXATIVE OILS. Castor oil, excellent as a physic, especially in scours or diarrhoea, to be shaken up in milk and given before other medicines. Dose: Horse and cow, 1 to 2 pints; often used in equal parts with raw linseed oil; foals and calves, 1 to 4 ounces; sheep, 2 to 4 ounces; pigs, 1 to 4 ounces.

Raw linseed oil (Boiled oil is poisonous). Dose, as a purgative: Horse, 1 to 2 pints; as a laxative, ¼ to 1 pint; cattle, 2 to 4 pints; sheep and pigs, 4 to 10 ounces. Cottonseed oil and medicinal mineral oil also are prescribed by veterinarians.

FOR WOUNDS AND WIRE CUTS. Coal tar disinfectants and dips are popular. They make a soapy emulsion when soft water is poured upon them. There are many of such preparations, including zoleum, kerso, chloro-naphtholeum, germol, creolin, etc. Each should be used strictly as directed by the manufacturer, and for the conditions and ailments mentioned in his printed matter. From 1 to 5 gallons of such a disinfectant or dip should be found on every farm. The attending veterinarian will direct as to the use of such other disinfectants as bichloride of mercury, carbolic acid, etc.

Potassium permanganate crystals, boric acid and tincture of iodine should also have a place in the farm medicine chest. The latter is especially valuable for putting on wounds. Boric acid in 4 per cent. solution is excellent as a solution in which to immerse sore tents.

Sugar of lead and sulphate of zinc should be labeled "poison" and kept under lock and key. They are used to make the "white lotion" so popular and effective for application to barb wire cuts and all shallow wounds. The formula is: Sugar of lead, 1 ounce; sulphate of zinc, 6 drams; soft water, 1 pint. Label "poison." Shake well before use and apply 1 or 3 times daily.

Copper sulphate (blue stone) should be kept for use in cases of foot rot of sheep, to cut down sprouting growths, and for internal use in a 1 to 2000 solution for destruction of stomach worms in lambs and sheep, the dose of which is ¼ to 3/8 ounce.

Other USEFUL DRUGS. Iron sulphate (copperas), dried, is used to destroy intestinal worms. Dose: Horse, ½ to 1 dram; colts, 10 to 15 grains; cattle, 1 to 1½ drams; calves, 10 to 20 grains; sheep, 8 to 20 grains; pigs, 5 to 30 grains. Flowers of sulphur is used in sheep and hog dipping solutions, in ointments for mange, in dusting powders for wounds, as a laxative, and along with salt and dried iron sulphate for worms. Dose, as a laxative: Horse, 1 to 4 ounces; cattle, 3 to 6 ounces; sheep and pigs ½ to 1 ounce.

Bicarbonate of soda is excellent in indigestion, especially nettle-rash, as a saturated solution for warts on teats, and in water (½ ounce to 1 pint) as an application for itching skin. Not suitable for wind colic (flatulence). Dose: Horse, 2 drams to 2 ounces; cattle, ½ to 2 ounces; calves, 1 to 2 drams; sheep and pigs, 1 to 2 drams.

Hypophosphite of soda is useful in indigestion and bloating, also as a mild antiseptic. Dose: Horse, ½ to 4 ounces in wind colic; cattle, 1 to 4 ounces; sheep and pigs, 1 to 4 drams. Gentian roots, powdered, is a tonic appetizer for used in condition powders; average dose for horses, 1 dram, twice daily; cattle, 2 drams; sheep and swine, 20 to 30 grains.

Ginger root, powdered, is used along with gentian, soda bicarbonate and powdered nux for indigestion, and as a tonic and conditioner. Dose: Horse, 1 dram; cattle, 2 drams; sheep and swine, 20 to 30 grains. Essence of ginger should also be kept on hand. Doses, same as for the powdered drug.

