







SIR BEDIVERE.

KENNEL SECRETS.

HOW TO

BREED, EXHIBIT AND MANAGE

DOGS.

By "ASHMONT."

Jos. Frank Perry

BOSTON:

J. LORING THAYER PUB. CO.

1893.



SF427
P46

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PRINTED AND BOUND IN THE UNITED STATES
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PRESS OF
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BOSTON.

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TYPE-SETTERS AND ELECTROTYPERS
145 HIGH STREET, BOSTON

“WHEN some proud son of man returns to earth,
Unknown to glory, but upheld by birth,
The sculptor's art exhausts the pomp of woe,
And storied urns record who rests below.
When all is done, upon the tomb is seen,
Not what he was, but what he should have been.
But the poor dog, in life the firmest friend,
The first to welcome, foremost to defend,
Whose honest heart is still his master's own,
Who labors, fights, lives, breathes for him alone,
Unhonor'd falls, unnoticed all his worth,
Denied in heaven the soul he held on earth;
While man, vain insect! hopes to be forgiven,
And claims himself a sole exclusive heaven.”

NOTE.

THE design of this work and the results attained are so evident a formal introduction is unnecessary.

Possibly the elementary character of many of the precepts given will occasion surprise, yet all must agree that it is over trifles that they are likely to stumble, especially where health is involved.

Not a few popular beliefs have been antagonized, but seldom other than those which owe their force to antiquity and repetition.

Mystical speculations and ungrounded theories, calculated to invite confusion, have been excluded in so far as possible; and the measures advocated are such only as rest on bases proved sound by observation and experience.

Every important subject that has engaged attention has been fully discussed, generalities being held practically valueless and misleading. The simplest language has also been chosen and needless technical expressions excluded, to favor ready understanding in the least experienced.

Nature's apparent methods, effects and requirements have been dwelt upon at considerable length with a purpose of protecting the kennel from drugging, as far as may be, and displacing the common tendency to it by reliance on hygienic and dietetic agencies.

It is a pleasing duty of the author thus publicly to acknowledge his deep obligation to his highly esteemed

friend Mr. Chas. H. Mason, for great kindness, sterling criticisms, many valuable suggestions and constant assistance in the revision of the manuscript, in which has been incorporated much that was drawn from his vast fund of experience.

The generosity of fanciers in providing materials for illustrations is also warmly acknowledged, and it is much regretted that all photographs furnished could not have been reproduced to appear herein. But the intent being educational purely, manifestly only the best available specimens of the various breeds should be represented.

Notwithstanding his obvious reluctance to observe the time-honored custom and indulge in a preliminary discussion of his work, and his very decided preference to leave the reader to fashion his own conclusions as to its merits, the author is impelled to emphasize the exceeding value of these illustrations of dogs, being as they are perfectly true to life and of subjects which, with only an occasional exception, have reached the front ranks, while no small proportion are the nearest approaches to perfection that the world has ever known. Consequently these faithful portraits must alone contribute much towards advancement to higher standards.

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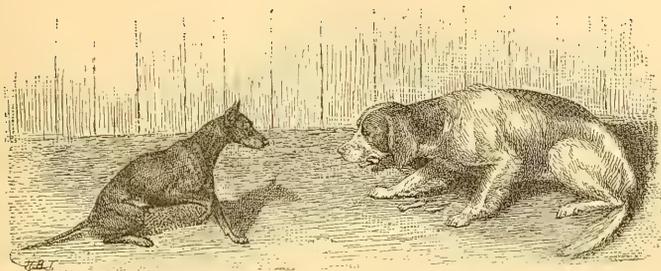
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PART I.



MANAGEMENT.



KENNEL SECRETS.

CHAPTER I.

THE NATURAL DIET.

MEN differ as to the origin of the dog, but all agree that he is of the family of *carnivora* and that he was a flesh-eating beast in his wild state. Admitting this eminently plausible theory the question at once arises, Has domestication created or developed in him the power, which his master possesses in an eminent degree, of accommodating himself to changes of foods as to other altered conditions and thereby rendered him capable of subsisting quite as well on a mixed diet, of vegetable and animal substances, as he once did on a diet exclusively animal? Scientific reasoning and experience answer in the affirmative; yet this solution is not universally accepted, and there are many who, arguing mainly from structural peculiarities, insist that he is purely a flesh-eater still and that animal foods alone are suited to his requirements.

The evidence to sustain this argument, which appears on anatomical investigation, merely shows that he is and has been fitted for flesh eating. And admitting him to be physically so constituted as to be able to derive from an exclusively animal diet all that is necessary to his support and health, he can scarcely be regarded now as other than omnivorous, or in other words as capable of subsisting on a varied diet made up of vegetable and animal substances, as on one entirely animal.

Many centuries have passed since he was redeemed, and in all these he has been the companion and friend of man. Sharing as he has the mixed diet of his master he surely must have felt the force of habit, to which no animal can be insensible, and acquired at least a tolerance for vegetable foods if not an actual need of them. It is by virtue of this force that man becomes so truly omnivorous; and that inferior animals can do the same abundant evidence has been offered in the results of experiments, which have shown that in respect to food changes in their nature have been effected and even hereditary forms of body suited to the altered conditions induced and perpetuated. Cats, for instance, have accommodated themselves to a mixed diet and become similar in form to the herbivorous or vegetable-eating animals by considerable increase in length of their bowels over other members of their family yet untamed.

It is certainly not reasonable to suppose that this power to accommodate to altered conditions in the matter of diet and to assimilate their forms is denied all animals but cats. Far from it, it is easier to believe that it can be acquired by all warm-blood animals, and that many of them that are now either purely flesh-eaters or vegetable-eaters would become omnivorous had they wits to aid them or were they educated up to the changes.



MR. W. K. TAUNTON'S MASTIFF, "BEAUFORT."

Contrast the primeval condition of the dog with that to-day. Once he provided for himself, and the tremendous amount of exercise he was forced to take while searching for food gave him not only a voracious appetite but powers of digestion equal to any burden he could put upon them. Now he is fed regularly and given some exercise but not nearly the amount he had in his wild state. Surely he of to-day cannot have the high health and vigor of his ancestors, nor can his digestive and excretory organs bear as heavy burdens as theirs were wont safely to bear. As a matter of fact allow the average dog of these times to gorge himself with flesh as his kind were accustomed to do of old, and indigestion, if not a severer penalty, would be exacted for even a single indulgence.

But to enter into a discussion of this question is not at all necessary and would be simply a waste of time and space. The dog can safely be regarded as capable of digesting and assimilating vegetable as well as animal foods, and considering his race generally the conclusion must be reached that whatever may have been the food of his ancestors a varied and mixed diet now best suits his requirements.

Since the maintenance of life and health is dependent upon the proper quantity and quality of food, since, also, those to whom dogs must look for their support possess so little certain knowledge touching the relations which the various food substances hold with respect to the structures and wants of their own bodies and the force of various influences to which they are subjected, it is not surprising that the subject of feeding is so often disturbing, nor that so much unsoundness of constitution and proclivity to certain diseases have existed and still exist as results from the use of improper food.

These evidences of how intimately derangements, dis-

eases, and mortality are associated with the supply of food have of course been mostly afforded by those who have kept dogs in such numbers that they have been obliged to make special provisions for them. And no doubt what sound practice may have been attained by the few among them in their choice and treatment of food is the result of long personal experience, which must in most instances have been attended with much disastrous failure.

Doubtless, it is universally admitted that animal food is absolutely necessary to the dog; and it must generally be accepted that a varied or mixed diet is best suited to him; a fairly good idea of the different substances which should make up this diet also prevails; but beyond this the majority of owners are sadly wanting. About the required proportion of the various ingredients they know little or nothing, and are singularly prone to be highly generous in the use of vegetable foods and sparing of animal food, whereas it should often be the reverse. They are apt, also, to lose sight of the great difference in relation to both quantity and quality which habits of life demand, *i.e.* between the habits of those that are worked hard, as in the field, and those living lazy, luxurious lives, as house pets and watchers. They moreover make small account of the different requirements by the puppy and the mature dog; and seem to be still less mindful of the fact that marked individual peculiarities frequently exist. Again, very many of them appear indifferent on the matter of cooking, which oftener than otherwise is imperfect, and in consequence the foods so treated not only fail of their purpose, but, acting as irritants, cause indigestion and other disturbances. Finally, with no small proportion of them combinations of the different foods are mere questions of convenience, they holding to



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the notion that the all-important essential is quantity, and, food being food always, quality is a trivial matter. These are some of the most noticeable faults which appear in the practices of breeders of to-day, and in the face of them it is not surprising that failures are so frequent and such a large proportion of dogs are so often out of condition if not the victims of disease.

The first point of essential interest and importance to be considered is the proportion which the several ingredients of the mixed diet should bear to one another. Unfortunately no rule which will admit of wide application can be fixed here, for the requirements are influenced by the age, amount of exercise, condition of health, seasons of the year, individual peculiarities, etc. A puppy, young and growing, needs in proportion a more generous quantity of animal food—milk or meat—for muscle and bone building than he will after he has matured and his structure is complete. During the hunting season and while his muscles are being constantly drained as it were by his work a dog can not only assimilate more meat, but actually requires a much larger proportion, than he that is kept much of the time on the chain and allowed but little exercise. This important fact can perhaps be given greater prominence by the assurance that an excessive indulgence in meat has much the same effect upon dogs as upon members of the human family; and surely no one will gainsay that while men who work hard, as with the pick and shovel, can eat freely of meat twice and three times daily and be none the worse for it, were students, book-keepers, or others of sedentary occupations, to attempt such a diet, in a short time they must become dyspeptic, bilious, and otherwise disordered.

In estimating the daily quantity of meat some modification is allowable and often demanded according to the

physical condition. Considering the fact that this food tends to produce firmness of muscle with an absence of superfluous fat, while vegetable food on the other hand tends to increase the deposition of fat, manifestly in many instances of underweight it is advisable to give less meat and more vegetable food. In some instances, also, the requirements are the reverse of these, and, as always with bitches that are too fat, it is necessary to feed largely if not entirely on meat until good form is restored.

This, by the way, bears specially on bitches that are not in-pup. And yet such treatment would be safe for those that were, provided with them the increase in the amount of meat was made gradually and there was a corresponding gradual increase in the amount of exercise. But lest the reader draw wrong conclusions here it is urged that assuming the bitch to be one that had been accustomed to a diet consisting of about one-third meat, to put her on to all meat while she was in whelp would be hazardous were she afterward given the same amount of exercise which she had been having and no more. Furthermore, during gestation a bitch could not safely bear the amount of work that a dog fed entirely on meat must have had she been given but an average amount of exercise up to that period.

In estimating the daily quantity of meat an allowance must be made for the season of the year, since the digestive and all other functions of the body vary under the influence of cold and heat — the former stimulating them and the latter depressing them. And manifestly were these variations ignored and the same quantity of meat given daily all the year around, diarrhoea and other disturbances of the digestive organs would be likely to occur in hot weather; moreover, the tendency to skin diseases attended with intolerable itching would then be decidedly greater, in

consequence of the system being clogged with impurities, which are inevitable where the excretory organs are unnecessarily taxed, as they always are when too much animal food has been taken into the stomach.

Possessing as they do the power of accommodating themselves to changes in diet, quite pronounced individual peculiarities in relation to tolerance of certain foods must often be encountered in dogs, and these must be considered in estimating the quantity of meat required.

For instance, toy terriers cannot bear much meat because they are peculiarly susceptible to its stimulating effect and are quickly and seriously disturbed by an excess; the results of which are an impairment of the integrity of the blood, a feverish condition of the system, skin eruptions and falling off in coat.

Again, there are physiological drains upon the constitution, such as that felt by the nursing mother or by the dog much used in the stud, and unusual demands upon it, as in sickness, which have to be provided for by an increase of the daily quantity of meat.

It must be remembered, also, that in many morbid conditions this food must be almost wholly relied upon, not alone because there is a decided repugnance for nearly all other foods but because this is the only one that languid digestion can readily dispose of.

Meat produces a greater feeling of satiety than any other food and forms a greater stay to the stomach because that organ is the seat of digestion and is occupied by it for a longer time. And this fact has a bearing on the question of quantity, for obviously a dog fed once a day only can dispose of and more than likely requires a greater quantity of meat daily than another given two or three meals each day.

It is plainly evident from this that dogs cannot be fed by rule, and that the proportions of ingredients of their diet must be intelligently estimated and varied according to existing circumstances.

Before going further it will be well to compare briefly the relations and effects of animal and vegetable foods. The former are identical in composition with the structures to be built up and kept in repair. On the other hand, although no such identity appears in vegetable foods, yet to a marked extent they agree in composition with animal foods, and all that is necessary for the human body at least can be supplied by the vegetable kingdom solely. But the process required for the digestion of vegetable foods is more complex than that required for animal foods, and while the digestive apparatus of man, built upon a more extended scale, can properly dispose of both kinds of foods with nearly if not quite equal ease, owing to its much simpler construction that of the dog is better adapted to animal than to vegetable foods; and although it can successfully deal with the latter its capabilities in this direction are narrower than those of the digestive apparatus of man.

In other words the dog is so constituted physically that he can digest both animal and vegetable foods, and from them when in correct proportions he will obtain all the nutritive principles required for the growth of his body and to replace the wear and tear upon its tissues. But although vegetable foods may contain all that he requires for these purposes, such is the peculiar construction of his digestive apparatus, unlike his master, it would scarcely be possible for him while under ordinary conditions to subsist on them alone, being unable to extract from them goodly proportions of their nutritive properties. Consequently, while it is perfectly proper to give him vegetable



MR. E. H. MOORE'S MASTIFF, "MINTING."

foods he should have animal foods as well, for were he deprived of them he would be likely in time to lose health and vigor.

While the proportions of the animal and vegetable ingredients of the diet cannot be fixed to suit all cases because of the many elements of variation, it can safely be said that where the former is meat one-third is about the right proportion for dogs in general that are not in training or being hard worked in the field.

This estimate is based on "solid" meat and without regard to the water in which it is cooked, for that—the broth—is scarcely more than stimulating and only slightly nutritious; yet it contains some important elements and should never be thrown away, but always used to soften the bread or other starchy food and returned to the meat.

Now, in order to pass this point and reach a closer estimate one must be guided entirely by the existing circumstances, and weigh in every instance the individual peculiarities, the conditions present, etc., etc. And what is of great importance he must duly consider the amount of exercise allowed, and accept without qualifications the rule that, within limits of course, the less exercise the less meat.

For instance, a man has a number of dogs that he cares for himself, but he cannot devote much time to them because he is at business during the day, and while absent they must be confined to the kennels. He is accustomed to let them out every morning and evening and allow them to scamper off into the fields for perhaps fifteen minutes, but rarely for a longer time, and this is about all the exercise they have except what they make for themselves in their yards or runs. The proportion of meat for them should be about one-fifth.

But supposing that this same man besides allowing his dogs their short morning and evening romps took them out every day for a sharp walk of half an hour. Then he could properly give them about one-fourth meat.

Assuming again that he is less devoted to business, has much leisure and contemplates working his dogs, and besides their short outings mornings and nights he has them out for an hour every day, during which time they cover a good bit of ground, he would then need to increase the quantity of meat and make the proportion about one-third, or perhaps a trifle over this.

Or if it was his custom, besides letting them out for a few minutes' frolic every morning and night, to give them a long walk on chain every day, or slow work behind a horse for twenty or more miles, his dogs might have nearly three-fourths meat.

While were they greyhounds and he had them in training, or hounds that he was working hard in the chase, or pointers, setters, or the like, that were doing almost daily hard work afield, they might have a diet consisting entirely of meat.

In a word, it is safe to assume that the more exercise a dog has the more meat he will digest readily and properly dispose of without ill effects.

Apropos of this, some trainers of greyhounds feed with a large proportion of farinaceous foods and claim a good showing, but, as one writer has in substance said, this is not decisive, and even better results might possibly have been attained had an all-meat diet been given.

There are breeders also who contend that more than one-third meat is demanded by all dogs, whether or not they are closely confined or being trained, or hard worked afield, while nearly as many insist that dogs on an average find ample support in a diet composed of six, eight, or



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even a greater number of parts of vegetable foods to one of flesh.

At this point it is well to remind the reader who is at either extreme that circumstantial evidence is by no means always conclusive. Also, that no two breeds, nor even two members of the same breed, are so constituted that the food suitable for one is precisely as suitable for the other.

Now it is an indisputable fact that some breeders feed very largely on meat and their dogs do well. Not unnaturally therefore they believe it to be the all-important food. On the other hand there are some who rely almost wholly on vegetables and starches, and they in turn are as strongly convinced that their diet is the only appropriate one for all dogs.

A novice accepts the theory of the first and feeds on flesh, but he does not meet with the success which he anticipated, and his dogs go wrong in the course of a few weeks and eventually become wrecks. Another tries the other theory, and with much the same ending — his dogs in time going to pieces.

The result of these unfortunate experiments would at first thought seem positive evidence that both theories were absolutely wrong, yet literally they proved merely that the diets employed were unsuited to the victims under the existing conditions. But had these dogs been placed under precisely the same conditions as those of the breeders whose radical views were accepted, then the results would undoubtedly have been different, and very likely each novice would have become an ardent advocate of the theory he adopted.

The fact is, there are many other influences which bear quite as heavily for or against the health of dogs as the dietetic, and one rightly fed may go wrong because of insuf-

ficient exercise, improper cooking, damp, draughty quarters, neglect of cleanliness, foul drinking water, etc., while another fed indifferently, on food poorly suited to his wants, may yet remain in good health under kindly hygienic influences.

Equally as correct conclusions regarding the potency of these influences can be drawn from the experiences of men, for they act upon them as on dogs. Sailors, for instance, on fairly long voyages are forced to subsist largely on beef and pork which are submitted to methods of curing that render them so indigestible the nutritive properties retained are in such form that a goodly proportion can be extracted only with exceeding difficulty. These meats, with biscuits—very often “weevilly”—and canned goods for only rare change, make up the most of their bill of fare. Yet where can be found a healthier, hardier class than this—and all due to the pure air they are in and the hard work they are required to perform. But put these same men on shore in close-built cities or towns, let them live indolently and on the same kinds of food they had on shipboard, and they must soon decline in health and vigor.

On this subject man is singularly inclined to jump at conclusions. One calls attention to the fact that he is of a family of giants and that neither he nor any other member of it had scarcely any meat during childhood. He sees the city youngsters of to-day fed on mixed diet containing a large proportion of meat, and from this he reasons that their undergrowth and washed-out appearance are due to the meat. Yet he fails to realize that in his early years he doubtless consumed in the form of milk and eggs nearly if not quite as much animal food as they, and that in consequence of their peculiar situation in life these foods in fresh and pure state, and in abundance, are gen-



MR. J. L. WINCHELL'S MASTIFF, "BEAUFORT'S BLACK PRINCE."

erally denied them, and meat is therefore substituted. He forgets, also, that he lived under very different hygienic conditions from theirs—he in the open country and in pure air, while they are in cities, which are rightly called the “graveyards of the human race;” moreover, that from his mother or his father there came to him a sturdy inheritance, while to the youngsters he looks down upon were more than likely bequeathed infirmities which had been in their families for several generations.

Men have theorized over their own diet for scores of years yet they are no nearer agreement now than they were in the beginning. One calls attention to the fact that Scotch Highlanders, the Irish, the peasantry of Italy, Spain, and Portugal, Chinamen, and other races thrive on oatmeal, potatoes, corn, chestnuts, olives, rice or lentils, with little or no meat, and that in Scotland a mountaineer will walk thirty or forty miles a day on oatmeal cakes or porridge with a little barley broth and a modicum of milk or butter, while an Indian palanquin-bearer will carry his burden twenty-five or thirty miles a day with only two meals of unleavened cakes and a little *ghee*.

Another points to the Eskimos, to the fishing population of Norway, and to the *Pecherais* of the southern end of South America, who subsist most of the time wholly on animal food; also to the fact that for months the hunters of the West have little or no food but the flesh of the animals they kill.

What do these facts prove? Merely that man *can* live on vegetable or on animal foods. There is nothing conclusive in all this. Neither the flesh-eaters nor the vegetable-eaters as a whole are superior races; and it is a significant fact that when the East Indian rebellion against the English occurred not many years ago some of the hardest fighters among the Hindus were the sepoys who had been accustomed by the English to a mixed diet.

All this in relation to man's diet, while seemingly foreign, has a bearing on the diet of dogs, for he is singularly inclined to consider that their requirements are much the same as his own. But such reasoning is not always sound, for the dog is of a different order of animals and of different structure, and although he has accommodated himself to other than his natural diet there must be limits to his powers in this direction. Nor does it follow that if one man is right and his dog is doing well on some peculiar diet all others who feed differently are in the wrong.

There is an old saw, "What is one man's meat is another's poison." Nearly all mankind to whom they are accessible can safely eat strawberries, but still now and then is encountered a person on whom they bring out a most annoying rash. Nature's first food for every child is animal — milk — and yet there are not a few people who are made ill by it. The egg is certainly one of the most harmless of foods, nevertheless instances are on record where the merest trace of it has caused convulsions.

But ignoring these idiosyncrasies, which are fortunately but rarely encountered in man, while if they exist in dogs they can scarcely be any more common, two persons seldom meet who are fond of and can digest with equal ease the same kinds of foods, and such being the case individual peculiarities surely must occur occasionally among their humble companions so often fed from the table.

Another fact which has a bearing on the question under discussion is, that the immediate results of diet are by no means to be accepted as final. In other words, because a man or a dog apparently keeps healthy and strong for several years on nearly all meat or on nearly all vegetables, it does not follow that the chosen diet is a suitable one, for it might be doing harm and hidden

changes be going on which must sooner or later result disastrously.

And now to the conclusions. Physicians and sanitarians after drawing from the accumulated experience of men under various circumstances have generally agreed that with healthy people living in the open country, not working very hard, and having an abundance of good wholesome vegetable foods, meat is *not* necessary; while on the other hand it *is* necessary where the air is not pure, the wear and tear on the nervous system is great, and the *work is hard*.

Practically the same conclusion must be reached with dogs after an intelligent study of them under various conditions. While their nature is such they must have some meat always, the quantity must be adjusted to the amount of work given them. And notwithstanding the potency of the force of habit which enables a dog to accommodate himself to quite decided changes from his natural diet, if he has been very active and accustomed to much meat from puppyhood up, and the quantity of this food is suddenly reduced and he is given a diet composed largely of vegetables, and allowed to continue to take as much exercise as usual, he will surely fall off in condition. Now apply the same radical treatment to another dog that has been accustomed to a vegetable diet and give him meat in large quantities but no more work, and evil results are as certain.

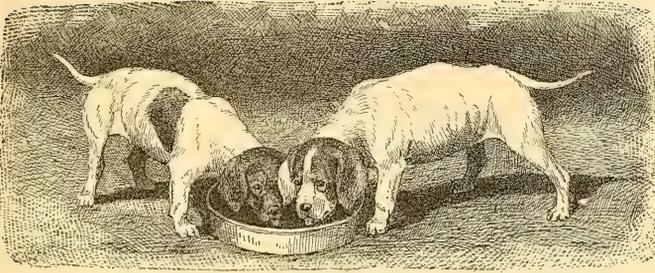
Obviously therefore although men differ widely on this matter, and one contends that a diet of meat is best for his dogs, while another stoutly maintains that his require this food only in very small quantities and that vegetables and starches are nearly sufficient for their support, it does not follow that one or both must be wrong.

Limiting the question to them both may be right, for

the dogs of one because of being worked hard may actually demand a diet largely of flesh, while the dogs of the other in consequence of being much confined may require but a small proportion of this food; and neither kennel would do well on the diet of the other. But for either of the owners of these dogs to assert that *his* is the only true theory, and that it should be accepted by all, and the entire canine race, no matter how placed, should be fed accordingly, is manifestly absurd.

With all the important elements of variation in mind the writer endeavors to deal fairly with the subject of diet, and while he recognizes fully that one dog may safely bear as much meat as two others that are getting the same amount of work, also that one dog may be able to take but very little meat without very hard work, while still another will do nicely for a long time without any meat at all, considering their race in general, as stated at first, he believes that where a moderate amount of exercise is allowed the proportion of one-third meat is ample. Also, that it can rarely fall below this except in cases where the confinement is close. While if the proportion of meat is increased above one-third there must be a corresponding increase in the amount of work, otherwise the blood would likely become impure and the system deranged or diseased.





CHAPTER II.

VARIETIES OF ANIMAL FOODS.

As stated in the foregoing, puppies while young and growing require in proportion a more generous quantity of animal food for muscle and bone building than they will after they are mature and their structures are complete. This does not mean, however, that they should have a greater proportion of *meat* than mature dogs, for while yet they are very young, milk will supply them with all the needed materials; but it must prove insufficient after a time, and this comes much sooner with the large than with the small breeds.

Narrowing the question to meat, as with mature dogs much depends upon existing circumstances. Manifestly a mastiff puppy requires more meat than a pointer, and a Yorkshire still less than the latter. Again, in all litters of reasonable size there are some that need more stimulating food than others, consequently they must be given larger proportions of meat.

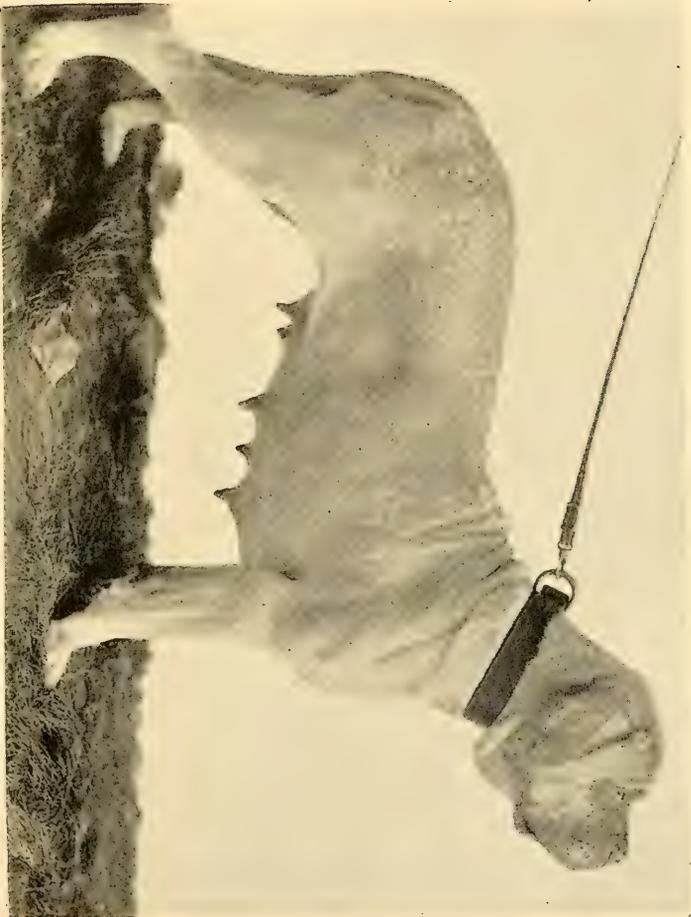
In solving this problem the age must of course be considered, also the amount of exercise taken. For instance, in the first three months puppies are much less active

than they are during the three following, consequently even were they able properly to digest large quantities of meat soon after the weaning they must not be given them lest their blood and systems be rendered impure thereby. But as they grow older and exercise more, and by this means more quickly eliminate the waste from their bodies, the proportion of meat can be safely increased, although in all instances it must be done gradually, and in some it will be found that the increase required from month to month need not be very great.

It is absolutely impossible, therefore, to fix a rule to govern the proportion of meat for puppies. Considering them as a whole, however, also the quantity of milk that they generally take and the number of meals they have daily, it can safely be accepted that about one-fourth is near right for them after they are three or four months old. But as already intimated it should be larger where they are of the largest breeds, provided always the increase is well borne and the growth more rapid and sturdy under it. On the other hand, the proportion should be less for smaller breeds, many of which will thrive and keep healthy and strong on a diet in which meat only appears occasionally and then in small quantities.

For excess in animal foods there are fixed penalties, and under some conditions of life they are more severe than for those of excess in vegetable foods. While the latter tends to the production of obesity, which in itself is a very serious matter, as with brood bitches, and to diseases especially of the skin, as eczema, the former strikes deeper, and lessens greatly functional activity and leads to an accumulation of impurities within the system.

These effects were well illustrated in two mastiffs, bred by the writer, which a few years ago excited much interest in breeders of their variety, for the reason that they were,



MR. C. E. BUNN'S MASTIFF, "CAUTION'S OWN DAUGHTER."

as far as known, the largest pair ever raised from the same litter. Both were sold to the same gentleman, the dog puppy in the tenth week and his sister when eight and one-half months old. Their purchaser being an ardent believer in the theory that flesh alone is appropriate food for the dog, fed almost solely on it, and at the tenth month they were each accustomed to eat between four and five pounds daily. Marvellous development was the result, but it was attained at a terrible cost, for the dog died at maturity of what was called a cancerous disease, and his sister followed him in less than a year; she, according to the report of her owner, "breaking out with fearful sores, wasting rapidly and dying after a short illness."

It is reasonable to assume that these mastiffs living lazy, luxurious lives, were destroyed by excess of animal food. And it is a significant fact that the sister, which had been fed on a mixed diet until eight and one-half months of age, yielded to the excess after suffering from it for about the same length of time as her brother.

While considering the evil consequences of excess in animal food attention can properly be directed to the effects of excess in foods properly combined and in correct proportions. Among the most constant of these are disordered digestion, derangements of the bowels, vitiated secretions, torpid action of the vital organs generally, obesity, perverted nutrition, and as concomitants, fatty degeneration and organic diseases. Chronic or permanent distension of the stomach is another disastrous consequence of habitually overloading this organ; which, while it is doubtless frequently acquired after maturity, for obvious reasons far more often occurs during the early months of puppyhood. And it is well to add that once it becomes permanent it can never be overcome; and in after life there is always a tendency to indigestion, nutri-

tion invariably suffers, and as a rule the victims are low in flesh no matter how wisely and generously they are fed.

The question of preparation of animal food deserves a passing notice. Undoubtedly flesh can be rendered more digestible by the means of cooking, and where that is rightly done, all things considered, it can justly be held as best under the usual conditions of life. But when the processes of cooking are faulty and the way in which they are conducted is indifferent, speaking generally, it is safe to say that meat in its raw state would be better suited to digestion, provided it was in a form which rendered it easily accessible to the digestive fluids—that is, if it was torn or bruised and in small pieces.

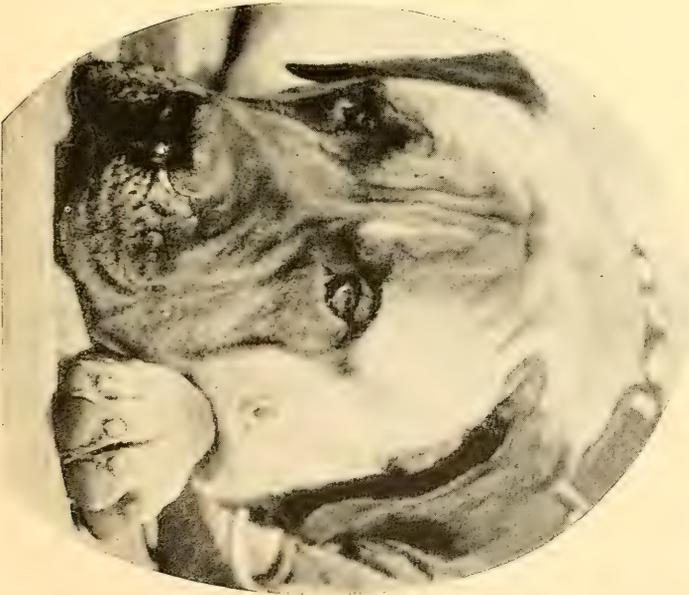
Boiling is the method usually resorted to in kennels, it being the most convenient. Aside from the faults of practice it is open to some quite decided objections, the most pronounced of which is, that it renders the muscular fibre difficult of digestion whether the same is a mass of hard strings, as it were, or finely divided. Soups in which the meat has softened down and “boiled away” are highly nutritious, yet although broken up in minute fragments the muscular fibre is scarcely more digestible than it was while in one mass; moreover these fragments are now enveloped in the gelatine of the meat,—extracted by the long continued high heat,—and this to some extent prevents their being acted on by the digestive fluids.

Notwithstanding this lessened digestibility of the meat, dogs are capable of disposing of these soups to good advantage if the quantity is properly restricted, but if in excess much of them is unaffected during their journey through the body, and is therefore wasted; and, besides, the digestive organs are very likely to rebel and become deranged in consequence of the imposition.



"ORLANDO."

MASTIFFS.



"BEAUFORT."

As for fresh meats cooked for the table, unless of course a perfect contempt for culinary laws is exhibited, they can safely be regarded as quite well suited to the digestion of dogs, also, as containing the most of the nutritive properties of these foods. And where dogs share the diet of their masters, or in other words are fed on scraps from the table, and the quantity of meat given them is ample, it is scarcely necessary to consider the question of quality or that of cooking.

But considering the popular method of cooking meat specially for dogs and the want of care which so many exhibit in its application, the conclusion is inevitable that under certain conditions of life they should be fed on raw meat while those conditions last.

That this may be accepted the fact is urged that no matter how scientific the process of cooking, alterations of a chemical nature are induced in meat and some of its nutritive elements are wasted. Were man perfectly familiar with all the inner workings of the dog's mechanism, the demands in the way of food and the peculiarities of his organs concerned in digestion, then the problem of supply required for the growth and health of the body and to renew the loss from wear and tear, etc., might possibly be worked out. But the dietician has yet to enter this province, and at present only rough estimates can be made, and a very wide margin must be left to cover the many conditions, fixed or accidental, of which little or nothing is known.

Thus far experience has shown the writer that bitches in-pup which are occasionally allowed raw meat during the periods of gestation and nursing are stronger and healthier, give whelp to more vigorous puppies and prove better support for the same, than bitches fed entirely on cooked meat during these periods — that is, on meat

cooked specially for them. The reason for the superior qualities is of course problematical, but it would seem that either raw meat was more easily digested by them and more readily converted with less waste into materials for building, for renovation of the body, etc., than cooked meat, or that raw meat contained highly important elements in better forms or more correct proportions for the work in which they were engaged, and to support them while doing it, than cooked meat.

Experience has also shown that in many morbid states of the system not only is raw meat more acceptable to the digestive organs, but recovery takes place much more rapidly under its use than it does under the use of cooked meat. And another product of experience is the fact that puppies to which raw meat is given often and judiciously, thrive better, grow in structure with greater rapidity, assume more massive proportions and are less frequently ailing than those given cooked meat only, although the quantity of meat is the same in both instances.

But there is a bitter prejudice against the giving of uncooked meat to dogs because of the parasites which it sometimes contains. Beyond doubt this danger exists, for nations habituated to the use of raw meat are notorious harborers of tapeworms; but still the writer believes that much greater alarm is felt than is justifiable. Man is as easily infected as dogs, yet among people of civilized countries cases of tapeworms are never frequent,—in fact they are rare except in imagination, in which pictures of them are drawn by pretenders to medical skill, who have methods of their own for deluding their patients. And considering this rarity, also that cooking as often applied will not destroy the vitality of these parasites, raw meat cannot be nearly as fierce a menace as generally reputed.

This is true of the kinds of meat which appear on the table while yet partially cooked, or "done rare," as commonly expressed, but there are evidently animal substances—some of them are occasionally eaten by man—often fed out to dogs, from which far greater danger is to be apprehended unless they are first submitted to a boiling temperature. Among such are the hearts, livers, lungs—called "lights" by many—paunches and other internal organs. Even greater danger lurks in the entrails of many animals; and these, whether from sheep, cattle, horses or game, should be given to dogs only after they have been thoroughly boiled for the purpose of destroying what parasites are present. The brains of certain animals, especially the sheep, are also a source of danger, which must exclude them from the diet until they have been treated in the same way as the entrails.

These dangers from so many different sources can, however, be easily obviated by observing the simple rule, to feed to dogs, while yet in the raw state, only good, sound and wholesome beef or mutton, and thoroughly cook all other flesh foods allowed them. This religiously adhered to, the danger of parasites from animal foods will be very slight indeed and need not occasion any uneasiness.

Breeders generally are much prejudiced against pork, and rightly so, for it is rich and burdensome to the digestive organs—in fact of all meats it is the most difficult of digestion. At the same time to what are called "scraps" by some and "cracklings" by others, which are the refuse of melting or refining, there can be no valid objection as an occasional ingredient of the diet of hardy dogs. But instead of giving them, as is sometimes the custom, as they are broken from the cakes, much the better way is to make soups of them and thicken the same with vegetable foods.

Although liver is nearly as deserving of prejudice as pork it frequently appears before dogs, and doubtless it is accountable for many mysterious attacks of diarrhœa, for it is one of the richest of foods and as difficult of digestion as it is rich. Considering which only an occasional and sparing use should be the rule.

As for what are known as "lights," some writers recommend them, yet a person would not be likely to feed them to a house pet more than once, for they give the breath an intolerable stench, which can be accepted as unmistakable evidence that decomposition occurred and advanced far before the stomach completed its task.

In the giving of raw meat there are certain precautions to be observed which are well worth considering here. The dog commonly "bolts" the food placed before him largely because there is little if any necessity for him to do otherwise, but accustom him to foods which require mastication and the assistance of the saliva, and he soon shows that he has sense—or instinct—enough to know that he must chew them before he swallows them. In feeding raw meat the facts are often ignored that dogs have teeth for cutting and tearing, and that if the same are industriously used on this food it will be converted into a form favorable for digestion. As a consequence the erroneous practice of giving it to them in pieces but little smaller than the fist is a common one; and to this can be attributed many of the digestive disturbances of which breeders have occasionally complained and for which they have blamed the food.

It ought not to be necessary to urge that raw meat for dogs, old and young, that are fairly healthy and have good, sound teeth should when possible be put before them in a form which will make it necessary for them to cut, tear and crush it before it can be swallowed; or in other words



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it should be in very large pieces, and preferably attached to bones of good size. And when it cannot be obtained in suitable form it should be cut into small pieces or crushed with a mallet before it is fed out; or if intended for puppies or for the sick it should always be minced or scraped.

It will scarcely do utterly to ignore without comment that ancient idea that meat injures the dog's "nose." Where this food is given intelligently its effect upon the scenting powers is transitory merely and limited solely to the period of active digestion. In other words, after he has eaten his fill of meat, for two or three hours his sense of smell is less keen, but as soon as digestion is well advanced it is restored and just as powerful as before eating. And it can safely be said that a sporting dog might be allowed meat from puppyhood until incapacitated by age^e and his "nose" would not in the slightest degree fall off in consequence of his diet. But meat *will* injure this sense if it is given out of proportion to the amount of work or exercise, for then the dog is sure to become feverish and his "nose" as well as his general health must fail him. And where such failure has occurred in consequence of meat it has been invariably due to the lack of judgment on the part of the owners—they giving too much of this food and too little exercise.

The habit of burying meat, so common among dogs, has been the subject of speculation, and two theories have been advanced in explanation. One is, that they do it to ripen it and render it more digestible—possibly, also, that it may acquire a richer flavor. Yet dogs often bury meat that is literally putrid, and the other theory seems the most plausible—that so great is their fondness for this food they will eat it in any form, and, like all animals of the same family, store away and conceal if possible for

the future what remains after their appetites have been satisfied or their jaws have tired from gnawing.

The reader will do well to accept this solution of the problem, for otherwise he might assume that meat even in advanced stages of decomposition would be good enough and not impossibly preferable for his dogs. He may accept as a fact that all tainted meat is poisonous, although it is less so to dogs than to men because of their greater powers of resistance. In fact a quantity of food poison that would kill a man might not have any appreciable effect upon his dog. But notwithstanding this there are limits, and of course no one knows where they are placed; consequently the wisest and safest plan to pursue is to feed dogs on foods that are above suspicion.

It is well to add that of all animal foods none undergo poisonous changes as quickly as liver, and when but slightly tainted it is extremely likely to cause severe diarrhœa.

It is evidently a part of the plan of Nature that a relation should exist between the general character of an animal and its food, and in keeping with this flesh-eaters are in general bolder and more combative than the vegetable-eaters upon which they prey. The same relation also appears in animals that subsist on a mixed diet, and man affords one of the best illustrations of it. Assuming that he has been living on a diet in which the proportions of these foods are about three parts vegetables to one of meat, now let him increase the quantity of meat and lessen that of vegetables, and the chances are many that if of a refined and easy-going, well-balanced nature he will before many weeks show some gross qualities and become more or less peevish and exacting. And returning again to his original diet his good-natured disposition will be restored.



MR. W. C. REICK'S ST. BERNARD, "SIR BEDIVERE."

The same relation and about the same degree of intimacy exists in dogs, and one quiet and gentle while being fed largely on vegetables will more than likely become a little bolder and perhaps be less good-natured towards strangers. And in this case, as in the other, the animal food acts as a stimulant and arouses the natural ferocity, which although evidences of it may under ordinary conditions be wanting yet exists in every flesh-eating animal.

However, this action of meat upon dogs is not sufficiently intense to make it worthy of consideration; and where they have become savage under its generous use, were the truth known it would doubtless appear that in nearly all cases they had been much kept on the chain at the time, and the perversion of nature was due far more to the restraint than to the diet. In a word, treat a dog humanely, and his diet, no matter how generous the proportion of meat, will very seldom injure his nature.

Reverting to the culinary preparation of animal food, it is again urged that when the popular method, boiling, is applied, in every instance the water or broth be fed out with the meat because this contains important elements, extracted during the cooking, which the body must have for its support, especially if under heavy drains, as during gestation and nursing.

As practically stated, to occasionally vary the form of the meat in the diet from cooked to raw is advisable, but the latter can scarcely be wisely given with vegetables and starches, unless it is finely minced and so thoroughly mixed with them it cannot be picked out. Hence, when it is to be but a part of a feed, it should be withheld until the last, for the other foods might be left untouched—the keen edge of the appetite having been taken off by the much more palatable morsels.

As for bones, they have rightly been called the dog's

tooth brush, for by means of them matters which accumulate on the teeth are largely removed. Those which are soft and can be easily crushed, as the body bones of calves, sheep, etc., should be given at frequent intervals, but hard bones endanger the teeth; and the small and dense, which splinter on breaking, are especially forbidden as likely to cause intestinal obstruction—an accident which has proved fatal to many valuable dogs.

A word as to horse-flesh. That of healthy horses which have been killed by accident or in consequence of accident can safely be accepted as good food for dogs, whereas the flesh of horses destroyed by disease should be considered dangerous, although of course it might not always be so.

Meat with all its bearings having been freely discussed, there remain for consideration a few other animal foods of value in the kennels; and these are milk, eggs, and fish.

Milk, Nature's first food for a certain class of animals, necessarily contains all the elements required for the growth of the body, and therefore it must be placed high in the list of materials at command for feeding dogs—old as well as young. But while a perfect food for the latter, its value lessens as age advances because its important elements are so diluted with water; and before a mature dog could obtain enough of them it would be necessary literally to swamp his alimentary canal. In fact, were it alone depended upon a dog of the largest variety would scarcely find support in less than a gallon of milk daily; and this quantity taken continually would speedily injure his digestive system; moreover, he would soon weaken unless kept much at rest, for while milk builds up tissues they cannot withstand very hard labor.

But notwithstanding all this, new milk is a valuable



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food for dogs of all ages, and beyond its supportive effects it has an admirable action on the skin and coat. And really no more solid rule can be fixed than to let all dogs make their breakfasts on it, either alone or thickening slightly with some of the starchy foods.

Skimmed milk, as all must know, is simply milk that has parted with a certain amount of its oleaginous matter or cream, while its tissue-building materials have all been retained. It is therefore nourishing, and merely lacks the force-producing elements of the milk.

As for buttermilk, this also contains all of any value except the fatty matter, while, like skimmed milk, it is scarcely less refreshing and nutritious than new milk; and those who cannot afford the latter should by all means, in summer certainly, be well supplied with one of the others—the cost of which is but a trifle comparatively—and give it to their dogs in generous quantities for breakfast.

The difference between the skimmed and the new is not likely to be noted; but buttermilk is at first less agreeable to the taste, yet a fondness for it is generally soon acquired, and it can always be gratified, for this milk is no burden to digestion, nor is it at all likely to affect the bowels unpleasantly, as many think it inclined to do.

Some dogs take kindly to sour milk, and if so it can safely be allowed them in reasonable quantities, but breeders will do well to withhold it from very young puppies, although within the experience of the writer it only occasionally does harm. As for its anthelmintic powers, which are generally thought to be considerable, if it possesses any such they are of small account.

This list of animal foods would be far from complete were eggs not included, for in conditioning the well and

feeding the sick they could scarcely be dispensed with. Like milk they contain all the elements needed to sustain nutrition, yet some of them are greatly in excess of what would be required for support, while other and no less important essentials appear in such small amounts that in order to obtain all his system demanded, were a dog of the largest size to live on eggs he would be obliged to eat very nearly two dozen each day.

There is, of course, no truth in the popular saying that "an egg is as good as a pound of meat," for in proportion to its weight it is equally as nourishing as meat, and no more. But it has qualities which in some directions make it more valuable as a food than meat; and herein it greatly resembles cod-liver oil—for the yolk is very nearly one-third fat. In fact for medicinal purposes, the relative proportions of fatty matter duly considered, eggs are of no less value than that medicine.

When "spoon-feeding" is necessary, as in times of sickness and once in a while in conditioning for dog shows, no other food can approach the egg in importance, being as it is concentrated and so easy of digestion that even if the organs concerned in the process are enfeebled they are yet able to dispose of it speedily and advantageously.

Again, eggs are most efficient accessories, for the reason that quickly and easily digested and absorbed as they are—except of course when in large quantities—they scarcely lessen the appetite for other foods, hence can be given in the morning, also at noon if required in special cases, and the evening meal will generally be as acceptable and taken with as much relish as if it were the only one of the day. Beyond this, nearly all foods can be fortified by them without their presence being detected.

In feeding the sick, the whites as well as the yolks of eggs can be given in all instances where the stomach will retain them; and when vomited, if the yolks are removed and only the whites administered not only will they generally remain on the stomach but have an agreeable, soothing action on its lining membrane.

To a dog that has fallen off in coat and is under weight no better dietetic treatment can be administered than plenty of new milk with one, two, or more—according to his size—raw eggs, lightly beaten up in it for breakfast, and the same number at noon in about half the quantity of milk taken in the morning. And if he is a dainty feeder, when night comes another egg or two can wisely be mixed with his meat.

If merely suffering from derangement a dog is quite sure to “pick up” quickly under this treatment, and he will very often do so even when down with disease; while in the presence of good health raw eggs can be given frequently, with the assurance that the dogs will be all the better for the change.

It is scarcely necessary to add that whether for man or dogs the eggs should always be fresh, for when stale, even if they have made no near approach to decay, they are far less easily digested than the new-laid.

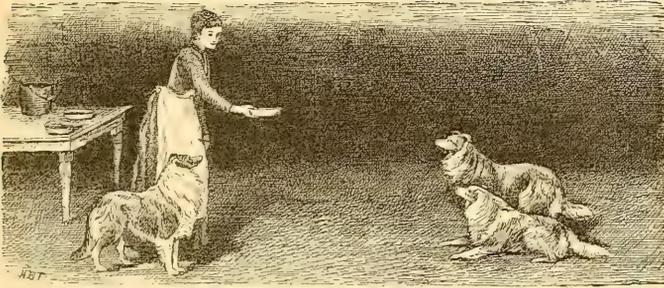
The subject of fish is one soon disposed of. All kinds that have been recently caught and properly cooked can occasionally be used in feeding dogs, but merely to vary the diet, for while nutritious, as usually served they are not very digestible; moreover, dogs seldom show any fondness for this food and generally eat it under protest, as it were.

When it is to be prepared specially for dogs the method to be employed is boiling; and unless the fish are very large it is advisable to enclose them in bags

made of thin and coarse materials before putting them into the kettles.

After thoroughly cooking with a few vegetables the "meat" should be picked from the bones and returned to the broth, which should then be thickened with bread or some starchy food that has been well cooked.





CHAPTER III.

VEGETABLE FOODS.

MANY who have publicly discussed the subject of feeding have stoutly asserted that vegetable substances are absolutely unfit for dogs ; and the reason which the most scientific of them have advanced is, that these animals are incapable of digesting or converting into components of their bodies the saccharine and farinaceous matters yielded by such substances.

While the matters in question are not digested in the stomachs of dogs, but pass down unchanged into the small intestine, experiments have proved that the fluids of the latter transform starch into sugar with the greatest promptitude, and that it is then rapidly absorbed ; also, that if a dog is given meat with one of the meals, as oatmeal or Indian meal, abounding in starchy matter, while some of the former remains in his stomach for several hours, the latter immediately begins to pass into the intestine, and the whole of the starch even may have completely disappeared in an hour's time.

It is plainly evident therefore that Nature has made provision for the digestion of starchy foods.

But notwithstanding this, considering vegetable substances as a whole, the fact remains that they do not contain in convenient form all that is necessary for the support of all dogs under all conditions, and were the entire race fed on them alone, while some might possibly keep well and strong, the infinite majority would in time decline in health and vigor, lacking as they do that complex elaborating system which is required for ready conversion of these substances into all the different kinds of materials—the heavy as well as the light timbers—imperatively demanded for structure-building and repairs. But still, as urged in the foregoing chapters, they contribute in various ways not a little to the welfare of dogs, hence the most serviceable of them deserve consideration here.

Commencing with garden produce, there are noted a number of vegetables against which with scarcely an exception dogs have strong antipathies and from which they will generally turn unless the same are served and thoroughly intermingled with appetizing foods. And this natural aversion is quite fairly distributed although it seems specially strong towards the potato—very likely for the reason that it is the most common of its class and most frequently appears before them.

Yet while it is not easily digestible and should be excluded from the diet when old or imperfectly cooked, if comparatively young and well cooked and mashed there is nothing objectionable about this vegetable,—in fact it can wisely be used occasionally as an accessory food. And although it contributes but little in the way of support and vigor there is no denying that it has health-giving properties, the immediate effect of which appears to be on the blood itself, the integrity of which it seems to favor.



MR. J. F. SMITH'S SMOOTH-COATED ST. BERNARD, "KEEPER."

Practically the same may be said of the carrot, turnip, parsnip, and beet-root, all of which the dog is capable of digesting, provided always the quantity is small and they are properly cooked and well mashed. But while they supply in limited amount a few of the materials required by the body, for their nutritive and force-producing properties purely they are of small value to the dog, and for him their highest importance lies in their tendency to assist in keeping the constitution of the blood unimpaired.

As for such vegetables as cabbages, the tops of turnips, beets, nettles, spinach, dandelion and other "greens," they contain but little real nutriment, nor is much of them digested or absorbed; still they favor the digestion of "heartly" foods and possess all the properties of value which have been conceded to the tubers.

In a word, while not nutritious themselves they seem to make other foods more nutritious; moreover, being largely composed of woody fibre and chlorophyl, which are but slightly if at all soluble in the digestive fluids, they act mechanically as stimulants to the bowels, and so tend to keep them open and free.

Under certain conditions of life, as when fed generously but deprived of exercise sufficient to eliminate the waste — composed of undigested foods and used-up matters — the blood becomes overloaded with impurities, in which state it is often, for convenience, termed inflammable by physicians, while laymen are wont to say that it is "heated up," the terms being suggested by the very strong tendency which then exists to inflammations. And these, by the way, are singularly liable to manifest themselves in the skin where dogs are the victims of the accumulated impurities.

It is in such conditions as this that the vegetables in question have a decidedly good effect by improving the

action of the bowels—the great waste avenue or sewer—which under their impulse carry from the blood more than usual of its impurities; and at the same time this vital fluid feels directly some of the properties of the vegetables and is doubtless more or less purged by them.

Onions, garlic, cress and other like substances of pungent flavors have been credited with medicinal virtues of marked character, while the first named is believed by some to be a sure preventive as well as destroyer of worms. They are all stimulants and cause an increased secretion of the saliva and gastric juice, and in this way favor digestion, provided they are used in moderation, while like all other stimulants they cause irritation when pushed too far.

As for the supposed anthelmintic virtues of onions, the only testimony offered that they possess any such comes from a few breeders who, accustomed to flavor their soups with them, and their dogs having fortunately escaped worms, have jumped at the conclusion that the credit belongs to this vegetable. It really contains an acrid, volatile oil that is strongly irritating and stimulating, and were worms to encounter it in goodly quantities and in concentrated form it would doubtless prove anything but pleasant to them, and might, like all other irritant oils, have some destructive effect. But much of it is lost in cooking. Moreover the proportion of onions to the other ingredients in soups for dogs is scarcely greater than that in like foods prepared for man, consequently it is not reasonable to suppose that it has the reputed effect.

From this brief consideration of garden produce the conclusion is justified that vegetables can be advantageously employed in feeding dogs, to vary the diet, render certain foods more nutritious and wholesome, stimulate the secretion of the digestive solvents, improve the action



MR. JACOB RUPPERT'S ST. BERNARDS, "EMPERESS OF CONTOOCOOK" AND "LADY GLADWYN."

of the bowels, and contribute towards the maintenance of the integrity of the blood.

It is scarcely necessary to add that when used they should be as fresh and free from taint as those on the table, and that no reliance should be placed upon them as supports, the fact being kept in mind that to dogs they afford but very little nourishment.

Of the farinaceous substances or bread-stuffs, called, also, starchy foods, for the reason that starch is the chief constituent of them all, those commonly fed to dogs are wheat, oats, maize or Indian corn, and rice.

Were it best that that kind of food only should be used which embraces in a given quantity the greatest amount of nutrition, then all but animal foods might be dispensed with; but economy aside, obviously the nutritious and unnutritious kinds should be used together, otherwise as the average dog of to-day is placed his digestive organs would be likely to break down in time; and even did this not occur, good form and condition would scarcely be possible. Admitting this, which is certainly within reason, the starchy substances must be accepted as good articles of diet when used in conjunction with other and more nutritious foods.

Of these substances wheat is of the highest value, containing as it does the most flesh-forming and energy-producing materials, and although it deserves consideration merely as an accessory food it has been shown by experiment that dogs can subsist upon it alone for a long time and retain health and vigor, provided they are allowed all parts of the grain. But they could not do this on wheat as generally set before them—that is, as white bread, which for them is far from being a “staff of life.” In fact it is practically valueless except as a vehicle for, or to give substance to, other and rich foods which might

prove burdensome to the digestive organs were they served in concentrated forms.

This bread is very well suited to the wants of man, for although it is deficient in important nutritive principles — thrown out in the processes of bolting and sifting — he takes in other foods and ways like principles in sufficient quantities, and oftentimes in a more digestible form than that in which they appear in wheat. Hence, notwithstanding much that has been written about the superiority of wheat meal — simply the produce of grinding — over wheat flour, all things considered, bread made of the latter is of quite as high a value to him as the “brown bread,” which is made of the meal and contains the external as well as the internal parts of the grain.

But the diet of dogs is not varied to such an extent as that of man, and were much white bread given them to the exclusion of other and more nutritious foods they must be deprived of many principles required for their support, not the least important of which are the nutritive salts — highly essential to the bone and other tissues — and in consequence decline in health and vigor, although they might still appear in good condition, remaining very nearly at weight under its fattening influence.

This fact should sink deeply into the minds of those breeders who are accustomed to feed their dogs largely on trimmings and broken and stale pieces of bread, for to ignorance of it or failure to accept its importance can be attributed untimely deaths of some of the most valuable members of the race this country has ever known.

Such bread remnants if untainted are all very well in their way, for when softened with broths and mixed with meat they render these foods more digestible as well as slightly more nutritious; at the same time they

harmlessly increase the quantity—a matter of no little importance in using highly concentrated foods which would scarcely satisfy the appetite of the average dog unless more than he could properly assimilate was allowed.

In brief, bread made from finer grades of wheat flour yields so little nourishment to the dog that it is of value merely for admixture with other foods, which alone should be very nearly sufficient for his support—that is, without the bread.

As for “brown bread” proper, called Graham bread by many, it is decidedly richer in nutritive matters than the white bread, for it contains all parts of the wheat grain. Owing also to the presence of the particles of bran—which are indigestible and by their roughness stimulate the muscular coat of the alimentary canal, and so aid in keeping the bowels free—this bread is of special value in feeding dogs that are allowed but little exercise. And it may be given with meat alone, in about the proportion of three parts bread to one of meat, or mixed with other starchy foods—as for instance, one-half “brown bread,” one-fourth rice, one-fourth meat, and perhaps one or two eggs, the bread being softened always with a little broth, and the meat chopped fine and well mixed with it and the other foods.

But this “brown bread” must not be confounded with what is known as “Boston brown bread.” The former, as stated, is made from “whole wheat flour,” or in other words from bran and flour, and has much of the lightness and porosity of white bread, but the latter contains various ingredients, some of which tend to lessen its digestibility. And withal, while fresh it forms in the stomach a pasty mass which the digestive fluids find it hard to permeate, and in consequence their work is delayed.

The "Boston brown bread," therefore, is of less value to dogs than white bread, and it should only be given them after it has been long baked or kept until it is dry and hard. In all instances, also, it should be mixed with other foods, as broths, meat, milk, etc., which in themselves contain very nearly sufficient nourishment. And the quantity of this bread in a single meal must always be small—not more than one-half of that which would be allowable were it white bread or "brown bread" proper.

Bread trimmings are quite extensively used in kennels, they being obtainable in cities of dealers who contract for them with keepers of hotels, restaurants, etc., and sell them for much less than the cost of their ingredients. And such being the case, something can properly be said here as to the methods of keeping them.

As soon as they are received these trimmings should be carefully examined, one by one, and all that are in the slightest degree mouldy should be thrown away as worse than valueless. At the same time the loaves or parts of loaves of "Boston brown bread" should be cut into pieces not larger than the hand, that they may speedily dry. This done, the remnants should be spread out in a dry and well-ventilated room, it being borne in mind that in the presence of dampness they mould quickly, also that when this change has occurred they are absolutely poisonous.

In this country doubtless more maize or Indian corn is used in feeding dogs than any other starchy food, and notwithstanding the very bitter prejudice of some breeders against it, it really affords a good, serviceable accessory food, provided it is rightly prepared and fed out, for it contains a fairly good proportion of flesh-forming materials and is rich in fat. Yet except when deprived of its



MR. J. E. WILBEY'S GREAT DANE, "HANNIBAL THE GREAT."

hull and in the form of grits or hominy it is not as digestible as wheat, oatmeal or rice; moreover its peculiar taste must generally be disguised or dogs will turn from it unless very hungry.

It is absolutely necessary to cook this meal for at least three hours, otherwise it will be highly indigestible and much of it will journey through the intestinal canal and pass out unchanged in the discharges, and possibly cause diarrhœa. And here appears one reason for the disrepute into which it has fallen with breeders, they failing to meet this requirement and using it when practically raw; while another pronounced reason is, that for weeks and months it is generally made the staple food and rarely varied from.

But while it is not suited to toys, because like all such meals it is somewhat "heating," because, also, this and other coarse meals are not relished by them, when given to other varieties no unpleasant results need be apprehended if care and judgment are exhibited.

The proper way to use it is for admixture with other starches as well as meat. For instance, without considering the vegetables or soup, let one feeding be made up of one-half boiled corn meal, one-fourth bread and one-fourth meat; the next time substitute rice for the bread; and so on—always softening the starches with the broth from the meat.

Corn meal has also been blamed for skin diseases, and notably eczema, and here again many of the complainants must have been at fault in keeping it until its oily constituents had become rancid, in which condition it is deleterious alike to man and animals, and in both has a special tendency to excite cutaneous affections, some of which are even more serious than eczema.

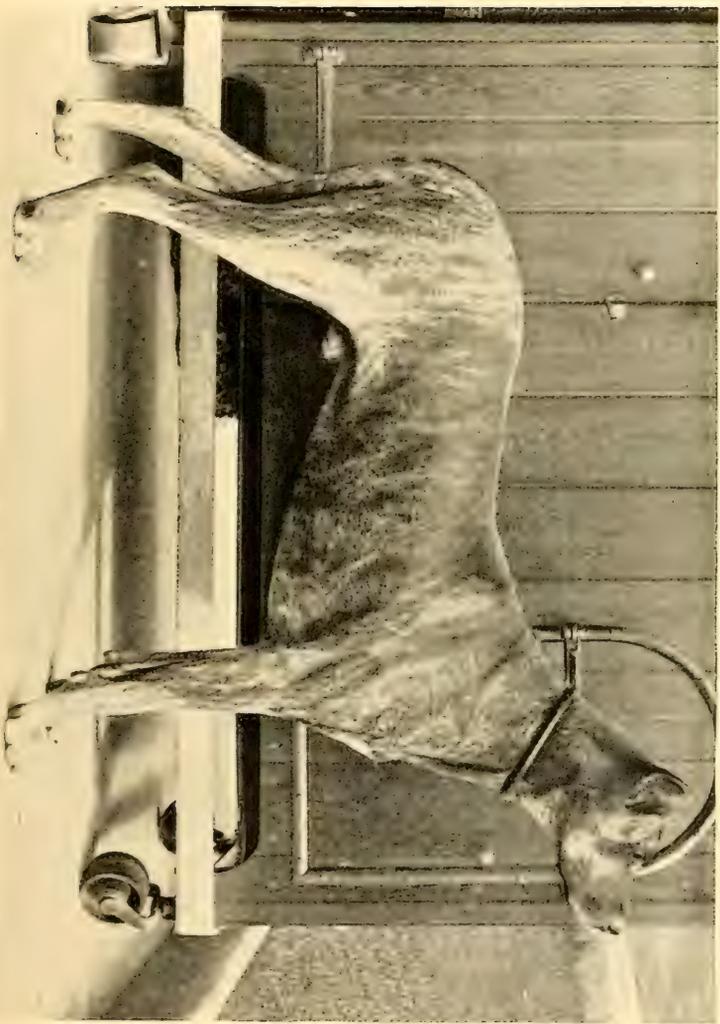
Excepting it, is done in a suitable apparatus and by

steam, the work of cooking this meal by boiling is difficult and laborious, for unless it is stirred constantly it is quite sure to burn; and in the absence of as careful watching as the meal demands, but few to whom the duty is intrusted are likely to stand over a hot fire the number of hours required in the process. Therefore, if without a steam cooker or boiler, all who must trust to hired help not above suspicion should insist that after the puddings have been made they be transferred from the kettles to shallow baking pans, put into hot ovens, and kept there for several hours at least,—and convenience suggests over night—by which means they will be converted into dry and crisp corn cakes, which are easily digested, whereas a mass of half-cooked pasty pudding is like lead to the stomach.

Cakes made of this meal alone are serviceable merely for admixture with meat and vegetables; but were meat, either cooked or raw, “beef-flour” or cracklings, added to them in goodly quantities before baking they might with propriety occasionally constitute an evening meal.

Oatmeal compares favorably with wheat and corn as far as relates to flesh-producing matter, and when it has been rightly boiled some dogs digest it well, but with others it very evidently disagrees; while if improperly cooked it is extremely indigestible and irritating to the lining of the alimentary canal. And at best it is decidedly “heating.”

Invariably, at least three hours of constant boiling are required in its preparation, and this faithfully done, it may be used to thicken broths or milk, but the quantity must be small—much smaller than that of corn meal—and only occasional use will be allowable, it being regarded merely as a means of varying the diet not as a means of nourishment.



MR. E. H. ADCOCK'S GREAT DANE, "IVANHOE."

As for serving it to dogs as man sometimes eats it, as beef brose — made by stirring the oatmeal into hot broth — or as porridge or gruel, in which it is seldom if ever cooked, it would be a mean imposition upon the digestive organs, which would more than likely be attended by gastric and intestinal disturbance.

Rice is extremely poor in tissue-building and energy-producing matters, being very nearly pure starch, yet it is by no means to be despised, and as a matter of fact it is one of the most serviceable of the starchy accessories, while for toys like Yorkshire terriers it is really the staple food.

When properly cooked it is digested with the greatest ease, hence is well borne even where the digestive organs are disordered. Furthermore, it is neither laxative nor constipating. Again, it is a food which can without impropriety be termed “cooling,” for it is absolutely wanting in stimulating properties, and can safely be given in febrile states without fear of intensifying the existing trouble and fever; while in conditions of the system in which there is a tendency to inflammation or a “heating up” of the blood, it never, in the slightest degree, aggravates such tendency.

Consequently it can rightly be said to constitute a food of exceeding value, especially for toys that are peculiarly liable to be “heated up” and as a result have “breakings out” of the skin, also for all other breeds when they exhibit like tendencies. And with its other good qualities it is fattening, therefore a useful aliment with all that are under weight.

But while rice is all this, the fact that it is deficient in nutritive principles must not go out of sight, and when used it should be with other foods, as meat and its products and milk, which can compensate for those principles in which it is wanting.

Dogs are sometimes given rye in the bread trimmings from the table. Some breeders, also, have a meal made of equal parts of this grain, oats and corn, and bake the same in cakes; and this combination is said to act well on hardy dogs that are given a very great amount of exercise every day.

Alone, however, it is not a serviceable food except as an occasional change, and small quantities at long intervals should be the rule, otherwise obstinate indigestion would be likely to result. Nor should it be considered a "corrective"—to overcome constipation—for green vegetables are more efficient, besides far more friendly to digestion.

Barley greatly resembles rye in nutritive power and solubility, and a little that has been well boiled is now and then quite right for a change if it is served with meat, boiled tripe or the like, but any considerable quantity and often is not advisable.

The starchy foods that are likely to find their way into the diet of dogs have now been considered, but before leaving them there are still a few pertinent facts to be brought out, and some already given can properly be reverted to for the purpose of emphasis.

Notwithstanding dogs are capable of digesting these foods their powers are not without limit, and beyond the fact that they might starve while yet their stomachs were full, if too much of them is given not only will a large proportion pass out of the body undigested but the bowels will be weakened in their efforts to dispose of them.

During early life the power to digest starchy foods increases with the age—that is, puppies can digest and otherwise properly dispose of a larger proportion comparatively after they are four or five months old than they could in the second and third months.



MRS. R. T. MARTIN'S GREAT DANE, "ULRIC."

But throughout puppyhood the evil effects of too much starch in the diet are more pronounced than in mature life, and they are generally manifested by "bloating" and diarrhœa, the results of delay in the process of digestion and consequent fermentation and generation of gas.

All this points to one of the most potent causes of the terrible mortality among young puppies, which will only lessen greatly when breeders learn that these little ones should have in proportion a more generous quantity of animal food — if not milk, then meat — than matured dogs, and that while starchy foods are valuable accessories, only in extremely rare instances are they sufficient for support.

Starch is composed of solid granules which are not digestible until after they have been long cooked and softened down. And it is largely because this process is incomplete that starchy foods so often prove failures in feeding dogs. But let them be cooked thoroughly and used judiciously — always with nutritive foods — and they can but prove useful and wholesome accessories.

Happily this fault of giving imperfectly cooked starches to dogs is growing less every year, and in much the same ratio as the so-called "dog cakes" or "dog biscuits" grow in popularity, for in them the starches with the other ingredients are sure to be thoroughly cooked, for otherwise long keeping without taint would be out of the question.

But these foods deserve more than a passing notice, for when of honest ingredients and rightly made they are of exceeding value, being time-saving and constituting an admirable change as well as a means of no inconsiderable support.

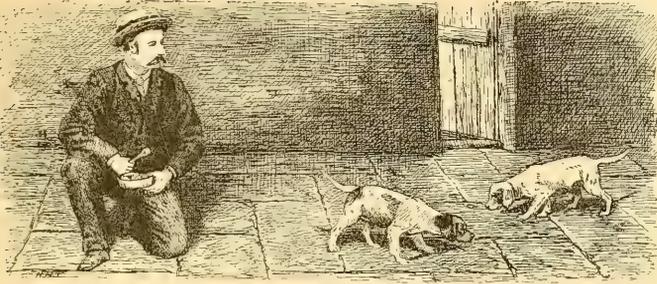
All this can certainly be said of the "dog cakes" manufactured by Spratts Patent — a firm with an experience

of a quarter of a century and a world-wide reputation for integrity.

These Spratts cakes, of which the writer has used many tons, are made from the lower grade of flour,— which contains more nourishment than the white, bolted flours,— good dried beef, fine middlings and ground beets. And after the ingredients have all been thoroughly amalgamated and baked they are left to dry until nearly as hard as bone.

Such is the process of manufacture — which, by the way, is a vast improvement on that first employed — the starches contained in them are in the best possible state for speedy digestion and absorption without taxing the organs concerned in their disposal ; and fortified by the meat and beet roots they constitute a wholesome accessory food of no mean nutritive value, and, besides, have a fat-producing tendency which makes them specially serviceable with dogs that have fallen off in weight.

They are admirable for giving consistency to milk and broths and for admixture with meat, while with mature dogs that are in good health, alone and unbroken they are often quite sufficient for the morning meal. And they may even now and then constitute the sole ingredient of the heartiest meal of the day — at night — with dogs that are kept much in confinement and given but little exercise.



CHAPTER IV.

DIETARY FOR PUPPIES.

HAVING taken a general survey of the range of materials at the command of man for the purpose of feeding his dogs, it is well to return and, starting as it were with a litter of puppies about leaving their mother, apply the principles laid down in the foregoing chapters.

The period of weaning fixed by breeders is between the fourth and fifth weeks; and this seems in accord with the plans of Nature, for the milk secretion is then as a rule falling off, both in quality and quantity, and most mothers give their young other food if their caretakers fail to do so.

Closely observe the average mother that is denied assistance in nourishing her little ones after her milk has begun to fail and she will soon be detected in providing for them from her own feeding-pan, conveying the same in her stomach and regurgitating or vomiting it up before them. And when the puppies are so situated that several experienced mothers have access to them, if their own fails to do this the chances are many that some one of the others will assume the duty.

It can safely be accepted, therefore, that even where the milk supply seems abundant the weaning should be fairly begun during the fourth week. But it is never advisable to wait until this period is reached before taking the preparatory steps, for exigencies are very liable indeed to arise which make weaning imperative at once and complete.

Consequently in every instance puppies should be taught to eat at the earliest possible age, which is soon after the second week where those who assume the duty are patient and persevering. And such rarely find it difficult if they put a little milk into a small shallow dish and gently dip the tips of the puppies' noses into it for an instant, and then allow the little ones to draw back and lick off what adheres.

The milk used in these attempts should be scalded, diluted with an equal quantity of water, and about "blood-warm."

But it is not alone sufficient to teach puppies to drink milk, for they should be accustomed early to the taste of flesh; and the proper food to commence with is very thin broth made specially for them from beef or mutton.

Of course, only a little milk or broth should be allowed at first, — barely sufficient for the purpose for which they are used — but in all cases, whether or not the mother's milk appears sufficient, one of these foods can properly be given about twice daily in the third week, and in gradually increasing quantities up to the weaning.

To be more definite, at each attempt about a teaspoonful of milk or broth will be sufficient for educational purposes. Once eating well, a tablespoonful of one of these foods, if they care to take as much, may be allowed twice daily for three days; and thereafter about a tablespoonful



MR. E. H. ADCOCK'S GREAT DANES, "IVANHOE" AND "DOROTHY."

more may be added to their allowance every second or third day until the weaning commences, assuming that the mother is ample support, but it goes without saying that where she fails the wants of the puppies are to be satisfied.

Gradual weaning, to cover about one week, should be the rule in all cases that will admit it — that is, in all cases in which the mothers are secreting fairly good quantities of milk. But the period can scarcely be prolonged beyond this with safety, for when a mother is nursed only once or twice in twenty-four hours her milk becomes altered and might prove injurious.

When it is decided to wean, the mother should be excluded from her puppies during certain hours each day and permitted to return at fixed intervals, between which and at fixed times they should be fed on cow's milk. As for instance, she should be let out about seven in the morning, admitted about noon and allowed to nurse them, then be excluded for another interval of about five hours, after which she should be permitted to return and care for them until the following morning. And during her absence they should be fed between nine and ten in the forenoon and about three in the afternoon.

Some breeders do not exclude the mother while the weaning is going on, but their course is open to the objection that too much or too little food is likely to be taken at times; moreover an admixture of cow's milk and mother's milk is not advisable when it can be prevented, for together they seem less well borne than when given separately.

Two full feedings of cow's milk each day are all that puppies should have during the first three days of the weaning, — provided always that number is quite sufficient with the quantity of milk afforded by the mother —

but after that they can be fed three times a day. For instance, the mother being taken from them at about seven in the morning and kept away until night, they should be fed shortly after nine, at noon and about three. Then three hours later—about six—the mother should be admitted to them to remain until the following morning, when she should be again excluded until six at night.

While oftentimes the weaning can safely be delayed until the fourth week—to be completed during the fifth—in many instances it is necessary to begin it in the third week. And this is the rule with the largest varieties, but comparatively few members of which have a great abundance of milk at any time, while with the majority the supply declines soon after the second week. In fact breeders of these varieties must ever be on the alert and prepared for this accident, which may occur even earlier than this; and it can properly be said that with them the sooner the puppies learn to eat and the weaning is well advanced the better.

Although all puppies should be early familiarized with the taste of meat as already advised, during the weaning they should be fed on cow's milk that has been scalded. And it will not be necessary to dilute it after they have been taught to take it readily.

The weaning over, and the mother excluded from her puppies nights as well as days, they should as a rule be fed sparingly every third hour during waking hours—the first time at daylight and the last at eight or nine at night.

Scalded milk will do for the first feeding.

The next, to be given about eight A.M., should be prepared as follows: Soak in water a few pieces of stale bread that have been well baked the second time until

GREAT DANES.



MR. OWEN EDMOND'S "EARL OF WARWICK."



MR. J. E. WILBEY'S "SOL."

they are dry and crisp, and crush by squeezing them through the fingers. Pour over this bread scalding hot milk to which a little sugar and a small piece of butter have been added; or instead of the bread well-boiled rice can be used, and the same is sure to be thoroughly cooked—but not too much so—if left overnight in a “slow oven.”

The feeding at eleven can properly be of toast softened with a little light broth.

At two, again the scalded milk and bread.

At five, a little scalded milk alone will be sufficient.

Scalded bread or rice and milk, or toast and broth, should constitute the last meal. And this and the first feeding after daylight should be somewhat larger than those between them, *but in no instance should the quantity be sufficient to swell the abdomen.*

These foods and these methods can properly be persisted in during the first week after weaning.

It is necessary to stop here for a time and discuss at some length the vital question of the number of meals daily for young puppies.

Upon this breeders are widely at variance, and some maintain that for all healthy puppies three meals daily are amply sufficient after the fifth or sixth week, while others contend that “little and often” should be the invariable rule.

Not impossibly a few have had fairly good success with the three-meals-daily system, and that it might do in occasional instances with the largest breeds is possible, yet there is no gainsaying that as a general thing it means failure. And for this there are many reasons.

Were but three meals a day given the first would be presumably between seven and eight in the morning and the last between six and seven at night—or at least

these are the hours set by most of the advocates of the system—and the puppies would be without food not less than twelve hours. This would be none too long were they allowed concentrated and hearty foods that would “stay by” them during the greater part of this time, but their digestive organs will not at first bear food of this sort, nor in fact any other kind in quantity sufficient to occupy the stomach more than two or three hours, consequently long before the morning feeding this organ must crave food, and after it begins to do so the system generally suffers from the deprivation.

For a time the morning meal acting as a spur to the flagging powers would wholly restore them, yet this result is scarcely to be expected always, for were they to decline regularly every night some permanent loss in vigor would more than likely occur. The stomach, also, would be quite sure to rebel in time and thereafter do its work less promptly and well. Again, there deserves to be considered the danger of chilling during the long cold nights, and this is always the greatest where the stomach is empty, for then the fires of life are burning low.

This hasty glance must be conclusive when coupled with the knowledge, which all surely have, of the fact that even for the matured too long intervals between meals hazard digestion and strength, and the danger is greatly intensified where the subjects of the deprivation are very young.

But this is by no means all that can be said in opposition to the three-meals-a-day system. Follow that, and give the puppies all the food which they require for tissue and bone building, etc., and they must take more into their stomachs at these meals than they can properly digest and assimilate. In a word, they must gorge themselves—and this is one of the most ruinous practices in which they can be indulged.

Dear Dr. Peppy,

I am very glad indeed to send you my autograph for your book. I shall always feel deeply grateful to the dog Lovens in England and America who so generously contributed money for the education of dear little Jammy, and I know it will please them to hear that the death of my beautiful dog, Lioness, has been the means of bringing light and gladness into one little child's life. This thought reconciles me to the loss of the most beloved of all my dogs



Helen Keller

Puppies that have done so and weighted themselves down with food are soon sleeping, and generally continue in this state during much of the intervals between feedings, or if awake they are dull and sluggish and disinclined to move about. And assuredly while like this their legs cannot be developing strength as they ought; moreover, their systems must be choking up with waste impurities, which inevitably accumulate where the exercise is limited unless the food is bland in character and of small amount.

It ought not be necessary to urge that the legs of very young puppies are weak and scarcely able to bear their bodies even. Now allow them to fill up continually with food or drink, and deformity is quite sure to result. And in fact did a breeder desire his puppies to become bandy-legged, weak in the pasterns and badly placed at the elbows, he could employ no surer method to effect the result than stuffing them three times a day.

Every ounce of food — every grain even — is so much weight on the legs. Let this fact be fixed; also, that while rapid growth and weight of body may be to the breeder a pleasing sight, if it passes over the line the limbs must suffer and symmetry be simply out of the question.

Considering the matter intelligently, on all sides, there can be but one conclusion, namely, that puppies while yet very young should be "fed little and often." They must not be fed until their abdomens are distended and their appetites glutted, but they must leave off eating while yet ready for more. And then, that their limbs may acquire strength and the foods they have eaten do them the greatest good, they must be kept as much of the time on their feet and as active as possible.

To this end they should be given shin bones from

which at first nearly every particle of meat has been scraped ; and on these they will try their teeth, fight at them, and pound their little legs for an hour or more, and then take a nap.

Note the difference between a puppy treated in this way and one that is allowed to gorge himself three times a day. The latter, weak and tottering, drags his distended abdomen into a corner and sleeps his time away on top of another like himself ; but the former soon stands true and firm ; instead of sleeping he is all for play, and young as he is he is biting and tugging at everything within his reach.

This puppy will grow straight and strong on his legs and upright in his pasterns ; moreover, from his food he will extract its greatest good ; and, in a word, he will in a short time be far ahead of the other and top-heavy puppy.

Never feed all together is another rule which should be fixed at once after the weaning. Ignore this and the puppies will rarely ever take just the right quantities, for the stronger will push the weaker aside. And another point to be kept in sight is, that when fed with others a puppy not only eats what he needs but he eats what he fancies others are going to take from him, whereas if fed quietly by himself he is likely to stop when he has had just a little more than he actually requires — yet not enough to injure him and throw him all out of shape. But now take this same puppy after he has had his fill and put him with others that are eating, and he will go into the pan as though ravenously hungry.

The novice may accept without qualification that these rules — feed little and often, and feed separately — are the two greatest secrets of success in puppy raising. And certainly it is not hard to believe this, for every

breeder knows that the puppy that leaves him soon after the weaning and goes into a home where he is the sole pet of his kind — if the diet and management are nearly equal — is sure to do better than other members of the litter that remain in the kennels.

The reasons for this are apparent. He has far more exercise in his new home, and if there are children in it he is sure to be “kept on the go.” He is played with, pulled by the tail, dragged around, — in fact led a lively dance by these little ones, — and full of frolic, a short nap now and then is all he gets or all he cares for. He is rarely fed regularly or with exceeding care, it is true, and besides his scraps from the table he has a bit of the children’s cake or their molasses and bread, helps the cat empty her saucers of milk, and so on, but he really never gets very much of anything. Yet ever on the move, bright, merry and full of fun, and with a little something always in his stomach, he grows like a weed and as strong as a young lion.

All this is in favor of “walking” as it is called abroad, but “boarding out” as expressed here, and the breeder who resorts to this plan with the puppies which he cannot sell readily is sure to have far better success in raising than he who keeps all his young stock in the kennels, provided always the “walking” is in pure air, as in the open country, and where there is an abundance of milk and light foods, as on farms.

Some of the most pronounced reasons for the advisability of feeding little and often have now been given against the three-meals-daily system. Much more might be said to sustain the position taken on this question, but it is not necessary to go farther. In the absence of exercise all those sovereign essentials, health, good limbs and good feet, are impossible for young puppies; consequently

it must be encouraged and they must be put on their feet at the earliest moment and kept on them as much as possible.

The reader will now be taken back to the litter of puppies which were left in the first week after the weaning. And that there may be no mistake it is urged that these puppies be given until the tenth week the same number of meals and at about the same hours as directed in the week following the weaning — the fifth week. If then they are straight and strong on their legs the number of meals may be reduced to four, and kept at that until the fifth month. But this reduction must not be made as long as there is any deformity of the feet or legs, or any seems threatened.

From the fifth month until the tenth month the puppies should have three meals daily; and thereafter two will be sufficient.

Having been fed on well-baked stale bread and rice and milk, toast and light broths, for about one week, these puppies, assuming that they are other than toys, should have — even as early as the beginning of the sixth week — more concentrated and heartier food. Therefore a sheep's head which has been split lengthwise, or, if this cannot be obtained, lean meat, should be cooked with vegetables, as potatoes, beets, carrots or cabbage leaves, and the whole seasoned with a little salt. After a thorough boiling the vegetables, meat and bones should be removed and the broth thickened to the consistency of pea soup by the means of well-baked stale bread, rice, Spratts "puppy food," or a flour made by grating one or more dog cakes on a nutmeg grater.

This should be given them for about a week; and convenience suggests that it be their food at eleven and the last thing at night, and that their breakfasts be of scalded

milk and bread or rice ; while for the feedings at eight in the morning and two and five in the afternoon a little scalded milk alone will be sufficient.

By the next, or about the seventh, week the puppies will be old enough to eat the vegetables and meat from which the broth is made ; and these after having been thoroughly cooked should be taken out and broken up with the fingers or crushed to a paste in a mortar, and returned to the kettle.

This vegetable and meat soup can be given at the same hours as the light broth in the previous week — that is, at eleven and the last thing at night ; while scalded milk with bread or rice should constitute the breakfasts, and scalded milk alone the other feedings.

At this age — about the seventh week — it is advisable to fortify the food of the puppies of the largest breeds, as mastiffs and St. Bernards, with bone-making material in the form of precipitated phosphate of lime — against the occurrence of rickets or bone deficiencies of a kindred nature. For every four puppies one teaspoonful of this should be given once a day in the food — with the last meal — in all instances even if suspicious signs of deformity have not appeared ; while where such signs are manifested the lime should at once be given twice every day, and in steadily increasing doses until each puppy is taking half a teaspoonful. And it will be well to persist in the use of the lime, once a day at least, for three months whether or not it seems required.

Up to this time the puppies have been given shin bones from which the meat has been scraped. Now all the large ones — also nearly cleaned — that are taken from the soup should be thrown into their yards after breakfast, but the small pieces, sharp splinters, etc., must be withheld, for they might choke them. It will be well,

also, to give them occasionally an uncooked bone to which a little meat is so firmly adherent that they cannot detach it except by much hard work, that they may acquire early a fondness for raw meat, which is often distasteful to them at first.

After they are two months old their vegetable and meat soups should be made quite thick, and for this purpose stale well-baked bread, rice or a little oatmeal that has been "cooked on honor," may be employed. Or dog cakes can be used for occasional change, but these being dense and hard it will be necessary to soften them by soaking in cold water for several hours — preferably overnight — and then, after crushing with the fingers, to put them into the kettle to boil with the other ingredients of the soup.

But whatever the foods resorted to for the purpose of thickening, in the last feeding at night the proportion of meat should be one-fourth — that is, there should be no more than three parts of vegetables and starches to one of meat. And very soon it will be advisable to remove the meat and vegetables from the soup, and, after mixing them with stale bread, crackers, rice or other well-cooked starchy food, use merely sufficient broth to soften the various ingredients.

After the second month, puppies of the largest varieties should have a little cod-liver oil in their feed at eleven, each puppy's portion being about one-fourth of a teaspoonful at first. And as this oil is laxative in overdoses it will be necessary to have an eye to the droppings; but if no effect on the bowels is noted the dose can be gradually increased to a teaspoonful, and after a short time repeated at the last meal — at night.

It is well to advert here to the notion held by many that young puppies should have "sloppy" food until they are



MR. W. C. KING'S NEWFOUNDLAND, "PIRATE KING."

three or four months old. But this is a grave mistake, and were it not enough that at least two feedings of thick concentrated foods are absolutely demanded for support, structure-building, etc., there is still another important reason for feeding puppies on them instead of always on milk and thin broths. No one needs to be told that these little ones are extremely liable to be infested with worms soon after birth, and that if the pests are once lodged in their intestines, unless quickly expelled there are many chances of their proving fatal.

Now, sloppy foods greatly favor worms, but solid foods are hostile to them, because they force them, mechanically, to break their hold on the mucous lining of the intestines to which they cling, and gradually sweep them down the canal out of the body. Consequently for this reason, if for no other, it is advisable that thick foods be given at as early an age as possible.

En passant, it is well to allude briefly to that ancient theory that "raw cow's milk" is conducive to worms. It certainly cannot cause worms, but there is ample reason for the belief that it favors their growth or at least is not unfriendly to them. It furnishes ample nourishment for their support, and at the same time they are in no way unpleasantly affected by it. Beyond this, raw cow's milk is really not kindly received by a puppy's stomach, in the lining of which it causes more or less irritation, which in turn results in an increased secretion of mucus, and this mucus is supposed to be the repository of the ova or eggs from which the worms are propagated.

In using vegetables the fact must be kept in sight that they deteriorate with keeping, and while some become hard and stringy and therefore much less digestible, others are soon absolutely unfit for man or dogs. The so-called greens should be as fresh as possible; the potatoes must

not be too young nor too old; and the carrots, turnips, beets and the like, always in good state of preservation. The cabbage while yet sound and wholesome is soft but crisp, but when the leaves have wilted fermentation has occurred in them and they are most noxious, causing among other disturbances the generation of an enormous amount of gas in the intestinal canal.

It must also be borne in mind that a large proportion of these substances are more or less laxative in their action, consequently the droppings must be watched to determine whether or not they are wisely used. And they, like all other foods, should be varied frequently, mashed turnips being in excess of other vegetables in one evening meal, potatoes in the next, perhaps, and so on down the list, not omitting cabbages, which when long and well boiled, minced fine and thoroughly mixed with meat, can generally be used to advantage once or twice a week.

And it goes without saying that should constipation be noted it will be advisable to increase the quantity of the "greens," they being the most laxative, while if the bowels become too free the use of all vegetables should be discontinued for a time and milk and bread or rice constitute the nourishment.

What is known as flour gruel is the remedy to check the discharges, and this is made by boiling wheat flour long and well in skimmed milk; or the flour can be baked in an oven until it has turned a light brown and then added to boiling milk, and given without further cooking as soon as it has cooled. And in both instances sufficient flour should be used to thicken the milk to the consistency of oatmeal porridge.

It is not merely sufficient to fill the stomach of a puppy or mature dog, or in other words to supply in proper



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amount that one substance which best meets his requirements, for there is risk of falling off in condition unless different substances of the same classes are employed in rotation. Therefore breeders should hold variety in diet of importance to health; and they may accept that when it is afforded, not only the appetite but the digestive powers are better for it.

Admitting all this, one soup will be made of beef; the next of mutton; then one of veal, fish or other animal food. At the same time, while duly appreciating that an admixture of several kinds of vegetables will make the soup more wholesome, nutritious and appetizing, as already advised a different kind will be a little in excess every day. And so it will be with the starchy foods, bread being largely relied upon for thickening one day, oatmeal the next, then dog cakes, rice, etc.

Thus varying the diet and carefully noting the effects of every change, a good sound dietary can soon be established, with the assurance that among the various foods there will be all the important elements required for tissue-building, strength and renovation; or in other words, for growth, vigor and health.

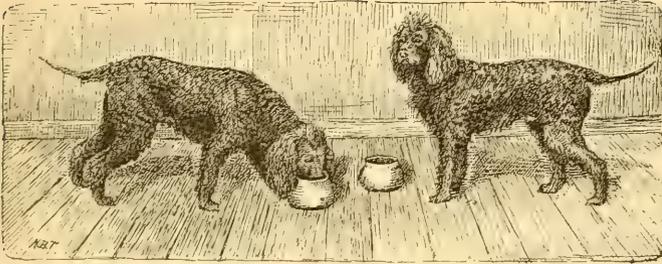
Beef and mutton will furnish variety enough in the way of animal food for puppies until they are three months old; after which veal and fish can be added to the list of materials, and no further additions need be made from this class of foods during the next two months. Then a bit of tripe, well boiled in milk and minced, may be given now and then if well borne. But all additions must be experimental and made gradually, for although they may be in the right direction the stomach in some instances will require time to conform to them.