Nux vomica, nerve tonic and stimulant; poisonous, to be used under direction of a veterinarian. Sulfate, much used for founder and lymphangitis, to reduce swellings, allay fever, act on the kidneys and relieve inflammation of the udder (mammitis or garget). Dose, to act mildly on the kidneys in fever cases: Horse, 1 to 4 drams; for a strong action on kidneys, horse, ½ to 1 ounce. For founder of the horse some veterinarians give 2 to 4 ounces once or twice daily or use powdered alum in the same way. Cattle take like doses. Sheep are readily poisoned by salt-peter. It is little used for swine.

Gasoline, pure, for use in 5 ounces of milk to destroy stomach worms in lambs and sheep; average dose, 1 tablespoonful with a like amount of raw linseed oil shaken up in the milk. Turpentine, oil or spirits, for use in liniments and internally for worms, blood colic, or to act upon the kidneys, but only of a druggist. Impure, adulterated, or "turpentine substitute" sometimes used by painters, is poisonous. Dose: Horse, 2 to 4 drams, well

diluted, for kidneys; 1 to 2 ounces in pint raw linseed oil or quart new milk for worms in horses and bloating of cattle; sheep and swine, 3 to 8 drams. Ammonia, aqua, for use in liniments, 1 ounce, with 1 ounce of turpentine and 1 pint of oil.

Ammonia, aromatic spirits, excellent for heat exhaustion in horses and bloating in cattle and sheep. Dose: Horse, ½ to 1 ounce; cattle, 1 to 2 ounces; sheep, 1 to 2 drams. Dilute well with water.

Sweet spirits of niter is much used to stimulate the kidneys, and in chill and colic. Dose: Horse, ½ to 1 ounce; cattle, ½ to 2 ounces; sheep, 2 to 4 drams, for "stretches." Dilute with water. Alcoholic stimulants also are used in larger doses.

Also keep on hand a supply of carbolized vaseline, iodine ointment, pine tar, fresh lard, or cheap vaseline, powdered wood charcoal for indigestion, slaked lime and chlorid of lime. Other drugs can be bought when prescribed by the veterinarian.

There is one advantage in scrub cows—you can milk them quicker than the purple-blooded variety.

Where sheep on permanent pasture have become infested with stomach worms some owners have found relief in the use of the copper sulphate treatment.

Insects Injurious to Live Stock.

Heavy losses are incurred as the direct result of insect pests on all classes of live stock, and stock men must be continually on the watch to keep them from doing harm. Perhaps the most logical way to prevent injury is in the direction of the protection of stock from flies and other insects, not so much by the use of remedies, but by assisting stock to escape from attack. Particular stress is laid on this aspect of the subject in Bulletin No. 29 of the Dominion Dept. of Agriculture, entitled "Insects Affecting Live Stock."

Marketing Poultry Products.

The marketing of poultry, especially dressed poultry, has shown considerable improvement in Canada during the last few years, although much remains to be done before conditions are ideal. Speaking generally, farmers would make more money from both eggs and poultry by properly preparing and packing their products. Bulletin No. 88, "Preparing Poultry Produce for Market," obtainable from the Publications Branch of the Dept. of Agriculture, Ottawa, shows how this should be done. Those who desire to cater to family, hotel, and restaurant trade will also find it a useful guide.

The Sunday School Lesson

OCTOBER 12.

The Sermon on the Mount, Matt., chs. 5 to 7. Golden Text—Thy kingdom come. Thy will be done.—Matt. 6: 10.

I. THE TRUE NATURE OF PRAYER, 5-8. II. THE EXAMPLE OF PRAYER GIVEN BY JESUS, 9-15.

INTRODUCTION.—We have been seeing that the Kingdom of God formed the constant theme of our Lord's teaching, and we have heard of the divine "authorities" with which he spoke, Mark 1:22. The teaching of Jesus was different from that of the scribes, for while the scribes based their teaching on tradition, Jesus spoke from direct knowledge and experience of God. His words laid hold on men with a power unprecedented in their experience, and created an immediate sense of the nearness and the reality of divine things. In the Sermon on the Mount, from which our lesson for to-day is selected, the first evangelist gives us a great illustration of this teaching of Jesus. He wishes us to know how Jesus preached the gospel of the kingdom, and, therefore, he places before us in succession:

1. The Invitations or Promises of the Gospel. These are what we know as the "Beatitudes," describing the character of those to whom Jesus offers the Kingdom, Matt. 5:1-12. 2. The Holy Law of the Kingdom, Matt. 5:12 to 7:12. The Kingdom of God implies the doing of God's will on earth, as it is done in heaven, and Jesus shows that the Kingdom is based on the legal teaching of the scribes Matt. 5:17-48, (2) the religious practice of the Pharisees, Matt. 6:1-18 (3) the concerns and cares of the world, Matt. 6:19-34.

3. The Urgency of Repentance, Matt. 7:13-27. The present lesson on prayer comes from the second section of the sermon, in which Jesus is contrasting the holy nature of true religion with the caricature of religion which is practiced by the Pharisees. The Pharisees give alms, pray and fast, but their prayer is a hollow reality, for everything is done with an eye to human reputations and rewards, not for the sake of the Father in heaven, who sees in secret. The Pharisees do not behold God as he is, or their lives and their religion would be humble and sincere. In the present passage Jesus speaks of prayer, and of what it ought to be.

I. THE TRUE NATURE OF PRAYER, 5-8. V. 5. The Pharisees are "hypocrites," that is, actors in religion. Piety with them is a thing of outward show, rather than a reality of the heart. For example, they pray in public in the synagogue, while the congregation is a hollow show, and the Pharisees receive the approbation of men. This, however, is their only reward. They cannot expect to be heard or rewarded by the Father in heaven, when they never think of that Father in heaven, never once make him real to their own minds.

V. 6. Christian prayer on the other hand is to be in the secret of one's own life, within closed doors, where men are forgotten, and only God is real. It is so easy to let our minds dwell on men: it is hard to fix them on God and on him alone. Yet it is this kind of prayer—the prayer of a soul to which God is real, and to which he is all in all—that brings an answer and a reward.

V. 7, 8. Christian prayer should be simple, avoiding the formality, the "babbling," with which the heathen pray to their gods. We are to go to God as children to a Father, and above all to realize that God knows us and our need before we open our lips.

II. THE EXAMPLE OF PRAYER GIVEN BY JESUS, 9-15. V. 9. In our prayers we are to remember first that God is our Father, and that all reverence belongs to him. What does it mean to say, "Our Father?" It means that we must love and trust him, and yet approach him with reverence, never forgetting that the hallowing of his name is the first requisite of worship.

V. 10. What is the next principal concern of the soul? It is that God's Kingdom should begin, and God's Kingdom means the time when God will be all in all, when his will shall be done on earth, even as it is now done in heaven. This is the summum bonum, and for this consummation the Christian will devoutly pray, all the

more because he knows that through Jesus the Kingdom of God has come definitely near.

11. Let our earthly necessities also raise a matter of concern to the heavenly Father, and we should pray for each day's bread. Jesus would not turn stones into bread, because he honored the Father's mode of creating and providing this elemental necessity. And because we, too, are to labor in accordance with the Father's laws, we can ask that the gift of bread should crown the toil of the day. We ask for "daily" bread, because it is enough that God should provide for each day as it comes.

V. 12. But we must pray also for forgiveness, and we should pray for this, remembering, too, that to obtain the divine forgiveness, we must put away from our own hearts all traces of an unforgiving spirit towards our fellow-men. The grace of forgiveness can flow to us only as we let the same spirit have an outlet in our dealings with those around us.

V. 13. The Christians will pray not to be led into temptation but to be kept from evil. This does not mean that God is the author of temptation, for temptation has its source and its origin in ourselves and in the world. (See James 1:13, 14.) We are to save us from and amid temptation, inasmuch as "the kingdom, and the power, and the glory," belong to him. Vs. 14, 15. The fact that we can truly pray only when we put away the unforgiving spirit from ourselves, is emphasized anew. We do not forgive others in order to obtain God's forgiveness. Nevertheless, God's forgiveness only takes effect on us as we pass on the same spirit of mercy towards our fellow-men.