The milk can properly be scalded during the first two or three months, but after that it will scarcely require this treatment and can be given "raw."

At the fifth month, when the number of feedings is reduced to three daily, milk and bread in sufficient quantity to meet all requirements cannot safely be given for breakfast, for fear of putting too great weight upon the limbs; consequently thereafter good rich soups or quite solid feedings of vegetables, meat and bread, rice or other starchy food, should generally be given instead, although the milk and bread, rice or oatmeal may still be allowed for a change.

But if the puppies are of medium-size breeds and strong and healthy, after the eighth month, when generous feeding is not likely to lessen activity and discourage exercise, and there is no longer any danger of injury to the legs and feet by heavy weight above, milk can be returned to as the mainstay for breakfast; and it may be new or skimmed milk or buttermilk, and allowed in quite generous quantities, with bread or dog cakes for thickening.

With large dogs, however, these generous feedings of milk or like foods can scarcely be safely allowed before the twelfth month, because even then there is danger of their "going over on their legs." And certainly such feedings, or generous drinks of any fluids, must never be permitted if there is weakness of the limbs, splay feet or other deformities below.



CHAPTER V.

GENERAL DIETARY.

THE reader ought now have a near idea of the dietetic treatment required by the average puppy, which is to be found among all varieties excepting toys and others that must be kept down to certain weights, fixed by standards, in order to be able to compete in their various classes at dog shows. In other words he is a puppy to whom size, health, strength and endurance are essentials of infinite importance.

Among the so-called toys there are some fairly robust, but taken as a whole they must be considered delicate compared with other members of their race, while some are notoriously lacking constitutionally. And this is due to the persistent efforts to get the smallest, but not, as some writers have stated, to a persistent selection of the smallest for breeding, for as a matter of fact only a very few of the smallest toys will breed.

Obviously no one rule can be fixed for these varieties, and the limits of the digestive powers must be carefully studied in every instance and the feeding be in accordance with them.

For most puppies of toy breeds new milk must be the principal food during the month after weaning, and this can be occasionally thickened slightly with bread, crackers or well-boiled rice. Mutton or beef broths can then be allowed, but in the beginning they must be as thin and as sparingly used as in cases of infants taking them for the first time.

To feed only a very little and very often, must be the rule with the smallest of these, and once in an hour and a half will be near right for about a month after weaning. Then a trifle longer intervals will be allowable, but they must be very slowly and gradually lengthened, for even when mature toys should have food several times in the day.

In feeding toys and other varieties which it is desirable to keep down in weight breeders must have before them the fact that the animal foods, milk and meat, alone and uncombined with other substances, tend to produce firmness of flesh with an absence of superfluous fat; while on the other hand vegetable foods, and particularly the starches, favor the laying on of fat. They must also bear in mind that animal foods abound in the materials for bone and muscle building; and while in moderate quantities they do but little more than meet the wear and tear of the body and keep the muscles firm and complete, if they are given in excess they tend decidedly to increase the size of the bony structure and amount of muscle or flesh.

That there may be no mistake these physiological facts are simplified and dressed for practice: Give puppies the animal foods, meat and milk, in moderate quantities only and they will be likely to keep down in bone and muscle; give them vegetable foods in large quantities and the tendency will be merely to fatten; give animal foods in large

BLOODHOUNDS.



MR. EDWIN BROUGH'S "BURGUNDY."



MR. J. L. WINCHELL'S "JUDITH."

quantities and the chances are many that the puppies so fed will in consequence increase rapidly in bone and muscle.

Evidently, therefore, in order that puppies may be kept down in weight and size and still be strong and healthy their breeders must feed with exceeding nicety. They must rely largely upon milk, and the quantity of this even must be restricted as nearly as possible to the actual requirements of the body as it then stands, for excess would favor increase in the size of the frame and amount of flesh.

But even in large quantities milk does not tend to fatten if deprived of its cream, yet this is the specially force-producing part, and were milk largely depended upon, to deny very young puppies this part would be to invite weakness and frailties beyond those they inherited. Therefore it would be better to give them new milk for the first month or two, and when they are strong and active—that is for their kind—use skimmed milk or buttermilk largely; and they can generally be safely allowed these at frequent intervals. But it must be little and often even with milk, and a fairly large quantity during the day; and on no account should they be given a large quantity at any one feeding.

All this bears as well on other varieties that must be kept down in size and weight in order to be able to pass under the standard. Their food must be principally animal—milk or meat—and what starchy substances are given them must be reduced in quantity as soon as they put on too much fat; while too rapid growth in frame and muscle will call for a reduction in the quantity of animal food, and especially the meat.

As for the use of vegetables, the safest rule is to allow them only such as grow above ground, as spinach and

other "greens," lettuce, nettle tops, squash, etc., for those from below the ground, as potatoes, carrots, beets and the like are decidedly fattening.

Returning to delicate toys and considering them *without reference to ages*, the fact appears that those with long coats, as Yorkshires and Maltese terriers, cannot bear much meat because of its stimulating properties, and when given in excess it not only tends to create internal dérangement and disease but "heats up their blood." This condition in turn excites skin affections, especially those attended with intense itching, and has a ruinous effect on the coat. And the same evils of excess of meat appear in some of the short-coated toys — the black-and-tan terriers, for instance — in which such skin diseases are never easily cured.

But while toy terriers are easily injured by excess of meat they must not be deprived of this food, and although much of it may be in the form of broths or extracts, — as the "blood gravy" from roast beef or mutton — under ordinary conditions they should have one of these meats at least once a day.

New milk should constitute their breakfasts, luncheons in the middle of the afternoon, and the last meal at bedtime — late in the evening — if one is allowed them.

Fresh tripe that has been boiled in milk and then chopped fine is very acceptable to these little ones, and mixed with a small quantity of boiled barley — the same being softened with a little of the milk in which the tripe was boiled — does nicely for the feeding in the middle of the forenoon.

Bread cut thin and buttered is suitable for a change and may be given occasionally to all that like it, the slices being broken into small pieces and fed from the hand.

For the heartiest meal of the day—at about six P.M.—boiled rice should be the principal constituent. Over this should be poured a little gravy, and then should be added about one-third as much finely chopped beef or mutton as there is rice, also a small quantity of vegetables, and all the ingredients be thoroughly mixed.

For a change, bread, plain crackers, “tea sops,” beef or mutton broth, and scraps from the table if they are free from grease and pungent condiments, as pepper and mustard.

Of this diet, which is as well suited to other toys which have but little out-door exercise, a more extended discussion will appear in the part devoted to “Exhibiting Dogs.”

It is unnecessary to consider at length the diet of short-coated toys, as Italian greyhounds, for theirs should be much the same as terriers; but being less susceptible to meat rather more of it can be allowed them—yet not nearly the quantity which would be safe for hardier breeds.

As to the quantity of food that should be given puppies at each feeding, without considering variety, no rule can be fixed other than that already laid down—little and often. And manifestly keen observation must be backed with no small amount of common sense or one will stray at this point, for he must see that his puppies keep in good “growing flesh,” he must never feed so little as to leave them crying from hunger, and he must stop while yet they might eat more.

Beginners in puppy-raising should start with the conviction that the tendency of almost every inexperienced person is to overfeed; also, that the appetite of puppies cannot be considered a safe indication of the quantity of food actually required by them. Appreciating these facts

they must study their charges closely, and if they do so intelligently, afterward apply judiciously what they have learned, feed always little and often, stop before there is any distention of the abdomen, and keep their puppies on their legs and moving about as much as possible, they will not be at all likely to make any grave mistakes in this part of their duty.

When thick foods are given them and their yards are flagged or concreted and frequently flushed and kept clean, puppies — no matter how young they are — should be made to work for their meals by the following method :

Measure out the quantity of food which is to be allowed two puppies for that meal. Assuming it to be bread or rice and a taste of sheep's head or well-boiled tripe, throw them down just a little. After eating that they will at once hunt around for more. Let them hunt for a while, and then throw down a little more — being careful that each puppy has an equal share. Continue to do this until the supply of food is exhausted.

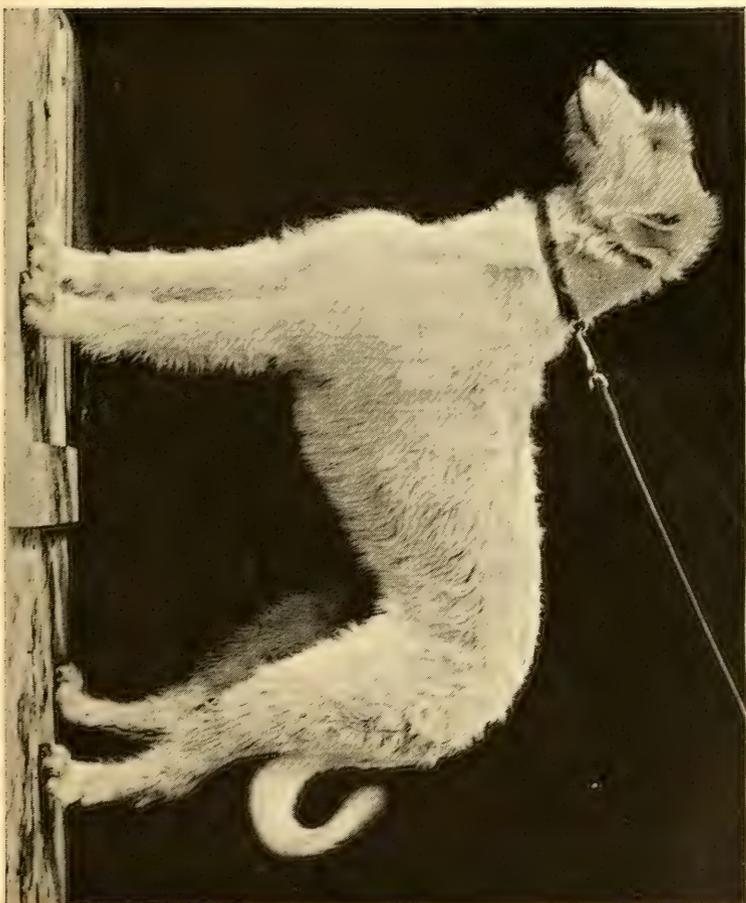
Now when these puppies are put into that yard again they will at once begin to go over it for food ; and the more industrious they are the stronger they will be on their legs and the better they will thrive.

Before leaving puppy feeding a few general rules will be given for the guidance of novices.

Never leave in the pens or yards any other food than bones. In other words consider the duty of feeding your puppies an important one, stand over them while they are eating, determine the quantity of food that is sufficient, afterward measure out like quantity and give them that and *no more*.

Wash your pans as soon as you have fed.

When feeding long-coated toys tie back the long hair of



MR. JOHN E. THAYER'S DERHOUND, "HILLSIDE ROMOLA."

the head lest it become soiled and unhealthy and break at the ends.

Use care in feeding an Irish water spaniel or poodle, for instance, lest his long and heavily coated ears get into the feeding dish and become bedabbled with food.

The first thought of the novice would be to tie or otherwise fasten the ears behind the head, but the experienced fancier—he who is familiar with the secrets of the kennel—would have jars for feeding and watering that were just large enough to admit the dog's head comfortably, and the ears must then, of course, fall outside of the same and no food or water could possibly get on to them.

See to it that the scraps you feed from the table are free from pungent condiments, as pepper, mustard and vinegar or other acids. And this rule should be invariably observed with the delicate toys even after they have reached maturity.

With the common varieties of young puppies be sparing in the use of corn meal, and never give it to the toys whose blood is easily "heated up."

Keep puppies well supplied with good, wholesome drinking water, and at the earliest possible age teach them to take advantage of it.

Now to the feeding of mature dogs. With only one small dog in a fairly large family the "scraps" from the table, consisting of trimmings and pieces of stale bread softened with a little gravy, a few spoonfuls of vegetables and small bits of meat should be ample and eminently suitable for his support; but if the dog is of a large size and the family small, or there are several dogs belonging to it, this supply would scarcely meet the demand. Did it nearly do so, however, dog cakes might be used to fill the measure, and they could be depended upon for breakfasts, and given alone and unbroken or crushed and softened with milk or broth.

Here the fact intrudes that keeping one dog in the house and a dozen or more in kennels are entirely different matters. The former fed on "scraps," running around at will and enjoying a trot with first one and then another member of the family, is nearly always in good condition. But when it comes to managing a large kennel a knowledge is required that the man who only knows how to keep a dog in the city does not possess. In fact one dog in a family will literally keep himself, but with those in the kennels good judgment, constant care and precision of methods are absolutely imperative or the inmates will soon be out of condition.

The "scraps" and dog cakes insufficient, and it being necessary to prepare food specially for several large dogs, some such custom as the following may wisely be instituted during cold weather: Put one pailful of beef trimmings into a kettle and add two and one-half pailfuls of water, a few potatoes, turnips, beets, carrots, parsnips, or the like, not forgetting two or three onions, which in small quantities are appetizing to dogs as well as man. All this should be seasoned with two good handfuls of salt. And salt, by the way, should always be added to broths, "puddings" and all other kinds of foods which man would wish seasoned were they for him. Now let it simmer for several hours; and when well cooked, crush the vegetables and break up the meat.

Assuming that there is enough food here for two suppers, on the second day boil up one or two cabbages until they are soft, a pinch of carbonate of soda being added to the water, mince well and add them to the food left over the previous day.

Cabbages when given in considerable quantity as in this instance should be boiled alone, not with the meat, for they make broth insipid.

It now being necessary to cook again, this time it will be well to obtain fresh fish instead of meat, and use vegetables in cooking as before. But as fish changes quickly and soon becomes poisonous, only sufficient for one meal should be cooked.

On the fourth day again cook beef or mutton with vegetables. Put away enough of the soup for the next night, and to what is retained add bread, rice, oatmeal, Indian meal or the like.

The next day thicken the soup left over with crushed dog cakes. And these cakes with a generous quantity of milk will do for the sixth day's supper.

This diet-table will give a near idea how mature dogs should be fed at night—the time when they should be given their heartiest meal. Further variations will be easy; and the longer the list of foods the better.

The method of preparation advised favors convenience greatly and there can be no decided objection to it where the dogs are of large size, have vigorous digestive powers and are allowed a goodly amount of exercise. But the fact is apparent that a soup made in this way is richer and less digestible than the vegetables and meats would be were they cooked separately. Again, in soups which are thickened with starchy foods it is scarcely possible to keep the proportion of the various ingredients right.

Consequently when it is possible to do so it is best to cook the meat in one kettle, the vegetables in another, and the starches by themselves, and keep them separate until they are to be served. Then the correct proportions can be put into the feeding pan, the vegetables, bread, rice, Indian meal or other starches softened with the broth, and all well mixed together.

Another good way of preparing meat for dogs, and one

that favors convenience greatly when no very great amount of this food is required, is as follows: Obtain, as needed, one or more glass jars of good size such as are used for preserving. Cut the meat fine. Put into each jar a quantity sufficient to make it about one-half full. Fill up with cold water and cover with saucers. Now stand these jars in small shallow pans containing a little water, place them in the oven of the kitchen stove and leave them there four or five hours or overnight if possible. And no matter how tough the meat, when cooked in this way it becomes tender; moreover, nearly all its virtues have been saved and the broth is appetizing as well as quite nutritious.

The morning meal scarcely requires any^ospecial preparation, and one or more dog cakes, according to the size of the dog, or a few dry, hard pieces of stale bread and a goodly quantity of new milk, skimmed milk or buttermilk will admirably meet all requirements.

It will naturally be assumed from this that the writer is in favor of the two-meals-a-day system. He believes that under many conditions for all dogs other than toys a light breakfast—largely of milk, because of its very decidedly good effect upon the coat—and a good supper is the regimen most conducive to health. It certainly in some degree discourages gluttony, for this disposition is as a rule far more pronounced in dogs that are fed but once in twenty-four hours. And these suffer more frequently from indigestion than others that are fed twice daily.

In the wild state the dog was a gluttonous animal, for his chances of a meal came only seldom, and to guard against starvation he was forced to overload his stomach; but now if he is rightly fed this disposition is never exhibited in great intensity; and the less intense it is the better his health.



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But while, as a rule, it is advisable that two meals each day be allowed, under some conditions the number can properly be limited to one and food be given at night only. And on the whole this custom seems best for sporting dogs while in the field, for were they fed mornings and soon afterward started to work, during their hard runs digestion would go on slowly if indeed it did not stop altogether, and the food in the stomach, discomposing and acrid in consequence of being too long retained, would cause gastric and intestinal irritation and diarrhœa. Consequently one meal a day—a hearty one—after their work has been done should be the rule with them.

But in this matter, as in all that pertains to the care of the dog, there must be judgment displayed, and the same based on a thorough knowledge of individual peculiarities, habits, etc. For instance, greyhounds are light feeders and one meal a day is quite enough for the majority of them. And yet there would be no good reason for denying members of this family a snack in the morning had they been habituated to it and seemed the better for it.

Again, assuming that a bitch has been accustomed to one feeding a day and is in-pup, manifestly two meals will be required during the early weeks of gestation, also a light luncheon as the end is rapidly approaching.

In a word, whether there should be one feeding daily or two or more feedings depends largely upon existing circumstances, and these considered intelligently a mistake would scarcely be possible. But to the question, Are three feedings a day advisable under ordinary conditions for other than toys? the answer is emphatically No! For dogs fed so often become dull, sluggish and indolent, and unfit for any special purpose.

The daily amount of food required also depends upon

existing circumstances, and a fixed quantity suited to all dogs even of the same size is absolutely impossible, for one weighing sixty pounds may require as much food as one weighing one hundred pounds; while one will keep fat with one-fourth the quantity given another of the same size and breed. But the intelligent breeder is scarcely likely to stumble badly here, for he will duly consider the individual peculiarities, the amount of exercise taken or work performed, and the state of the appetite, health and general condition; after which he will be able to estimate with near certainty the amount of food necessary to keep his dogs properly nourished.

In some instances the appetite might be a safe guide in regulating the supply of food, but it is frequently perverted and gluttonous, also oftentimes more or less impaired, consequently alone it can scarcely be depended upon as a rule. Yet unless a dog is a veritable glutton he is not likely to go far over the line if allowed at his evening meal all he will eat with very evident relish, but when he turns away as though satisfied, or begins to pick over what is left of his food for the daintiest and most toothsome morsels, it can generally be accepted that he has had about all that he actually requires, and it is time to remove his pan.

A far better plan however is to watch the dog carefully, note his general condition, measure the quantity of food given him in a week or so, then strike an average, and thereafter give him about the estimated quantity as long as he is doing well, or lessen or increase it a little as he puts on or loses flesh. And this wisely followed there will be no "stuffing;" the dog will lick out his pan, and very likely wish he had a little more; and once in condition he will keep there.

„The appetite of the dog, like that of his master, is



MR. ALBION L. PAGE'S DEERHOUND, "OLGA."

sometimes capricious, and occasionally he will turn from a wholesome and appetizing dish. Of course it is a sign of disturbance, yet too much significance should not be attached to it; moreover, it may generally be accepted as evidence that nature has called a halt and nourishment for the time being cannot be properly disposed of. It is better, therefore, in such a case, provided the dog seems well, to remove his food and allow him to fast until the next regular time for feeding. And if mere derangement has caused the loss of appetite more than likely it will in the mean time have been recovered from and he will afterwards eat heartily. If, however, he is not disposed to do so his food should be again taken from him.

Some owners will think this severe treatment, and that their dogs would be in danger of starving were they denied food for three or four days. As a matter of fact dogs have endured abstinence for nearly thirty days. Therefore, in the absence of other symptoms a loss of appetite need not occasion great uneasiness; but still its cause should be determined if possible, and unless the normal condition of things is restored within three or four days the victim should be examined by a competent practitioner, it being accepted that this sign then points strongly to disease.

Occasionally, but fortunately not often, are encountered dogs that while apparently well are what are termed shy feeders. They never eat greedily of any food, and nearly all, if not all, are victims of derangement or disease, and very generally of the digestive organs. Therefore, the starvation treatment would never do for them, and unusual consideration must be exhibited and they be fed on the foods for which they show decided preferences, provided they are wholesome and easily digested. But in the mean time every effort should be made to

discover and overcome the cause of the impairment and improve the general health by means of carefully regulated exercise.

During the summer months, dogs, like mankind, are at times much depressed by the heat, and when so all their powers are more or less enfeebled. Digestion of course shares in this decline in vigor, and it follows that its duties should, for the time being, be made as light as possible. To this end the quantity of meat, the dog's heartiest food, can properly be reduced somewhat and the deficiency supplied by vegetables, and especially those that grow above ground, for not only are they no tax on the digestive organs but by their action on the bowels and blood they greatly favor comfort under exposure to heat. Moreover, where this salutary change in diet is made dogs are much less liable to suffer from skin eruptions attended with intense itching.

Another important rule for hot weather is to cook each day's food on the day that it is to be fed out, and failing in this, all meats, broths and soups, kept over night for the following day's feeding, should be recooked before they are served, for such foods decompose quickly and during this change virulent poisons are developed. In truth dogs are capable of resisting food poisons to a wonderful degree, but just how far their resistant powers extend is not known, and there is reason for the belief that not a few of the now mysterious visitations of sickness in the kennels are due to these food poisons. Consequently re cooking by boiling must be accepted as advisable, and if this is kept up for ten or fifteen minutes all such poisons will with certainty be destroyed.

In closing, the fact is again urged that dogs young and old are often overfed, and if so, while they seem to be doing well at first and putting on fat, puppies at least



COL. J. T. NORTH'S GREYHOUND, "FULLERTON."

sooner or later are sure to grow thin in consequence; and the same result is often noted with mature dogs. There is truth in the old saying that one may starve with a stomach full. Persistently overfeed a baby and it will waste away and die, and the same error in feeding a puppy is likely to result as disastrously.

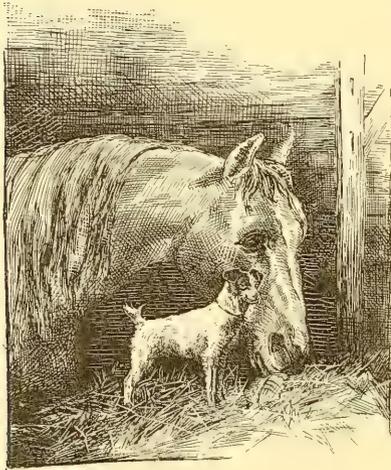
Overfeeding is scarcely likely to kill a mature dog but it will surely put him out of condition — make him thin, dispirited and ailing, and his coat harsh and staring. But few appreciate this fact however, and when dogs present symptoms induced by gluttony they are generally fed even more generously.

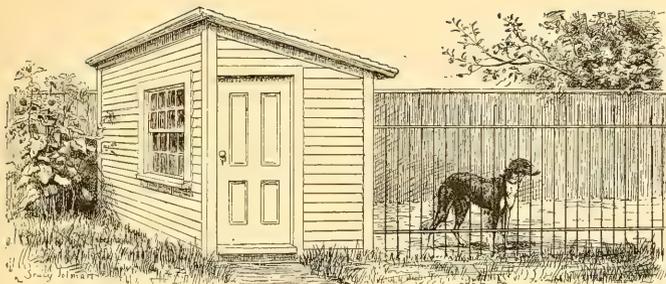
A dog that is allowed perfect freedom is not often made ill in consequence of over-eating, because free exercise is his remedy, but one much on the chain soon suffers greatly from the ill effects of this habit. And this important fact should be kept in sight and have due weight in estimating the amount of food required.

A word of protest here against allowing dogs to become too fat. This fault is a common one among owners of large breeds, and some judges at bench shows do much to encourage it. The term "condition" as used by them is decidedly elastic, but these judges generally appear to consider a large dog in condition when he is well rounded out even by an excessive accumulation of fat. Yet a sporting dog to be in good condition must be comparatively lean; while all others that are really in good condition are in good health, free from any excess of fat, and firm and hard in muscles and flesh.

Finally, not only should the food of dogs be of good quality and carefully prepared, but it should be served up in dishes that are sweet and clean. Many authors have discussed the dirt-eating propensity of these animals and reached the conclusion that their food should be thrown

upon the ground. The propensity in question however is indicative of a derangement somewhere within the system, and must be likened to the abnormal appetite for slate pencils, chalk, etc., which is sometimes noted in girls who are suffering from poverty of the blood.





CHAPTER VI.

KENNELLING.

HEALTH is the dog's natural condition and he would rarely know any other were he given freedom and left to himself. But he is put under restraint, his supply of sunshine and pure air narrowed, and he is exposed to other unfriendly influences which must draw him away from Nature, — who is constantly struggling to keep him and all others in her domain free from ills, — and of these influences some of the most potent lie in the familiar and faulty kennel conditions.

“Any place is good enough for a dog” is an expression which one hears with distressing frequency, yet it is scarcely more contemptible than the practices of many who pretend to care for him yet house him through all seasons in small boxes which scarcely afford more than mere covering, or in out-buildings, cold, draughty, damp, ill-kept and contaminated with emanations that must inevitably, sooner or later, undermine his constitution and impoverish his health, as well as make him a ready victim to inflammatory diseases.

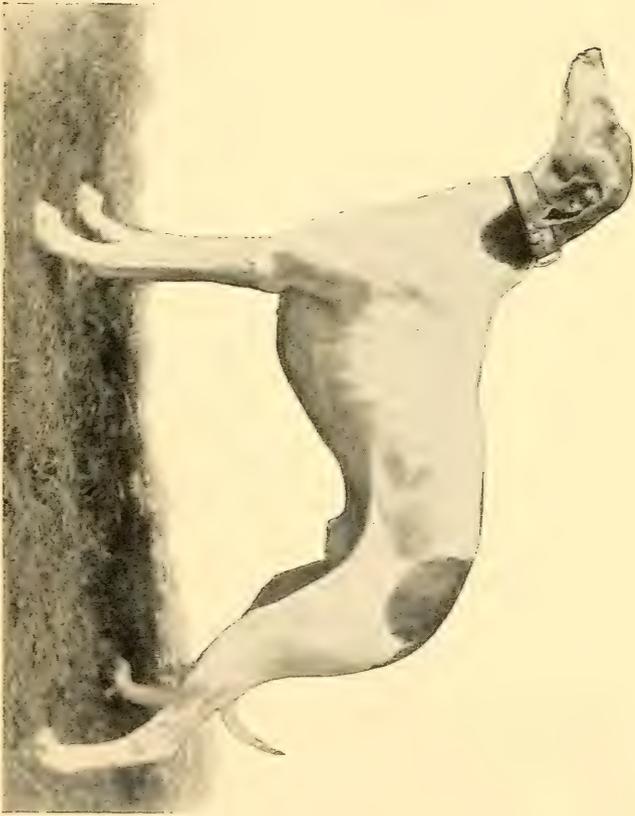
No valid excuse can be given for faulty kennelling, no

matter where the owners live or how poor they are, for he who is unable to provide suitable quarters for his dog elsewhere can share his own roof with him, and this no person of sense will be ashamed to do. But the problem of housing can scarcely be as easily disposed of in all instances, for there are quite a number of varieties of dogs which for their own welfare should be quartered beyond the living rooms of their masters; but still, the solution can be reached even where every trifling expense must be felt.

The most primitive kennel is a large and stoutly constructed barrel of the kind used in these days for alcohol, kerosene oil and many other fluids. This placed on its side and blocked up a foot or more from the ground by stones, bricks or wood, and with a wide board inside for a floor, would afford fairly good summer quarters for a small dog, which if unchained during the mild season would not likely seek shelter except in stormy weather.

But while such a device might answer its purpose there are not many owners, even among the poorest, who would be content with it, nor has it any advantages beyond those of a packing case or "dry-goods box" of goodly size if the top and sides of the same are covered by tarred paper. And the latter is certainly more sightly, while its cost is less than that of a barrel.

These boxes are used altogether for summer quarters by some breeders of varieties of medium sizes who place them about in the yards, providing one for each dog; and theirs is certainly a commendable custom, for dogs so treated are nearer nature, therefore healthier than they would be in stables, barns or large kennels. Moreover, as such boxes are inexpensive they can be burned and replaced occasionally during the season, and the necessity of whitewashing or using disinfectants and insecticides thereby obviated.



MR. A. W. PURBECK'S GREYHOUND, "GEM OF THE SEASON."

A small house could easily be constructed by any one accustomed to the use of tools, and for a sum but slightly in excess of what a good box or barrel costs ; but to insure comfort it would be necessary to build on a different plan than that so generally considered suitable for small out-door kennels.

The prime essentials in such a building are, amply sufficient space for the tenant to stand and turn easily, and protection from draughts.

The latter can only be met by building the kennel very wide—in fact nearly double the width required merely for sleeping quarters—and in this way provide a hall-way, as it were, which the tenant must enter from the outside and pass through before he can reach his room.

In the construction of kennels of this sort “matched boards” are generally used and tarred paper put in for lining, but while warmth is secured there are decided objections to this lining, for moisture accumulates between it and the boards, and the quarters are damp for many days after a hard rain. Consequently it is best always to “batten” over the joints or put on shingles.

A small window in his room and facing his master's house would be the desire of the tenant had he voice in the matter, and were this put in and provisions made for a storm window for cold weather the quarters would be much healthier for it.

There are several ways in which convenience in cleanliness may be favored: one, to hinge one-half of the roof to the other half, by which means it can be lifted as the lid of a box; another, to “cut in” a door in front, at the side of the hall-way door; but the best of all is to have the entire front hinged at the top so that it can be raised, when it will be easy to clean all parts inside.

The kennel completed and in place, a large platform

should be built in front that the tenant may sun himself without being obliged to lie upon the ground.

Such a building as this properly situated, kept clean, etc., would be comfortable quarters for a dog in pleasant weather; and if long-coated and hardy and he had plenty of exercise in the daytime he might pass the winter nights in it were an abundance of bedding put in and a piece of carpeting tacked over the door. Yet it has literally nothing to recommend it except perhaps its low cost, while many serious objections appear, one of which is that it must inevitably be damp at times. Consequently, to consider it further, the best situation for it, etc., would be simply wasting time and space.

A loose box in a stable of stock will do nicely for sleeping quarters, but he who has neither this nor other suitable out-house should build for his dog something deserving the name of kennel. Consenting to do so he will consider first the great requisites, which are dryness, air, sunshine, freedom from draughts, protection from cold, and convenience.

If he has a choice of situations he should take the high ground as most favorable because of surface drainage, for nothing is more important in the construction of this, and for that matter every building, than that its foundation be protected from dampness, which, by the way, is an influence positively destructive to dogs.

If the ground is sloping the floor timbers can be set on cedar posts projecting about two feet, but if level a foundation will be required. Merely a stone wall two feet in height will do for this if the soil is light or sandy, but if clayey or of other nature calculated to retain moisture it will be necessary to build such a wall and fill in with cinders or make a concrete foundation in this way: Over the space the building is to cover lay closely large stones; fill



MR. N. Q. POPE'S GREYHOUND, "BALKIS."

in between them with small stones; cement the top and "point" the sides.

This foundation ought to be two feet in depth, and at least one barrel of cement with as much gravel as can safely be mixed with it should be used in its construction if the contemplated building is of the size about to be advised. And the floor timbers laid on it there will be absolutely no danger of dampness from the ground.

If intended for two small dogs or one large one the kennel should be nine or ten feet in length; five feet in width; height at the front nine feet, and at the back seven feet.

The timbers should be of spruce, free from large knots, sap or shakes, and of the following dimensions:—

Sills, 4 x 4; posts, 4 x 4; studs, 4 x 2—double at openings, sixteen inches on centres; plates, 4 x 2; rafters, 4 x 2—twenty inches on centres; floor joists, 6 x 2—eighteen inches on centres,—and these should be furred up on the rear and one end so that the floor when laid will have a double pitch of three-quarters of an inch to the foot and towards the small door for the dog.

Cover the rafters of roof and studding which form the walls with rough boarding; over this on the walls place two thicknesses of Beaver brand sheathing paper.

Cover the papered walls with spruce clapboards, laid $4\frac{1}{4}$ inches—but not over this distance—to the weather using galvanized iron nails.

Under all finish around the doors, windows, etc., put on tarred paper over the sheathing paper.

Cover the roof with cedar shingles, laid $4\frac{1}{2}$ inches to the weather.

On the floor joists put down $\frac{7}{8}$ rough boards; on them two thicknesses of tarred paper,—turning the same up four inches all around the walls—and over all lay a finished floor.

By building after this plan one will obtain a kennel which will be cool in summer but warm in winter and thoroughly weather-proof.

At one end there should be a door to admit the owner; while the door for the dog should be at the back and where it will open into his out-door yard.

This door should be large enough to permit the dog to pass through with ease, and it should be hung with "fly hinges" that he may push it in or out.

Inside this door should be placed another so adjusted that it will slide up, that the tenant may be confined when desirable.

Mindful of the infinite importance of sunlight, a large sash window should be put in in front, and hinged that it may be opened when the weather is favorable. It must also be protected on the inside by strong wire netting securely fastened at top, bottom and sides.

This window cannot be depended upon for ventilation — of infinite importance in a kennel — nor are the small ventilating windows which are hinged at the bottom and chained at the sides perfectly safe, for the incoming air would likely strike the occupant while on the sleeping-bench. But this danger of draughts can be wholly obviated by what is known as the "Eureka Ventilator" — a simple and inexpensive device, which placed high not only admits fresh air but draws out the foul air and at the same time keeps out the rain and snow.

As for painting, tints may be used if the owner fancies them, and the clapboards be of one color and the "finish" another, but three good coats of white paint, made of pure white lead and linseed oil only, would be preferable, for the reason it would not attract the sun in summer as much as dark colors.

Some breeders will have no other floors to their kennels



PROF. ST. GEORGE MIVART, M.D., F.R.S., F.L.S. F.Z.S..
CHILWORTH ENG.



than the ground, and this might do in the warm climates, or even in the cold were the buildings located on knolls and the surface drainage good, or there were trenches on all sides to rapidly carry away the water falling from the eaves and on the adjacent ground. But available situations like this are rare, while to trench and drain securely would be quite expensive. And after all a ground floor that is perfectly dry even is no better if as good as one of boards, provided it is sloped, as directed in the foregoing, so that the water used in washing will drain off quickly. Earth is a disinfectant, it is true, but like all other agents of its kind there are limits to its power, and when it has been treated to impurities the emanations from it are not only highly offensive but very prejudicial to health.

Really a ground floor is to be preferred only where the dogs have an adjoining yard to which they have free access and they are cleanly in their habits, for otherwise it must have an absorbent covering and be frequently dug up and renewed.

Returning to the kennel undergoing construction, sleeping accommodations are next in order, and these are easily provided in the form of a bench about six inches in height and two or three feet in width — according to the size of the dog for which it is intended. This should be at the end opposite the door; and that it may hold the bedding it should have a strip of board nailed to its front, while to prevent its being gnawed the top of this strip should be protected with hoop iron. It should also be built in two parts, with about one-third or one-fourth of it stationary, and to this part the other should be attached by hinges, so that it can be tipped up and back without necessitating removal of the bedding.

A sleeping-bench constructed in this way will greatly favor convenience, and the occupants can be easily pre-

vented from carrying bones to their beds — a habit which is not only unpleasant but dangerous, for it has ended in death in consequence of intestinal stoppage caused by the straw swallowed during the gnawing.

This arrangement is ample for moderate weather, but as soon as winter sets in it will generally be necessary to provide a sleeping-box. One might be constructed over the bench, but it is cheaper and quite as well to use a large packing case. This well filled with bedding will furnish warm and cosy sleeping quarters. And economy and prudence suggest that it be burned in the spring or at once the occupant has infected it with mange, distemper or other contagious disease.

All that remains to complete the furnishings are a gate or screen door, to be hinged to the outer part of the door-frame, for use in hot weather, and a storm window for winter.

A kennel constructed on these lines costs much less than the average reader will assume — in fact thirty-five, or at the most forty, dollars ought to pay for the work and materials. It might be built for less and it might cost more — all depending of course on the one who provided the materials and the quality of work — but the largest sum stated should be ample for a well-constructed building.

But cost what it may it is the very simplest and least expensive kind of a kennel, and the man who cannot provide as good quarters as this ought not attempt to keep a dog. Certainly there is nothing fanciful about it; it comprises merely the absolute requisites, — dryness, air, sunshine and protection from cold; and if a puppy is denied either of these he will inevitably be weakly and stunted, if not worse, while under the same conditions a mature dog must as surely decline in health and vigor and become a frequent sufferer from disease.

There are yet a few points in connection with this little building to be disposed of before going farther into the subject of kennelling. It should be so situated that it will catch the sun in the early morning and hold it until late in the afternoon. And it should always be well ventilated, and the window and doors left open for the purpose of thorough airing while the tenant is taking his walks or scampers.

At the rear of the kennel there should be a clear space of not less than ten feet, to which the dog should have free access; and all the better if a portion of this has a roof over it.

For bedding in winter, straw, coarse hay, or thoroughly dried fallen leaves are the best materials for short-coated dogs, but for the long-coated they would scarcely do because they break up and hang to the coat. In which case a piece of carpeting or blanket can be used; and a bedding of this sort is preferable for collies and other dogs with long coats.

During warm weather, dogs generally are more comfortable without bedding, but if any is required long pine shavings for choice, because they are objectionable to fleas.

Whatever its nature the bedding should be clean always and replaced at least once a week in pleasant weather; while when foggy or rainy more frequent renewal will be absolutely necessary, for at such times it must soon become damp — in which state it is a grave menace to health.

Several times during the summer — the oftener the better — the entire inside of the kennel, not excepting the floors, should be treated to a thick coat of freshly prepared whitewash, the same being forced into every crack and cranny. And by this means all bad odors will

be removed, perfect cleanliness insured, and fleas and other vermin driven out, and for a while at least the building will be obnoxious to them.

Should any of these pests become intolerable at a time when to whitewash is not convenient the owner will afford much relief if he applies kerosene oil quite freely, by means of a brush, to the sleeping-bench and walls.

As whitewashing is scarcely possible in winter, occasional fumigations by means of burning sulphur will be advisable; and these should occur on damp days, as the agent in question acts best in the presence of moisture.

The following method suggests itself as the most convenient: Close the small door and ventilator and tack over them pieces of carpeting or the like that the fumes may not escape. Leave the large door open for hasty exit. Place a pan of water on the floor, and in this a small tin or old crockery dish holding two handfuls of powdered sulphur; over which pour a little alcohol. Touch a lighted match to it and step outside. Assured that the alcohol is burning, close the door and cover it with a stable blanket — tacking the same every few inches at the edges.

Four or five hours afterward open the large door, also the window and small door as soon as possible, and give the building a thorough airing before the tenant is returned to it.

It is scarcely necessary to add that this is one of the most efficient preventives of infectious diseases.

The kennel to the description of which so much space has been devoted is, as stated at first, intended for two dogs of small or medium size or a single large one. It represents all the requisites for healthy quarters, and those who propose to keep a larger number of dogs can build on its principles. But of course they must be well informed as to the peculiarities of the dogs for which the kennels

REV. W. J. C. LINDSAY'S IRISH WOLFHOUND, "TARA."





are intended before they undertake their construction, for what would be suitable for one variety might not be so for another. And especially important would be a consideration of their dispositions, otherwise although the number of dogs might be small and the kennel large it might not be large enough for them owing to their fighting propensities.

For instance, dachshunds and Chesapeakees are savage fighters, and only a small number, and oftentimes no more than two, can share an apartment, whereas an entire pack of hounds might live together in peace and harmony.

The question of heating would also demand intelligent consideration, and manifestly it would never do to put short-coated and delicate varieties into kennels kept at a temperature which would be comfortable for such dogs as St. Bernards.

Again, in planning for large kennels dog-proof apartments for bitches in season, quarters for whelping, for puppies, — young and old, — for the sick, etc., must all be duly considered.

Evidently, therefore, this work is an important one, which should be attempted by those only who have had abundant experience, and with the varieties for which the buildings are intended.

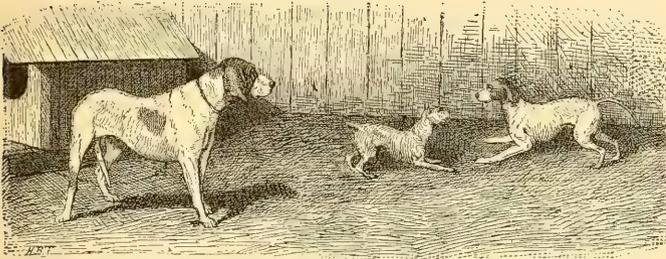
As for him who quarters his dog in a stable or barn, he should give him a place near a window, keep his floor dry and clean, and by the means of a sleeping-bench obviate the danger of floor-draughts — which are surely fatal to development and ruinous to health. Unless the dog can go out at will, to maintain dryness in such a place will never be easy especially if the flooring is of planking, and the best method is to slope and cover it with cement or asphalt. But if this is out of the question it should have a layer of sawdust or dry and untainted clayey earth, sev-

eral inches in depth, to hold the impurities and favor the removal of the deposits. And the absorbent covering should all be renewed at least twice a week, for it must soon become foul and throw off poisonous gases that not only greatly injure the general health but cause severe inflammation of the eyes.

And even in the face of careful treatment were a dog kept much of the time in such quarters the floor would likely soon reek with bad odors unless a disinfectant be employed. Therefore one should always be at hand and used about the bench, woodwork and floor, not alone for its deodorizing effect but for its unfriendliness to vermin and disease.

Efficacy, economy and safety all duly considered, the permanganate of potassium has as much to recommend it as any other agent of its class. It costs at wholesale only about fifty cents a pound, and this quantity is sufficient to make fifteen gallons of powerful deodorizer, which when recently prepared is no mean antiseptic. But as the solution rapidly loses its virtues it is best to make it as required, by adding a tablespoonful of the crystals to a quart of water, and sprinkle it about with a small garden watering-pot.

Summarizing briefly, the paramount essentials in a kennel are, cleanliness, ample sunlight, an abundance of pure air, freedom from dampness and draughts, and protection from cold. Where these requirements are all met good health may be confidently expected, but where even one of them is disregarded, disease will invariably be a frequent visitor.



CHAPTER VII.

EXERCISE.

MAN possesses many great truths that he is slow to reduce to practice, and very strangely no small proportion of them bear on his physical welfare. He wishes to be well and dreads to be sick, yet for some unaccountable reason he insists upon indulging his inclination in violation of what he knows to be right, and scarcely any subject is more unwelcome to him than that of organic law which he holds so lightly.

Among his many shortcomings but few are more pronounced than failure to give due attention to muscular exercise. He recognizes that it is beneficial, and theoretically he is in favor of it, but of enthusiasm, as a rule he is surprisingly destitute. His notions of the good it does are also decidedly hazy, and when pressed to define them he usually indulges in vague generalities, among which appear opening the pores, getting up a muscle, brightening the spirits, etc. Usually, also, he is content with his indifferent knowledge of the subject, and his methods of applying what little he has are quite as erratic and incomprehensive as his definition.

Underrating the value of exercise to himself he is far from likely to form a correct estimate of its importance in animal life unless it is literally forced upon him, and especially reluctant is he to accept the truth when conviction means some sacrifice of his convenience, as it generally does where dogs are involved.

Considering all this, the writer feels it his duty to discuss at considerable length the specific effects of exercise, the evils of too close confinement and the means by which dogs may be held in check and yet suffer much less injury than is generally inflicted by restraint.

Glancing at the physiology of exercise there first appears the fact that a very large part of the body consists of muscular tissue, in which is contained nearly one-quarter of the blood, and by it fully one-fourth of the nerve energy stored up in the body is turned into work. This tissue is made up of single muscles, the number of which in the dog is not accurately known, but as there are over five hundred in the human body it is fair to assume that this number is not very greatly in excess of that in all the higher order of animals. Every muscle has blood-vessels and nerves, and fresh blood is supplied its substance by the heart through its arteries and the fine network of small vessels formed by a minute subdivision of them. These small vessels open into and are continuous with veins of about the same size, and they in turn are united into larger and larger vessels that finally connect with the channels by which the blood is returned to the heart.

Once a muscle begins working the blood stream passing through it becomes swollen and presents decided changes in quality. The blood which enters is bright red in color, rich in oxygen and poor in carbonic acid, while that which leaves it is dark blue in color and of a



HER GRACE THE DUCHESS OF NEWCASTLE.

higher temperature; it has parted with much of its oxygen and has taken up a large quantity of carbonic acid, also various products from chemical changes that have occurred in the food materials supplied the muscle by the blood, and in the muscle itself. Obviously this is the condition demanded for the integrity of a muscle, for it is now receiving a full supply of fresh blood and there is free and rapid drainage of all its noxious waste matters. Go a little further and by means of proper food in sufficient quantity and an abundance of pure air render the blood rich in nutritive elements and oxygen, also allow the muscle due intervals of rest, and it must be not only healthy but increase in size and weight.

As exercise acts on a single muscle so it acts on the muscular system as a whole — it enlarges and strengthens it. But the muscles themselves are not the only parts of the body that are benefited by exercise, for brought into action by it they in turn increase the rapidity of the flow of blood to the heart. This vital organ also works more vigorously and a larger quantity of blood is sent through the lungs; while the breathing is quickened and more oxygen absorbed. The fires within are now brightened up, and in consequence the skin and other organs of secretion and excretion are brought into action to get rid of the excess of heat and the clinkers and ashes, as it were, the products of combustion. Thus exercise acts as a spur and brings every important organ in the body into more active play.

Now, deprive the body of sufficient exercise and note the result. The digestive organs are among the first to show signs of distress and decline in power, and their work is but sluggishly and imperfectly performed; the food constituents taken up from them by the blood are not properly oxidized; drainage of noxious products is not only impeded

in the muscles but in all the organs which constitute the body's sewerage system, and in consequence this waste accumulates to still further lower vitality through its poisonous action. The digestive organs once weakened are soon seriously disordered, and all the time the whole system is sympathizing with them and suffering like derangement; the nerves are unstrung; all the various functions are impaired; the muscles become soft and flabby or fat; good health has gone and disease is imminent.

These are some of the evil consequences of a denial of sufficient exercise; but there are yet others, and by no means the least serious of them is the peculiar tendency on the part of the victims to accumulate too much fat, which is not alone deposited under the skin and in the muscles of the body, but in and around the heart and other vital organs. No one needs to be told that meat which is lean is tough while that which is fat is tender; all may not know, however, that the difference is due not only to the presence of the fat but to its degenerating influence upon the muscle fibres. The heart—which is a muscle—and all other muscles are weakened as they are encroached upon by fat, and even if the same is merely deposited around them it mechanically interferes with their workings. Too fat dogs, like corpulent men, have generally fatty hearts; moreover, they are “short-winded,” easily tired by exertion and singularly inclined to be constantly ailing.

Evidences of too close confinement are plainly manifested in dogs, but unfortunately they are seldom rightly interpreted, and oftentimes other influences, which if related are only distantly so, are held entirely responsible for them. For instance, people chain up their dogs and give them meat, and if they become savage this food alone is blamed for it. As a matter of fact the restraint

is very generally the cause of the changed demeanor, for under it good brisk circulation and healthy organic action — which promote buoyancy of spirit and contentment — are simply impossible, and these happy conditions must invariably give way to languor and irritability if not ferocity.

There is no reason why a sound and healthy puppy should not develop well and harmoniously if he is treated properly, but it is a deplorable fact that a well-proportioned and symmetrically built dog is far from the rule, and especially among those raised in thickly settled places, where dogs are often trained to the chain at the earliest possible age, and long before they have reached maturity are wrung at the shoulders and dragged out of shape in consequence of their constant tugging.

It is simply the height of cruelty to keep a dog on the chain or otherwise too closely confined, for not only will it break him in spirit, make him dull and sullen and gnarl his body, but it must undermine his constitution and bring upon him a long train of evils, prominent among which are indigestion, eczema, disease of the kidneys, poverty of the blood, rheumatism and even convulsions.

There is also a moral responsibility that must not be lost sight of while weighing this fault. A man may say that his dog is his own to do with as he likes; and this is true, yet not by any means in the widest sense, for he has no more right to abuse his dog than he has to abuse his child. In either instance he equally ill-treats one of God's creatures and in the sight of Heaven stands convicted of an outrage alike in kind if not degree.

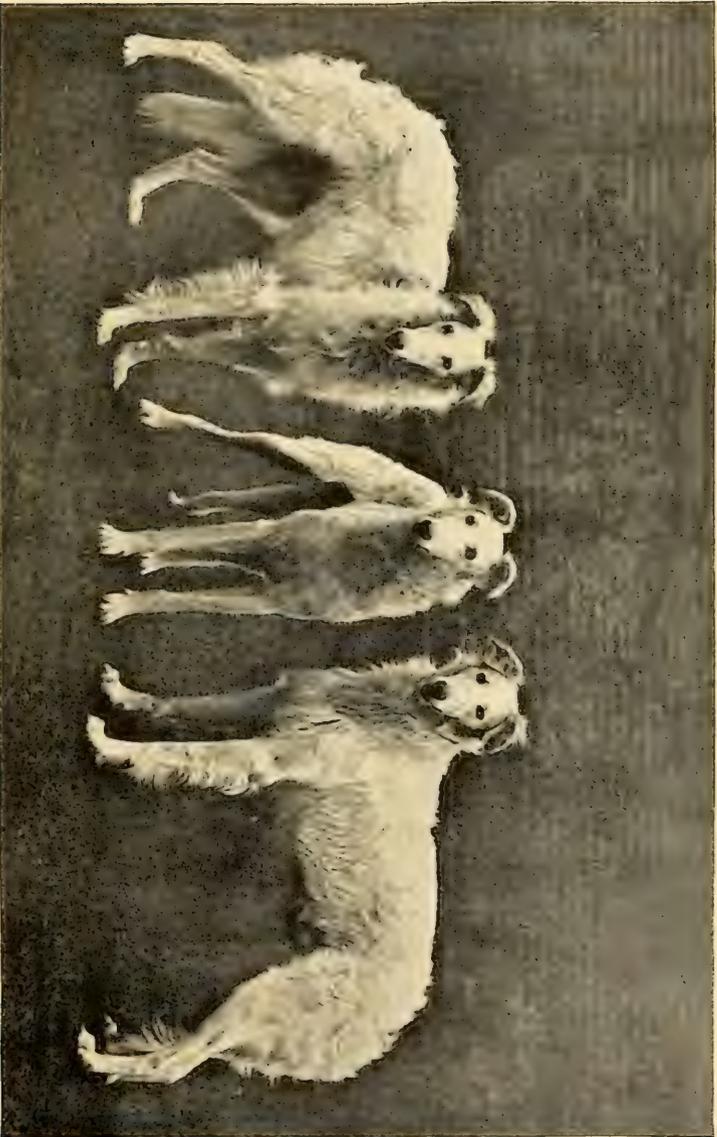
It must now be evident that the subject of exercise deserves more attention than is usually given it, and that when properly regulated it not only promotes well-balanced growth in the muscles and bones, and sustains and

improves the bodily health, but without it good form, health and vigor are absolutely impossible. And if these facts have been impressed upon the minds of readers the space devoted to this preamble will have been well employed.

Diverting the subject to puppies, obviously they can be raised in large towns and cities, but, as with young children, the country is pre-eminently the best place for them until they are well on the way to maturity, because of its superior hygienic advantages and opportunities for greater freedom. It is, indeed, a fact that country-bred puppies develop far better than those raised in cities, and while the former generally show up plump, strong, active and hardy, as often the latter are sadly deficient in these eminent qualities. And for puppies which are to be eventually trained for field work the country specially recommends itself, for it abounds in common sights— as cows, sheep, hens, pigeons, etc.— with which it is very essential that they should be familiar before their education commences, otherwise it must be an extremely difficult task to teach them and hold them down to their lessons.

Puppies kept within doors and in small pens seldom if ever develop properly, but go over on their legs and feet and fall out of shape generally. Lack of exercise, which prevents their muscles from growing and strengthening as they ought, is largely responsible for these defects, but not entirely, for impure air, want of sufficient sunshine and other unhealthful influences are all active and tend to produce them by undermining the constitution and opening the door to rickets. The largest breeds are the first to decline under these influences, and so difficult is it to raise them except where the conditions are favorable and abundant opportunities for exercise in pure air and sun-

HER GRACE THE DUCHESS OF NEWCASTLE'S RUSSIAN WOLFHOUNDS.



"KAISSACK."

"KAISSACK II."

"NAGRAIDAI II."

shine are afforded, fanciers of experience generally let their bitches "go over" if they come in use in the fall or early winter.

It follows, therefore, that puppies which cannot have constant liberty must be provided with yards—the largest possible—that they may be out and playing about on pleasant days. And at least one side of these enclosures—preferably that facing the master's house—should be of wire netting or narrow boards nailed on perpendicularly, with spaces of not less than an inch between them and extending to the ground, that the puppies may easily see out while on all fours, for were they to stand much on their hind legs to look over or through the sides they would be quite sure to suffer deformity in those parts.

The yards should be invariably so located that all parts of them will receive direct rays of the sun during a considerable portion of every day, because it is utterly impossible for a puppy to thrive and grow strong and rugged in quarters to which they are inaccessible; moreover, where the sun cannot enter disease is sure to be lurking.

The terribly destructive influences of filth on health must also be duly appreciated, and provisions made for free drainage and to favor easy and thorough cleaning. While if the yards are covered with loam, gravel, sand or other material that is capable of absorbing moisture, a hard surface will be absolutely necessary, otherwise it must soon become loaded with impurities, the emanations from which would prove in a high degree poisonous.

Consequently the ground having been sloped it should be flagged, cemented or covered with other concrete; after which it will be easy to clean the surface thoroughly, and to this end the hose should be used every day in summer and quite frequently in winter.

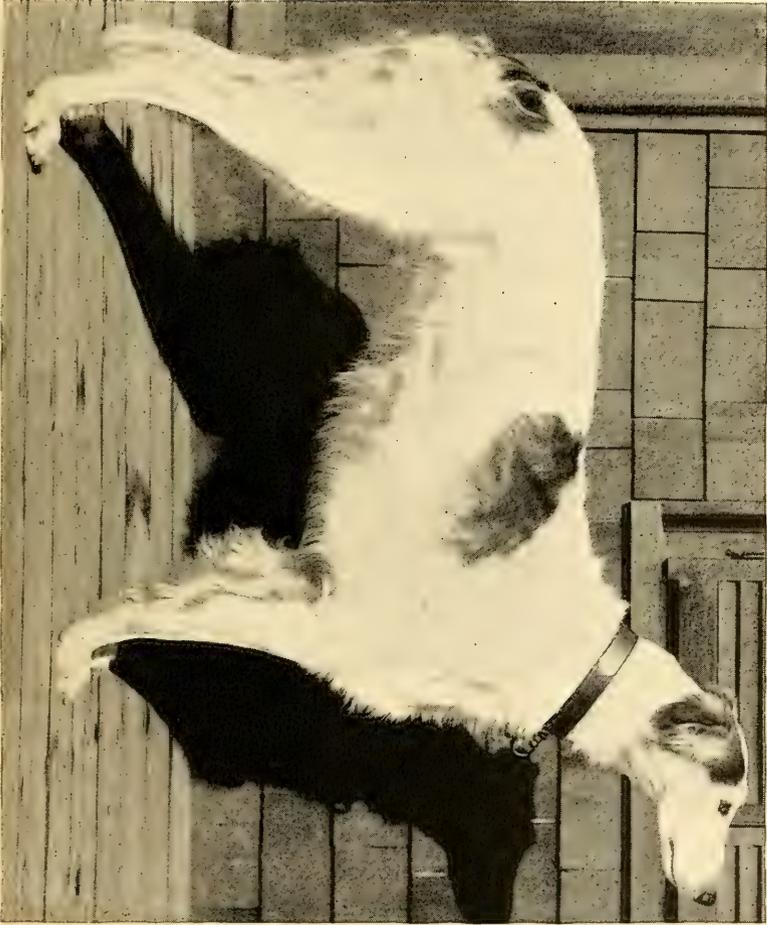
After puppies are three months old, at all times when the weather is fine they can be allowed to leave their kennels at will and enter their yards, each of which should be provided with a low bench for them to lie on when tired of play, and an old piece of canvas or something of the sort to cover a corner of the enclosure on very hot days. But younger puppies must not be turned into yards and left to themselves, for were it done and they permitted to lie on flags or concrete, even in hot weather they would be likely to suffer serious injury in consequence. Therefore always while these youngsters are out they should be kept on the move and returned to quarters for their naps.

When it is impossible to provide a yard with a hard surface and the other conditions — ample sunlight, etc. — advised, instead of using indifferent quarters the owner should give the puppies the run of his own dooryard and lawns, being careful always while yet they are very young not to let them out until the ground is dry. And he should keep in mind the fact, already made prominent in “Feeding,” that in order that puppies may be generously fed and thrive as they ought and come up firm and strong on good and shapely legs and feet they must be kept on the move much of the time between daylight and dark.

A yard suitable for older puppies and mature dogs has certain conditions which are important enough to deserve description here.

It goes without saying that in every instance it should be as large as possible. For dogs of varieties of fairly good size, pickets three or four inches in width and eight feet long may be used in building the fence; and they, by the way, should be nailed on *inside* the rails.

After the posts have been set in place a trench not less than one foot in depth should be dug between them in



MR. CHAS. STEDMAN HANKS' RUSSIAN WOLFHOUND, "GROUBIAN."

which to sink the pickets, and in filling these stones that can be conveniently gathered should be mixed with the dirt, and all tamped down as hard as possible.

The pickets now stand seven feet above ground, and unless the tenant of the yard is of small breed this is none too high, for even among heavy and seemingly clumsy dogs there are not a few that can make their way over a fence six feet in height.

To save the pickets from being gnawed two or more base boards will be required, and these should be from six to eight inches in width and about three inches apart.

A fence of this sort freely admits the air and sunshine, and the rails being on the outside and nothing within to afford a foothold, to jump it is well-nigh impossible. If, however, an inmate succeeded in making his way over, there would be nothing to do but to build the fence higher, although some advise putting a ledge around the tops of the pickets for the jumper to strike his head against. But this plan is not advisable, for the blow or fall might cause serious injury, and one should not take any chances with good dogs.

A fence of pickets has been advised for the reasons that it is cheaper than any other, is easily constructed and quite durable. Without doubt, however, an iron fence is the best and safest in every way, but such is expensive, although not necessarily very decidedly so if made of rods passed through top and bottom rails spiked to posts and set at about the same distances from the ground as the rails of picket fences of about the same height.

A more sightly fence than one of wooden pickets can be made of wire-netting, and were the same closely woven and of wire of good size it would do nicely were the dogs of small breeds. But this netting must be very strong to hold a large dog.

While a picket fence constructed as described is suitable for most dogs, there are a few notorious burrowers and gnawers — working terriers and dachshunds, for instance, which can only be held by a “close-board” fence having a foundation of large stones to a depth of two feet. And this fact suggests the advisability of all making themselves familiar with the peculiarities of the dogs which they are purchasing before they undertake to build quarters for them.

The ground within every dog yard ought to be sloping, that rapid drainage may occur after rain falls. And it should be given a hard surface as advised for puppy yards. But the subject of expense is one that must be considered by many readers, therefore it becomes necessary to advise how the ground should be treated when it is impossible to cover it with flags, cement or other concrete.

If the soil is rich or the subsoil of clay, and in fact if it is other than sandy or gravelly, the surface must inevitably be very soft and muddy during many days of the year unless there is good drainage. The easiest and least expensive means to this end, and one very nearly as effective as any in ground like this, is known as the blind-drain. And a sufficient number of these drains having been laid, the surface of the entire yard should be covered to the depth of three or four inches with sand, coal-dust or ashes, by which means it will be made comparatively dry; and that it should be so is of the highest importance, for dampness has a most destructive influence on dogs, and especially those that are under restraint — in fact there is scarcely a more potent cause of disease.

In all yards there should be a comfortably large bench for the dogs to lie upon, and this can properly have a roof over it at all times, also back and sides in cold weather, during which it should stand in the most sunny place,



MR. S. E. SHIRLEY,
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while in summer it should be much in the shade, for dogs are frequently victims of what is evidently sunstroke.

Here, as in puppy yards, frequent cleaning is imperatively demanded, and especially in hot weather, when the heat acting upon filth makes it literally a hot-bed for disease. And, by the way, the breeder is especially fortunate who is so situated that he can provide two kennels and two yards for his puppies so that one set can be used one day, then vacated and thoroughly washed out and left to dry until the following day, when it can be again occupied and the other treated in the same manner.

While insisting that all puppies and dogs should have yards in which to exercise themselves and take the air on pleasant days the fact is duly appreciated that in occasional instances this provision will be absolutely impossible; and these appear in cities, in many sections of which the breathing spaces between the houses are often only a few feet in width, and in which it is the common custom to chain dogs to small out-door kennels during the day and admit them to the kitchens or basements at night. But even in the presence of such unfavorable conditions the owners can manage to lessen somewhat the force of the confinement.

Where the door-yards of houses are very small the following is often resorted to with merciful effect: A post long enough to extend at least six feet above ground is set up ten, twenty or thirty feet—as far as possible from the kennel—and to this post is made fast a telegraph wire. After stringing on the same a strong, well-made ring at least two inches in diameter, the free end of the wire is attached to a building, fence or another post like the first in the rear of the kennel if a small one, while to the ring sliding freely on the wire the chain of the dog is fastened

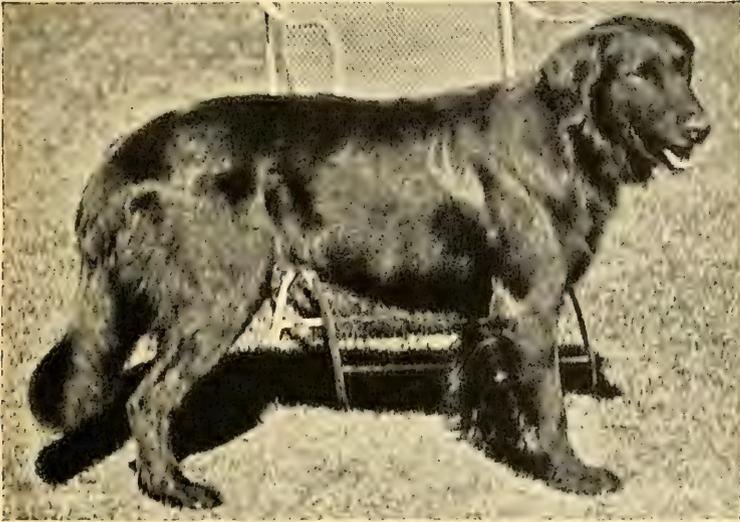
with a snaffle hook. Then although held in check he has still quite a range.

The amount of exercise required by dogs varies in the different breeds also in different members of the same breed, therefore it would be quite as impossible to fix a rule applicable to all as it would be to fashion a mask that would fit the faces of all mankind. The largest dogs as a whole are singularly sluggish and inactive if left to themselves, consequently they are more trouble to their owners, who must take them out at least once a day and give them slow, steady exercise for an hour or more. The smaller varieties, on the other hand, are in the habit of leaping and scampering about as soon as they are released, and therefore make considerable exercise for themselves in a comparatively short time.

But a wide distinction must be made between the sporting and non-sporting in the matter of exercise. Both varieties must have it, yet a denial falls far more heavily on the former than on the latter, for as a whole they have a very much greater fund of energy and spirits, and when restrained become nervous and restless, and in consequence more or less physically deranged. And to them a spin of from five to ten miles at least ought to be given every day in order to keep them good and hard; while they would be all the better were the distance twice as great.

The fact must not be lost sight of that to obtain the greatest good from exercise it must be made attractive and enjoyable. Considering which it is advisable to take all dogs of whatever varieties for long strolls as often as possible; and where spins are out of the question, if these outings are indulged in two or three times a week and on the intervening days the dogs are let loose and encouraged to exercise themselves vigorously for half an

WAVY-COATED RETRIEVERS.



MR. S. E. SHIRLEY'S "MOONSTONE."



MR. L. ALLEN SHUTER'S "DARENTH."

hour or so mornings and nights they will generally manage to keep their systems in fairly good tone. It sometimes becomes necessary, however, to put dogs in training, as for shows, coursing, etc., or to give them an unusual amount of exercise for the purpose of restoring health; in which case the reader will find much to assist him in the part devoted to "Exhibiting Dogs."

It is an excellent plan to teach a young dog to run after a ball and retrieve it, for ever afterward on occasions when he must be denied his usual stroll his master can by this means limber him up very quickly and at the same time afford him a great deal of enjoyment. Some breeders resort to a piece of dried beef or fresh skin to encourage exercise in the yards, hanging it just beyond the reach of the dogs, and at this many of them will jump at frequent intervals. Some, also, favor exercise by stretching hurdles across the yards, over which the inmates must jump as they make their way about — a device which recommends itself especially with dogs that lack development in their hind quarters.

There is also the "wheel" and the so-called "treadmill," which latter is built on the same principles as the power part of threshing and wood-sawing machines worked by horses. Fighting dogs are trained largely on the former and they are also taught to seize and hold on to an empty bag, piece of carpet or the like, which is strung high enough to prevent their legs touching the ground. This gives strength to the jaws, and in fact to all the fore parts and muscles, and so renders the dogs capable of maintaining their hold for a long time once they have fixed their jaws. And they who have bull terriers, for instance, would do well to give them a part of their exercise in this way.

While dogs are out for exercise their owners or care-

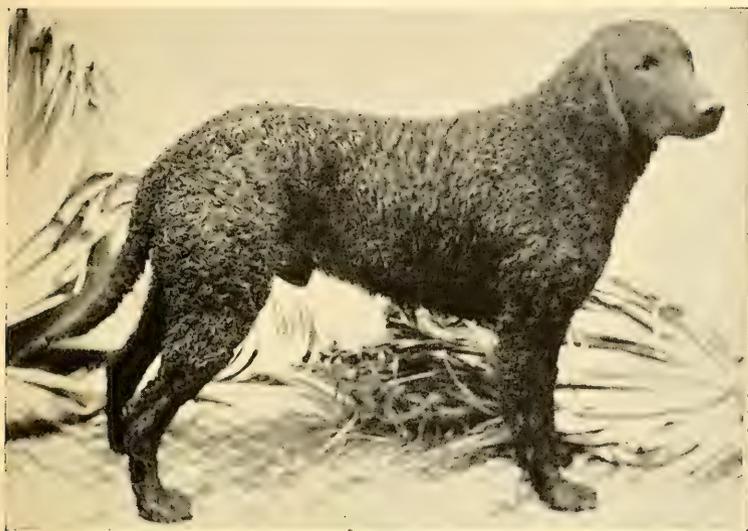
takers should not be unmindful of the fact that to push it past the point of fatigue will cause even greater injury than a denial, and it will be well for them in regulating the amount to be largely influenced by the effects upon themselves under like conditions. The brain-worker of sedentary habits knows well that were he without any preparatory work to run a half, or even a quarter, of a mile at the top of his speed he would be literally "broken up," and for several days suffer in consequence of the indiscretion, even if he escaped serious and lasting injury.

And yet such a man is not at all unlikely to unchain his old dog, but rarely released from his kennel, and make him follow his team until he drops from exhaustion. And often men who now and then hunt for a day will lay up their dogs for months even, with only occasional rambles in the streets and always at heel, and without any preparatory exercise send them into the field and make them "run their legs off." Assuredly that such inflictions as these are simply barbarous and ruinous to health must be self-evident to every person having a fair amount of intelligence.

Never allow a dog to take violent exercise within two hours after eating a hearty meal. Prepare him for hard work as the athlete is trained — by easy stages — remembering always that the development of strength and endurance requires time as well as exercise, also that one too hard run while the system is unprepared is sure to derange it seriously and may produce convulsions and grave organic disease.

"The merciful man will be merciful to his beast." Let owners bear in mind that were they to take a brisk walk and while heated up stop and lie down uncovered in a cold room they could scarcely escape the penalties of the indiscretion, no matter how hardy they might be. Duly

CURLY-COATED RETRIEVERS.



MR. SAMUEL DARBEY'S "TIVERTON VICTOR."



MR. HENRY SKIPWORTH'S "BLACK GIPSY."

appreciating this very evident fact they will not be likely to turn their dogs into the kennels after a hard run without rubbing them down and drying them as they would their horses after a like experience. Nor will they fail to have an eye to their feet, realizing as they must that a splinter or bit of glass may have been taken up or a cut received, in which event serious trouble might result were the accident not discovered early.

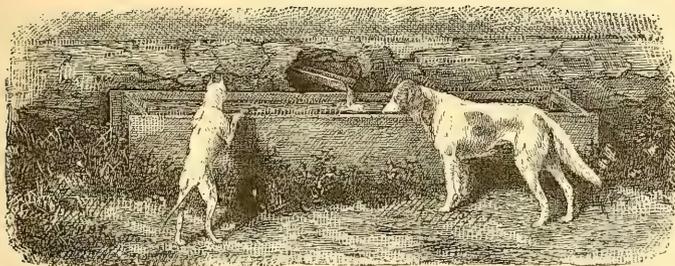
A word here as to dogs much used in the stud. They should not work in the field nor be allowed in other ways to exert themselves violently, but should be kept at home most of the time, in large yards, and when taken out be given long, slow, steady exercise. Their special duty is a tax upon their energies, and if required to perform it often, high health and vigor cannot be maintained unless every precaution is observed.

The first step is to prevent muscular strain — as that occurring in hard runs — which means a wasteful expenditure of vitality. Such exercise, by the way, is considered by many breeders not only harmless but absolutely essential to good development of the muscles. But this is an absurdity, pure and simple, for it is upon the duration and number of movements, not upon their intensity, that the development of a muscle depends. For instance the man who exercises for ten minutes with dumb-bells weighing two pounds each and puts them up thirty times a minute will develop the muscles worked far more quickly than he who uses ten-pound dumb-bells for the same period and puts them up only eight or ten times a minute. Moreover, were both beginners the former would likely gain and the latter lose strength, and the loss would be attributable to the muscular strains.

Obviously, therefore, hard and fast work is not only not necessary to muscular development and strength but

beyond certain lines it is prejudicial to it. Hence, slow, easy exercise alone is proper and safe for the dog that is much used in the stud; and under it he will not only husband his strength and vitality but add to the fund, which must always be large to insure robust and vigorous offspring. And were this rule never violated and stud dogs wisely and generously fed, the rate of mortality among puppies would be much lower than it is now, and crooked forelegs, cow-hocks, and other deformities, far less familiar sights.





CHAPTER VIII.

THE DRINKING WATER.

MANY have reached the conclusion that because dogs will drink from stagnant pools it is a matter of indifference to them whether or not their water is clean and fresh. Man will also drink from such pools when tortured by thirst, yet he does not try to convince himself that it is refreshing and wholesome. Far from it. He practically acknowledges always that the influence of the drinking water is cardinal in rank with food, and that when polluted both are alike injurious to health.

But such inconsistency is not unusual with him ; he is in fact constantly exhibiting the same fault in dealing with simple truths which bear upon his own health, and ever slow to recognize their importance in the practical arrangements of life. Consequently many which he ought to admit unhesitatingly, so obviously based as they are on sound sense, must be literally forced upon him.

Yet to his credit it can be said that while slow to accept what is best for his own physical welfare or even pay due respect to his own instincts he is but seldom reluctant to respect the instincts of animals to which he is

attached, and which as a rule he treats with greater consideration and better judgment than he does himself ; and if he fails with them he generally does so through ignorance.

Narrowing the subject to the drinking water of dogs, it is hard to believe that they are often intentionally neglected, but it is easier to believe that the absurdity noted in the beginning is largely accountable for such familiar practices as supplying dogs with water but once or twice a day even during the hottest weather, and in old wooden pails that have seen months and months of service and are thickly coated with slime, like the " old oaken bucket " of which the poet — who was evidently ignorant of even the first principles of hygiene — has so fondly told.

A glance at the physiology of animals shows that nearly three-fourths of the bodies of all consist of water and that they part with a large amount of it constantly by the lungs, skin and other avenues. Consequently in order that health may be maintained there must be a constant renewal of this simple but highly important fluid, and it must be good and wholesome.

Water may be all this when placed before a dog but it cannot long remain so in the air of a kennel or yard where there is more or less decaying vegetable and animal food and other filth, for it soon absorbs these baneful exhalations and actually becomes to a certain degree poisonous. Furthermore, when so exposed and stagnant it frequently takes up germs of disease, many of which float easily on the air. And if the pail or other vessel in which it stands is lined with slimy accumulations it is very evident that it must soon become tainted from this source if from no other.

As a matter of fact, because they are denied sufficient good, wholesome drinking water is one of the pronounced reasons why dogs kept chained or otherwise closely con-



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fined are frequently ailing. And wherever this fault has been constant for a considerable length of time nutrition is poor; the victims as a rule are under weight, show their ribs, have a tucked-up appearance and are out at their elbows; their hair is dry and lustreless; they are given to scratching, and much of the time have more or less extensive skin eruptions.

A change of demeanor also usually characterizes them, and instead of being keen, alert and active they are more or less dull, listless and sluggish. Again, when not actually ailing their appetite is often capricious, and symptoms are frequently manifested — appreciable, perhaps, only to the trained eye — which indicate that they have some disorder, and generally of the digestive system, kidneys or bladder.

Manifestly, therefore, the drinking water should be above suspicion, and where it is obtainable only from wells and must be carried to the kennels by hand a fresh supply is required at least three times daily in cold weather and twice as often during hot weather. The drinking vessels must also be kept clean. And these, instead of being old tin pans or cans, or of wood, should be of earthen-ware or iron with glazed or enamelled linings.

But he who gets together a kennel of ten or more dogs and is obliged to intrust their care largely to "help" must soon learn that faithful obedience during his absence is by no means invariably the rule, and that the chances are that if neglect is exhibited it will be in the matter of watering; consequently the safest course to pursue is to provide running water.

On first thought this may seem to necessitate considerable outlay, yet such will be rarely the case where the kennels and yards are located near the owner's residence and that is piped and furnished with water from a com-

mon supply, as in all large towns and cities. And if small rubber hose will not do for connecting pipes, it being necessary to convey the water a considerable distance, small iron piping can be bought for a mere song.

But whatever the situation, unless of course the dogs' quarters are very distant from the main supply, to pipe them will be comparatively easy and far less expensive than one uninformed would suppose. And excluding the fact that it is a most merciful provision and considering it solely from the standpoint of economy it must cordially recommend itself.

At this point the writer is reminded that some who have written on the management of dogs, while not absolutely condemning the custom, have yet questioned the advisability of keeping water constantly before them, giving as a reason that too frequent lapping would likely become a habit that would be prejudicial to health.

This theory does not suggest itself as a sound one. In truth the desire for water is increased by frequent indulgences, and they in turn increase tissue change and thus multiply the products of tissue waste which result from it. But water removes these waste products as fast as they are formed, and in consequence of the various changes the appetite is increased. Hence water may be said to act as a true tonic.

Where too much water is drunk the tissue change is increased to such an extent that the body must waste rapidly unless there is an increase in the quantity of food sufficient to compensate for the loss. For instance, if a corpulent person will drink two gallons of water every twenty-four hours and meanwhile limit himself to the same quantity of food daily to which he was accustomed before the experiment he will rapidly pull down in weight. But he will require a tremendous will-power to resist

his appetite, made ravenous by the greatly increased tissue change.

It is scarcely likely, however, that dogs will carry the water-drinking habit to that point where the body must waste in consequence; and even were they to do so it would be necessary merely to increase the quantity of food.

As excess of water augments tissue change a diminution of water lessens it, and when this change has fallen below the normal the waste products — which may be compared to the ashes from a fire — are formed faster than they are removed, and the system, choking up with them, is peculiarly liable to disease. Now apply the rake in the form of water and the products in question will be removed and health restored.

The writer has made experiments on mongrels for the purpose of determining the effects of a denial of sufficient water, and his kennel being supplied with running water he has had ample opportunity of judging of the effects of an unlimited quantity. The conclusions reached are, that dogs can safely be given all the water they may desire to drink, and unless they have all they want they fall off in condition. He has also satisfied himself that a dog which is closely confined not only drinks more but actually needs more than one which has constant liberty. And not impossibly an explanation of this is, that a dog which exercises freely, by this means in a great measure eliminates the waste products, whereas he that is denied exercise must largely depend upon water for their removal, and he instinctively drinks more to this end.

The difficulties in maintaining healthfulness among dogs increase with the number that are kept together, and where there are ten, twenty or more, the owner must surround them with all the best hygienic conditions possible and be precise in all his methods of management, other-

wise they will fall below the standard of health and be frequent victims of disease. It can safely be accepted also that among all the conditions of health in a kennel there are none more imperative than an abundant supply of pure water.

Breeders generally fail to appreciate the fact that water is quite as indispensable to the welfare of young puppies while on the so-called sloppy foods as to those further advanced in life, it being assumed that milk, broths, porridges, etc., are capable of satisfying thirst and furnishing all the water required to meet the wants of the system; and for this reason it is rarely put before them until they are six or seven weeks old.

This must often prove a serious mistake. Puppies are notoriously gourmand and when allowed to do so will eat until abdominal rupture seems threatened, but if taught early to drink water and encouraged to take it freely and often, their capacity for food will be narrowed and the danger of overeating greatly lessened; moreover, by means of it digestion will be greatly favored.

Now, for two or three months after weaning, these little ones are very liable to have colic, diarrhoea and other stomach and intestinal disorders which frequently result fatally, and even if recovery takes place the victims have had such a set-back their futures are prejudiced and they fail to thrive and mature well. But that such attacks are common is not surprising considering how puppies are fed. If the food is well chosen — which is far from the rule — they are generally allowed to overeat, and in consequence their stomachs are soon dilated and weakened, and the lining membrane more or less irritated. Beyond this, digestion is sluggish; one meal is not disposed of before another is eaten, and most of the time there are food remnants in the stomach undergoing decomposition



MR. C. H. MASON'S POINTER, "BEAUFORT."

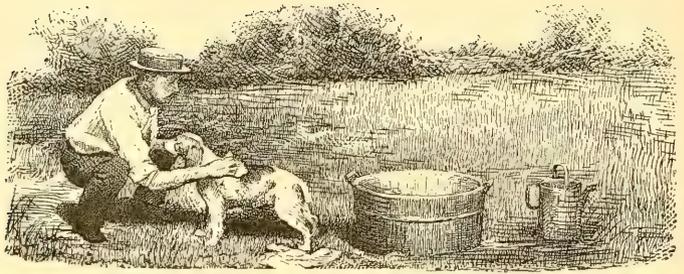


and causing flatulency or what is popularly termed bloating. Then if the food does not excite thirst the irritation in the stomach must inevitably do so; and in young puppies it must often be mistaken for hunger.

If milk, for instance, is given it will subdue the uncomfortable sensation for a time, but its fluid portion rapidly passes through the stomach and leaves the solids, which must linger to undergo digestion. This mass aggravates the stomach irritation and therefore the thirst is more intense than before the milk was taken.

There is yet another fact that deserves emphasis, namely, that the digestive fluids of young puppies are often less active and potent than normal, and indigestion is the consequence. Pure, fresh water has a decided corrective influence upon these fluids and fortifies them to no inconsiderable extent, hence it is entitled to be called a remedy.

Summarizing briefly: puppies should be taught to drink water at the earliest age possible, and thereafter a constant supply that is pure, fresh and inviting should be kept before them. It will modify somewhat the appetite, allay irritation in the stomach, render the digestive fluids more active if they are weak, and mechanically act advantageously by washing food remnants down and out of the stomach. All of which must greatly favor health and lessen the liability to disease.



CHAPTER IX.

WASHING AND GROOMING.

THE skin is something more than a mere covering for the body, and literally an organ which to some extent shares the work of the lungs and gives off carbonic acid gas and other waste matters; moreover, it holds the system that modifies the bodily heat. Obviously, therefore, if in an unclean state and its so-called pores are choked with impurities it cannot perform its functions of elimination, and these matters must make their way out by means of other avenues or be returned to the blood; nor will it be easy to maintain the body at its proper temperature.

The skin of a robust dog that has ample exercise is generally in a good, healthy condition and rarely requires washing, for he often induces free and profuse perspiration during his runs and so flushes the pores, while by occasional swims and rolls in the grass he manages to keep the surface and hair fairly clean. But with him that is chained most of the time or otherwise closely confined frequent washing is imperative, for the thin, fine scales that are exfoliated in abundance and the accumulations

of dust and dirt choke up his pores, and so dam up the effete matters as well as impair the activity of the myriads of little glands upon the integrity of which greatly depends the health of the skin and hair.

It is scarcely necessary to urge that the effects of uncleanliness are both local and general, or in other words its functions being interfered with not only is the skin itself and all it holds more or less unhealthy but the general health is invariably below the standard. Moreover, the scales and other accumulations excite itching, and the scratching in turn produces eczema and kindred eruptions. And when this cause — lack of cleanliness — is active and persistent the injurious effect upon the hair is very pronounced, it being dry, staring and lustreless.

While washing is the most effective means of maintaining cleanliness its frequent application is decidedly objectionable, especially if soaps of ordinary quality are used, for the hair and skin must become too dry in consequence of being obliged to part with much of the oily matter which keeps them supple and smooth; hence it should be resorted to only when cleanliness can in no other way be secured or it is demanded as a remedial measure, as in cases of vermin and cutaneous diseases.

Under ordinary circumstances frequent grooming will be quite sufficient to maintain cleanliness and health of the skin and hair, and he who expects to keep his dog in the "pink of condition" must faithfully apply it not less often than once a day.

The brushes should be of bristles always, and what is called the "dandy brush" for short-coated dogs, while for the long-coated the bristles must be nearly if not quite an inch and a half in length, in order to pass through the coat and reach the skin.

Instances in which a fine-tooth comb is required are very

rare indeed ; and this is fortunate, for except in the hands of a most careful person it is sure to irritate the skin as well as seriously endanger the coat. The comb of the kennel, therefore, should be of the coarsest kind — its teeth being widely set and very blunt at the ends.

And mindful of the fact that parasitic diseases are quite common among dogs, also that they are frequently present for a long time before they are detected, the careful owner of two or more dogs will provide toilet articles for each. He will, moreover, clean them frequently by placing them for a few minutes in a shallow pan containing a disinfectant.

The brush will meet all positive requirements, but there are certain accessories which must be resorted to if a fine coat is to be made “cherry ripe,” and these are gloves of woollen yarn or hair — the latter for choice — and the bare hands.

To first brush long and well, then rub diligently with the gloves, and finally with the bare hands, are the secrets of the toilet, and by faithfully applying the principles embodied in them cleanliness of the skin can be maintained, the hair stimulated to healthy growth and made to shine like satin if it is naturally fine.

The brush and gloves should be applied the one way always, and with, not against, the hair, but in using the bare hands on dogs which ought to have a “bossy muscle,” as bull-dogs, bull terriers and greyhounds, the thighs must be rubbed *both* ways — up as well as down — and afterward the ruffled hair be made right by brushing one way and hand rubbing one way. And lest the reader assume that the use of the bare hands is the least important of these measures the fact is urged that it is of the first importance in putting the coat of a fine-haired dog in prime condition, for by this means only can it be given the highest finish and lustre.

POINTERS.



MR. E. C. NORRISH'S "SADDEBACK."



MR. J. E. L. LLOYD'S "ILMA."

In washing, as in other departments of management, knowledge, care and judgment must often be displayed, notwithstanding it may seem to the average reader that it is simple and easy always. Very likely it is all this with short-coated dogs, but with those whose coats are long, soft and silky, glistening and brilliant, it is an entirely different matter, and to wash all varieties in the same way would be to ruin the coats of many completely.

For instance, the coat of a mastiff, bull terrier or pug could scarcely be injured in the tub, nor would these dogs be likely to take cold after a bath were a reasonable amount of intelligence and consideration exhibited with them, but the novice who undertook to wash a collie might make bad work of it, and certainly the chances would be all in favor of ruining not only the coat but the health of his subjects were they Maltese or Yorkshire terriers.

Obviously no one line of procedure can be established which will extend to all cases, nor is there much in this fact to be deplored, for with a few simple general rules in sight, a knowledge of the methods to be employed with the common varieties, and a fair amount of common sense, one need never run into a very dense fog.

The general rules are as follows :

Never wash a dog within two or three hours after eating heartily. The best time is about an hour before a feeding, for then if he is depressed by the bath his food will do much to bring on reaction and restore him.

Use lukewarm water always, for with cold water it is scarcely possible to effect cleanliness.

Let the washing be done as speedily as possible, and in a temperature of not less than 70° Fahr. And the operation with very delicate toys will be less hazardous if the degree of heat is higher than this.

Lest the dog take cold after a bath dry him always, put him beyond draughts in summer if he is to be confined, and keep him several hours in a warm room or exercise him briskly if the weather is cold.

In case he shivers or seems languid give him a generous quantity of warm milk.

The soap used should be invariably of good quality, notwithstanding the popular notion that any kind is good enough for a dog. Consequently the common yellow bar of the kitchen and cheap soaps intended for toilet purposes are forbidden, as they contain an excess of alkali, which not only has a tendency to irritate the skin but render the hair dry and brittle. And all low-cost and highly scented soaps should be regarded with suspicion, because without exception they are composed of the cheapest of ingredients, and usually of rancid fats, which the perfume is expected to disguise.

Old Castile soap is very good, yet much that bears its name is spurious. The glycerine soaps are also generally reliable, and the same can be said of about all transparent soaps, for they are not easily manufactured of base ingredients. But a formula for making a far better soap for kennel use than any of these will be found in the part devoted to "Exhibiting Dogs."

When washing for cleanliness the use of soap will generally be demanded, although where there is only one dog and he is a small one raw eggs could be employed instead, and these would soften the skin and leave the hair soft, smooth and glossy. But manifestly to wash a kennel of fairly large dogs with them would be an expensive matter, and, really, excepting in rare cases they have no superiority over the soap just alluded to.

However, he who cares to try eggs should break up and lightly beat four in a pint of warm water, and shampoo

with the mixture. But he must be sure to rinse long and well afterward, for eggs on drying harden down like mucilage.

While soap can be applied to the coats of most dogs there are at least two exceptions, namely, the Maltese and Yorkshire terriers, and for the former raw eggs are the best, while to the latter soapsuds merely—not the soap itself—should be applied according to the directions which will also appear in “Exhibiting Dogs.”

A tub is not absolutely necessary when bathing out of doors, but it greatly favors convenience, and for large dogs a half hogshead with a hole in the bottom, stopped by a plug, does nicely, while a kitchen washing-tub or foot-pan answers every purpose with small breeds.

When washing for cleanliness merely, commencing back of the ears—not with the head, as many advise, for that should be left until the last—the entire coat can be thoroughly soaped before any rinsing is done, but where carbolic or other soaps containing poisonous ingredients are to be used, the dog is of a large size and but one person is to be engaged in the operation, it is much safer to treat only one half the body at a time and rinse well before going further.

An old tin dipper handy to the tub will frequently be of service in drenching the coat while soaping and in the first rinsing. The latter over, the water should be drawn off or thrown out, and the final rinsing can be done quite as conveniently with a garden sprinkling-pot as by any other means.

During all these operations the soap and water must not be allowed to get into the ears, for were it to do so it would cause discomfort and not impossibly troublesome inflammation. But a reasonable amount of care exhibited with large dogs this accident is not likely to occur, yet

with small dogs it is so easy it is always best to stop the ears with cotton.

Except in very warm weather the temperature of the water for the last rinsing should as a rule be only a little lower than that used in washing, yet much depends upon individual peculiarities and customs, and although occasionally is encountered a very hardy and robust dog that takes kindly to cold water, to most of his race, and especially the members of it that have the freedom of their masters' homes or are quartered in comfortable kennels, it is too much of a hardship. Furthermore, when not well borne it is singularly liable to cause intestinal and other functional disturbances; and in all instances it is really prejudicial to fine hair.

Thorough rinsing having been administered, a large sponge should be freely used and followed by a long and vigorous rubbing with clean towels. Then if the weather is very mild the dog can be returned to his kennel — which manifestly should first be supplied with clean fresh bedding — or, better still, be taken out on chain and walked a mile or more.

But in warm weather only would it be safe to return dogs to their kennels at once after bathing; and during cold weather unless they can be permitted to remain in comfortably heated rooms for several hours they must be rubbed perfectly dry, no matter how long a time is required in the operation. And although various measures for drying have been advised, as the use of "shorts" and fine sawdust, — the same being rubbed through the hair and then brushed out, — in no way can it be more completely and speedily effected than by the means of towels, provided enough of them are used.