APPLICATION.

Matthew's Gospel deals with king Jesus and his kingdom of human life, and his sermon on the Mount gives us the laws of that kingdom, and this lesson in particular tells us how to pray as good subjects of that kingdom. Homage to our king is a very important part of our religion.

Our Lord first gives two injunctions how not to pray. Man has been desirous of praying, praying, praying, when we go forth on our knees to meet our fellows, we feel challenged to put our best foot forward. No wonder that prayer has been regarded as the highest function of the human spirit. Nevertheless the corruption of the best may become the worst. Hence the warning how not to pray. We are not to pray as the hypocrites do. The Pharisees were the most religious element in the nation. One of the sins of the saints is to affect a piety they do not feel,—to masquerade upon the ethical plane. All worship is true and real in proportion as the worshiper is absorbed in the honoring of his God.

We are not to pray as the heathen do. Now, the difference between the god of the heathen and the God of the Christian is a difference of love. The heathen feared, and the Christian exercised faith in his God. The heathen thought to propitiate his god with much speaking. This is a kind of atonement wrought out by man himself for himself. That great good man, Phillip Brooks was overheard in his study to say: "Jesus, thou hast filled my life with joy and peace, and to look into thy face is earth's most exquisite delight." That is prayer, as the Christians do.

The next injunction is concerning how to pray. He gives a concrete example commonly called the Lord's Prayer—a gem of purest ray serene. From this we learn at least three things as to form—substance—reference. Prayer should be simple and brief. In our praying, intensity and frequency are of far more account than the multiplicity of words.

Prayer should be comprehensive and devout. Petitions in reference to God's glory come first, then follow the cries out of man's needs. Man's chief end, even in praying, is to glorify God, knowing that enjoying him forever will be added thereto.

Prayer should be fraternal and filial in spirit—our Father, our sovereign Lord. Our daily bread—our daily bread. It takes at least two to make a wholesome religion. God and myself and my brother.

Efficient Farming

PUTTING THE TURKEY ACROSS.

Turkey time is coming. We see it in the leaves and feel it in the air. Already the appetite is getting in training for the great event of the year—Thanksgiving. If you have turkeys and want the top prices for them, a few tips broadcasted by the Dept. of Agriculture will find you interested.

The experts say that range fattening is more satisfactory than pen fattening. Begin fattening about three weeks or a month before marketing, and proceed gradually by feeding lightly on corn in the morning and again in the evening a short time before the turkeys go to roost. Increase the quantity of corn fed gradually until the birds are getting all they will eat. Be careful not to feed new corn too heavily until the turkeys have become accustomed to it, to prevent digestive troubles.

Good-sized, well-matured birds in good condition for fattening can often be marketed to best advantage at Thanksgiving. Small, immature turkeys should be held until Christmas, for further fattening, but if the birds are unthrifty market them at once. Sales outlets to raisers within express shipping distance of good markets are local consumers, local buyers and dealers, more distant buyers or dealers and carlot shippers, buyers or commission merchants of live or dressed poultry in the large cities. To determine the best available outlet study shipping charges and keep in touch with both local and distant buyers as to price. Distant buyers will mail quotations on request.

Most producers market their turkeys alive. Shipping dressed turkeys to markets is justified only when making local sales or there is an unusually favorable outlet for the dressed product. Shipping coops should be high enough to enable the birds to stand up. A coop three feet long, two feet

wide and twenty inches high will accommodate five or six turkeys. Over-crowding may result in bruising, which detracts from the market value; over-crowding may also cause death and complete loss.

If the birds are on the road only a few hours, do not feed before shipping. If they are on the road a longer time water and feed liberally to prevent shrinkage in weight. Ship in time to place the turkeys on the market a day or two before the holiday. Late arrivals may reach an overstocked market, and arrival after the holiday usually means lower prices.