After being thoroughly dried the dogs should be taken out and encouraged to exercise vigorously for at least half



MR. E. C. NORRISH
CREDITON, ENG.

an hour to quicken circulation and thereby prevent a chill.

But let no one try to dry a Yorkshire by rubbing with towels or like means, for the harm would be well-nigh irreparable. And in this instance the drying must all be done with brushes; each one in turn being put before the fire as soon as it has become dampened, and used always from the centre — “the parting” — downward on either side.

When it has been necessary to wash a dog frequently and in consequence his hair has become unnaturally dry, a mixture of glycerine and water, one part to four, or cocoa-butter will be advisable.

Or if the skin is very dry and inelastic and the hair staring and brittle, it may be well to drench the coat with cod-liver oil and allow it to remain on for several days, the dog, meanwhile, being swathed with cotton cloth or covered by a thin blanket, and kept in a warm place if the season is winter.

But unless fats or oils are urgently demanded, as in a case like this, they should be used sparingly and merely on coats which are very long and might otherwise be matted and snarled.

Discarding lard and animal fats, for the reason that they quickly become rancid, putrefy, and are liable to cause irritation of the skin, the vegetable oils should be chosen as a rule, although sometimes, as in “dressing” the coat of a German poodle, it will be allowable to use a little mineral oil in a mixture with one or more vegetable oils. And in these instances kerosene, olive and castor oils, in equal parts, make a serviceable mixture.

But with dogs generally olive or cotton-seed oil of purest and best quality only should be used, and barely sufficient to lubricate the outer hairs — a little of the oil

being poured into one hand, then the hands rubbed together and the coat rubbed with them in the direction of the hair.

That there may be no mistake in this matter it is again urged that except in cases where drenching with cod-liver oil is indicated, or a dressing is required, as in corded coats, the quantity of oil used should be very small indeed, for any excess must clog the pores of the skin and prevent the free access of air to the hair roots.

Baths without soap are less objectionable than those in which it is used, and an occasional dip or swim cannot do a sound dog any harm, provided the water is not very cold nor entered shortly after eating a hearty meal. Yet moderation in these indulgences should be the rule, for water alone too often applied impairs the integrity of fine hair. And it follows that the custom indulged by some breeders of dipping their dogs in tanks every morning during hot weather is a questionable one except with certain breeds of dogs which have a special fondness for water.

Since no more favorable opportunity is likely to present itself some of the influences from within which bear upon the health of the hair may properly be considered here.

As so few owners appear to recognize it, it is necessary to emphasize the fact that the quality and often the quantity of hair varies with the general health, temperament and many accidental circumstances of the dog. In serious attacks of sickness persisting for several weeks it becomes dry and rough, with a tendency to break easily or fall out in consequence of being loosened at its roots. But while disease acts rapidly upon the hair and impairs its integrity, some functional disturbances merely, although slower in their effects in this direction, are yet quite as potent and baneful, and especially active are disorders of circulation and of the digestive and nervous systems.

POINTERS.



HEMPSTEAD FARM'S "DUKE OF HESSEN."



HEMPSTEAD FARM'S "WOOLTON GAME."

The blood can never circulate as freely as it ought in a dog that is denied sufficient exercise, nor can the organs concerned in circulation long retain their strength and vigor under such denial. Manifestly, also, when they are unable to do the entire duty assigned them their failure will be registered in every part of the animal economy. The effects of faults in the digestive system are equally as wide-spread, and nutrition everywhere must suffer in degree corresponding largely to their intensity. And even farther reaching and more pronounced are the ill effects of disturbances of the nervous system—a fact that need not be urged, for all must have had at some time in their lives at least a disposition to fret and worry, which alone is sufficient to impair every important function and make the victim spiritless, weak and ailing.

Appreciating that the hair, like the fingers and toes, is literally a part of the living structure, and that it is vitalized and nourished by the same common supplies, it is easy to believe that it shares in the hurtful influence described, and that if a dog is kept chained or confined to contracted quarters, is improperly fed, discontented and unhappy, or from other causes the tone of his general health is lowered, his hair must inevitably suffer with all other portions of his make-up.

When the hair parts with its natural gloss and smoothness there is some cause for it, which must be found and removed before restoration will be possible. And beyond the faults in management already alluded to there is at least one other equally as common, and which has very nearly as potent an indirect influence on the growth and health of the hair, namely, that of denying dogs sufficient fresh, wholesome drinking water. In evidence of the injury induced thereby the writer records an instance that occurred some years since in his kennels. On this oc-

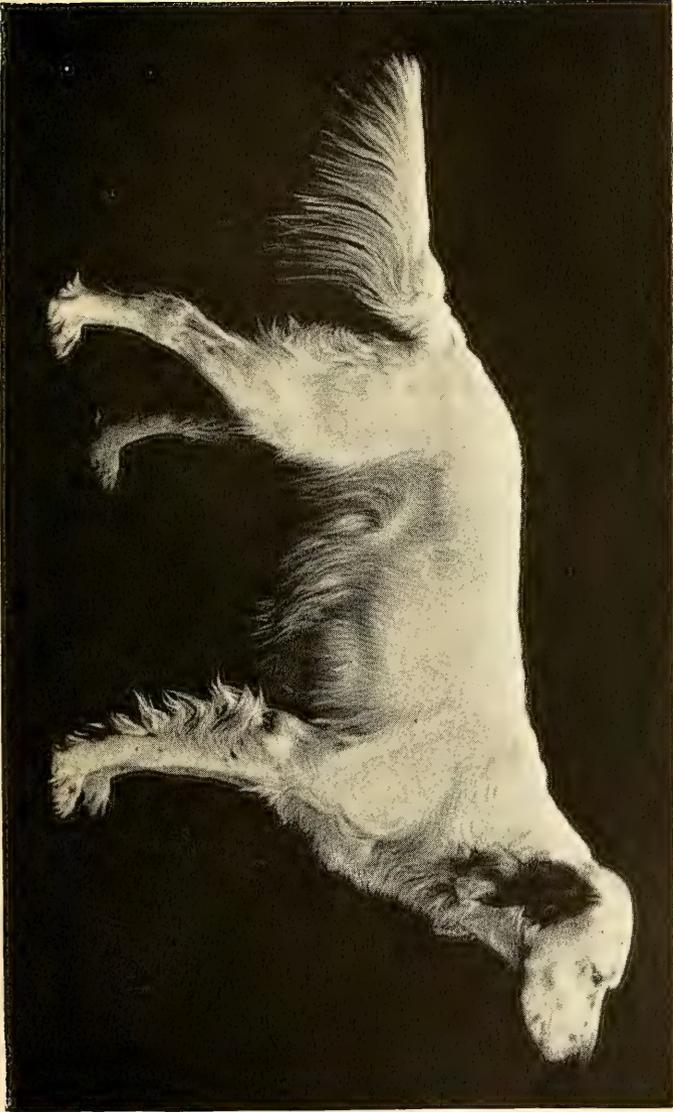
casation he noted that in all his dogs, some forty in number, there was quite a sudden and great falling off in the appearance of the coat, the skin losing its elasticity and with the hair becoming dry and rough. During the investigations that followed every possible cause was eliminated except the drinking water, and after the help had been under surveillance for several days this was proved to be at fault. The kennels being at once piped and supplied with running water the inmates were soon back to their old form.

The moral of all this is, that while cleanliness, grooming, etc., will keep in good condition the hair of a sound dog happily situated, except in the presence of good general health the hair can never be at its best, no matter how cleverly and faithfully it is treated.

A word as to the so-called hair restorers. Including the domestic with all other agents reputed to have stimulant action upon the hair the number would be well-nigh countless, yet as a matter of fact there are but few that have any restorative action whatsoever. Many of them, it is true, have seemed to prove effectual in certain cases, but doubtless in the infinite majority of them the hair would have grown quite as quickly without any application.

The hair is planted in the skin, but unlike vegetable growths the root is not its actual source and origin. A shrub pulled up by its roots cannot be reproduced on the same spot, and unless it is replanted there that spot will know it no more. Not so with the hair however, which although it has been plucked by the root will yet reproduce itself, because its true source is not in its bulb or so-called root but in the outer or dermic layer of the follicle containing the root and in a small vascular papilla continuous with this layer, known as the *matrix*. The cells formed by this matrix are always being pushed up into

MR. PAUL H. GOTZIAN'S ENGLISH SETTER, "MONK OF FURNESS."



the follicle and massed together so as to constitute the tissue of which the hair is spun. And obviously as long as the follicle and matrix remain normal the hair will be reproduced if it has fallen out, even root and all, but let them become disorganized so that they are no longer able to work, and "nothing under the sun" can restore hair in that spot.

If in consequence of ill health the hair becomes dry and rough with a tendency to break off or fall out, beyond removing the cause all that is necessary is to keep it and the skin as clean as possible, softened occasionally with a little cocoa-butter or glycerine and water, and apply friction with the fingers and brush; which means render the hair less brittle and conduce greatly to the restoration of vigor and tone in the hair-bulbs.

Bald spots do not often appear on dogs except in consequence of parasitic diseases, which must, of course, be cured before the hair can grow again. Perhaps the most popular agent resorted to by fanciers to restore hair on such spots—the skin being unbroken—is petroleum, and it is doubtful if many of them know that its good effect is attributable, not to its restorative powers but to its destructive action on the parasites that induce the baldness. Considering which action, its use, or still better the use of its refined product benzine—because it penetrates deeper—is to be commended on all bald spots of recent occurrence.

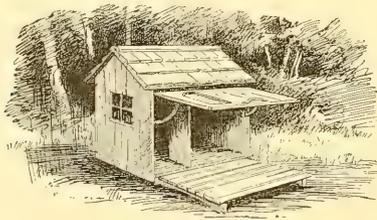
If the hair has long been off and benzine has been used faithfully without appreciable effect it will be advisable to resort to the tincture of cantharides or the sulphate of quinine, about the only serviceable medicinal agents that have any decided action as hair stimulants. The former being much the more powerful and a poison should be chosen only when the spot is so located that the dog can-

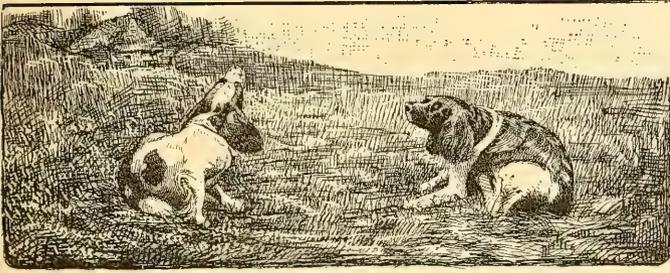
not reach it with his tongue. And it is best applied in the form of an ointment, which can be made up as follows: Balsam of tolu and tincture of cantharides, of each two drachms; petrolatum, one ounce. These ingredients should be thoroughly mixed and the ointment applied freely, twice daily.

When quinine is used it should be in a solution composed as follows: Sulphate of quinine, one drachm; dilute sulphuric acid, fifteen minims; alcohol and glycerine, of each one ounce; water, four ounces. This, also, should be applied twice daily.

It is scarcely necessary to add that neither the petroleum, benzine, cantharidal ointment nor quinine solution should be used where the skin is broken.

There now remain to be considered two agents which should invariably be employed lavishly in all cases where the hair is not at its best, and these are pure air and sunlight — agents which stand above all others on the list of hair stimulants and nourishers.





CHAPTER X.

TROUBLESOME INSECTS.

ALTHOUGH the skin and jacket of the dog would seem to afford conditions highly favorable for various kinds of free animal parasites there is really only one which has a very decided preference for him, and that is the *Pulex canis* or flea of the dog. A number of others are occasional visitors, yet as a rule they are easily destroyed or affronted and persuaded to leave. But this pest is an eminent exception, and of all questions that engage the minds of owners, how to overcome him is the most disturbing, for so great are his pertinacity, vitality and reactive powers, many poisons that are speedily fatal to other insects are to him merely sleep-producers that lay him up for an hour or two, when he is as lively and vigorous as ever; while unfortunately most of the surely destructive agents, which throttle him as it were — oily and viscid liquids — are so highly objectionable that but few care to resort to them.

It seems to be generally accepted that the *Pulex irritans*, the human flea, and the *Pulex canis*, the dog flea, are one and the same. Such is not the case however, for they

have very decided distinctive features, and while the former may infest the dog the latter never attaches himself permanently to man, although he may annoy him with occasional visits.

There is yet another prevalent notion about fleas, namely, that all in sandy districts are the so-called *Pulex penetrans* or sand-flea. As a matter of fact the true sand-flea is peculiar to hot countries, and although it has been found in some parts of Africa it is common only in South America, where it is variously known as the chigger, chigoe, jigger, etc. Another sand-flea, of enormous size, is met with on the shores of the Mediterranean, but, as said, none of these species are ever found in northern latitudes except embedded in persons from the infested districts.

The human flea and the dog flea, however, seek sand in which to lay their eggs and hatch out their young, and during the season in which this is going on it is almost impossible to keep them out of buildings that are located near sand-hills or on sand only recently deposited. But they naturally prefer that which is undisturbed, and although they may swarm in a load fresh from the hills, if spread out over a driveway or dog-yard and well rolled down it no longer as nicely serves their purpose, and they soon seek more favorable situations.

These troublesome insects, rightly called flies without wings, suck blood like leeches, and not content to satisfy their appetites they treat their hosts to injections of a highly irritating fluid which soon assures them that they have been victimized. Another deplorable peculiarity of theirs is that they multiply with distressing rapidity, the female laying about twenty eggs in as many days, from which the larvæ emerge in the course of a week and are then speedily matured; but until full-grown the mother



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LONDON, ENG.

supplies them with nourishment — sucking blood enough for herself and them.

Fortunately for mankind, human fleas are not very abundant except on the seashore during the hottest part of the summer, where their presence is largely due to the bathers, who of course are their easiest victims, while at inland places the most of the bites can safely be laid at the doors of dog fleas. And wherever there is a dog this species is likely to have representatives, and a goodly number always during the summer season.

But there are measures which will do much in the way of prevention, and one is to bed down the dogs with pine shavings and place about in the same a goodly number of carbolic “disinfecting balls,” which so many housekeepers employ to keep moths out of clothing. Another quite potent measure is the use of the oils of turpentine and kerosene, the same being freely sprinkled over the bedding and woodwork of the kennel.

Still another means which is sometimes resorted to by breeders is the free use of air-slacked lime in the kennel yard, it being scattered about upon the ground during or after a rain-fall. And this is certainly a commendable custom, for the lime is destructive to the ova or eggs of insects and parasites; yet it will not retain this effect in considerable degree if too long exposed to the air before it is used.

But the most potent preventive measure is cleanliness. In fact owners and caretakers are responsible for fleas, and if a kennel is kept clean, whitewashed often, and the dogs are well groomed once a day and washed occasionally with the soft soap recommended in part devoted to “Exhibiting Dogs” these troublesome insects will but rarely intrude, and certainly not remain long when they do so.

Of the various agents that have been recommended

for the destruction of fleas the Persian and Dalmatian insect powders appear to be the most popular. The first named, called also the Caucasian, consists of the flowers of *Pyrethrum carneum* and *roseum* — natives of the Caucasian mountains — while the other is a product of the *Pyrethrum cinerariæfolium*; and of the two, this is the more powerful.

These powders are often destructive, yet they are by no means positively so in all instances, and in the exceptions they simply have a narcotic effect which lasts for a few hours only, when apparently complete recovery takes place. Nor can they be relied upon to keep dogs free from the pests, for they are soon shaken off with all their virtues, consequently they must be used daily and perhaps twice a day to do any lasting good.

A bellows is the best means of application, or in its absence a tin box with a perforated cover can be used. And in every instance the powder should be well worked into the hair and down to the skin, the subject under treatment meanwhile standing or lying on a paper, which, with what falls upon it, should be burned that all the fleas may with certainty be destroyed.

But beyond being merely palliative these powders are objected to by many persons because of the irritation they excite in the air-passages of the users; and as a matter of fact without being really poisonous to man they are yet capable of causing him discomfort and producing symptoms closely resembling those induced by a cold in the head, especially in persons inclined to chronic nasal catarrh. Consequently, as a frequent application they can scarcely be advised, at least in a dry form. But this objection is avoided when they are employed with alcohol and water; moreover, the tinctures made from them are more powerful and lasting in their effects than the powders themselves.



SEMINOLE KENNELS' IRISH SETTER, 'TIM.'

It has been found that these powders owe their insect-destroying virtue to an acrid resin, deprived of which they are practically worthless. This resin can be extracted by alcohol, and the method to be employed also the various formalities to be observed in converting the tincture into a destroyer are as follows :

Obtain from a druggist one-half pound of Dalmatian insect powder and one and one-half ounces of the oil of eucalyptus. Pour them into a large bottle, add one quart of alcohol, cork tightly to prevent evaporation, and shake frequently during the next two or three days. Then obtain a funnel large enough to hold the contents of the bottle, also a three-gallon demijohn. Lightly pack the bottom of the funnel and its neck with absorbent cotton and insert it in the mouth of the jug. Shake the bottle and pour its entire contents into the funnel. The fluid portion, which is the tincture of the insect powder, will slowly filter through the cotton, and as it does so pour more water into the funnel until sufficient has been used to fill the demijohn. And each time water is added the muddy mass at the bottom of the funnel should be stirred, otherwise the filter will be choked. What remains in the funnel should finally be thrown away.

The demijohn — which must be well stopped — now holds all the active and poisonous principles of the insect powder, also another powerful insecticide as well as antiseptic, the oil of eucalyptus. Without the latter the diluted tincture would have been destructive to nearly all small insects, but one can never be too sure when dealing with fleas, therefore the stronger the destroyer the better. And besides adding greatly to its power the oil has given it an odor that is quite agreeable to most people, thereby rendering it of special value for treatment of house pets. But possibly the most fastidious may object to this odor,

in which event they have but to choose some favorite perfume oil, as rosemary, verbena, or the like, and after properly diluting it with alcohol add it to the mixture, which should be at once well shaken.

This flea destroyer has the color of whiskey and stains very light coats — although the discoloration washes off readily after the hair has dried — consequently it would scarcely be advisable to apply it to a white dog that one desired to appear at his best.

In using it pour a sufficient quantity into a hand basin and apply with a sponge or brush until all the hair down to the skin has been well moistened, and then allow it to dry on. As its effects are not nearly so fleeting as those of the insect powder its use is seldom demanded oftener than twice a week even in the most troublesome times, but it can safely be resorted to daily if there is occasion for it. And if this agent is sprinkled over the bedding of dogs and about their kennels, fewer direct applications to them will be required.

Some breeders make an infusion of insect powder by steeping a pound of it in a pailful of boiling water, and this is then added to ten or twelve gallons of water and in the mixture the dogs are given a bath. But boiling water does not extract the virtues of the powder nearly so completely as alcohol, therefore in an infusion there is a loss; and when so diluted it is extremely doubtful if it has other than a stupefying effect merely, from which the fleas recover in a very short time.

The cost of the three gallons of the diluted tincture is less than one dollar, but notwithstanding this fact it will doubtless be held too expensive by many who keep a large number of dogs, consequently it is advisable to consider herein another and cheaper insecticide.

Crude carbolic acid suggests itself, for it costs only

thirty-five cents per pint, while half this quantity when added to water will make a washing-tub full of safe and efficient flea-destroyer, and one that will keep indefinitely without losing its strength. But this must not be confounded with the carbolic acid in common use, of which there are several kinds. First comes the pure in the form of white crystals, — so susceptible to moisture that they soon fuse into a hard mass — then the carbolic acid usually found in drug shops, which is at least one remove from the first in the matter of purity, although the two outwardly so closely resemble one another the differences are scarcely appreciable. The next remove is a nearly colorless liquid which is generally employed where large quantities are needed to disinfect cesspools, sewers, etc. After this appears the crude acid, the kind herein recommended, a sirupy fluid of deep brownish color — nearly black — and really only about one-half carbolic acid, the most of the remaining ingredients being worthless substances.

When diluting crude carbolic acid it is advisable to use an alkali, and the common soap of the kitchen will answer every purpose. One pound of this soap having first been dissolved in about a gallon of hot water, half a pint of carbolic acid should be added and thoroughly mixed by vigorous stirring. Then the whole should be poured into a tub or barrel holding about fifteen gallons of water.

The destroyer is now ready for use, and can be applied with a sponge, or dogs can be dipped in it — in which case care must be taken to prevent the solution from getting into the mouth, nostrils or eyes.

The duration of the bath should not be over half a minute, and after being permitted to run about for five minutes the dogs should be dipped in a tubful of clean water,

or rinsed off by means of a garden sprinkler, and then allowed to dry themselves in their own way.

Strong, hardy dogs would scarcely need rinsing, but still it is a wise procedure, for some forms of the crude preparations contain more carbolic acid than others and poisonous absorption might possibly take place; moreover, the solution if often applied and allowed to dry on would likely make the hair dry and brash.

This crude carbolic solution is not only destructive to fleas and other troublesome insects but both preventive and curative of the most common form of mange and many other parasitic diseases, hence its use about twice a week in summer is likely to prove highly beneficial in a variety of ways. But for obvious reasons it is available only in warm weather or where kennels are comfortably heated in winter. And since very nearly all such agents are more or less prejudicial to the coat it should be used sparingly if at all on dogs being made ready for shows.

What is generally accepted as the pure carbolic acid is sometimes used in a stronger preparation composed as follows:

Carbolic acid, one-half an ounce; glycerine, one-half an ounce; laudanum, one ounce; bicarbonate of potassa, one drachm; water, one and one-half pints. In using, pour a little into a hand basin, and with a small sponge rub it through the coat to the skin.

The writer has never tried this preparation, but Mr. J. Otis Fellows, one of the most experienced breeders within his acquaintance, cordially recommends it for use especially on house pets, because of its cleanly nature as well as efficiency.

Quassia is another potent flea destroyer, which notwithstanding that it possesses the peculiarity of being poisonous to many of the lower animals, including dogs, is never

likely to do harm unless used much too freely. The infusion, the preparation for the purpose, is made as follows: Put four ounces of the chips into a demijohn containing a gallon of hot water; stop the same with a cork — only gently inserted — and place it on the back of the stove where it will keep warm. In the course of two or three hours the virtues of the chips will all have been extracted, when sufficient of the liquor should be poured into a tub, in which, after the infusion has cooled, the infested dog should be stood and thoroughly drenched.

There are many kinds of soap on the market for which the claim is made that they are destroyers of fleas. The writer has given a very large number of them fair trials yet found but few which acted as reputed; and the strongest form of carbolic soap was the most notable exception.

Some carbolic soaps are intended for toilet purposes merely and contain such small quantities of the essential agent that they are but little if any better than common unmedicated soaps, but the strongest kind is destructive to fleas as well as of real value in the treatment of parasitic affections. And although there is a prejudice against it because of its great strength it is perfectly safe for use on mature dogs, provided it is applied quickly and a free rinsing follows without delay.

To afford relief from flies, which in hot weather cause nearly as much annoyance as fleas, tar soap is recommended, for the reason that the odor of tar is highly objectionable to them, and this can be used freely in washing dogs or they can be dipped in a strong suds; and in neither case will it be necessary to rinse them, as there is nothing poisonous about the active agent.

Mature dogs are seldom infested with lice, but puppies are frequent victims, and their favorite habitat is the back of the neck and around the ears, where they appear as

very small steel-gray specks. An emulsion made of kerosene oil two parts and fresh skimmed milk one part readily destroys these insects, and without causing any irritation of the skin.

This is easily prepared as follows: Heat the milk, and while yet hot put it into a bottle considerably larger than required by the mixture; add twice as much oil as milk, and shake the whole vigorously for several minutes; by which means the ingredients will be quite thoroughly mixed.

As soon as it has cooled sufficiently apply the mixture with a sponge or stiff brush, such as painters use, and rub with considerable force that the skin may be well bathed. On the day following such application it will be advisable to use a fine-tooth comb on the parts treated, and if any of the pests are then found alive a second drenching with the oily mixture will be indicated.

Another highly efficacious remedy for lice is the common commercial benzine, which, by the way, is of great merit not only as an insecticide but as a parasiticide, notwithstanding the strange fact that it is but rarely used on man or animals.

It costs but a mere trifle, does not irritate the skin, is perfectly safe for external use, and will not injure or stain the finest fabrics; moreover, there are but few medicinal agents that "strike in" so deeply as this, hence its special value in diseases of hair follicles, all of which involve the minute pores of the skin.

The removal of wood-ticks, with which dogs are occasionally troubled, practically requires the same treatment as lice. But should this fail the solution of crude carbolic acid and water recommended for the destruction of fleas can be used.

In closing, it is urged that in every instance where the



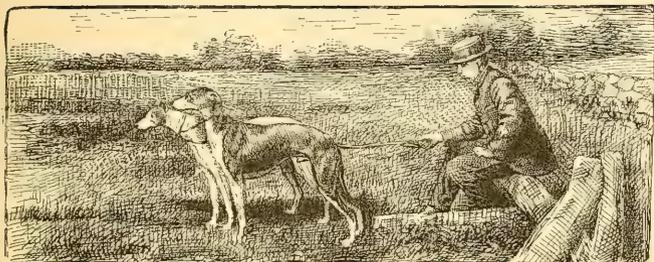
OAK GROVE KENNELS' IRISH SETTER, "NORNA."

kennel of a dog becomes infested with any of the troublesome insects or he acquires an obstinate skin disease — and especially if the same is attended with itching — the bedding be at once destroyed, the kennel thoroughly cleaned, fumigated with sulphur and faithfully white-washed in every part, crack and crevice.



PART II.

EXHIBITING.



CHAPTER I.

PREPARATORY WORK.

THE truth of the familiar and crude apothegm "It costs no more to keep a good dog than a poor one" has evidently found wide acceptance, for mongrels are rapidly disappearing and their places are being filled by pure breeds. With this salutary change, and a natural consequence of it, the interest in competitive exhibitions has been steadily growing, until now they are held yearly in goodly number; and so great is the pleasure they afford and their value as furnishing abundant material for critical study of the dog in improved state they may confidently be expected to multiply and eventually become as fixed and popular institutions as the "cattle shows" of olden times.

So rendering the signs the writer feels that his work would be far from complete were he to omit a discussion of dog shows and the special treatment required by competitors.

But before fairly dipping into the subject he would disabuse the reader who is possessed of the prevalent belief that dog shows in themselves are inimical to all com-

pétitors and of all ages, and that the dangers threatened are beyond prevention.

This notion owes its greatest force to its antiquity, and like the cobwebs that obscure so many healthful truths has stoutly resisted the broom of intelligence and experience. There are many diseases peculiar to the human family that find their most favorable conditions where children congregate, nevertheless schools exist and must continue to do so until the end of time. Churches might without impropriety be called "head centres" of disease, for in them, also, the conditions are quite favorable for its wide dissemination, yet the non-going never rely upon this fact for an excuse.

And so with dog shows. Were a dog suffering from a highly infectious disease admitted to one of them he could scarcely fail to infect some of his competitors. But dogs are not subject to nearly as many diseases of this class as mankind; moreover, at the present time so much is known as to causation, the mediums of conveyance and methods of prevention, it is possible to hedge around these shows safeguards quite as efficient as those which man employs against his own peculiar infectious diseases.

Children in schools and people in church are in some danger—slight though it be in many instances—of diphtheria, scarlet fever, measles, whooping-cough, itch, ring-worm, and a number of other diseases of like character, whereas scarcely more than two such diseases threaten dogs at shows; and these are distemper and sarcoptic mange. That the former has found many victims at these gatherings is a deplorable fact which no attempt will be made to disguise, but there was a time when small-pox yearly destroyed thousands upon thousands of the human family, yet in these days, in civilized countries, death from it is of extremely rare occurrence; and if the



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well-known means of prevention is universally employed this once terrible scourge must in time be stamped out of existence.

No other disease has declined with a rapidity approaching this, but all of the same character whose true nature and inner workings have been uncovered have taken a downward course—thanks to the means of prevention that are becoming better and better understood every year. Distemper is no eminent illustration of this, still it is not a notable exception, and evidence is not wanting that at shows, at least, it far less often intrudes than it did even five years ago.

The idea is popular that all must have scarlet fever or measles some time in life, and not a few parents who cleave to it deliberately expose their little ones to victims of these diseases that they may be off the anxious seat at once. A similar notion about distemper exists among dog owners, and this, with its kindred shadow from the musty past, scarcely more opprobrious, should have long since been dispelled.

As a matter of fact no age is exempt from scarlet fever or measles, and the same is true of distemper, but all these diseases have a very decided preference for young subjects, and the danger of "taking" them lessens gradually as maturity approaches, and very rapidly after that period. In other words, a puppy—especially if not strong and hardy—is always an easy victim to distemper, whereas an old dog stoutly resists infection.

Fully alive to this fact some breeders keep their puppies, of all ages, away from shows; and this is an admirable rule, but the need to enforce it is much less than it was a few years ago, for at the present time a fixed requirement at all shows held by clubs comprising the American Kennel Club is, that every competitor shall be

examined by a duly qualified veterinary before he is benched. And when this is strictly complied with a dog suffering from distemper is not at all likely to gain admission, whereas once dogs in its early stages were frequent sights at these exhibitions.

Another important action of this club is, that no puppy under six months of age can be accepted for competition. The highly salutary provision is also made by nearly all managements that older puppies may be removed from shows at the expiration of the second day. Again, reputable breeders, fully alive to the dangers of distemper infection, have quarters especially arranged for the sick, in which they at once place and isolate all victims of distemper, and in this way preclude the possibility of their show dogs being carriers of contagion. More than this, there are now generally employed in shows methods that are to a considerable degree obstructive to infection; and these appear in the painstaking efforts to maintain cleanliness and in the lavish use of chemicals.

All these precautions have greatly lessened the danger of distemper infection at shows; and their influence must be wide-spread, for beyond the dogs that congregate at these places the rate of mortality from this disease plainly appears to be falling every year.

As for sarcoptic mange, the other disease which dogs are liable to contract at shows, the danger from it is now very slight since every dog must be carefully examined on entrance; and what remains can be wholly obviated by the caretakers. But were it to escape detection and a dog afflicted with it to be admitted, even then the danger to others would not exist provided they were not allowed to come in actual contact or enter his stall, and the rules to be given later on for the benefit of exhibitors were carefully observed.



SEMINOLE KENNELS' IRISH SETTER, "LAURA B."

Of course there are yet other diseases that might be acquired at shows but the liability to them is so small it ought not to deter any one from exhibiting his dog if desirous of doing so; and the two singled out — distemper and sarcoptic mange — have been discussed at considerable length that the reader may know the pure and simple truth and be able to judge understandingly of the extent of the danger threatened at such exhibitions. That it is generally greatly over-estimated is a very unfortunate fact, for every dog that seems good enough to win honors should be allowed to try; moreover, upon the number of entries depends much the public interest, and the greater the latter the more profitable breeding.

The writer will endeavor to influence favorably this train of conditions with a few practical hints, and he urges that if they are carefully observed, mature dogs while at shows will scarcely be in greater danger of infectious diseases than when at home in their kennels.

The average exhibitor having decided to enter his dog at once sets about putting him into "condition" to appear at his best. There are two ways of doing this, and they may be said to point due east and due west, for they are distinctly opposite — one being right and the other wrong. Unfortunately the latter is by far the more popular, and it consists of drugging and gorging. Yet as far as form goes, the only legitimate way to put a dog right is to rely upon hygienic and dietetic means. And when there has been a considerable falling off, very generally three or four months is required to do this work well, while with most dogs that are in fairly good condition six weeks is none too long a time for it.

Where the candidate for honors is badly "off," being under weight, out of coat, and with muscles soft and flabby from disuse, it is well to start in with a dose of

worm-medicine. And this having acted he should be entered upon a course of training by exercise, which should be systematic and conducted if possible under as rigid dietetic and hygienic rules as those enforced with athletes.

Steady, slow work should be the rule at first in all instances, and this should be persisted in with the largest non-sporting breeds—the walks gradually extended each day until fairly long distances are being covered—while with most of the other varieties it must be intelligently quickened as they gain in strength and endurance.

In hot weather this exercise should invariably be in the early morning—never under a roasting sun, for then it must depress instead of invigorate, and besides invites heatstroke, to which dogs are quite as liable as man.

The amount of exercise required of course depends upon the existing conditions—the state of health and endurance, individual peculiarities, etc. But it is safe to say that where the dog is being worked on the chain and has been in training for two or three weeks, if other than a toy he will be able to make as many miles as his trainer will find it convenient to cover on foot. Should, however, the fear intrude that too much exercise is being given it will be necessary merely to resort to the scales, and as long as there is a gain in weight the amount of work certainly cannot be excessive.

Always after an outing the dog's feet should be examined to see if he has taken up small stones or cut himself with bits of glass. And if he gets wet or his legs and under-parts have been splashed with mud he should be carefully sponged and well dried before he is put into his kennel.

Dogs that are not accustomed to much exercise are liable to stiffen during the first days, especially if it is



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carried too far, but they soon limber up and rarely is treatment required; should it seem necessary however, bathing the affected parts with hot water will speedily effect a cure.

As for terriers that have a yard or run to their kennels, they do not require nearly so much work as the large breeds, for they are nervous and restless, and, being always on the move, exercise themselves.

The city resident of many cares and but few leisure moments will find routine exercise well-nigh impossible and he will naturally ask if there is not some means of working his dog without long walks and going away from home. There is retrieving the ball; if his dog has been taught it he might be worked in that way half an hour or more in the morning and the same length of time at night, after he had been given slow walking exercise for a week or ten days.

There is also the exercising machine or so-called "dog power" which might be used advantageously, but one trouble with that is, the dog is apt to work too fast or too long unless very nice judgment is used. Nor can it approach nearly in value the exercise yielded by walks and scampers, for there are lacking the pure air and diversion which are by no means unimportant considerations. However, the "dog power" can be made useful, but intelligence and care will be required.

Sporting dogs that have much fallen off in form can scarcely be made right without a little fast work, and unless they can be taken into the field occasionally, which is always best, a good place for them is behind a horse; and their runs, at moderate pace, may extend to from ten to thirty miles a day, provided, of course, they have been brought up to them by easy stages.

But hard runs are not advisable, as many seem to think,

for all dogs that are built for speed, and nearly all of the exercise for greyhounds, for instance, should be given on the chain. Really it is much harder work for a dog to walk to heel — on chain — than go his own gait, yet there is no danger of draining as it were the muscles as there might be in hard runs. Beyond this there is still another argument of no little importance in favor of chain work, namely, the freedom from danger of fights, picking up unwholesome food, spurts after cats, — which means the loss of an eye, perhaps, — etc.

Dogs when kept in training for a great time if given excessive work, and especially fast work, are liable to become “stale” and lack “fire” at the critical time; yet without hard work the fire is merely a flash, — it cannot be depended upon to last through a series of long and punishing courses. Nice judgment is therefore required lest by overwork a dog be overdone and he become “stale,” or that owing to incomplete training and a lack of sufficient work his wind be not in the best possible condition.

But this, like many other difficulties which confront the practical courser, need not trouble the conditioner of show dogs. They will be able to stand more chain work than he is likely to give them. And he knows that those important factors of success in the field — stamina and good wind — cannot be tested in the judge’s ring, therefore his efforts will be directed to having his dogs hard in flesh, large and prominent in muscle and as good as possible in coat. He will also bear in mind that road work hardens the pads; and as good feet in this breed count for much before a capable judge he will see to it that nearly all the exercise is taken on hard ground.

The dogs may be permitted to extend themselves for short distances every day. This will do good, for it will



OAK GROVE KENNELS' IRISH SETTER, "KILDARE."

bring into play muscles which should not be permitted to be idle. Coursing the hare, however, is not allowable as a means of either training or conditioning for shows. And a dog in a half-trained condition if slipped on a good, strong hare would likely be injured rather than benefited in condition, and his courage might meet a severe shock. But a dog that is "fit" might be given a hare once in a while, yet only very seldom, for with frequent coursing most dogs become "cunning," and when asked to do their best in competition will not respond.

Greyhounds, like other dogs, vary considerably in muscular development and firmness of flesh. Some are as hard by nature and without training or conditioning as others which have undergone a most thorough preparation; and the rule for this breed is a good, stimulating and solid diet, with plenty of work that they may be able to carry their food without the blood getting into a bad condition.

Feed at, say, six p.m. Brush and hand rub for an hour or more daily. Give ample kennel room; let the same be thoroughly dry, well ventilated and free from draughts, and these dogs should show up hard in flesh, fine in coat, prominent in muscle, bright in eye and high in spirits.

Deerhounds also do well on slow work, and a walk or an easy jog behind a team for ten or fifteen miles every day for six weeks will develop muscle and health more efficiently than faster work, and without the danger which attends it where the subject is or has been recently out of condition. They may be made right for the show bench in the same way as greyhounds, but as their coats ought to be hard the hand rubbing must be dispensed with except as a means of developing the thighs; and brushing sufficient to keep their coats and skins clean is all that is necessary.

Obviously the matter of exercising is one that requires knowledge, judgment and care. It will certainly be necessary to understand the natures of dogs thoroughly, the peculiar work for which they were constructed, their limits of endurance, etc., and to study them intelligently, for the purpose of determining where they are weak and need development. Then, and then only, in many instances can exercise be judiciously applied.

It is well to advert here to the belief which is widely entertained that dogs can be conditioned quite as well by medicine as by hygienic methods; and that the utter absurdity of this view may appear at once the physiological effects of the drugs commonly used will be briefly considered.

Arsenic, the most popular agent for this purpose, is both a tonic and a deadly poison, and while in nicely adjusted doses and in selected subjects that absolutely require such a tonic, and whose peculiarities of organism are perfectly understood, it might do no harm, and might possibly do good, still it is singularly prone in every instance to impair the vitality. But only men who are skilled in the use of drugs and have an intimate knowledge of anatomy and physiology can locate the danger line, and even they must sometimes pass over it because of failure to recognize idiosyncrasies. And if such men are liable to fail surely the average layman is not at all likely to succeed.

But even when administered understandingly it is far from being suitable for conditioning dogs, for although they seem to fatten after taking it for several weeks the rounding out is not occasioned by a healthy deposit of fat, but is largely due to puffiness of certain tissues, or what is commonly called bloating. This seeming improvement can be kept up for a long time if the doses of the poison are

steadily increased, provided always the dog is much at rest. But submit him to a railway journey and the disturbing influence of a show, and he will shrink rapidly from the first day — his spurious fat melting as it were — and ere he is home again he will not only be back to his old form but thinner than when the use of the drug was commenced.

Iron is another agent often used in preparing for shows. And as it is one of the first that the average layman resorts to when he feels he needs a spur it is not surprising that he assumes it to be suitable for his dog. But the value of iron as a general tonic is very greatly over-estimated; and given indiscriminately, as it often is, the proportion of harmful and good results is not less than ten to one; while many morbid conditions of the system in which it was once supposed to be of high remedial value are now known to yield much more quickly and easily to other drugs. Again, there are an immense number of preparations of iron, the most of which have their special purposes and act well in certain classes of cases, whereas if used in others they are quite sure to do harm.

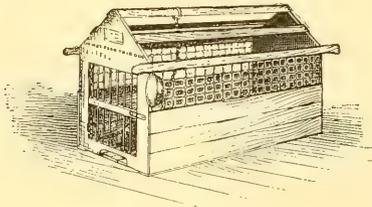
This runs counter to the popular belief that if iron fails to do good it can do no harm, but that is without foundation, for when wrongly used the digestive organs are made to suffer and other functions are more or less disturbed. Considering all of which, iron should be kept on the shelf with arsenic while one is conditioning his dog.

Yet another drug often resorted to when preparing dogs for shows is quinine, which is supposed to have special action on the appetite. This, also, has its place among remedial agents, but as an appetizer it is of doubtful value except in occasional cases; and as a matter of

fact a medicinal appetizer of any sort is rarely needed, for whenever the desire for food abates there is a cause which should be removed, and that gone the appetite will return without the aid of drugs.

What has been said of arsenic, iron and quinine in the main holds good with other tonics, individually and collectively, singly and combined, as "conditioners," for only dogs that are sick actually require them, and no sick dog nor one convalescing should be sent to a show.

The moral of all this is, that where form is lacking the only proper course to take to overcome the fault is to resort to hygienic and dietetic means, and he who is denied the opportunities to apply them when they are needed should keep his dog at home.





CHAPTER II.

THE FEEDING.

UNDER properly regulated exercise a dog fairly healthy in the beginning will have gained at every point before the fourth week, his muscles having noticeably filled and hardened, his step become more elastic, his eye bright and clear, his skin cleaner and softer, and his hair finer and richer in hue. Moreover his appetite will have grown better, and his digestive organs having shared in the general improvement a far greater proportion of his food will now be assimilated and devoted to flesh-building.

Consequently he will require more food, and it may be advisable to increase the number of his meals daily. But if fed twice daily, which is often enough for most dogs, the morning feed should be not more than one-third the quantity given later. Increase in quantity and frequency would of course have been hazardous under the old *régime*, but now that he is taking a great deal of exercise both will be perfectly safe, provided care and judgment are used, and it will also be safe and expedient to give him more concentrated and nutritious foods.

In making up the diet table for him new milk at once

suggests itself as the principal food for breakfasts because it works like a charm on the skin and coat. But for a dog that is much out of condition this would scarcely be nutritious enough, therefore it is advisable to fortify it; and he who is familiar with the different foods at command and their relative values would at once hit upon eggs, for being largely composed of fatty matter they greatly favor nutrition, tissue-building and force-production; furthermore, they also have an admirable action on the skin and coat.

New milk in generous quantities and from one to four raw eggs—according to the size of the dog—lightly beaten up in it should therefore constitute the first meal of the day.

If a meal at noonday is necessary, as it generally is when the condition is very low and the date of the show rapidly approaching, the food given at this meal must be such that it cannot possibly disorder digestion. Here, again, raw eggs recommend themselves, for of all highly nutritious foods they are the most easily digested and least likely to cloy and impair the appetite for the evening meal. Consequently, unless it so happens that they cause "bilious symptoms," which is but rarely the case where the eggs are fresh, about the same number given in the morning should again be given at noon, and in milk as before; but the quantity of the latter should be comparatively small and only sufficient for the purpose of thinning down and disguising the eggs, which should have "a pinch" of salt to push them as it were even more rapidly through the stomach.

Now for the supper, the heartiest meal of the day. If the dog has very decided preferences in the way of foods, and those he likes best are perfectly suitable, he can of course be properly allowed them, but exercising freely as



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he is more than likely he will be ready to eat whatever is set before him. His food must be concentrated; in other words he should have a good solid feed, and it should be varied and consist of an admixture of several articles.

As for instance, if there are not table scraps in ample quantity and eminently suitable in quality for him, one supper should consist principally of stale white bread and beef, the next of mutton and boiled rice, the next of beef and Graham bread, and so on, with boiled sheep and beast heads and corn meal or oatmeal for change. Many, by the way, object to corn meal, but very likely one pronounced reason is that they have used it day after day and week after week. But if given once or twice a week it can do no harm unless it is old and rancid.

With each meal there should be one vegetable at least, and herein, also, should be variety — one night boiled turnips, another beets, then cabbages, carrots, potatoes or some of the various greens. And accepting without qualification the fact that the bowels should be regulated in the feeding-pan, not by drugging; these greens, oatmeal and Graham bread should be mainly relied upon when the bowels are confined, while boiled flour would be the proper remedy were they relaxed.

In preparing the supper the bread, crackers, rice or other starchy foods should be just softened with a good rich broth. The beef or mutton should then be chopped quite fine, and the vegetables mashed if they are turnips, carrots, beets or potatoes, or minced if they are cabbages or greens. And after the ingredients have been treated in these ways they should be all so well mixed that the dog cannot pick out the meat if disposed to do so.

A word here as to forced or spoon feeding. It is only in extremely rare instances that it is necessary except in sickness, and certainly it should not be resorted to unless

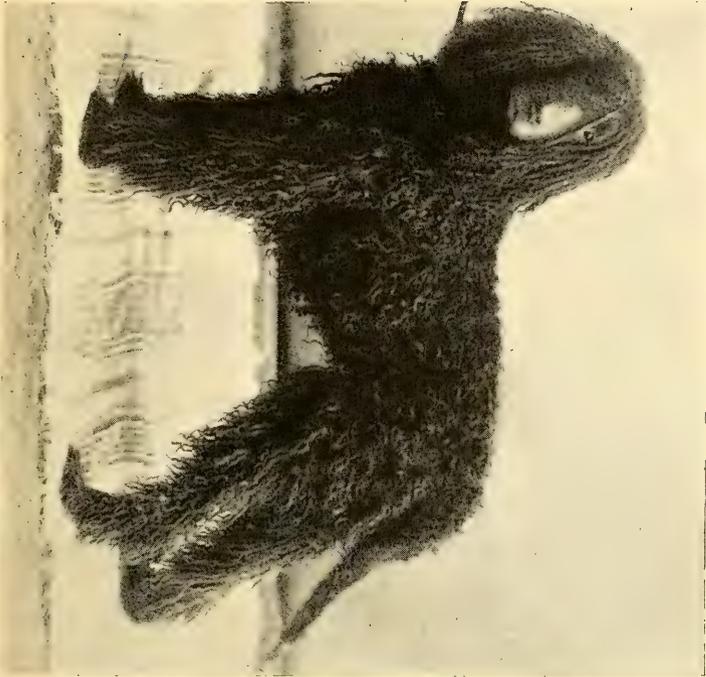
absolutely necessary. But it is a fact that one at least of the most noted winners of the past could not be built up to weight without the use of the spoon. And should the reader be so unfortunate as to encounter another such he would be perfectly justified in forcing food into him, using raw eggs, highly concentrated beef broths and beef extracts for the purpose.

While the dietary recommended is the one which can wisely be employed with the most common varieties of dogs there are some for which modifications will be required. To greyhounds, for instance, but little soft food should be given, nor should they be allowed vegetables in considerable quantities; in fact they should have no more than demanded to keep their bowels free and active. Their mainstays should be boiled beef and mutton, — the latter for choice, — and with these, in the absence of suitable table scraps, should be mixed a little white or Graham bread that has been toasted or baked until nearly as brown and crisp as rusks, or occasionally a little hard and brown corncake will be allowable, and to these ingredients can be added what vegetables are required; while once or twice a week it will be a good plan to feed on raw meat, chopped fine, with a raw egg over it.

On this diet they will become hard and firm without the desposition of fat; or if too fat they will grow thinner under it.

Before going further the fact deserves emphasis that there should be a fixed hour for feeding dogs, and they should always have their meals on time, for they fret when kept waiting, and some even positively refuse to eat if their dinner is an hour late, while others go to bed and eat reluctantly when called; whereas at the proper time they are at the kennel door barking and plainly asking to be fed.

IRISH WATER SPANIELS.



MR. G. H. BAXTER'S "THE SHAUGRAVN."



COL. HON. WM. LE POER TRENCH'S "SHAUN."

Some dogs are liable to become over weight and go beyond their classes when they are being put in condition if they are not carefully watched, while on the other hand some require to be pulled down a bit. If they are of the fairly hardy variety, as a rule far better more exercise than dietetic restrictions, but if they are delicate toys, and especially Yorkshires; the remedy lies in the feeding-pan.

But before considering the special requirements of over-weight dogs something can properly be said of the feeding of Yorkshires in general and other toys which do not exhibit this fault.

In dealing with Yorkshires one must consider above all the condition of blood and skin and growth of the hair.

Now in discussing food and feeding many writers have theorized that rice being fat-producing is not suitable for this breed and should not be given, or if given the quantity should be very small indeed. But theories and results of practice are sometimes at variance, and so it proves in this instance, for it is a fixed and absolute fact that the staple food for toys and especially Yorkshires *is* rice. And one reason for its special suitability lies in the very argument which these theorists use for condemning it, namely, that it is fat-producing. Besides this effect, however, it is cooling, good for the skin and, as a result, for the coat.

There are many physicians who believe that the food has a decided influence on the growth of the hair and that the starches are the most active of all. Not impossibly this theory is correct, and certainly experience with dogs would seem to substantiate it, for with him who is admitted to be the best "hair grower" of the dog world rice is the food of all relied upon.

But while the question, Will food promote growth of the

hair? is still open, there is no disputing the fact that rice favors its health, and by acting on the skin and blood it decidedly lessens its tendency to break and fall out.

Rice may therefore be accepted as the staple food for toys and especially Yorkshires. And the proper way to prepare it is to set it in the oven, in a jar, and allow it to cook for at least two hours; or if the oven is not too hot it may remain there all night.

The first meal for Yorkshires—and what will do for them will do for all the small varieties which have but little out-door exercise—must be of new milk, and the quantity about half a pint. This should be given early—say at seven. About three hours later boiled barley and nice fresh tripe that has been boiled in milk may be given. The tripe, by the way, must be chopped fine and mixed with the barley, and to this may be added a little of the milk that the tripe has been boiled in.

The milk used in feeding may be warm from the cow, or if cold it should be slightly heated. Ice-cold food will not do for toys, nor must they be given hot food. In a word, they like it better with the chill off and do better with it so.

Having had food at seven and ten, at about three o'clock a small quantity of new milk may be given.

At supper time they should have a feed consisting of three parts rice, one part beef or mutton, chopped fine and mixed with the rice—a little gravy or broth being poured over it—and a small quantity of vegetables, which should also be thoroughly mixed with the other ingredients.

A drink of lukewarm milk at bed-time, especially in cold weather, can do no harm.

The next day they should be given early, as usual, a small quantity of new milk; and at ten a change can be made to milk biscuits that have been steeped in milk

or broth. This time the supper may consist of mashed potatoes and scraps from the table, but there must not be any fat; while the other feedings should be much the same as on the previous day.

Rice should be given three or four times a week mixed in various ways, and barley once or twice.

The rule is, feed oftener than with large dogs, but feed lightly and give small quantities of new milk not less than three times a day.

As in the case of all young puppies, "little and often" must be the feeder's motto. Toy dogs are not unlike children — their stomachs must not be long empty and the food must be bland and unstimulating. Rice, milk, barley, milk-biscuits, bread and mashed potatoes, with boiled tripe and small quantities of roast beef and mutton, mutton broth, gravy and vegetables, will keep them in the best condition if judiciously used.

The main thing is to prevent the blood from becoming impure, and this is never easy where so little exercise is possible. Once a week a little magnesia may be given with the milk in the early morning; while the droppings should be examined every day and prompt means taken to right them if wrong.

In the hands of an expert a Yorkshire may remain in show form for years, whereas under wrong treatment he may not last through half a season. And it is scarcely necessary to add that none but they who have some knowledge of the treatment of toy dogs and a bountiful fund of patience should go in for those like Yorkshires. In fact, two dogs of this breed require almost as much care as one child, and it is the sort of care that the novice cannot give.

Now to a consideration of overweight dogs. A terrier weighing a trifle over five pounds may be good enough to

win in the "under-five-pound class" but not good enough to compete with the big ones, therefore his owner will naturally strive to pull off the odd ounces and bring him to the standard. In order to do this and at the same time have him in show form he must feed with exceeding nicety. He must bring him down to weight but he must not weaken, and in fact he must improve his general condition if possible.

In a case like this it would seem that animal foods could be largely relied upon as the least likely to fatten, but Yorkshires ought not be given much meat, for it is stimulating and quite sure to heat them up if allowed in considerable quantity; nor is it possible to give the amount of exercise required to obviate this effect and prevent the blood from becoming contaminated with the impurities which result from excess of animal food. These impurities present, the entire system suffers, but in dogs they seem to have a decided preference for the skin. Therefore, once the blood is out of order a bad condition of the skin may follow, the hair will then of course be affected, and when that begins to come out it will fall off rapidly, and the owner of the victim would likely have to wait more than a year, and perhaps two years, before he could show again.

Consequently "lighter" food must be mainly relied upon. But of course some meat can be given, chopped very fine, and what vegetables are allowed should be those that grow above ground, such as lettuce, spinach and other "greens."

While new milk is one of the most bland and least stimulating of foods it is to some extent fat-producing, owing to its cream, therefore if milk is allowed the overweighty it should be skimmed milk or buttermilk, and the latter for choice. But many toys do not seem to like butter-

MR. SPANFIELD.



MR. H. P. [illegible]



MR. JAMES L. LITTLE'S "FRIAR BOSS."

COLUMBIAN DOGS



Mr. W. B. Graham's Dog



Mr. James L. Lott's Dog

milk, many also will throw it back, consequently where it is refused or not kindly received by the stomach, skimmed milk with a little water added should be substituted. And of this or buttermilk nearly a saucerful might be given for breakfast, and smaller quantities a few times during the day.

It is well to add that although advisable to restrict the quantity of fluids where efforts are being made to reduce the weight by dietetic means alone, without the assistance of exercise, an exception can be made of skimmed or buttermilk because of their stimulant action upon the kidneys, by means of which the slight fat-producing tendency is more than compensated for.

Mutton is less fattening than beef, therefore it is to be preferred in a case like the one under consideration. Rich soups favor a laying on of fat, consequently they must be forbidden. As for starchy foods, the quantity of them for all overweight dogs must be very small indeed, and it would be advisable always to restrict them largely if not wholly to plain biscuits and "white bread" that has been toasted or baked until brown and crisp.

In a word, mutton broth and biscuits, or broth with toast, mutton, a bit of the greens occasionally, and skimmed milk or buttermilk should be the main supports in feeding an overweight Yorkshire; while for a change he might be allowed "tea sops" — bread or toast soaked in tea — if, like the most of his kind, he seemed to care for them.

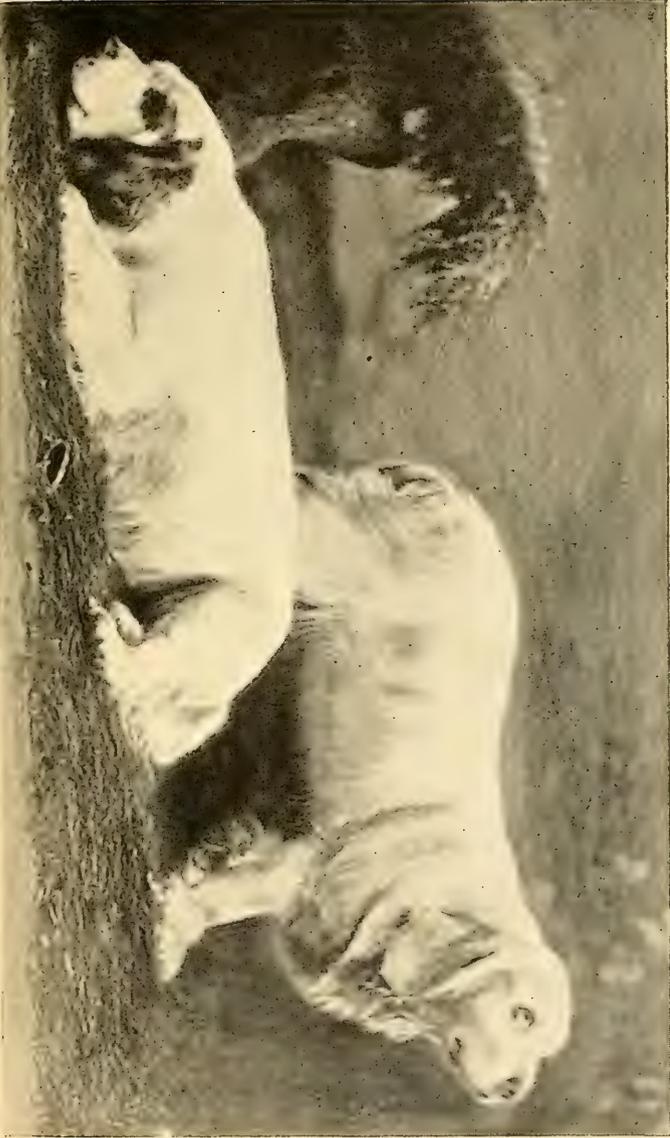
Every day he should be put on the scales, and if found gaining in weight either the quantity of food must be lessened or all starchy foods discontinued for a short time; in which event milk, meat and the "greens" must be mainly depended upon. And this diet could be made more nutritious without increasing the fat-producing ten-

dency by the addition of the white of a raw egg to each feed.

In the mean time it would be absolutely necessary to watch his droppings closely, and increase slightly the quantity of "greens" did constipation exist; whereas were a tendency to diarrhœa noted the indications would be to lessen the amount of these vegetables, and perhaps the heartier foods, and feed for a time largely on new milk that had been boiled and afterward fortified by the white of a raw egg and a little boiled flour; while in actual diarrhœa did the milk appear undigested in the discharges spoon feeding with the white of raw eggs, beaten lightly in a little water, should be resorted to until marked improvement had been noted, and one or two drops of laudanum given every two or three hours if absolutely required.

At this point there intrudes a fact which has a special bearing on feeding hardy dogs that must be pulled down in weight. It is, that where a meal is made on one substance alone, whatever its nature — whether animal or starchy — even if that is allowed to some excess the tendency to fatten is less than it would be were the meal made up of several substances and the quantity of all combined was less than that of the one substance allowed. In other words, feed a dog wholly on meats or wholly on vegetable foods and they will not prove as fattening as a smaller quantity of the same foods in combination.

Resuming the consideration of the foods generally required by the most common varieties of dogs out of condition, what has been said of the nutritive value of raw eggs in their entirety may lead to the supposition that there are other fatty foods which would do quite as well as they. But all such foods are not alike serviceable, for many of them in any form are too great a burden to



MR. F. H. F. MERCER'S GLOUMBER SPANIELS, "LADY BROMINE" AND "LADY SNOW."

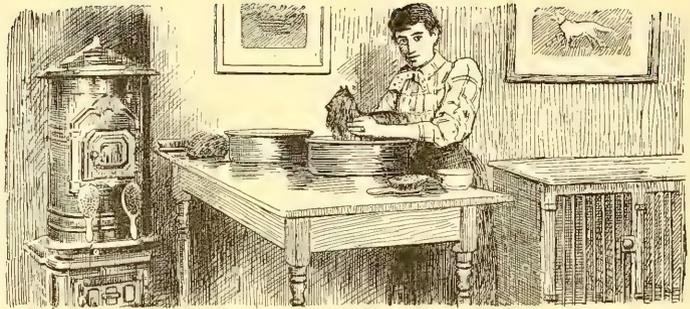
the digestive organs, and, besides, with scarcely an exception they are rendered much less digestible by cooking. Hence of foods that abound in fat, eggs should be used to the exclusion of all others.

But fresh eggs — and they must invariably be fresh — are not easily obtained at certain seasons of the year, consequently it is well to inform the reader of another fat that can be called into service if this one is wanting.

Cod-liver oil recommends itself, for it is disposed of with such ease it can generally be taken for months without disordering digestion. And animals to which it is given not only increase in weight but become much richer in blood. Moreover, a nice adjustment of doses is rarely necessary, and if too much happens to be given it has merely a laxative effect.

Commencing with a dose of two teaspoonfuls for members of the largest varieties, one teaspoonful for dogs of about the size of English setters, or one-half that quantity for smaller breeds, the droppings should be watched and an increase made each day until the dose is five or six times greater than at first, provided no effect upon the bowels is noted. And at least two doses can be given daily with the food.

This oil, by the way, should be invariably purchased of druggists of good repute, for from them only is one likely to obtain a pure, refined quality; and as it becomes rancid in time purchasers will do well to buy a quantity sufficient to last for but two or three weeks, and keep it in a cool place while being used.



CHAPTER III.

CONDITIONING THE COAT.

WHEN the general health of a dog is impaired the fact is registered in his skin and hair, they losing in corresponding degree their natural softness and elasticity and smoothness and lustre. And as the complexion is cleared and brightened by exercise, so are the dog's skin and jacket improved by the same means. But while hygienic and dietetic influences act upon both man and the dog in precisely the same way, outwardly the salutary effect is much less quickly apparent in the latter, and he may have been ill and long since recovered and yet his coat be still quite dry and staring. And it may be all this even in the presence of continuous good health if cleanliness has not been maintained by grooming.

But even if a dog is well and has been faithfully cared for in this direction there is always work to be done on his coat before he can be shown at his best; and as the details of this are not generally well understood, a discussion of them can scarcely be without profit to the average reader.

The amount and character of the work to be put in on the coat of course depend upon the breed and the existing conditions. For instance, the standard for beagle hounds calls for a coarse, not a fine, coat; and obviously were one of these dogs treated to the methods required by setters a defect would be intensified if not actually created. Again, the coats of some kinds of terriers must be hard and wiry, and efforts to make them soft and pliant would simply detract from the merits of these dogs. On the other hand, the coat of the Maltese must be as soft and silky as possible; that of the Yorkshire bright and flossy; while the toy spaniels must have coats that are soft and fine. Manifestly were a German poodle, whose coat is corded, treated to the same method of brushing and combing that these toys demand his identity could scarcely be retained.

Going a little farther in this direction it is noted that when the Clumber spaniel's coat is in good condition it is straight and silky, while the coat of the Irish water spaniel is in short, crisp curls. The greyhound's coat must be smooth and glossy; and very evidently one would have a hard time of it were he to try to bring the rough, shaggy coat of the deerhound to this condition.

But it is unnecessary to go farther in this direction, for the tyro has simply to determine what the standard for dogs of the same breed as his calls for and then adjust his work of conditioning the coat accordingly.

If a dog is kept right—that is, properly fed, given ample exercise and groomed regularly—his coat ought to be in fair condition always, and the work of bringing it to its best should be comparatively easy and not require more than three or four weeks, perhaps. If, however, it should be fine, smooth and glossy yet is coarse, dry and staring, then several months might be required to get it

back. But whatever its condition the essential treatment should be begun as early as possible,—and preferably always with the training—for unless under the standard the coat of the dog should be coarse instead of fine there is always room for improvement no matter how high its polish.

The duty of removing all fleas and other vermin and thoroughly cleaning the skin and hair should first engage the owner; and assuming that his dog is other than a delicate toy, it will be advisable to employ some of the powerful insect destroyers—see chapter “Troublesome Insects”—and afterward wash faithfully, using soap as freely as required.

This done, if the skin is very dry, rough and inelastic and the hair staring, harsh and brittle, and the date of the show is near, it will be a good plan to use cod-liver oil externally for a few days. Having been drenched with this, the dog should be swathed with cotton cloth, if he will allow it to remain on, or covered with a thin blanket, and put into clean quarters supplied with an abundance of clean straw for bedding. And during the next four or five days this oil should be applied about once daily—being used always in generous quantity—and finally washed off.

If now the skin is still dry another such drenching should follow and be kept up nearly as long as before. And a dog must be in a rank condition if this treatment will not cause a very decided gain. The oil, by the way, not only softens the skin and hair and improves nutrition at the surface, but to some extent it is absorbed and has much the same effect as when given internally.

After the washing it would be well for the subject of this treatment to wear a blanket for a week or more. One would not of course ordinarily blanket a long-coated

dog, but it would be advisable when the coat is badly off and very rough and staring, for it would keep the hair down, and a moderate degree of heat being conducive to fine hair, the extra warmth would have a tendency to make the coat fine and glossy. On the other hand, were a collie, for instance, soft in coat it would not do to blanket him, but on the contrary it would be well to make him give up his kennel quarters for a time and rough it.

Now comes the grooming, which must be done faithfully at least once, or better twice, every day; and the longer the time the owner devotes to it the greater his dog's chances of winning.

The hair once straightened out,—exceeding care and gentleness being used in the operation—unless the coat is naturally rough, shaggy or curly the comb should be laid aside, to be resorted to only when absolutely required. And it is not safe to use it often on a long-coated dog like a collie, because the teeth are liable to get down to the undercoat; and many a dog of this breed has had his coat ruined for the show season by carelessness or ignorance on the part of the kennel-man. Nor is the use of the comb often necessary with the common varieties of dogs, other than those with coats like the deerhound, where a good brushing is given every day.

The brush—of bristles from an inch and one-quarter to an inch and one-half in length for long-coated dogs, or a dandy brush for the smooth-coated—should be used for at least half an hour every morning. This should be followed by hair gloves, and these be kept busy for about the same length of time. Then should come the rubbing with the bare hands,—the one means of all for putting on a high polish—and this also should be persisted in for half an hour, and even an hour if possible.

All this must be done at least once a day in order to put

the coat of a fine-haired dog in prime condition ; and if he is to enter good company his owner would do well to have all these operations repeated again toward evening. And were they kept up day after day for several weeks, and proper diet and sufficient exercise given in the mean time, did the decision rest solely on condition of coat, the dog to which this treatment had been faithfully administered would be a sure winner over all others that had been denied it.

Doubtless some who contemplate showing will say that it would be utterly impossible for them to observe these directions and devote so much time to their dogs. But the writer cannot follow them, for there is no compromise treatment. They can be assured that under righteous judges a dog of average merit with a coat in poor condition will always be beaten by a poorer dog whose coat is in grand condition. Also, that in order that a dog whose coat according to the standard should be glossy may appear at his best, with all his chances of winning, he must be brushed and rubbed with the gloves and bare hands ; and if his hair is fine and enough of this is done, when he enters the ring it should have the gloss of satin or highly polished ivory.

The hand rubbing — of which there cannot be too much during the last three weeks — should be kept up until the last washing before the show ; and after that clean chamois leather or a towel should be used, for one cannot keep his hands perfectly clean at a show, and soiled hands would be sure to soil the coat.

With all dogs whose muscles should stand out like those of an athlete, or in other words all which ought to have “bossy” muscle, — as bull-dogs, bull terriers and greyhounds, — in rubbing with the hands the thighs should be rubbed *both* ways, and at the same time the



MR. A. CLINTON WILMERDING,
NEW YORK.

muscles should be firmly grasped, kneaded and rolled for the purpose of stimulating, enlarging and hardening them. This rubbing up and down and massage ruffles the hair, and of course the same must be brushed and hand rubbed its way until the coat is right.

There must not be any mistake in this matter. The thighs of dogs only like those stated should be rubbed *both* ways, while all others should be brushed and rubbed always the *one* way — with, not against, the hair.

Special precautions against fleas should be taken in the kennels of dogs that are being put right for shows, for these dogs must not be washed any oftener than absolutely necessary for cleanliness. And it is well to add that excepting when they get badly soiled in their runs it will scarcely be required more than two or three times during the entire period of training or conditioning if they are faithfully groomed every day. Nor will it be advisable after the first thorough work of extermination to use any of the powerful flea destroyers in the form of liquids or soaps which contain much carbolic acid, alcohol or strong alkalies, for these might prove prejudicial to the skin and hair.

In fact it will be well to rely if possible on insect powder, and this ought to prove effective with good grooming, which alone renders fleas very uncomfortable and leads them to seek other victims that are less well cared for.

But the dog's quarters and bedding should be scrupulously clean always, and the former frequently treated to the most powerful destroyers, the liquids being chosen if the weather is such that speedy drying will follow their use, while insect powder must be depended upon under other conditions; and this should be blown into all cracks and crannies every two or three days.

Clean, coarse straw will be the best for bedding, and before it is put in it will be well to sprinkle freely over it the liquid extract of flea powder or infusion of quassia ; after which it should be thoroughly dried.

As for washing, that must be done very carefully, and if soaps are used they should be above suspicion, it being accepted that the purest and best are none too good in this instance. But soaps should seldom be used with dogs that have very thin skins, as the Italian greyhound, and others whose jackets are becoming highly polished under the grooming and rubbing. Nor will they often be required on any dog that is groomed as faithfully and frequently as he ought to be, the fact being fixed that the more of this treatment he gets the less washing he needs.

With dogs that have thin skins, if their hair is short and they are naturally cleanly in their habits, rubbing with a damp cloth or sponge and afterward with a dry flannel will ordinarily suffice.

Some breeders of dogs whose jackets are silken and brilliant use raw eggs, instead of soap, in washing. They would answer the purpose with an Italian greyhound, a toy black-and-tan or a Maltese, but for obvious reasons they would not be adapted to general use, and excepting in extremely rare cases could not rightly be held superior to a soap of good quality. However, for those who care to use them here are the directions :—

Break as many eggs as required—according to the size of the dog—in a hand basin, and beat sufficiently to mix whites and yolks. Then add warm water in relative proportion of one pint to four eggs. Work this through the coat to the skin ; and after the dog is well lathered have some one pour tepid water over him while you continue to shampoo until every trace of the eggs has been washed out, keeping in mind the fact that the rinsing



MR. MOSES WOOLLAND'S FIELD SPANIEL, "BRIDFORD PERFECTION."



MR. MOSES WOOLLAND'S SUSSEX SPANIEL, "BRIDFORD GIDDIE."

must be thorough, otherwise the hair will be left in a very sticky state.

Notwithstanding the injunction to use only the best soaps on dogs, and the natural desire of all to comply with it, many are likely to stumble at this point since so large a proportion of the brands reputed to be of the highest qualities are of cheap ingredients and therefore practically worthless as well as injurious to the skin and coat. Consequently the reader should be provided with a formula for preparing his own soap for kennel use.

Mr. Charles H. Mason, a breeder and exhibitor of long experience, and now known to the kennel world as America's foremost judge, informs the writer that the best kennel soap of which he knows is made as follows:—

- 1 pound of "Crown soap,"
- 1 ounce of "mild" mercurial ointment,
- 1 ounce of powdered camphor.

These ingredients must be thoroughly mixed.

Mr. Mason used this soap for at least ten years, and with the best results, as proved by the many reports of the English papers praising the condition of his dogs.

"Crown soap," as it is called in this country, is a soft soap which is extensively used for various purposes in England, often by ladies in washing their hair, and many of them have asserted that no other soap leaves it so soft and silken. But here the use to which it is largely devoted is cleaning fine harness, the leather of which it leaves in good color, glossy and "kind." And from harness dealers it can be obtained in jars or barrels.

It is presumably made of seed oils, and differs vastly in value as well as composition from the common soft soaps of America, which are very generally manufactured from refuse fat and grease, and are so strongly alkaline that

they are most decidedly injurious to the skin and hair. Consequently the reader must not attempt to substitute one of them.

“Mild” mercurial ointment is called for, but there is none such in the American pharmacopœia, and he who has this formula put up should inform his druggist that he desires the mercurial ointment popularly known as “blue ointment,” and that it should be diluted one-half; or he can obtain the ointment in full strength and add to each pound of soap one-half an ounce of it instead of one ounce of the diluted or “mild.”

Soft soap of good quality is much used by physicians in cutaneous diseases, and chiefly eczema and scabies. As for mercurial ointment, that has a destructive action on parasitic growths and vermin; while camphor is a sedative and allays itching. It will appear, therefore, that soap made after Mr. Mason’s formula is theoretically most admirable, not only as a means of cleanliness and of promoting health of the skin, but also as an insecticide and preventive of mange and other skin disorders. That it is really all this experience has abundantly proved, and the writer unhesitatingly places it before all others for use in the kennel.

Drying should always be effected as speedily as possible after washing, and with soft and perfectly clean towels, the rubbing on long-coated dogs at least being carefully and gently done. And in all instances the drying of these dogs should be followed by a gentle use of the brush. But that must be perfectly clean, and it is easily made so by standing it, bristles down, in a shallow pan containing a strong mixture of the water of ammonia and water, and rinsing well afterward.

The brushing over, the dogs should be blanketed and bedded with clean straw. It is well to add here that it is



MR. J. P. WILLEY,
SALMON FALLS, N. H.

the custom of some to hand rub after the brushing and while the coat is yet slightly damp, but to this there is the decided objection that the hands then draw too much on the roots of the hair.

While as a rule to wash a dog properly is not difficult, the washing of Yorkshire terriers is an entirely different matter, and here the novice would be all at sea; in fact he should never attempt it on a good dog, for many a "crack" has been ruined in the tub; consequently for him should be given full directions.

A foot-pan is as good as anything to do the washing in. Place this on the table. Put in as much lukewarm water as will nearly reach to the dog's elbows. Mix in the soap until you have suds—never rub the soap on the dog. Now take a brush, a hair-brush that has a handle and long bristles, dip it in the suds and brush from the centre of the back down, and *always* one way. The head must be washed in the same manner: brush from the centre downward; in fact use the brush just as you do when not washing.

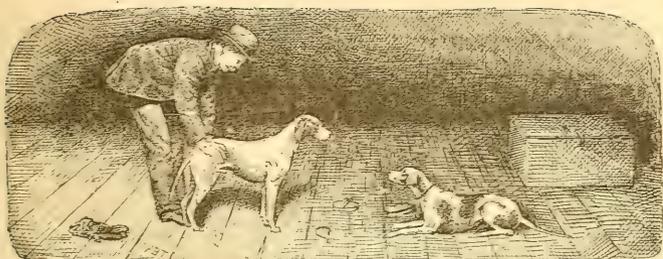
When you are sure you have reached all parts and the hair and skin are thoroughly clean, pass the hand from the centre of the back downward and force out as much of the soap and water as you can; and then use the sponge in about the same way. This done, lift the dog out and put him into another tub, which is all ready on the table, containing clean lukewarm water, and brush him, just as you did with the suds, until all the soap is out. With the hands and sponge get out as much water as you can. Remove him from the tub and stand him on the table, put over him a cloth or towel and pass the hands over it with gentle pressure, that it may take up some of the water that remains in his coat; but on no account must the hair be rubbed or ruffled.

Now, after combing him with a comb that has widely set teeth, begins a long and tedious process of drying. For this you must have two or three brushes, and while one is being used the others must be drying in front of the fire.

This drying will occupy a full hour. When completed, take a little fine oil in the palm of the hand, rub the hands together and then pass them over the coat. This done, tie up the "bang" with a piece of ribbon or tape to keep it from the eyes.

Some dogs, in fact nearly all, will "fiddle" — scratch — themselves, especially the very heavy-coated ones, which in hot weather may become heated and restless; and these must have "stockings" for the hind feet. The thumb of an old glove will fill the bill. Put the foot into this and tie with a piece of narrow tape around the leg.

Let the dog run about in the room, provided you can watch him, for an hour or so. Then draw the brush over him a few times and "cage" him. But do not oblige him to lie on plush or velvet cushions, for they are far from suitable. A linen cover is the proper thing for a cushion, for it cannot stain nor does the coat adhere to it. And such a cover should be so made that it can be taken off and washed.



CHAPTER IV.

TO AND FROM THE SHOW.

BEGINNERS, and in fact some old exhibitors, must be reminded that when dogs are to make railroad journeys they should be provided with comfortable crates or boxes large enough to permit them to stand and turn about with ease; also, that the same should be so constructed that air will be freely admitted on all sides and at the top, for otherwise they would be in danger of suffocation were the freight packed very closely, as it almost always is in express cars. But this accident is never likely to happen where the top of the crate is round or has a double incline, — like the roof of a house, — and if the latter, which is of the easiest construction, it should be made of slats or narrow strips of board, and around the uppermost one, in the middle of it, the tenant's chain should be looped and fastened so that he will not likely become entangled; while the upper slats on the sides should project four or five inches at the ends to serve as handles.

All crates should, of course, be as light as possible consistent with strength and durability. They should be boarded to a height which accords with the size of the

dogs for which they are made ; and the tops of the boards should be several inches above the uppermost part of the tenants' backs when they are lying down, so that they may rest without draughts or the cold wind blowing on them.

Either slats or wire netting can be put on above the boarding, but if the latter it should be of heavy wire, for the so-called chicken fence is much too fine, and the small wires breaking easily are a menace to the dog.

There must be a hole in the baseboards to admit the drinking-pan ; and since express messengers very generally stow crates crosswise the cars, with the door ends facing inward, — while along their sides they closely pack cases, etc., — and many of these men will not open the doors for fear of being bitten, it is advisable to cut this hole under the door.

There should be destination cards tacked on both sides and over the door of the crate, together with the injunction "Water often ;" and to the door end should be attached the drinking-pan. Here, also, should be hung a small bag of dog cakes if the dog has a long journey before him, but none will be required if it is a short one ; in fact a mature dog that will reach his destination within forty-eight hours should not be given food while on the train.

Nor should he enter upon his journey with a full stomach, for were he to do so the excitement would retard digestion, and the retained foods, decomposing, would be extremely liable to cause colic, diarrhoea and possibly death. Consequently the rule should be to feed four or five hours previous to the time of starting, and give the dog a little gentle exercise just before he leaves, to favor his emptying himself. And when the journey can be made within the period stated, cards bearing "Do not feed this dog" should be tacked about the crate that the injunction may not be out of sight.

STUDIES IN SCIENCE



FIG. 1. (Left) Standing.

FIG. 2. (Right) Standing.



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CRATES FOR DOGS ON TRAINS.

and over the door of the crate, together with the injunction "No smoking" and at the other end should be attached the drinking-pan. There, also, should be hung a small sign to advise if the dog has a long journey before him, or a short one; in fact a man should be able to determine within forty-eight hours whether a dog should be taken on the train.

Nor should he start upon his journey with a full stomach, for were he to do so the excitement would be indigestible and the retained foods, decomposing, would be extremely liable to cause colic, diarrhœa and possibly death. Consequently the rule should be to feed food five hours previous to the time of starting, and give the dog a little gentle exercise just before he leaves, to facilitate his emptying himself. And when the journey is made within the period stated, cards bearing "Do not touch this dog" should be tacked about the crate that the dog is to be kept out of sight.

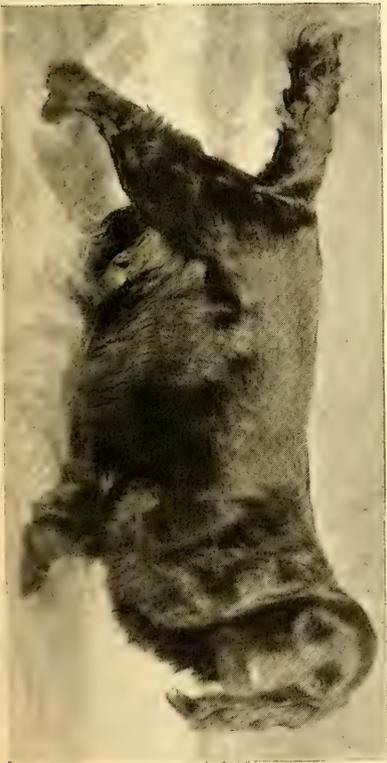
COCKER SPANIELS.



MR. G. BELLS "FASCINATION."



MR. JAS. FARROW'S "LILY ORO."



MESSRS. WILLEY AND OLDHAM'S FIELD SPANIEL, "DARKIE."

To send a dog unattended to a show and intrust him wholly to the caretakers provided by the management is generally safe if he is of fairly large variety. Still, when possible some one should be employed to receive him, look after him and his interests while on the bench and finally see him safely on his way home.

But while to journey alone might not be hazardous for most varieties, toy dogs, and especially Yorkshires, are distinct exceptions. The latter if good-coated specimens could not safely be sent on long journeys unless in the care of an attendant, and to leave them to the tender mercies of show-keepers would be equivalent to interrupting their show career for a long time.

Toy dogs require proper boxes, not crates, and if sent even a short distance unattended they should be met on arrival by some friend who is up in the art of handling the breed and who will bestow the necessary attentions, etc.; whereas if the shows are a long way off, keep them at home unless some one can accompany them, for the risk would be much too great, and especially for the long-coated.

It ought not to be a difficult nor expensive matter to provide a special caretaker for other than a toy, for in the absence of a friendly exhibitor almost any one of the large number of so-called professional handlers, to be found at all important shows, and whose addresses are well known to managements, would for a few dollars take charge of a dog and give him good care. And at least one of the duties which he would assume he could perform more acceptably than the inexperienced owner himself, namely, that of preparing the dog for the ring and handling him while in it. Being up in all the secrets of the toilet he would have him at his best by the time his class was called, and when before the judge he would see to it that at least

his good points were duly brought out and no unusual prominence was given his defects.

But in choosing such a caretaker let it be one who is to handle no more than twelve dogs, for he could scarcely do full justice to a greater number ; and had he several in the same classes he would quite naturally take the best one into the ring and leave the others to show attendants, who, as a rule, in this branch of the service are scarcely better than hitching-posts, having no interest whatsoever in the dogs which they are parading before the judges. And as several classes are being judged at the same time, if a handler has many dogs there might be one or more in each ring, and the majority of them, of course, beyond his oversight.

As stated near the beginning, shows themselves are not a great menace to dogs but they are made so to many by the stupidity of their owners or caretakers, and one of the most glaring faults of which they are guilty appears in the familiar method of feeding.

With only an occasional exception dogs do not eat well while on the bench, especially during the first and second days. This is but natural, and the loss of appetite would prove salutary were its significance rightly interpreted. A journey on the cars is extremely tiresome to man notwithstanding the luxurious provisions for his comfort, and, obviously, dogs shut in from light and often from air, in narrow and cramped quarters, must generally suffer intensely. There is, moreover, the constant and deafening din, which keeps them excited and anxious, and precludes all possibility of sleeping. It is not surprising, therefore, that after a journey, even although it has not extended beyond a day, they are fagged out, nervous and excitable. Now put them into a building with several hundred strange dogs, no small proportion of which are constantly yelping,



MR. JAMES F. KIRK,
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and it would indeed be surprising were they at all inclined to eat.

In such condition rest, not food, is what they need; moreover, they could not digest much, if any, food were they to take it, for their digestive organs are no less weakened by the hardships that they have experienced than their muscular and nervous systems. But actual rest is out of the question at first, for their surroundings are too novel and bewildering; finally, however, they become sufficiently accustomed to them to sleep soundly for a few hours, or during the greater part of a night, perhaps, and are themselves again. And when this happy state of things is reached—but not before—they are ready to eat.

A novice that is likely to worry and fret himself to pieces before the judging ought never to be sent away unattended; and if his owner cannot accompany him some one with whom he is familiar should do so. Arriving the day before the show, the attendant should take his charge directly to his hotel and keep him with him in his room or in the stable until the hour has come for benching.

And they who have several entries would do well to reach their destination as early as this, and instead of taking their dogs at once to the show building, find stable room for them and keep them there until the show opens.

In all instances the attendants should carry with them food enough for at least one round—something that the dogs are accustomed to at home—and then be sure to tickle their palates the next morning. Having now had two good meals before the judging they will show up in decidedly better condition than they could on empty stomachs, which most dogs have for twenty-four or forty-eight hours after a night spent in the cars or with strangers of their kind.

The show over and the dog is being made ready for the return journey, the same injunctions as to watering and feeding as were first issued should be put upon his crate, to which also should be attached his drinking-pan.

At home once more, before he is kennelled he should be washed thoroughly, strong carbolic soap being used freely, for the purpose of removing from his jacket and skin all disease germs that may have found lodgement thereon. And that the importance of this procedure may be duly appreciated the statement is made that were the germs of distemper present and had the dog once suffered from that disease he would be safe from them, but to his mates not blessed by immunity, and especially the younger ones, he would be a deadly menace.

But let exhibitors take this precaution, also burn the bedding, thoroughly disinfect the crates, chains, collars, drinking-vessels, etc., and they need have no fear of distemper being sent to their kennels from shows, unless, of course, it is within the bodies of the returning visitors, and of that, as already stated, there is but little danger where managements are alive to their duty.

The washing over, a little light food, as milk, should be given, and for several days afterward the rule should be to feed sparingly on simple and easily digestible foods.

It is the custom of many to give, soon after the return, castor oil and syrup of buckthorn, in equal parts, and in doses of the same size as would be appropriate were castor oil alone used. To this there can be no valid objection, for it is likely to do good, and certainly it can do no harm even if not demanded.

Other internal medication than this will seldom be required from "start to finish," and assuredly never with fairly healthy dogs, notwithstanding the notion entertained by not a few exhibitors that they ought to give a



MR. A. H. MEGSON'S COLLIE, "METCHELEY WONDER."

little quinine or something of the sort as a "bracer," pepsin to assist digestion, and perhaps the bromide of potassium to subdue nervousness.

All such medicines should be left at home, for were a dog really ill while at a show a veterinary skilled in canine diseases should be called in to attend him. But there is one preparation for external use which some exhibitors would do well to take with them, and that is a mixture of Canada balsam and carbolic acid, in equal parts.

Oftentimes dogs, and especially the long-coated, leave home in good condition, with skin smooth and healthy, and after being on the bench a few days an eruption attended with intense itching breaks out on them. At this they bite and scratch until the affected spot is "raw," and unless treatment is promptly applied the hair is very sure to fall out and leave the victims disfigured for several months.

Half an ounce of the mixture in question will be an admirable provision against this accident; and although this quantity could scarcely be used in a year's time in a large kennel, it costs no more than a smaller quantity; moreover, it is a valuable remedy to have at hand at home as well as abroad.

He who has it prepared should tell his druggist to use pure carbolic acid—the crystals merely liquefied by heat—and put the mixture into a bottle that has a wide neck.

Now, if a dog is seen biting or scratching himself let the spot be examined, and if it is found inflamed—of a deep red color—take this bottle of Canada balsam and carbolic acid, invert it while the cork is in place, remove the cork, and sweeping the hair well back, gently rub the small end over the affected surface, being careful to limit the application to the skin and touch no more of the hair than is absolutely necessary.

The minute quantity of the mixture which adheres to the cork after the bottle has been inverted will be amply sufficient for an application to an inflamed spot no larger than a half-dollar piece, and as soon as it is made the redness will largely disappear, and the surface exhibit a thin white coating.

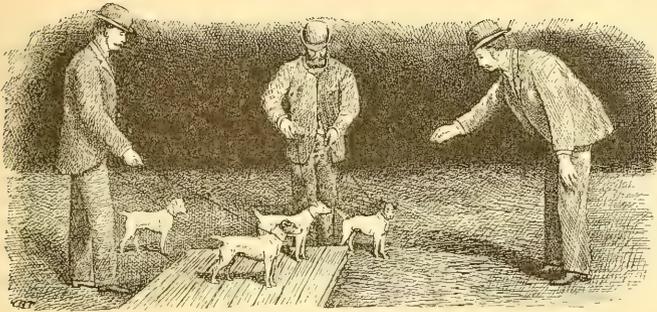
All that remains is to dust over it a little powder, lay the hair down, and pass a brush over it with gentle pressure once or twice. The chances are many that if the application has reached all of the affected part the dog will not touch it again, the itching being entirely overcome by the carbolic acid, which paralyzed the cutaneous nerves.

As to the kind of powder to use. Manifestly it would not be necessary to call attention to the fact that the dog had an eczematous spot by using white powder on him if he had a black coat, when powdered charcoal would answer every purpose. Therefore, let this be used if the coat is very dark. Fuller's earth will do for brownish coats, powdered sulphur for yellowish or grayish coats, and the subnitrate of bismuth for white coats.

The hair at its lowest parts will be glued down by the mixture, but it must not be disturbed for a week; at the end of which period a cure will generally have been effected, and the hair can be restored by brushing after the mat has been well softened with water.

Of course if one application does not suffice a second should be made.

With this remedy at hand a dog can often be kept up through a season, whereas without it the loss of hair might soon make his removal from the bench imperative.



CHAPTER V.

ON THE BENCH.

ONCE dogs are on the bench they should be fed sparingly until they are back to their kennels, one meal every twenty-four hours being the rule with all excepting toys; and this should be made up of the most digestible foods.

Those that are unaccustomed to dog cakes or biscuits, the food generally provided at shows, seldom take kindly to them while their appetites are none the sharpest; and they being declined it will of course be necessary for the caretakers to provide other food. And really he is wisest in this matter who relies solely upon himself and obtains at his hotel or markets the foods for which his dog has a decided preference, and feeds and waters him with his own hands.

Were a dog "off his feed" while at a show it should not occasion uneasiness. Declining milk or broth the first day, he should fast until the second; and milk again rejected, he should be offered a little finely minced raw beef or mutton. This in turn declined, another day of fasting should follow, and the same tempting food be put before him.

Some dogs will not touch food at any time during a show owing to the presence of bitches in "season"; as a rule, however, the appetite manifests a disposition to return by the third day, especially if coaxed a bit as advised. But one should never go very far to bring it back.

Writers have thought that danger lurked in feeding- and drinking-pans at shows; and it certainly would were they used indiscriminately, but as a rule one pan does double duty, and each remains constantly in the stall in which it was first placed. Were this not the case, however, but the pans gathered up and taken out to be filled, they would need to be carefully washed, not with cold, nor even warm water merely, but with boiling water, for in no other way could they be made perfectly safe. And where this treatment was impossible the thoughtful exhibitor would see that the pan was removed only by himself or his representative.

A word here as to the drinking water at shows. All know that man frequently suffers from diarrhœa in consequence of radical changes of his drinking water; and the same may be due to the impurities or to great variations in the salts which are normal ingredients. Dogs are less susceptible to these changes than he, yet the indications are that they are sometimes affected by them. But the only means by which the most of their ill effects can be obviated is boiling; and that is not likely to be resorted to except by the ideal management.