Killing and dressing birds is simple when properly done. Hang up the turkeys by their legs and with a single stroke push the point of a sharp knife up through the roof of the mouth into the brain. When properly done this operation paralyzes the bird and loosens the feathers so that they come out easily. Then sever the veins in the throat just beyond the skull for bleeding. The turkey should be dry-plucked and plucked clean. Thoroughly cool the carcass after plucking, inasmuch as failure to remove all animal heat promptly will result in early spoilage. Cool either by hanging outdoors if the temperature is between thirty and forty-five degrees, or by immersing in cold running spring water or ice water.

When thoroughly chilled, the carcasses are ready for shipment. A barrel is a convenient shipping container. Place a layer of cracked ice in the bottom of the barrel, then a layer of turkeys, followed alternately by layers of ice and turkeys, and topped off with a layer of ice. Tack burlap over the top of the barrel.

CAUTION. If you are building up a permanent turkey business be sure to retain as many of the finest, largest, quickest growing young birds needed to rear the next year's flock and send the rest to market.

How to Winter Bees Successfully.

Successful wintering is essential to profitable beekeeping. This is not a difficult matter provided the leading requirements are understood and observed. To neglect them means ruin and death to the colony. The methods to be followed, both in feeding and protecting, are clearly explained in Pamphlet No. 22, New Series, "Wintering Bees," and all those who desire information on the subject would be well advised to secure a copy from the Dept. of Agriculture, Ottawa, before cold weather sets in.

Many potato growers practice the selection of seed from the bin. This method, while desirable in itself, will not accomplish all that the grower may hope. It is far better to select the tubers in the hills, then one can judge as to the general vitality of the parent plant.



Had a Lot on His Mind. Friend—"Your husband's face looks worried—is he altogether well?" Wife—"Oh, yes; but you see he's trying to figure out how we can begin buying a home and he's got a lot on his mind."

TRAINING OUR CHILDREN

The Power of Example—By Maude Freeman Osborne.

If parents would remember that the power of example is greater than precept, there would be not only less of the "don't" philosophy in bringing up children, but more real results. In other words, when parents themselves set a good example, children find it much easier to conduct themselves properly than when just told what is right.

It is of little effect to tell children not to get angry, or to scold or punish them for getting angry, or to have them read the Bible verse, "He that ruleth his spirit is better than he that ruleth a city," when there is someone in the house, especially someone they love and reverence very much, who once in a while has a display of temper. True, children often because of this instruction "want" to keep from getting angry, but they find it hard to do so when they have the opposite example set them.

I am reminded of what a friend who had lost her only son told me. It was that she felt as if she must "dress and go, and keep cheerful," and she felt, in order that her fortunate might be remembered by her daughters if ever any of them had a similar experience.

Sarah was visiting Aunt Harriet who was suddenly taken ill one day as she was preparing dinner. Sarah could do everything but bake the pie. Looking in a cook book was no aid to

her. She simply did not know how to handle the dough!

Cousin John said, "Oh, I can make a pie."
"You can?" said Sarah. "You never made a pie!"
"No, but I've seen Mother, hundreds of times."

And he did make a fine pie, although not so good as Mother's. I was very much amused at my little Laddie and a neighbor's child, Billie, playing house. Billie, the older, was "Mama." Slapping the dolls around, and talking in a permanent manner, "she" was evidently bent on instituting order out of chaos. Suddenly, in great dismay, "she" exclaimed, "Oh, my! There's the telephone!"

Going to an imaginary telephone, "she" said in a very low voice, "Hello." Then followed one side of a conversation, in the sweetest, most coaxing tones imaginable. After the final "Good-bye," the slappings and commands began again.

My eyes were opened. "Oh, what is the use," thought I, "of preaching what we do not practice, when their little ears and eyes are so sharp and their powers of observation so keen—when they can see right through one like that?" Truly, good examples do far more toward constructive character-building than all the advice that can be given.