Considering one of the most inveterate habits of the canine race, the droppings in the ring where dogs are taken for judgment and exercise must be more or less of a menace, for were a victim of an infectious disease to pass the veterinary and be admitted to a show he would likely deposit about, in these his intestinal discharges, the specific germs, which, in turn, would be taken up by other



CHESTNUT HILL KENNELS' COLLIE, "WELLESBOURNE CHARLIE."

dogs that snuffed at them. It follows, therefore, that in every ring there should constantly be an attendant provided with a disinfectant, also a shovel and waste-basket; and the sawdust soiled by even one dog should be disinfected and removed. And in the absence of this precaution exhibitors will do well to walk their dogs around the benches— not in the ring.

But better still, instead of exercising dogs in the building, let them be taken out in the early morning and walked about the streets, or to the nearest park or vacant lot and given an opportunity to “limber up” their aching and stiffened muscles. Convenient arrangements for doing this could be made with the managements of many, if not all, shows, or should any decline it would be necessary merely to deposit a small sum as a guaranty that the dogs would be back to their stalls at the hour the show opened to the public.

Positively of all precautions which are essential to the maintenance of health and good condition of show dogs there are none more important than this; hence it is urged that the little ones be given scampers, the large and heavy ones long strolls, and the light-footed good, sharp runs. And the knowing one who has a kennel of greyhounds, for instance, by which he is striving to deal righteously, will give them five miles before breakfast, or obtain a horse and take them for a spin of ten miles. And by doing this and attending to the feeding he will keep his dogs good and hard for many weeks.

In a word, early exercise, and as much as can be given, is one of the first essentials for show dogs while on the circuit and the season lasts.

But even when given the proper amount of exercise, dogs must be taken from the bench several times daily, and the last thing at night, for otherwise were they cleanly in their

habits they must suffer intensely, and more than one dog has reached home with severe inflammation of the bladder in consequence of being neglected in this respect.

The exhibitor who is a gentleman will conduct himself as such before the judges, and this is about all that need be said of ring etiquette. But a few hints as to the management of the candidate may not be amiss.

While being prepared for a show he should be thoroughly accustomed to the chain and encouraged to romp while under it, so that its associations will be pleasant and as soon as it is in the hand of his master or caretaker he will be full of excitement and delightful anticipation. This course pursued and he taught to keep still at command, he will be sure to be alert in the ring and stand before the judge with head up, eyes bright and shining with eagerness, tail properly carried, and feet and legs straight and well under him. In fact he will appear with all his lines well drawn, and be sure to win over his equal which shows up sulky, spiritless and crouching.

As for position in the ring, it is of no importance before a judge that is competent, for he will never overlook a good dog.

It is well to advert here to the idea so prevalent among the inexperienced — and not without believers among exhibitors — that judges are often swayed by the owners of dogs; or, in other words, that the dog of a well-known exhibitor has greater chances of winning than his equal, or even superior, whose owner is a comparative stranger.

It is a deplorable fact that there is a foundation for this belief, for in many instances judges who lacked confidence in their ability to select rightly have gone to the wrong end of the chain as the best way out of difficulty. But this is not done with dishonest intent. On the contrary, the judge may feel that he can come nearer justice by giv-



MR. THOMAS H. TERRY,
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ing the ribbon to some well-known exhibitor who always has good ones, than by following his own fancy, which he realizes might be for a bad one.

Perhaps relatively fewer cases of this are occurring now than in the past, yet it is plainly evident that there is still great chance for improvement, and the sooner show managements realize this the better for them and for the dog, whose improvements should be paramount to self-interest. Clearly a man who has not had the experience to warrant him in undertaking the task of judging should not accept the position. Manifestly, also, the exhibitor who spends time and money in getting a good kennel together has a right to expect that his dogs will be judged by a competent person. And, for obvious reasons, the man who has inferior dogs desires inferior judges; while the better the judges the smaller the chances of a poor specimen getting to the front.

All this is evidently duly appreciated by exhibitors who should rightly be the most influential, for there is a rapidly growing disposition on their part to have their dogs placed under qualified men only, they appreciating fully that the incompetent judges make improvement well-nigh impossible.

Such being the disposition of exhibitors to-day, and since the remedy lies largely with them, the fault of incompetency in judges must dissipate steadily and rapidly; and it is scarcely necessary to add that it is the bounden duty of all having interest in the matter to hasten its decline.

Before leaving exhibitors there is yet an important point to be touched upon. Beyond dispute one of the most potent causes of the great mortality among puppies is an inherent weakness transmitted from either the sire or dam—and most often the former, in the selection of which long pedigrees and prize-winning records are so

generally deemed the first essentials. The questions naturally suggest themselves, Are not successes on the bench often much too dearly bought? and are not frequent exhibitions prejudicial to the health of the animals shown? Do they not lessen their value as breeders?

To the large non-sporting dogs of both sexes there is certainly danger if they appear often or are kept long on the bench, for as a matter of fact many of the most noted prize-winners among them are comparatively worthless for breeding purposes. Upon these varieties the hardships of shows and journeys in the cars seem to tell the most sorely; moreover, it is not only not easy to keep them in condition, but extremely difficult to bring them back after they have much fallen off.

But one of the reasons why shows prove so injurious to these varieties appears in the common method of conditioning by means of drugs. Such methods, perhaps, prove satisfactory with most dogs for about a year — possibly a little longer — and they show up in good form. Sooner or later, however, the fact dawns upon their owners that to put flesh on them is more difficult than it once was, and thereafter “treatment” is begun earlier in the season, and much larger doses of medicine are given. But at last there comes a time when nature rebels or is no longer able to respond. Overfeeding first weakened the digestive system; soon it became disordered or diseased; and with these changes every important organ declined in power. Then nutrition suffered and the blood became rapidly impoverished; and this point once reached the evidences of decay are too plain to be mistaken.

The poor dogs’ winning days over they are retired from the bench, but not from the stud, for which they are now well-nigh worthless. From the day that the cramming system commenced their value lessened steadily, and long



SEMINOLE KENNELS' COLLIE, "CHRYSOLITE."

before their retirement they were absolutely unfit for breeding purposes, because of constitutional impairment — the inevitable concomitant of this fatal conditioning process.

Doubtless there are breeds of dogs which suffer less from it than others ; some may even escape injury and remain on the bench for many years, but for large breeds there is no immunity — sooner or later the penalty must be enforced. No one well informed will attempt to underestimate the value of prize-winning records. The public generally recognize the fact that if a breeder has dogs which he honestly believes can win at shows he will not hesitate to exhibit them ; therefore, would-be purchasers rightly seek the kennels of the most successful exhibitors, and the latter try to retain their prestige, but in doing so often ruin their dogs.

The moral of this is : Remove a dog from the bench, "for good and all," on appearance of the first signs which seem to indicate that his constitution is being undermined. Show the largest only at fairly long intervals — never for several consecutive weeks — and retire them permanently within two years.

There remain to be considered a few requirements which should be invariably met by show managements. And the first to suggest itself is, that the movable benches be thoroughly disinfected after every show. This is absolutely the most effective means of prevention of contagion, and those in authority who fail to provide it, mildly speaking, are deserving the contempt of every lover of the dog.

To make ample provisions against fire is another important requirement. There have been but few instances, and possibly no more than one, where fires have broken out in dog shows and destroyed life, but the horrors of

that one are fresh in the minds of exhibitors, and they, at least, will appreciate the necessity of every precaution against like accident.

In all places in which shows are held there are many "call firemen" or what are commonly termed "subs," and as goodly a number of them as possible should be among the helpers, and always a part of the night-force. Knowing the special purpose for which they are hired they will of course locate the hydrants, see that all the hose is conveniently placed, the fire buckets kept filled, etc.

Man never values nearly as highly as he ought his eyesight or his hearing until he has met with a loss; so, also, is he reluctant to provide against fire before he has been burned out or fiercely threatened; consequently some managements may think this precaution unnecessary, but many exhibitors will differ widely from them, and if they desire protection for their dogs they have only to insist upon it and it must be furnished.

Rails in front of the benches are by no means a familiar sight, yet they should invariably stand before all large dogs at least. Dogs, like members of the highest order of animals, are occasionally erratic, and some that are truly lamb-like in the kennels are very fractious while on the bench. Considering that harm might be done, also that visitors themselves must feel safer where this precaution is taken, it would seem as though bench show managements ought not to require much urging to put up rails,—about two feet from the stalls—and certainly none will object who have once stood defendants in a suit for damages for a dog-bite.

Cards printed in large type and bearing the words "Do not handle Strange Dogs" should appear at every hand in all buildings, to remind visitors, many of whom seem to forget the fact, that dogs *can* bite.

Quite a common error at shows is much too high benches for the largest dogs. These when loaded down with fat or well along with pup are about as capable of jumping as a man carrying an anvil, consequently in getting in and out of high stalls they are much strained in the back and possibly otherwise injured.

Most people when they have diphtheria or other infectious disease in their homes hang about the sick-room cloths wet with carbolic acid, or place here and there saucers filled with the chloride of lime, thinking that thereby they kill the germs of disease floating in the air. As a matter of fact these agents so used have no action whatsoever upon disease germs, and simply render the air still more impure.

So it is with many of the disinfectants used at shows; they give off a pungent odor, but affect disease germs no more than a blank cartridge would a grizzly. These so-called disinfectants, however, are not objectionable solely because they are worthless for the purpose for which they are sold; they are really injurious to dogs as well as man when used freely as at shows, for some of their elements rise and float in the air and render it highly irritating — a fact of which no old exhibitor needs to be assured, for he has suffered too often from stuffiness of the nose, dryness of the throat and other evidences of inflammation of the air-passages, while in dogs their ill effects have been manifested by hoarseness and bloodshot eyes.

Economy as well as utility considered, it seems as though show managements would do well to prepare their own deodorizer and disinfectant. And as good an agent as any is the permanganate of potassium, two pounds of which added to water will make thirty gallons of as efficient disinfectant — safety considered — as can be obtained anywhere; although, by the way, manufac-

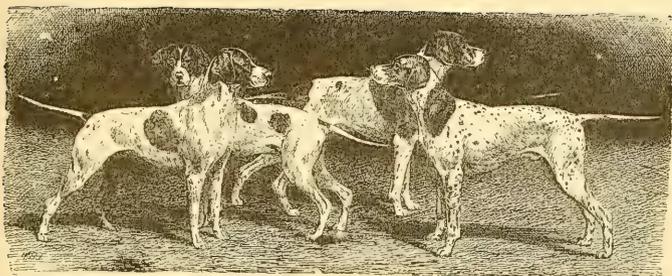
turers of patented preparations will stoutly assert to the contrary. This solution is odorless and therefore a vast improvement on many of the reputed disinfectants, no small number of which are absolutely valueless as such, merely substituting as they do one odor for another.

And since the fine particles of wood that arise from the rings cause much irritation of the air-passages, authorities are wise, and spare both dog and man much discomfort, who see to it that the sawdust is slightly dampened with this solution.



PART III.

BREEDING.



CHAPTER I.

SELECTION OF SIRE.

IT would seem from the practice of the infinite majority of breeders that they, in the beginning, accepted as a fixed fact that "like produces like" with positive certainty, and satisfied that in this familiar aphorism was comprised the one and only essential principle, in the application of which none could stray, they were quite content and had no desire to go farther into the subject. It is not surprising, therefore, that but few have succeeded while many have failed, and that a large proportion of the best dogs have been what might without impropriety be called accidental creations.

Some breeders consider pedigree of first importance and mate accordingly, practically ignoring the question of suitability, also the fact that with good pedigrees on both sides the puppies are often very poor specimens. And these rely mainly on reversion; or in other words they confidently expect that even if the dogs chosen are not themselves all that is desirable they will yet be sure to "throw back," and that their offspring will resemble ancestors, more or less remote, which were good.

Other breeders believe that success at shows is a guaranty of all the most desirable qualities, therefore they invariably seek sires among prize-winners, without thought of fitness or questioning whether they won in good company or under competent judges. And with them there are but two accepted laws in breeding, namely, "like produces like" and "breed always from the best" — the "best" being those of visible merits without considerations as to the qualities of the ancestors or conformity of the individuals selected to the same general types of their families.

Members of both classes are occasionally successful, yet when so they scarcely deserve credit, for they have no ideals nor real systems, and always follow, never lead.

Of course their expectations have foundations, for it is evidently a law of animal organism that the offspring shall inherit characters of parents, but this does not mean that they shall inherit *all* the characters, nor even one or more of the most desirable, for there are other laws the influence of which may be predominant and for the time being at least obscure this hereditary tendency. Again, while the offspring may be said very generally to resemble the parents the resemblance is not, as so many assume, confined to the outward form and visible characters, but as often, doubtless, manifests itself beneath the surface, and without evidence except such as appears in psychical qualities.

"Breed to the best" is of course a golden rule, provided it is rendered rightly — that is, the selection is consistent and the breeder is influenced not alone by obvious excellence of the individual but by the family history as well. In other words, he has a proper conception of it who looks for a combination of qualities when seeking a sire, and considers not merely the dog himself and his



MR. A. D. SUTCLIFFE'S SMOOTH-COATED COLLIE, "PICKMERE."



HEMPSTEAD FARM'S COLLIE, "CONRAD II."

dominant characters but the characters of his family, the constancy with which good qualities have been transmitted, whether the existing perfections will compensate for ancestral defects, etc.

He who would improve his dogs by developing their most valuable qualities and fortifying them with others, and so give evidence that he is something more than a breeder in name merely, must have a conception of the qualities that constitute perfection — an idea of what he wishes to create, the ideal form he would mould. He must also be able to detect slight variations in form and qualities within ; moreover, have a knowledge of the fundamental laws of animal organization, and especially those that relate to inheritance.

With these and good judgment and perseverance he can feel confident of success. But their acquirement means systematic observation and an abundant material for study, consequently it is scarcely surprising that there are so few real breeders.

The one who possesses these eminent qualifications seeks the dog that is most likely to correct the faults of his bitch and at the same time preserve her good qualities in the offspring. But he does not follow the custom which seems so prevalent among breeders and choose always a dog that is strong where his bitch is weak. For instance, if the average breeder has a bitch whose muzzle is too long his choice is a dog with a good muzzle ; or if she is "leggy" he seeks a stocky dog with plenty of bone and muscle. Again, if breeding for color and his bitch is rather light, he chooses a dog that is inclined to be dark. And in all his selections he considers merely individual excellence ; with the result that only comparatively rarely does he breed puppies nearly as good as their parents.—

But the knowing breeder does not pursue this course, for he goes back of the individuals and is influenced by the characters of their families; and while he prefers a dog that is not only good himself but came of stock that was invariably good, he values family excellence above that of the individual. In other words, if his bitch has too long a muzzle, his choice is a dog that comes from a family that were good in muzzle, rather than a dog which exhibits this quality but is of a family that were poor in muzzle.

He also appreciates that he may intensify a defect by breeding to a dog that is good where his bitch is bad. For instance, if she is snipy in muzzle and of a family none too good in this point, and he finds a dog that is short and square in muzzle, and in fact very good in all points before the eyes, he does not jump at the conclusion that this is the dog for him to breed to. No. He goes carefully into his history, and if he learns that he comes from a bitch that was bad in muzzle and her family also had the same fault, while his sire was only fair in muzzle and of a family that were not noted for good muzzles, then he regards that dog as an "accident," and considers that were he to breed his bitch to him the existing defects would likely be intensified. Therefore, he seeks a dog that is known to transmit to or mark his puppies with good muzzles, and from parents or a family that were noted for the same excellent quality.

Assuming another case, and this time of a bitch with yellow eyes. Now the average breeder would select a dog that had eyes of good color, without considering for a moment that that dog may be an "accident," — or, in other words, from a yellow-eyed family, — but he who has had experience and profited by it would satisfy himself on this point, and if the dog came from such a family he would choose one from a family good in eye.

That there may be no mistaking the meaning of all this still another case is assumed, and of a pointer bitch light in head. Her owner, an intelligent breeder, instead of choosing as a sire a heavy-headed dog mates her to one that is perhaps a little on the light side, and the puppies come right. Why did he do this? He knew what there was in his bitch's pedigree. In a word, he knew that she was closely related to a strong-headed family, and that the sire he had selected for her was also from a family that were good in head. But had he selected a short-faced and thick-headed dog of a short-faced and thick-headed family, the result would doubtless have been far from his liking.

The obvious conclusion is, that in selecting a sire one must not only be familiar with the available dogs themselves but have a good knowledge of their family history; moreover, he should know whether or not their offspring very generally resembled them or some of their ancestors. Some sires and dams, in fact, seem to have but little individuality, as shown by their inability to reproduce themselves. Two inmates of the writer's kennels plainly testified to this fact. Both were mastiffs — dog and bitch — two removes from "Crown Prince," and notwithstanding they had dense black muzzles, no matter how mated they almost invariably "threw puppies" having the same peculiar chocolate-colored muzzle of their noted ancestor.

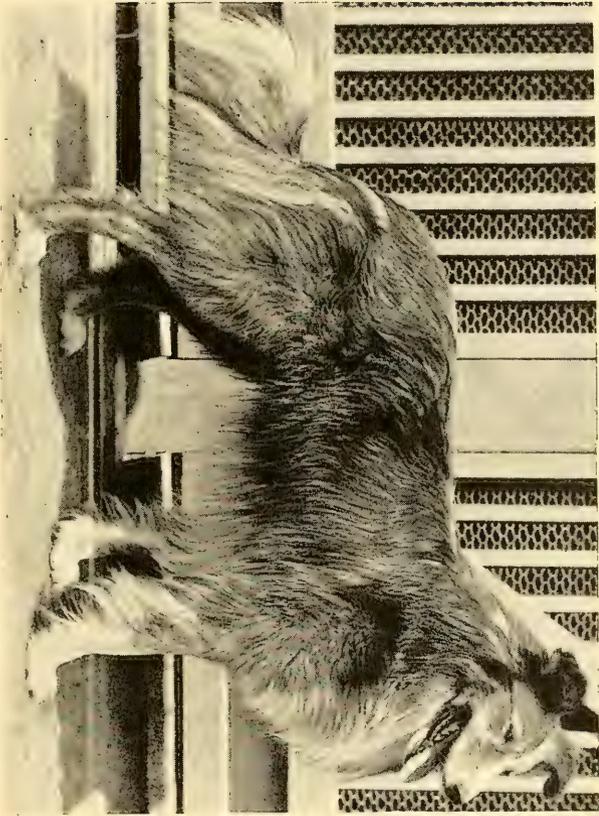
Manifestly, therefore, a good, shapely and well-marked dog may prove but an indifferent stock-getter, while, on the other hand, one with a glaring defect — as bad color of muzzle, size of ear, expression of eye, etc. — may turn out admirably. And although such results, good or bad, may sometimes be purely accidental, as a rule, to which there are not many exceptions, they are due to that peculiarity of "throwing back."

Experience has shown that admirable qualities must exist for many generations in order to render their perpetuation highly probable. For instance, if a dog has a grand head yet his sire and grand-sire were deficient in this quality, then the chances are against his offspring being endowed like himself; and especially narrow are they if their dam is weak in head. Were she so and only two dogs available, one with a grand head yet of small-headed ancestors, and the other small-headed but of a family noted for good heads in the two generations before him, her owner would probably have the best results from the use of the latter.

Another product of experience, is that to breed out some defects is much more difficult than others; and as a rule, the resistance is in proportion to their duration in the family. In other words, a fault of two generations is much less easily eradicated than a fault of but one.

Here it is well to emphasize the fact that weak points are as likely to be transmitted as strong ones; also that structural defects, as deformities of limb and other vices which result from errors in management during the growing stage, are liable to be passed on. And, in truth, it is oftentimes so difficult to breed out acquired abnormal peculiarities one would be seldom justified in choosing a sire that had any such that were very serious.

In breeding non-sporting dogs the form and proportions are the main objects of study, and efforts are generally centred upon their improvement alone, but with dogs to be used for special purposes, as in the field, there are more characters to be developed and therefore a greater number of difficulties to contend with. Consequently, oftener in this line than in the other breeders meet with incompatibles, and in many instances they must fix upon a few special qualities, endeavor to bring them to a high degree



CHESTNUT HILL KENNELS' COLLIE, "WELLESBOURNE CHARLIE."

of excellence, and in the mean while practically neglect others. And in doing so they frequently find it necessary to take risks ; that is, in order to improve one quality they are often obliged to put another in jeopardy ; but he who is wise never does this unless the gain promises to be much greater than the loss.

Setter breeders well illustrate this principle of "give and take." They have produced in what is known in this country as the Llewellyn setter great speed and dash, yet have sacrificed much of the beautiful setter quality that is seen in the Laveracks.

But in breeding for the field, while it is desirable that both sires and dams be well broken, to base selections purely on excellence as workers is clearly wrong if real improvement is the end in sight, for, manifestly, there is no chance for form if one breeds for nose, another for speed, and so on, ignoring the points of the breed. And the reader should unhesitatingly accept that he can never justly sacrifice type for any educational quality. Moreover, he should be duly mindful of the fact that less importance is to be attached to a killing pace and more to other essential qualities, also, that he cannot expect greyhound speed in setter form, and if he is to have one he must give up the other.

Every beginner should start out with a fixed purpose of breeding, not for market merely, but to advance his special variety of dogs to a higher grade of excellence. Even if he is so fortunate as to be able to indulge his inclinations to their full extent, he should not invest largely at first. Three or four brood bitches will be quite as many as he can do justice to while yet inexperienced, and to him they will prove more profitable than would twice this number.

If he has a dog of his own he will likely use him in every instance, and if he does so he will be liable to go

backward as often as forward, no matter how good the same or how good his mates. In fact, to buy a dog and breed him to every bitch in the kennel is one of the worst mistakes which a breeder can make, and one which, as a rule, destroys many of the chances of eminent success.

Therefore, he is wise who depends largely upon others for his sires. He will naturally have a leaning towards the most successful prize-winners, and rightly so, for in them he will generally find the nearest approach to the ideal, but he must not assume, as many seem to do, that these winners comprise all the best stock-getters. As a matter of fact no small proportion of them are practically valueless for breeding purposes. And of the various reasons for this fatal defect the most pronounced is that they are weakened by excessive use and the hardship they undergo in their preparation for shows and while on the bench; in consequence of which they are liable to produce offspring with constitutional taints that either destroy them early or lead to deformities and disease. Therefore, when selecting from prize-winners one must needs be very cautious, and bear in mind that high health and vigor are essentials of infinite importance.

The bitch is of course an important element, yet a good dog and a *well-bred* but rather indifferent bitch *may* breed the very best. In fact, there is reason to believe that the proportion of winners have been from bitches that could not win themselves.

Here intrudes another important fact, namely, that those who are breeding for size almost always select large bitches and large dogs, yet the majority of the big ones have been offspring of bitches of undersize that were bred to strong, heavy-boned dogs of substance.

As for in-breeding, as a rule it should be discouraged. But to produce certain results it is not only not harmful but

DR. J. GRIFFITH LOCK'S OLD ENGLISH SHEEP DOGS.



SIR CAVENDISH.



LADY GRIZZLE.

LADY CAVENDISH.

SIR CAVENDISH.

justifiable ; indeed, oftentimes it is the correct way to fix desirable qualities. For instance, both sire and dam may wisely be bred to their offspring, and even brother to sister, if by this means there is a promise that the higher qualities of each will be passed on and better development secured.

To justify in-breeding, however, both parties to the union must be of good quality and not share the same defects, and there must exist ample reason for expecting that the faults of one will be corrected or greatly lessened by the perfections of the other.

To breed as deeply as stated more than once in the same family without a break is doubtless at times justifiable ; but still it is hazardous, and especially so unless the individuals are of rare good quality and remarkably healthy and vigorous.

The principal objections to in-breeding are, that it greatly weakens the nervous system, — producing excessive excitability, — intensifies constitutional defects, leads to decrease in size, creates a predisposition to disease and impairs the reproductive functions.

In a word, by the means of in-breeding desirable qualities may be made more pronounced, retained and perpetuated, but to be safe it must be very intelligently applied, with well-selected individuals only, and it must not go far in a family.

The conclusions to be drawn from the foregoing are, that the beginner should first visit shows and other places that furnish material, and there critically study the best specimens of his chosen variety of dogs. If closely observing he will in time become familiar with what are generally accepted as good qualities and be able to detect the faults. An ideal model will then be possible, and this developed and a knowledge of the common laws of inherit-

ance acquired he will be fairly started and may hope to make breeding a success. But until he has reached this point he will do well to consult some acknowledged and disinterested authority in his line of dogs, and in the selection of sires act as he advises.

A very erroneous notion is prevalent regarding the influence of the previous sire on produce, and a hasty glance at the subject can properly be taken here.

Cases are on record in which bitches had litters by dogs of other breeds than their own and subsequent offsprings by dogs of their own kind exhibited traces of the previous sires; and such instances, while extremely rare, have yet been too many and too well authenticated to be denied or explained away on the hypothesis of coincidence.

Various theories have been set forth as explanations of these exceptional phenomena, and as the writer has none to advance he will confine himself to mere review and passing criticism.

The first that found any considerable acceptance had its origin some twoscore years ago, but soon passed out of sight to be revived and brought into prominence by Mr. Everett Millais of England, who gave it his indorsement.

This, in a nutshell, is, that the life-giving germ can penetrate the serous coat of the ovary, burrow into its parenchyma and seek out immature ova, not to be ripened and discharged perhaps for years, and to produce the modifying influence described.

At the present time this theory is incapable of proof or disproof, but the careful student can but acknowledge that it is plausible, and after a consideration of the different theories the author of this must seem to him to have at least approached nearer the border of the true solution

of the vexed problem than any of the others who have attempted to reach it.

Another theory is, that the influence of the previous sire is due to maternal impression, consequently is purely mental.

This cannot be accepted. Puppies *in utero* are in every sense parasites and therefore beyond such influence. Again, if the phenomena were due to maternal impression all the members of a litter would likely be affected, whereas as a rule only one member exhibits influence of the previous sire.

Still another theory is, practically, that developing puppies *in utero* modify the tissues and cells of the mother, and such change is more or less permanent and affects subsequent offspring.

To believe this is to accept that a woman can be so modified in her physical texture by the impress of her husband, *conveyed to her through the growing fœtus*, as to stamp the children by a future husband with the individuality of the former. Bearing in mind always that the child *in utero* is simply a parasite, and that while the developing tissues of the child may *in a general way* be influenced by the mother's condition and by poisons circulating in her blood, it is absurd to suppose that the parasite ovum can have a transforming and metamorphosing influence upon the *already developed* tissues of the mother. Moreover, were this theory sound the influence would be universally applicable instead of exceptional, as it clearly is. Again, were the influence transmitted through a change in the maternal make-up it would affect all members of a litter, and not, as is usually noted, only one or possibly two.

This theory, therefore, is vague, unsatisfactory and opposed to reason, and one might as well say that a hus-

band can influence the length of his wife's nose, the color of her eyes, or in any lesser way influence her tissues and cells with the impress of his own through the medium of the child *in utero*. Nor does this run counter to the fact that a husband can transmit to his wife a grave disease of the blood through the medium of the child *in utero*, for in such case there is a destructive virus or germ to be transmitted.

But the theories are not the points of interest in this subject, and the one to be emphasized is, that infinitely many people labor under the absurd impression that a victim of misalliance is practically ruined for breeding purposes, and in consequence no small number of unfortunates are sacrificed yearly.

All this is certainly surprising in face of the fact that the influence of the previous sire is rarely felt. Indeed, Mr. William Wade of Hulton, Pa., a well-known breeder as well as close and highly intelligent observer, has carefully investigated over fifty cases of misalliance and found after-effects in no more than three. And it is safe to say that this is not near the actual proportion, for only instances of occurrence are likely to be remembered.

It ought not to be necessary, therefore, to urge that a victim of misalliance should not be killed merely because of this accident, nor even considered in the slightest degree of less value for breeding purposes. She should be treated precisely as she would have been treated had it not happened; and all subsequent litters that show no taint can without any impropriety be credited to their sires.

There is yet one more important question to be considered before closing this chapter, namely, which is the more important element, the sire or the dam?

In a recent communication in print Mr. Everett

Millais, to whom reference has been made in the foregoing, very aptly states as follows :—

“A pedigree animal is not an animal which has a pedigree, for as a pedigree it may be that of the greatest mongrel with the vastest extent of blue blood, but a pedigree animal is one who by his pedigree shows that he has been inbred enormously without any deterioration in quality; and the value of a pedigree animal, whether it be dog, pig, sheep, horse or bull, is in the fact that in comparison with a non-inbred animal it has the power of impressing on its progeny its own *form* and *external* characteristics, which no animal has to such an extent if it is not bred on these lines.

“Why do people use pedigree bulls in preference to others? why do people go for thoroughbreds, pedigree stud dogs, etc., etc.?”

“It is because their stock is improved in the direction of the sire, not on that of the dam, and with these facts before us, which I might largely add to, we have standing proofs that the dictum that the sire generally determines the form and external characteristics is *not* open to modification excepting in the case of mongrels, where it is impossible to form any opinion as to the results.”

Knowing that Mr. Millais had made many experiments in hybridizing, the writer solicited from him a description of the results with dogs; and the same was at once generously forwarded, together with notes on like experiments made with birds by his brother Mr. J. G. Millais, a member of the Zoölogical Society, and the author of “British Game Birds.”

The following were the experiments with dogs :—

In 1873, I had an Italian greyhound bitch which at three successive heats was warded as follows :—

1. By a German rattenfaenger.
2. By a white poodle.
3. By an Italian greyhound.

In every case the bitch threw to the male; and in the last litter no signs were apparent of her two misalliances.

In 1874, I bought a dachshund that was suckling pups by a Skye terrier. These were long-haired, and I destroyed them. But in every subsequent litter this bitch, known amongst dachshund breeders as the “Great Waldine,” produced champions; and on no occasion did she ever show the influence of the previous sire.

In 1875, I imported the first basset into England, and as I could not find a bitch here, acting on the advice of the late Mr. Lort, I bred bassets through a beagle.

It is not necessary, I am sure, for me to point out to you the vast differences between the two as far as the formation of the front feet, but what will be interesting is the results of *crossing* the two breeds.

In the first cross — and I may here state that as the beagle was a sixteen-inch one I had to rig up a platform for the dog to work upon — the produce all took after him in color and hound-like qualities. But the most substantial difference between the produce and their mother the beagle was as follows: The puppies, three of which I kept, were considerably lower on the legs and bigger-boned than the dam. At the same time the legs were so like those of the sire that any Frenchman seeing them would have at once, without hesitation, termed them what is known abroad as “Bassets à jambes demi-tortues.”

Two of these puppies I mated with their own sire the following year, and the result was perfect bassets, two of which I exhibited at the Agricultural Hall Exhibition in 1877.

My next experiment was with the sire of the same puppies and a bitch which, from accidental enlarging of her parts, was unable to be properly mated. And on this occasion I artificially fecundated the bitch by collecting the male element in a vessel, which was floated in another vessel kept up to the temperature of 100° Fahr. with hot water, — the water being in the outermost cup and floating the reservoir containing the vital germs, — and injecting the same by means of an ordinary human catheter fixed to an ear syringe.

This bitch had two pups; and at their birth I sent a report of the case to the *Veterinary Journal*, the same issue of which contained an account of a like experiment made some two hundred years ago, the results of which were three puppies, all resembling the sire.

On another occasion I fertilized no less than three bitches on the same day from a single discharge of a dog.

My later experiments in the same line have not been very successful, and this I attribute to the fact that the bitches I have used have never bred or are apparently now barren; and the dogs, or at least one of them, was quite impotent from age.

These experiments are as follows: —

In 1891.

{	Sire, the basset-hound Floreal.
	Dam, the bloodhound Inoculation.
	Result, one dead puppy.
	Characteristics of puppy: color of sire, fore-legs partaking of the sire.



MR. HERBERT VICKERS' WHIPPET, "ZUBER."



MR. H. HEMMENS' DALMATIAN, "WATER LILY."

1892.

- 1 { Sires, basset-hound Floreal and bloodhound Champion Cromwell.
 { Dam, Inoculation.
 { Result, miscarriage.
- 2 { Sires, as above.
 { Dam, bloodhound Relentless.
 { Result, missed.
- 3 { Sire, Champion Cromwell.
 { Dam, a bloodhound bitch.
 { Result, missed.
- 4 { Sire, Champion Cromwell.
 { Bitch, basset-hound Mindful.
 { Result, missed.
- 5 { Sire, basset-hound Floreal.
 { Dam, basset-hound Antoinette.
 { Result, seven puppies, — four dogs, three bitches. Four took after the
 { sire in color and two after the dam.

This bitch evidently became fertilized to the first injection and began to pup two days before she was due; that is to say she showed the first signs of pupping on the sixty-first day.

I was at the kennels on that day and noted that she was uneasy, but left her for an hour or two as I thought her labor just commencing. On examining her on my return I found that the membranes were presenting but there was no sign of labor pains whatever, and looking upon the case as a bad one at the beginning I examined her still further and detected a pup presenting itself hind legs first. On attempting, however, to seize it with forceps it slipped back and I could not find it again.

As no effort was made at natural expulsion except during the examination I gave the bitch successive doses of ergot, but it failed to have any effect.

On the day following these attempts to encourage natural delivery I succeeded in delivering her of six living puppies, every one of which came as the first appeared to come; and on the following day of a seventh. This latter was dead, and had been so for some time, for it was macerated; and its condition doubtless accounted for that of the bitch, who died of septicæmia on the second day.

I was unable to get a foster at once, consequently lost five of the pups, but the one living now is a strong bitch nearly three months of age.

I do not think that the means employed to fertilize the mother had anything



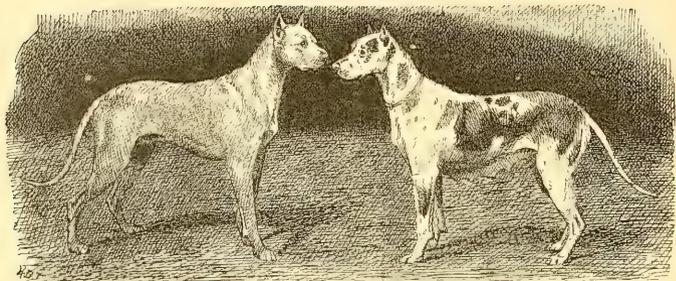
MR. E. A. MERRICK'S BASSSET "BETTY"



MR. E. A. MERRICK'S SASSAPARILLA "JIMMY"

- 8 { Sire, tufted duck.
 Dam, pochard.
 Produce, takes after the male.
- 9 { Sire, teal.
 Dam, wild duck.
 Produce, takes after the male.
- 10 { Sire, pochard.
 Dam, white-eyed duck.
 Produce, called Paget's pochard, takes after the sire in almost every-
 thing.
- 11 { Sire, widgeon.
 Dam, pintail.
 Produce, takes after the widgeon.

Mr. Everett Millais has made many other experiments in hybridizing and found that in all instances, whether the hybrids were in animal or vegetable life, the weight was invariably on the side of the male parent. And limiting the question to dogs, in the light of the evidence offered by him and general experience of breeders, it is safe to accept that when the sire is much inbred, in form and external characteristics the produce resembles him rather than the dam.



CHAPTER II.

IN SEASON.

THE first occurrence of that peculiar state of the system known as the "rutting season" or "œstruation," during which only will the bitch allow the approaches of the dog and impregnation is possible, as a rule occurs about the ninth month, but it varies in different breeds and individuals, also from the influence of constitution, diet and conditions and habits of life. For instance, some breeds usually come in season when about eight months old, whereas others but rarely do so until the second year. Again, in bitches that are healthy, well nourished, have ample exercise and are otherwise properly treated, this peculiar manifestation is very generally noted much earlier than in bitches of poor constitution kept much in kennels or fed mainly on starchy foods and allowed but little meat.

The return of this period is also subject to frequent variations, and from much the same influences that delay its first occurrence; and while bitches that are happily placed, well cared for and healthy usually come in twice yearly, with those that are neglected, unhealthfully situated or of feeble or delicate constitutions, the intervals

between the periods are longer, and may extend over a year or more.

All of which is conclusive evidence of the fact that the various systems of living bodies form a complete system, all parts of which are in such close sympathy that if one becomes disturbed the others are more or less disturbed also. Consequently neither the reproductive, the digestive nor other systems can be in high health and vigor unless its associates are in the same happy condition. Now viewing this law from another direction, it is seen that unless the general health is good the various systems and functions of the body cannot be duly active, healthy and vigorous.

Writers upon canine management have with singular unanimity maintained that mating should never occur before the second period, yet not a few breeders, whose opinions on this and kindred subjects are invested with the weight of intelligence and experience, are at variance with them, and these believe that in some instances at least it is justifiable at the first period.

The usual argument against early mating and maternity is, that it arrests the growth and puts much too severe a strain upon the constitution yet immature and lacking in strength, resistant and reactive powers, thereby prejudicing the future of the victims, also the vitality of their offspring.

Those who take opposite grounds, while acknowledging that early maternity arrests the growth, deny that it has any ill effects, constitutional or otherwise, and maintain that to induce it as early as possible is justifiable as a means of correcting certain irregularities of form. They reason, and rightly so in this instance, that the growth-modifying influence of maternity is more pronounced upon some parts of the structure than upon others, *i.e.* that "animals grow up and then grow down," or in other words, that the

legs grow the most rapidly at first, then the growth here lessens and the body and head in turn grow the fastest. Consequently they claim that if a bitch threatens to be "leggy" and "spindling," she should be bred at her first period.

Before attempting to solve this problem there is a theory which finds ready acceptance among physiologists, and is sustained by the experience of many stock breeders, which should be duly considered. This is, that the breeding of immature animals is liable to arrest the development and prejudice the general health of the mothers, also increase the mortality of their offspring and predispose that offspring to barrenness and sterility.

In other words, in accordance with this theory, in early breeding there is danger of permanent injury to the mother, deficiency on the part of the offspring—as impairment of constitutional vigor and special predisposition to attacks of disease—and that offspring is liable to be less fertile, this latter defect being inherited from the mother, who these theorists maintain is less fecund while yet immature than she will be after reaching maturity.

That statistics show that women under the age of twenty are less productive than those between the ages of twenty and thirty is a fact. That offspring of mothers while yet immature and less fecund are liable to inherit a tendency to lessened fertility is not at all unreasonable. Many authorities in stock-breeding are very ready to accept that early breeding has the effects stated on the lower order of animals, and they evidently find ample support in the experience of intelligent breeders.

Considering all this, also that there is no reason for believing that bitches are notable exceptions to other domesticated animals and beyond the plainly evident laws

relating to early maternity which are so prevalent, moreover, that his experience in breeding has convinced him that bitches and their offspring are liable to the same ill effects of this practice as other animals, — although they may not be as marked as with some species, — the writer holds that considering this question fairly and from the standpoint of health alone, the inevitable conclusion must be that no bitch ought to be mated before she has reached full growth.

Those who advocate breeding at the first period do not, however, consider the question from this standpoint, but as one of expediency; and taking the same liberal view of it, considering, also, the extent to which their theory is practised, one naturally hesitates to assert that they are absolutely wrong. And, certainly, they have some support in the fact that while maternity will arrest the upward growth of bitches it will not have the same decided effect upon the growth of their bodies; and if one threatens to shoot up too high on her legs she will likely under its influence settle down and assume rather better shape than she would had nature not been interfered with.

Fortunately this method of “shaping” is rarely ever applied excepting to a few small breeds in which the injuries of too early maternity are only comparatively slight, and it is easier to condone it since there exist standards which demand that certain varieties of dogs be unnaturally long in body and low on the legs. Moreover, it is simply natural for a breeder to prefer a symmetrically formed little bitch to a big one greatly out of proportion; and there are not many who would allow the question of health to weigh very heavily could he stop a bitch from running up like a weed.

This other view of the question certainly lessens the force of the arguments against breeding bitches at their

first season. Yet even now the conclusion must be that the custom is prejudicial, although, doubtless, the infinite majority of those who consider the matter will be ready to concede that it is sometimes justified as a remedial measure.

If such is the acceptance and bitches are bred at their first season to correct threatened irregularities of form of the nature described, let the enfeebling influence of the remedy be kept in mind and every effort made to combat it by a generous diet, ample exercise in pure air, and other hygienic means.

There are a few breeders possessed of the idea that to delay maternity one period merely will impair the functions of the breasts and render them less capable of secreting milk. It ought not to be necessary to say that this is a rank absurdity. Consider greyhounds, for instance, that are kept for coursing, they are not bred until they are several years old, yet they are usually free-milking mothers. But to discuss this fallacy is unnecessary, for cases which refute it are constantly occurring in the practice of all who breed extensively.

As a matter of fact, instead of the secreting power of the breasts being prejudiced by delay it is really strengthened by it. And here appears another reason for condemning the practice of too early mating. The mammary glands are either under the direct influence of the reproductive organs or in close sympathy with them, and where those organs are lacking in development the secreting power of the breasts is lacking in corresponding degree. Consequently an immature mother cannot be as able support as she who has been fully developed by age.

The period of maturity varies greatly in different breeds, and while it is reached by some early in the second year, others are not fully matured until they have

entered the third year. The larger breeds are, as a rule, the last to mature, and but very few of them have done so before they are two years old, while many are still growing even at their thirtieth month. Yet there are toys, Italian greyhounds and Maltese terriers for instance, that are only a little in advance of the big ones, for they are not mature until two years old, and some are still developing several months afterward. Individuals also vary, and while a breed may generally have matured at the age of two years, oftentimes members are still on the way even when two and a half years old.

In some bitches there is a slight change of demeanor as they are about to come in season, characterized by restlessness and an increased show of affection, but the earliest conclusive sign of that peculiar condition is a sanguineous discharge, which deepens in color during the first twenty-four or forty-eight hours, when it lightens a little and usually becomes bright red and of the consistency of blood that has been several times diluted. This generally persists with but little variation, except it may be of darker color in some instances, for five or six days, when the color begins to fade, and by the tenth or eleventh day from its first appearance the discharge has merely a slight reddish tinge, which generally entirely disappears in the course of a day or two.

The mucous membrane lining the passage from which this issues is invariably more or less congested and reddened. In many cases, also, there is considerable swelling or puffiness of the outer parts; and this is the rule with young bitches, but with those that have borne several litters there is generally a little less swelling than at the first season, while in occasional instances it is so slight it might easily escape notice.

When the swelling is present it remains hard and tense

for about a week, after which it gradually softens, as it were, and becomes much less resistant to the touch ; and usually it has entirely disappeared before the end of the second week.

With such obvious signs it will doubtless seem to the inexperienced that where due care is used it must be well-nigh impossible for a bitch to pass through a "season" without her condition being discovered, yet were these alone relied upon such mishaps might occur provided the swelling was only slight, for the discharge might be scanty, in which instance detection would not be so very easy, or it might be moderately profuse and still not appear on examination because of having been shortly before washed away by the excretions from the kidneys. But unless a bitch is kept closely confined to her kennel and alone, the change in her demeanor, also the attraction she offers for dogs, must clearly indicate when this period is on.

It usually extends over about three weeks, but only during a small part of it will the approach of the dog be permitted ; and the duration of this all-important period, while generally from four to seven days, sometimes longer, may in occasional cases be much shorter. And this fact the novice in breeding will do well to keep in mind.

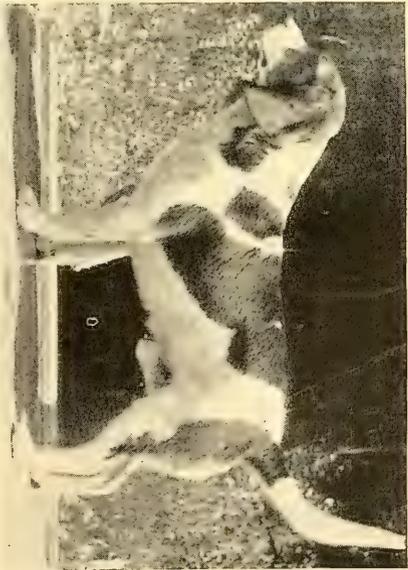
In this period, during which only is mating possible, the swelling is no longer hard but has softened greatly and is rapidly subsiding, or it may have disappeared entirely. The discharge is now but slightly tinged with blood or is quite colorless, and there is a decided disposition exhibited to court the society of others of her kind, in the presence of which very often her tail is lifted and carried to one side.

The practical conclusions to be drawn from this are, that the several stages of season vary not only in the different breeds but in members of the same breed, and

BEAGLES.