Winter Clothes for Flowers and Shrubs.

There is no better material for the protection of our flower borders than leaves, and as an abundant supply of leaves may be had for the gathering, there is no excuse for losing many of our plants over winter.

Many of our old gardeners still cling to the belief that the only good winter protection is straw manure, but the death of many plants which had been covered with leaves, would have come through the winter unscathed. Manure is excellent for some subjects and is of great value as a winter mulch, provided it is applied at the right place. But a heavy layer of manure piled on top of those plants which retain their foliage over winter, such as Canterbury bells, foxgloves, hollyhocks and primulas, will encourage rot. Plants that become perfectly dormant and have no soft shoots or eyes may safely be covered with manure, but its proper place is between the plants, not over them.

The mulch, or protective covering, should not be put on until the ground freezes, the idea being to hold the frost in the ground once it is there, and so prevent the plants from heaving. In the main, there are two evils to be guarded against: First, undue covering of all plants retaining part of their foliage, whereby rot is encouraged; and second, to prevent heaving, in which case the roots are torn from their anchorage in the soil and are therefore liable to be killed.

A very heavy covering is, generally speaking, not advisable, and if leaves are used in moderation they will permit adequate air to find its way to the crowns so that overmuch moisture will never be present over the crowns of the plants. The dead stalks of tall-growing herbaceous plants should be cut down and laid over the plants before covering them with leaves, as their presence prevents the leaves from becoming matted and heavy over the crowns, where rot may be apt to start if no air reaches them.

Beds devoted entirely to roses, especially if they be hybrid teas, should receive a very heavy mulch of leaves, after first spreading manure over the bare ground between the plants. To keep the leaves in place the bed is fenced around with poultry-wire netting which prevents them from being blown by the winds. Tender varieties of roses are also protected by pulling the soil up the stems to a height of six to nine inches. Even should they be frozen down to the soil level, when cut back to good live wood in spring they will quickly send up strong shoots.

Borders and beds filled with spring-flowering bulbs may be covered with either manure or leaves. I have tried both without any apparent difference in the growth or flowers, but the mulch must be removed just as the tops come through the soil in spring, otherwise they are liable to be broken.

Lilies planted in the fall which may not have had sufficient time to become well rooted can be safely protected with the aid of ashes. Ashes to a depth of nine to twelve inches are placed over the clump or row of bulbs to be protected, brought to a sharp peak and made firm so that they will throw off the rain.

Strawberries must have a manure mulch if a good crop of extra fine fruit is to be harvested next year. Do not place it over the plants, but use freely between the rows and close up to the plants. It is best not to apply it until the ground freezes. After the manure is in place cover the tops of the plants with a little straw or leaves, holding them in place with light boughs or brush.

Vines growing in exposed positions are often badly damaged during winter. The logical thing to do is to bring the vines down and bury them with soil or rough litter and leaves. Tender climbing roses and clematis may be safely wintered in this manner, but care must be taken that the branches are not broken during the process of bending them to the soil level. When soil is used it should be so mounded over the vines that it will to some extent shed water. On top of the soil a covering of leaves or straw is given after the ground freezes.

Where the preparation of the new flower beds is contemplated it is an advantage to have the initial work done in fall before the ground freezes. Presuming the bed is wanted for hardy perennials and other miscellaneous plants, plants that will be permanent for several years, the ground should be thoroughly cultivated to as great a depth as possible. A fairly open position is to be preferred if it is so placed that the full force of high winds can be broken. Closed-in and oversheltered gardens often lead to severe attacks of mildew and insect pests.

As planting is not contemplated until spring, the top soil should be left as rough as possible. Leave it in lumps just as it is turned over by the spades, as this gives it a greater chance to be mellowed and improved by winter's snows and frosts.

September and October are the months in which to select next year's breeding hens. Select according to egg production, size and build of body, health and vigor, breed type and color.