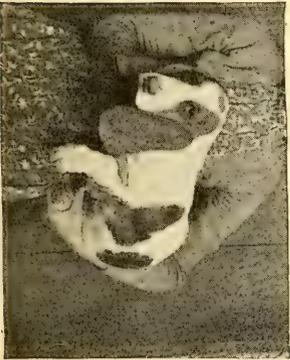


HORNELL-HARMONY KENNELS' "ROYAL KRUEGER."



MR. H. L. KRUEGER'S "FRANK FOREST."

MR. EVERETT MILLAIS' BASSET PUPPY
"SYRINGA."



A PRODUCT OF ARTIFICIAL
FECUNDATION.

while some bitches will not permit the approach of the dog, or in other words are not "ready," before the end of the second week, others have reached this most important stage by the end of the first week. Moreover, that while as a rule bitches remain for several days in a state when to mate is possible, in some cases this period scarcely extends beyond a day.

Most bitches can be mated about the twelfth day, but in occasional instances they are ready on the sixth or seventh, while in others mating is impossible before the fourteenth or fifteenth day. And these peculiarities are not constant, for the same bitch at one season may be ready in the beginning of the second week, and yet at her next this essential condition be delayed until a much later day.

Obviously no rule can be fixed which will meet all cases, and the only safe course to pursue after a bitch comes in season is to note each day the condition of her discharge and admit the dog when it has lost most of its redness. Some writers, by the way, advise waiting until the redness has entirely disappeared, and to this no objection can be offered where the handlers are experienced and the bitches old acquaintances, but for tyros, or even masters with strange subjects, to delay until such complete change in the discharge has occurred would be decidedly hazardous—a statement which doubtless many who recall their earliest attempts at breeding will fully indorse.

A bitch may act shyly at first in the presence of the dog, but if ready she will generally soon give evidence of the fact by frisking about him, assuming peculiar attitudes and very likely jumping upon him. If, however, she growls and snaps when he approaches, and persists in doing this for about ten minutes, he should be removed, to be returned on the following day. And it is well to

add that the custom of turning the two into a yard and leaving them together for some hours is thoroughly wrong and a cruelty to both.

Where this test cannot be applied because the mating must occur at a considerable distance, it is wise to ship the bitch to the kennels of the dog soon after the first signs of season have appeared, lest it prove one of those instances in which the mating period is very short.

Here intrudes a fact which, while of no great importance, is worth recording, namely, that bitches that have been successfully served have generally seemed to go out of season more quickly than those in which the service was unsuccessful. And in the experience of the writer this has been quite constant in bitches that have passed the third or fourth year and were mated at every period, while the most notable exceptions were bitches that had been allowed to "go by" one or more periods, or where for causes unappreciable the intervals had been much longer than usual. For instance, in one case for several periods at which successful service occurred the bitch went out of season by the third day, then a year and a half passed without her coming in, and when she did so she remained in season for eight days and was mated on every alternate day. The services, however, proved unsuccessful.

Perhaps it is sentiment merely that leads to the suggestion that two perfect strangers be permitted to become somewhat acquainted before they are put into the same enclosure. And if allowed to run for a short time in adjoining yards, separated by a picket fence, the strangeness for the visitor—the one deserving the greatest consideration—will soon wear off and subsequently the desired result will be more easily attained, especially if she is of nervous and timid nature.

How many "services" are required? One only if



MR. J. OTIS FELLOWS.
HORNELLSVILLE, N. Y.

complete, although breeders, with but few exceptions, favor a second, after an interval of two days. The practice of their theory is open to one objection only, namely, the hardship that it entails upon the dog, whose vitality must inevitably be greatly exhausted if too frequent demands are made upon him.

The position has been taken in the foregoing that bitches are guided by nature in their conduct with the dog and resent his overtures at all times except when in season and in the favorable stage. This is the rule and exceptions to it are exceedingly rare, but still, that they do occur is a fact beyond dispute, for cases are on record in which the services took place between the periods of season ; and several of the bitches were in pup, while one was in her last week before whelping.

At this point the writer is reminded of the extremely prevalent idea that unless the dog and bitch are tied the service cannot be productive. Now, while this condition can be accepted as positive evidence of a successful service, and in its absence success may well be doubted, it does not follow that in every case where speedy separation occurs failure is inevitable ; and as a matter of fact a number of instances are known in which such assumed failures proved eminent successes, the testimony being in one of them a litter of fourteen puppies. On the other hand, the fact that tying occurs and to all appearances the dog is perfectly sound is not proof that he is capable of getting puppies.

Notwithstanding these exceptions, however, with which it is well to be familiar, the condition in question should be held highly essential, and where one dog fails to attain it another should be tried if possible. But in the absence of a resource, if the appearance and behavior of the dog indicate that tying only has been wanting, the case should

not be considered hopeless, although the chances are very many indeed that it will prove so.

High health and vigor are of infinite importance in both subjects of a union, otherwise the offspring must very generally be more or less wanting in health and vigor at birth; and where the constitutional defects are pronounced in either the sire or dam, not only do the puppies require the most intelligent and painstaking management, but even when this is afforded and they live they seldom thrive and develop into good specimens of their breeds.

Not unnaturally, the offspring of show winners are in the greatest demand, and these are notoriously the most unsound constitutionally, because of the treatment that is often inflicted to bring them into condition, the hardships inseparable from long journeys and shows, and the excesses that the dogs are obliged to undergo to meet the demands in their own kennels and of admiring patrons.

A notion which is quite generally accepted and contributes much to failures in breeding is, that notwithstanding one of the subjects of a union is much below the standard of health if the other is sound and vigorous the offspring will be strong and hardy. Such a happy result is not at all likely, for even were the constitutional infirmities themselves, of the sire or dam not transmitted, there must be, almost invariably, passed on to the offspring at least a predisposition to those infirmities; or, in other words, the puppies if not absolutely weakly must be specially liable to have, some time in their lives, the disease and weaknesses of their parents.

Of course a bitch of somewhat doubtful constitution might prove a success if always bred to dogs that possessed high health and vigor in an eminent degree, yet were her infirmities pronounced, or she was the victim of transmissible disease, then, certainly, she would be unfit for breeding purposes.

Should bitches be bred at every season? Upon this question, also, breeders are at variance, and while some contend that it is an injurious practice and one which must inevitably undermine the strongest constitution, others as stoutly maintain that they have never detected evidences of ill effects from it.

To sustain them in their position the first class rely mainly on the fact that bitches of sporting varieties lose speed after being bred often, and they claim that there is also a loss of vigor. The other class acknowledge that speed is lessened in breeding, but they point to the fact that great speed, in the greyhound for instance, is out of the question after breeding once only, and they are not ready to accept that this loss is any evidence of impairment of vigor.

In cases in which abnormalities exist, beyond doubt animals are sometimes improved in health by carrying young, but as a rule gestation and nursing must tax the energies of the system. And while the lost vigor is doubtless very often restored, it is certainly not restored in all cases. And whether or not the loss is permanent depends much upon the existing conditions. For instance, a bitch allowed entire liberty, fed rightly and kept under good hygienic influences, might be bred at every season without loss of constitutional vigor, whereas another confined much to kennels and fed as dogs so placed are generally fed would scarcely be so fortunate. In truth, many bitches living under such poor conditions and bred at every season present symptoms that can only be interpreted as evidences of decline. And in the most pronounced cases these are a lack of natural excitability and buoyancy of spirit, tendency to sluggishness rather than activity; and of those that have borne several large litters not a few are weak in loins and settled in the back.

Beyond doubt, considering them as a whole, and how they are usually fed and otherwise cared for, were it the rule to breed only at alternate periods, bitches generally would be better for it, and they would have healthier puppies. But assuming that the bitch is of large size and not mature before she is two and a half years old, she would not likely breed much after her sixth year, or if she did her litters would be very small. Consequently she would have only about four good litters; and but few breeders would consider her a profitable investment.

Those viewing this matter fairly must be ready to accept that he who considers only the welfare of his bitch will allow her to go by occasionally, while he who values his very largely for her produce and the income she yields will breed her as often as he can. But all can be assured that unless bitches are well cared for in every way they cannot be bred at every season and retain full health and vigor.

Here the writer is reminded of that ancient absurdity, which long ago ought to have been swept from the minds of breeders, that puppies of the first litter must necessarily be less strong and healthy than those of subsequent litters. As a matter of fact, all conditions being favorable, the first puppies are likely to be a trifle the best, provided always their mother had fully matured before she was bred. And the reason for this statement, which must surprise some, is, that considering the care given the average mother, her subsequent confinement to small quarters, and other abuses so often inflicted upon her, she would, as a rule, be in better health and vigor in her third year of life than ever afterward. Moreover, the younger the dam—provided, again, that she is mature—not only the better and stronger her puppies but the larger her litters. Beyond all this, there have been cases where

BULL DOGS.



ILLWIS KENNELS' "HARPER."



ILLWIS KENNELS' "GRAVEN IMAGE."



MR. A. J. SMITH'S "HIS LORDSHIP."

ILLWIS KENNELS' "KING LUD."



MR. C. F. W. JACKSON'S "HOLY TERROR."



MR. J. E. THAYER'S "BRITOMARTIS."

bitches never bred good ones after their first litters, and all puppies in those litters were grand.

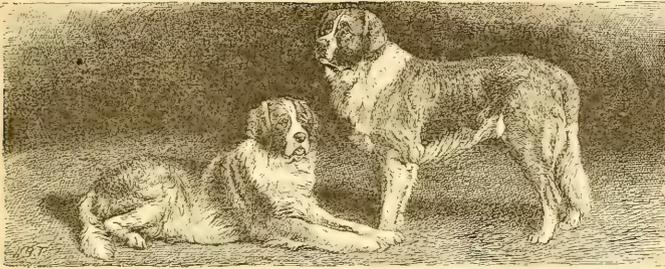
Another important fact of which many breeders are unmindful is, that bitches must not be allowed to become too fat, for where there is a tendency in that direction there is usually a lack of constitutional vigor, an impairment of the milk-secreting glands and some loss of fertility. Take, for instance, a bitch that has been laying on too much fat during her second year; the chances are that when she reaches maturity her procreative functions will be so lacking that it will be hard to breed her, or if successfully bred she will have small litters and poor puppies, also be deficient in milk, for too much fat during the growing stage means retarded development of the generative organs and lessened activity in the mammary glands.

Now assume that the bitch which is much too fat had several litters before she became so. It will be hard to mate her, because the natural promptings which characterize the season have given place to almost complete indifference. Again, her generative organs are much less active than normal; moreover, there are chances that they have undergone some fatty degeneration which impairs or entirely destroys their functional activity. Or if such is not the case and she is successfully bred, the litters or the puppies, or both, are quite certain to be small, because of impairment of vital energy and vigor of the reproductive powers, and not impossibly some mechanical obstruction exerted on the generative organs by the fat deposited on and near them.

Some say a bitch can scarcely be too thin at the time of service if she is strong and healthy and free from worms, but she is nearest right, and her breeding powers are the most vigorous, when in the middle state—that is neither too fat nor too thin.

As for sterility from excessive fatness, where the generative organs have undergone fatty degeneration or other serious change a cure is out of the question. But short of that point improvement is likely to occur in many instances if a great amount of exercise is given, the quantity of starches is reduced or they are withheld altogether and the diet is made up largely of meat, and only such vegetable foods are allowed as grow above ground — as, for instance, spinach, dandelion and other greens, nettle tops, cabbages, etc.

According to reports, copious bleeding has been tried in some cases, but while this treatment might overcome sterility when due to a plethoric condition of the system, or, in other words, where the victims had too much blood and there was great irritability of the organs of generation in consequence of local congestion or inflammation which interfered with their function, it is certainly not appropriate for sterility from obesity, in which the constitution is impaired and must suffer a still greater loss of vigor with the depletion.



CHAPTER III.

BEFORE WHELPING.

IF a bitch has not been accustomed to free exercise, for at least two months before she is due in season she should be given a goodly amount of slow work every day ; and this treatment should be persisted in until she is nearly ready. From then on to the time when the wonted condition of things is restored she should be much at rest. And being deprived of her regular exercise, the usual proportion of meat allowed her should be considerably reduced and that of vegetable foods and bread, rice or other starches increased in corresponding degree.

The service successful and the season past, thereafter and until the day of whelping the bitch should have constant liberty to exercise herself in her own way, and if the same is allowed, but not otherwise, she will likely not only acquire and retain high health and vigor but give birth to strong and healthy puppies.

To emphasize this point too strongly would be simply impossible, for a denial of ample exercise during gestation is one of the most frequent and potent causes of mortality among puppies, which sends them into the world so poor

in strength and vitality that their days are numbered even from the first. But beyond the imperative necessity of exercise, which alone is all-sufficient reason for allowing bitches perfect freedom, there is another reason of very great moment, and this appears in the fact that when permitted to do so they will get at manure heaps and dig up and eat all sorts of stuff that they do not touch when not in whelp, thereby plainly showing that there is much that they need of which man as yet knows nothing.

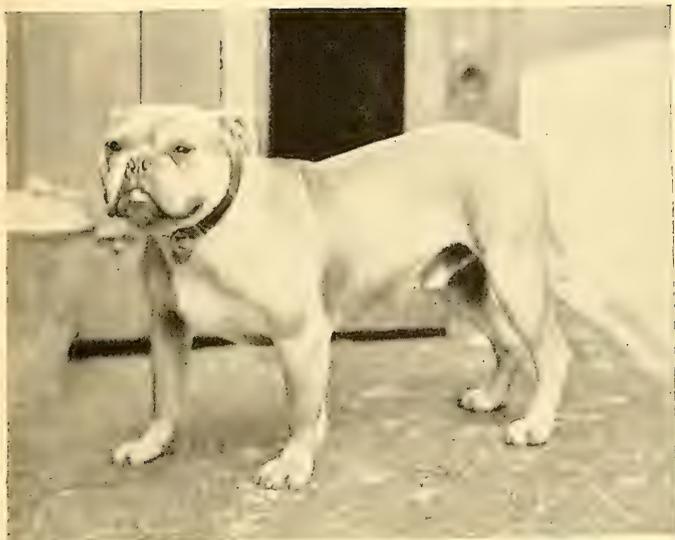
Of course there is some danger of infection by worms where such tendencies are gratified, but that goes out of sight in the presence of the many infinite advantages of entire liberty; and it is again urged that this be allowed in every case in which it is possible, and when absolutely impossible, the bitch in pup must be taken out for scampers or strolls on all favorable opportunities.

To bring on labor prematurely simply by exercise is never easy in strong, healthy bitches as long as they go their own gait, as it were, and instances are numerous in which such have worked in the field to the day and almost the very hour of whelping without experiencing any unpleasant results. Notwithstanding these, however, severe exercise, as in hunting, during the last two or three weeks of pregnancy, must be somewhat hazardous.

As for working a bitch in whelp behind a horse, it is never wise, for the chances are many that she would over-exert herself.

In these weeks special precautions are imperative against jumping fences and like violent exercise; and external injuries must be carefully guarded against, for even a slight blow may prove destructive.

If the bitch is kept in a yard, to preclude all possibility of her digging her way out is another essential precaution, for were she to do so during the last two weeks of gesta-



MR. S. E. SHIRLEY'S BULL DOG, "SANCHO PANZA."



MR. H. N. RICHARDS' BOSTON TERRIER, "ROSSIE RICHARDS."

tion, premature whelping might occur in consequence of the twisting and squeezing. And of all experiences likely to cause this accident there are but few more potent than fights — not so much because of such injuries as bruises and lacerations, but because of the great shocks inflicted upon the nervous and circulatory systems.

While these precautions are imperative in every instance where signs indicative of pregnancy are present, they may properly be instituted in all cases, and persisted in until it is plainly evident that they are unnecessary, — the mating having been unsuccessful. And the reader who has yet to acquire an experience in breeding will do well to bear in mind the fact that doubtful cases are not infrequent; also, that in occasional instances it will be impossible for him to determine with positive certainty before the end of the ninth week whether or not pregnancy exists.

The assertion has been made that in most bitches there occur changes in demeanor which are suggestive of pregnancy, yet the writer has never been able to detect any of the slightest diagnostic importance, and in his experience the first sign of value is a modification in the size of the uterus. This is scarcely ever appreciable to the touch of a skilful examiner before the third week, and frequently difficulties are encountered which deny it to him until a much later period, while in the most favorable cases he who is inexperienced can scarcely ever make out an enlarged uterus before the fourth week; and very generally he finds it impossible to do so before the fifth or sixth week.

To those unfamiliar with this means of diagnosis the earliest sign of value is an enlargement of the abdomen; and this is generally manifested near the fifth week, although it may be delayed for a week or more, and it may even be unappreciable to the ordinary eye up to the date

of whelping. Cases, however, in which it does not appear are not very common, and many of the exceptional are bitches that have unusually large or very round abdomens or are carrying very small litters. In some, also, the enlargement is less marked and may even be unapparent because of the peculiar rib formation; and of this class the greyhound family are the best illustration, for a diagnosis of pregnancy in its members is, as a rule, the most difficult, and in many instances where there are only one or two puppies their presence can scarcely be detected until near the whelping, while in some it cannot be made out with certainty before the pains of labor have set in.

Where abdominal enlargement occurs early it becomes steadily more pronounced until near the ninth week, and then for several days the increase in size appears to be much more rapid than before, owing to a settling down of the greatly distended uterus and a backward movement on its part. This settling having occurred, if all goes well whelping may be confidently expected within ten days. And he who watches the apparently backward progress of the uterus and the rapid enlargement at its neck—the most posterior part—can generally detect without the aid of any other signs when the last stage of gestation has been reached and whelping is imminent.

In order to make the most of this sign the examiner should kneel behind the standing bitch and pass his hand between her legs to the abdomen. If she is of very large breed and at the beginning of the ninth week, when his wrist is between the legs and just below the outlet of the bowel he will feel with the tips of his fingers the posterior extremity of the uterus. On subsequent examination this will be found to progress backward—approach him—to an appreciable extent each day; and when at last it has gone as far as it can, whelping may be expected within twenty-four hours.

Beyond this sign there are others that indicate when the time of whelping is rapidly nearing. One of them is an enlargement of the breasts and the secretion of milk, and another the active movements of the puppies. During the ninth week these movements are generally perceptible to the eye through the abdominal walls when relaxed, as while the bitch is sleeping; and they can be excited by gentle taps with the fingers and felt by the palm of the hand.

But when a bitch is heavy with pups there is no mistaking the fact, hence it is unnecessary to dwell longer upon the characteristic signs. As for the early manifestations, as already stated, the earliest upon which any reliance can be placed is an increase in size and change in the shape of the uterus. In order to be able to detect this when it appears examinations of the abdomen should be made from time to time with deep pressure of the fingers, the subject meanwhile lying on her side or back, by which means some familiarity with the usual and non-pregnant conditions will be attained, and without which, of course, variations could scarcely be made out. If, now, near the fourth week there can be felt a tumor—or in doubtful language a swelling—quite deeply within the abdomen, there is decided possibility that this tumor or swelling is the enlarging uterus.

This evidence having been detected, if in the course of a week there is noticeable to the eye an increase in the size of the abdomen, the chances of pregnancy are decidedly good; and as these changes generally quite speedily disappear or grow more pronounced, all existing doubts are usually dispelled in the course of ten days.

But the inexperienced reader must bear in mind the fact touched upon in the foregoing, that some bitches go through the entire period of gestation without presenting

a single sign of pregnancy appreciable to the ordinary observer. Yet, as already stated, these cases are comparatively rare and not likely to occur often in the experience of one who is familiar with the important signs herein considered. At the same time he who doubts his ability to make a correct diagnosis, in the absence of an experienced adviser, will do well to take the same precautions up to the end of the ninth week that he would in positive cases.

Before leaving this part of the subject it is well to touch upon a few common notions in relation to it. One is, that the size of the abdominal enlargement is indicative of the size of the litter. While large puppies or a large number of puppies is the rule when the abdomen is greatly enlarged and settled down, yet the litter or the puppies, or both, may be small.

Many breeders must have noticed instances in which were presented signs of pregnancy, as abdominal, uterine and breast enlargement, and secretion of milk, in the ninth week, but at the end of it no whelps appeared. In like cases there would be every reason for suspecting that the puppies were either prematurely born dead and deposited in out-of-way places, or the whelping was normal and the offspring fell victims to the puppy-eating habit. And a discharge of blood for several days would be quite conclusive evidence that one of these misfortunes had occurred.

But the presence of milk, while corroborative evidence in such cases as these, alone would be of no real significance, for many bitches that are not in whelp have milk at the ninth week from season.

Returning to the essential management of the bitch in pup her diet must engage attention, for were she not fed generously and on nutritious foods it would be impossible

BULL TERRIERS.



TUBBY HOOK KENNELS' "CARNEY"



MR. JOHN MOORHEAD JR.'S "STREATHAM MONARCH."

for her puppies to develop properly and have good vitality at birth. Manifestly her requirements in the way of structure-building materials are much greater now than when she had to meet merely the wear and tear on her own body, and as she finds these in very considerable amount and convenient state in animal substances only, assuredly she must have more of them in proportion than when not in pup. But mindful of the facts already given great prominence in chapters devoted to feeding, the increase of the daily amount of meat, the most serviceable of these substances, must be intelligent, for the same penalties are inflicted for excess now as before impregnation.

In considering the use of this food the matter of preparation being of great importance can properly come first. Boiling is the common method of cooking, and against it nothing can be said if the water — broth — used in the operation is fed out with the meat, for then the most of the virtues of the food will have been saved, and especially certain salts, extracted by the water during cooking, which the mother must have to pass on to her puppies. And that these salts are indispensable to healthy osseous growth the following experiment has clearly demonstrated:—

A well-known German physician selected a medium-sized, strong, healthy bitch, and after she had been mated he fed her on finely chopped horse-meat from which the salts were to a large extent extracted by boiling for two hours in distilled water. In addition to this she was given each day a certain quantity of tried fat. As drink she had only distilled water. She gave birth to six healthy puppies, one of which was killed immediately, and its bones were found to be strong and well-built and free from abnormalities. The other puppies did not thrive, but remained weak, and could scarcely walk at the end of

a month, when four died from excessive feebleness; and the sixth was killed two weeks later. The mother in the mean time had become very lean but was tolerably lively and had a fair appetite. She was killed one hundred and twenty-six days after the beginning of the experiment, and it was then found that the bones of her spine and pelvis were softened — a condition known to physicians as osteomalacia.

The results of this experiment are highly interesting and instructive, showing clearly as they do that the nursing mother sends out to her young, in her milk, a part of her store of lime, which is absolutely essential to their welfare. They show, also, that if proper food is denied her when in whelp and while nursing, not only her puppies but she as well must suffer greatly in consequence. And in the light of these facts is uncovered one of the most potential causes of rickets so common among large breeds.

It may therefore be accepted that bitches in pup must have goodly quantities of meat; moreover, that while cooking may be the rule if the broth is utilized, it is a wise plan to give this food occasionally in the raw state.

In advising this the writer is fully alive to the fact that he is running counter to a strong prejudice that exists among no small number of breeders, who maintain that raw meat will cause a loss of the puppies. Such theory, however, is opposed to reason; furthermore, experience long ago showed its absurdity. And another product of experience is, that to withhold raw meat entirely must greatly intensify the danger of a loss of the offspring through the puppy-eating habit.

No lengthy consideration of the relative proportions of meat and vegetable and starchy foods required by bitches in pup will be necessary here, for the laws by which they

BULL TERRIERS.



MR. S. E. SHIRLEY'S "NELSON."



MR. F. F. DOLE'S "EDGEWOOD WONDER."



SIR WM. VERNER'S "TARQUIN."

must be regulated are practically the same as those in force when young are not being carried. And although a larger proportion of that important animal food is demanded it cannot safely be allowed unless the conditions are right. Or, in other words, the increase must be attended by an increase, in corresponding degree, of the amount of exercise. And, manifestly, were the first requirement met and its associate neglected the blood of the bitches would become heated up and in consequence they would have skin eruptions from which they must suffer great annoyance, whereas at such trying times they should be not only healthy but undisturbed and restful. Moreover, did any such affections due to internal causes exist during the period of gestation they would be either transmitted directly to the offspring, or there would be created in them a predisposition or special liability to the same disorders.

The giving of bone-meal in the food has been advised by many writers to supply material for the bones of the puppies *in utero* and prevent the accident — softening and decay of the bony structure of the mother — noted by the German physician whose experiment has been described. This meal, however, is of doubtful value as a preventive, for it undergoes only slight solution in the intestinal canal, but to give the precipitated phosphate of lime — a product of bones — during the period in whelp is advisable, especially to large breeds, the offspring of which in these days are notoriously “deficient in bone” and singularly liable to suffer from rickets.

This agent, which is a white powder and odorless and tasteless, should be given once daily with the food during the first month of gestation, and twice daily from then on until the puppies have been weaned. The dose usually advisable for the largest varieties is an *even* teaspoonful,

but this can safely and wisely be increased during the last month before whelping if the litter promises to be very large, in which event the demand upon the mother for bone material must be unusually great.

Some further modifications in the dietetic regimen will generally be necessary with her who is carrying young. If she has been habituated to one meal a day and that at night, shortly after mating the custom of feeding her in the morning should be commenced. The breakfasts, light at first, should be quite generous through the month preceding the whelping, and they can properly consist largely of milk thickened with bread or some of the other starches; and he is wise who frequently adds one or two raw eggs. During the last two or three weeks a moderate lunch, made up of milk, will be highly appropriate, nor will it be necessary to thicken it with other foods. But let it be borne in mind that the increase in the quantity of food and number of meals should be made cautiously lest over-feeding occur and the appetite be impaired.

If a mother is free from worms at the time of whelping her puppies will be much less likely to suffer from these pests during the earliest months of life; hence a mild vermifuge can wisely be given about the sixth week after mating. But this treatment should not be delayed until the last week before whelping, as some have advised, for obviously the straining induced by the cathartics which must follow them might bring on labor prematurely.

As for the vermifuge to be employed, areca nut is one of the safest and most efficient. And when those to be treated are to remain and whelp in their usual quarters they should be temporarily removed to others while the agent is acting.

Every expectant dam has a decided preference for the kennel which she has long occupied, and when expedient

AIREDALE TERRIERS.



MR. H. M. BRYANS' "CHOLMONDELEY BRIAR."



MR. S. WALKER'S "COLNE CRACK."

she should be allowed to remain in it. If, however, she is housed with other dogs, or for any reason beyond this a change is necessary, it should be made soon after the seventh week, that she may become thoroughly accustomed to her new surroundings. Were she left to follow her own tendencies, when the eventful time came she would naturally seek some retired nook or corner, out of sight and hearing of her kind and possibly of man as well — a fact that should be given due weight in selecting her whelping quarters. But isolation must not be enforced thus early at the expense of contentment, and if she manifests signs of loneliness her kennel mate if she has one should continue with her and remain until she begins to busy herself about her bed.

If she cannot be permitted to run at large during the day, as has been urged, it is imperative that she be taken out frequently and given gentle exercise. And appreciating the dangers of physical strain, the careful owner will see to it that her enclosure is secure and she cannot possibly climb out of it; also, that one side at least is so constructed that she will be able to look out without being obliged to stand on her hind legs. He will, moreover, dispense with the sleeping-bench and lay her bed on a platform made of smooth boards, and raised about two inches from the floor.

When the conditions are normal whelping very generally occurs on the sixty-third day after mating, yet variations of one day, or even two days, either way are not uncommon and have no real significance.

Two or three days before the eventful period is expected the whelping quarters should be thoroughly cleaned out and washed with boiling water, for the purpose of disinfecting them and destroying all eggs of worms that may happen to be present. The bitch, also, should be treated

for like purposes before she is returned to them, and with precipitated sulphur, the same being freely rubbed into her coat, over her breasts, and in fact every part from the tip of her nose to the end of her tail.

For bedding, perfectly clean, dry straw is the best where a platform of smooth boards is used. And, by the way, there should always be two or three platforms provided, for then frequent change will be possible, and each one when removed can be washed off, disinfected and *thoroughly dried* in the sun before it is again required.

On the subject of bed and bedding for whelping bitches much has been written which seems invested with unwarrantable prejudice. Probably the kind of bedding most often used is a piece of carpeting, blanket or bagging, yet bitches rarely take kindly to such and almost always tear it up when they can do so, or scratch holes in it unless the material is unusually strong. And where this has been done puppies have been many times caught in the folds and crushed by the mother.

Some breeders use the untanned skins of beasts for bedding, while others prefer to have the whelping occur on dry, clean earth, because as they say it acts as a disinfectant; and these latter maintain that puppies do far better on a bed of this sort than on any other. But such claims are extravagant. If soil is dry it must get into the nose, eyes and ears of puppies and cause them much annoyance if not real harm, while if damp it means death to them — that is, if they are of the nature of well-bred dogs of to-day. Again, cleanliness, the best of such agents, is all in the way of disinfectants that is required at this time, and certainly under no other condition is it easier to maintain it than when the bed is a platform, which can be removed at once after whelping, and each day following if necessary, and the bedding is straw.

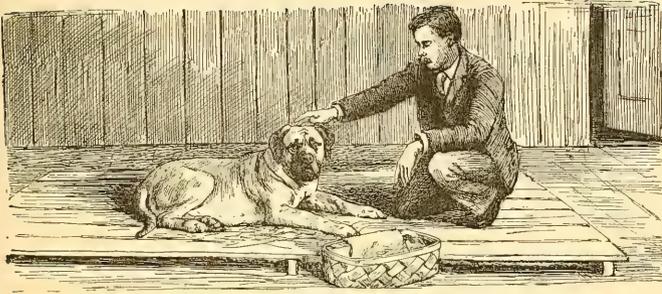
With not a few breeders the final preparatory measure is a dose of castor oil or other cathartic, which they give indiscriminately in every case on the day before whelping. This treatment has so many advocates it is necessary to urge that it is advisable only when severe constipation exists, also, that were it applied in instances where the discharges were soft or liquid it would not only be superfluous but somewhat hazardous, since it might cause diarrhœa in the puppies. And this would very likely happen were castor oil given, for a portion of its principle is absorbed and goes out with the milk.

Boiled liver, which is also given for the same purpose, is open to even greater objections than castor oil or other medicinal cathartic, for its laxative action is attained only at the expense of digestion. Being exceedingly rich but few stomachs are capable of disposing of any considerable quantity, and given generously as a rule it generally proves too great a burden for them; and they tire after a time pass a goodly portion of it, while yet only partially digested, on to the intestines, where it acts as any foreign body would and sets up an irritation. After which diarrhœa, nature's method of freeing the bowels of troublesome matters, occurs, and it is several days before the integrity of the abused organs is restored. In the mean time the milk is more or less vitiated in consequence of the indigestion, and very generally causes a like disturbance in the nursing puppies, in which event they, also, suffer from colic and diarrhœa — symptoms that are singularly fatal in the first weeks of life.

In the highest order of animals constipation is a common affection during pregnancy, and the popular theory as to causation is that it is produced by pressure of the enlarging uterus on the upper part of the rectum, by which not only is its calibre diminished but its action

paralyzed. A familiarity with this fact has doubtless led to the inference that constipation from the same cause must necessarily exist in bitches in pup and as urgently requires treatment. Yet no intimate knowledge of canine anatomy is necessary to detect its fallacy, and certainly experience tells that severe constipation is very rare in pregnant bitches that are healthy and have been well cared for.

Therefore let the reader put away this frozen notion that the bowels of all about to whelp demand interference, and that delivery will be difficult unless they are emptied by artificial means. He can accept as a fact that only when they are impacted with dry, hard waste, or, in other words, only when very severe constipation exists will they obstruct the birth of the puppies; also, that all ordinary accumulations will be readily expelled in the violent straining induced by the labor pains long before the first little one is sent into the world. He can accept, moreover, that no sound mother that is allowed ample exercise, is properly fed and has free access to good wholesome drinking water is likely to be troubled with constipation sufficient to retard labor. But should one so suffer, an injection of half a cupful of warm sweet oil or a pint of warm water is the only remedy he will be required to use.



CHAPTER IV.

TREATMENT OF THE MOTHER.

USUALLY on the day before whelping, but in some cases a little earlier, there occurs a very noticeable change in the bitch, characterized by nervousness, occasional shivering no matter how warm her quarters, dejection — as evident from her listless movements and the grieved and rather despondent expression of her eyes — and a disposition to slink away when at liberty to do so, or a reluctance to come when called if in her kennel. She also manifests unwonted concern about her bedding, which she frequently scratches and tumbles about.

These signs are produced by the first pains of labor, and when they appear the chances are that if all is well the whelping will begin within twenty-four hours.

The disposition to steal away to a retired corner has been accepted by some as a singular impression produced by parturition, and unmistakable evidence that the bitch urgently desires solitude while it is occurring, consequently they reason that she should be isolated and left entirely alone until it is over. But as a matter of fact it

is not an instinctive tendency peculiar to this act, for it is often exhibited in other experiences, and especially those of a painful nature. For instance, dogs when suffering from colic are very apt to secrete themselves in out-of-way places and there remain until the pain has subsided, even if the happy event is delayed for many hours.

The reason for this is problematical, but to the careful and experienced observer it must seem as though the disposition was the product of several influences, including primarily the pain and the same fortitude and patience, but in higher degree, which sustain some members of the human family while suffering intensely, and prompt them to suppress as far as possible the outward tokens of the affliction. It would seem to be tinged also with reproach, — which would not be unnatural where prompt relief was not afforded, — for it is seldom manifested before the pain has been on for several hours, during which period the victims if house pets generally manifest their distress by occasional whinings, appeals to be taken up, etc., and as plainly beg that something be done to alleviate it.

If this assumption is correct — and certainly there is nothing improbable in it — the special rule to leave bitches absolutely or even much to themselves while whelping will not admit of wide application. Nor is its basis, the original instinctive tendency of the bitch, a sound one, for although in her wild state she naturally sought secluded places that her young might remain concealed and out of the way of harm, this fear for their safety must have been greatly lessened by domestication — an influence far more potent than is generally appreciated.

Some bitches, of course, are less deeply impressed by this influence than others, for the reason that from their earliest days they have been confined much to kennels,



MR. AUGUST BELMONT
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and in these the old tendency to hide themselves when about to whelp must be still quite strong, yet it can scarcely be strong enough to resist kindness and sympathy when judiciously tendered; while in the majority of their kind that have been humanely treated it must be well-nigh extinct, at least towards those to whom they are accustomed and affectionately inclined.

Bearing upon this point the experience of the writer may be of interest to the average reader. Between his apartments and those of his men there is a large room to which with only rare exceptions his brood animals were transferred a few days before the time for them to whelp, to afford him ample opportunity for observation and proper treatment; and although many have been temporarily quartered there, in not a single instance has he noted a sign indicating that the change was not acceptable; nor where the attendants showed due solicitude was there exhibited the slightest trace of a disposition to slink away.

Hence he naturally holds to the belief that the hard and fast rule to shut in bitches when their whelpings begin, and leave them alone until all is over, is extravagant and inoperative in many instances, while there are good and sufficient reasons why oftentimes they should have the companionship of some one whom they care for if it can be afforded.

One of these reasons hits the pocket, and as it is the most weighty with many it is given first place. Bitches of large size should be watched during whelping to prevent them from crushing their puppies, for this accident is almost sure to happen unless the mothers are of very small and light bodies. The other pronounced reason has appeared in the foregoing, namely, that bitches will in many instances crave sympathy, and if they do so they should have abundant expressions of it, and be rubbed,

soothed and encouraged if such treatment seems grateful to them.

While companionship at this eventful time is advocated, the fact is kept in sight that in some instances bitches urgently desire to be alone, and do better when so; and if this disposition is plainly evident the breeder has really no choice. Yet with bitches of the largest size, at least, he should satisfy himself beyond all doubt that to intrude would be decidedly hazardous for them; and if he exhibits tact he will only rarely find such to be the case, but after a short time the sufferers will give unmistakable evidence that they appreciate his solicitude and are grateful for his attentions.

Of course, there are not a few breeders who give themselves no concern during the whelping period and yet have good success, but probably with scarcely an exception theirs are brood animals of small or medium size, for surely no one could successfully breed the large varieties in this convenient way. And all whose first experience is before them may accept that for mastiffs, St. Bernards and the like, the most painstaking methods of management are required, especially during whelping and with the puppies until long after weaning; consequently they who have but little time to devote to their dogs should choose much smaller varieties.

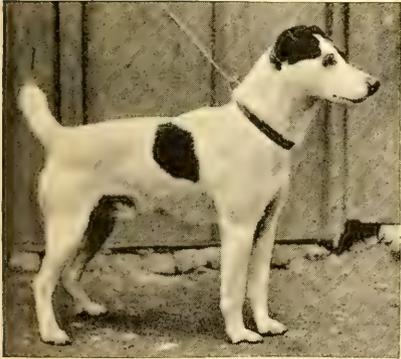
Obviously the attendants at whelping should be persons to whom the bitches are deeply attached, for in some instances they are very nervous indeed, and at such times are generally beyond the influences of all but their best friends.

For this condition, by the way, nervines have been recommended by some, but they are simply valueless as long as the cause of the nervousness exists, and to pet, soothe and encourage is the only treatment that can have any

FOX TERRIERS.



MR. C. E. HOPGOOD'S WIRE-HAIRED, "VALUER."



MESSRS. R. AND C. G. VICARY'S "VENIO."



MR. JOHN E. THAYER'S "RABY MIXER."



MR. C. STEDMAN HANKS' "GROUSE II."

appreciable effect; and the same judiciously applied will soon stimulate that fortitude which is so marvellously great in the canine race and do much to restore the nervous system to its wonted balance.

The nervousness may, however, be carried to maniacal delirium, during which bitches are entirely beyond control and it is extremely dangerous to interfere with them. Yet they are never likely to do harm if left entirely to themselves. And such attacks are fortunately very rare indeed, and seldom occur except when the whelping is protracted and the suffering intense. Nor do they often last long, but are generally over within two or three minutes. This was about the duration of one which the writer witnessed, and in that instance the victim evidently saw a spectre of another dog intruding, for she suddenly, and without any premonitory sign, dashed to the door, growling and biting as though engaged in a fierce fight. But after the short period stated she recovered herself and went back to her bed, evidently perfectly sane.

Leaving the vexed question of attendance and going deeper into the essential treatment of the mother during and immediately after whelping, methods will be advised which the writer has invariably employed in breeding several varieties of dogs, with the largest at one end of the line and toys at the other. They will be alike applicable to all bitches, but of infinite importance with the largest varieties; and although some of them may seem based on sentiment and wanting in weight, not a single one will appear that does not influence success.

Consequently, he who breeds should apply them all. But there are many breeding in a small way who are forced to be at business during the day, and it is only right to consider herein how they may make the best of their opportunities.

If a bitch seems to favor a certain place for whelping and its conditions are quite favorable—that is, it is easily accessible, snug, warm and otherwise healthy—her choice should be accepted, for there she will feel more contented. But in absence of any decided preference she should be put into a clean, comfortable room or pen—never a box which will not easily admit her owner—with a floor space so ample and a platform so large that she can work herself around her puppies on all sides.

As the degree of liability of a bitch lying on her puppies depends very greatly upon the size of her platform it should always be large enough to accommodate several like herself. And this provision seems the only one which promises much in the way of prevention, although some breeders think that the danger can be still further lessened by using the means which is so commonly employed with swine, namely, a strip of board, from four to six inches in width, around the room at just the height of the bitch's back when lying down.

This would keep her out from the walls, and if a puppy happened to be caught under her it would have a chance to reach the space beneath the ledge and escape. Yet while this device has undoubtedly some advantages, whether or not it is well to resort to it is an open question. The ledge must be very low or the bitch would try her best to squeeze under it. And if she could not do so she would be liable to fret, fearing some of her puppies were away from her; and every time she got up to hunt for them the chances of her getting on them would be much increased. Thus one might intensify the danger of the accident in trying to prevent it.

Her bed made up and the bitch provided with a vessel of clean, fresh, cold water, and a pan of milk,—with a piece of ice in it if the weather is hot, lest it sour before

night,—if her owner must leave her to herself he can go away feeling that he has done about everything possible to anticipate her wants.

And now to consider in detail the treatment which when possible should be given the mother and her puppies at the time of whelping.

Unless the weather is uniformly mild, at this eventful period and for several weeks after it she should be quartered in a room furnished with ample means for heating, and for twenty-four hours at least its temperature must not fall below 75° Fahr. ; while during the whelping and until all the puppies are thoroughly dried and warm it ought not to be below 80°.

Each puppy is born in a bag, which consists of a smooth, glistening and usually very thin membrane, and contains more or less watery fluid known as the *amniotic liquor*. This bag, while sometimes ruptured during labor, is as a rule expelled intact, and when so the mother at once proceeds to tear it open with her teeth. Having succeeded she licks the little one for a minute or two— which treatment acts as a stimulant and excites vigorous movement—and then somewhat leisurely bites off the so-called umbilical cord, one end of which is attached to the middle of the puppy's abdomen, and the other to what is known as the after-birth, a mass that looks not unlike a large clot of dark blood. The cord bitten off, she pushes the puppy with her nose around to a more convenient situation, continues to lick it for a time and finally snuggles it up, generally to her neck, or if there is a person in the room who she thinks may take it from her she usually endeavors to conceal it with her head.

Now follows a period of relief from pain, which may be short, not more than five minutes, or much longer, and

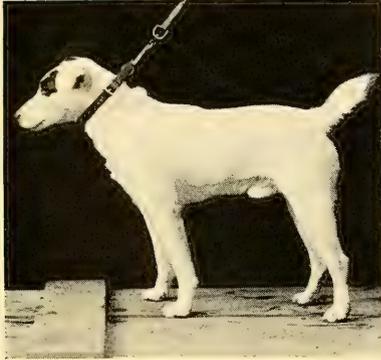
cover several hours. Half an hour, however, is probably not far from its average length; and during the greater part of it the mother rests quietly and may even seem to sleep. Towards its close she gets up and unless interfered with eats the after-birth and membranes that constituted the bag, and again lies down. The pain comes on, another puppy is born, and the routine described is again followed; and so on to the end of the whelping.

During these operations the attendant will occasionally be able to render valuable assistance, but he should never interfere as long as the mother is doing her work speedily and well; and when he does so he should be gentle and easy in his movements yet act with firmness and without any hesitation. If her teeth are poor or she is "under-shot" — as in the case of bull-dogs, and quite often with mastiffs — it will not be easy for her to rupture the bags, and even having sound and well-placed teeth it may be difficult because of the unusual thickness of the membranes. Obviously, therefore, this part of her duty should be promptly met and the puppies quickly freed, otherwise they must soon drown in the water in which they are floating, or die from the want of air.

Where the mother is at fault the remedy is easy, for the attendant has merely to tear open the bags by pinching a side with his thumbs and forefingers; or he can if he prefers use scissors or knife, which may be required when the membranes are very thick and resistant.

The severing of the umbilical cord should be left to the mother when she can possibly attend to the operation, for it contains blood-vessels that require just the treatment she administers, and were it cut by a sharp instrument at once after birth hemorrhage would occur. But if she fails in this work it should be done by the attendant, who should amputate the cord, by the means of scis-

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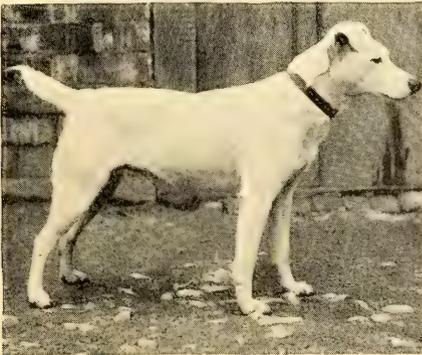
MR. JOHN E. THAYER'S "STARDEN'S KING."



MR. C. RATHBONE'S "BEVERWYCK PUNSTER."



IOLANTHE KENNELS' "RIPON STORMER."



MESSRS. R. AND C. G. VICARY'S "VESUVIENNE."

sors, about three inches from the puppy's abdomen. This operation can be performed with perfect safety five minutes after the little one is in the world, for circulation in the cord will then have ceased and the blood-vessels collapsed.

With every birth the mother rises on her forelegs and twists herself to reach the new-comer, which she properly cares for and pushes around in front of her before she again lies down. It is in this act far oftener than in any other that she crushes her puppies, for although such contortion is never very easy even for bitches of light build, to those of short and ponderous bodies it evidently proves extremely tiresome, and although they invariably try to prevent it, not infrequently they fall back quite heavily as though exhausted.

Considering which, also the disposition to snuggle the puppies as soon as they are born, obviously the accident in question must often happen unless they are removed out of harm's way. And this is always best with large breeds, which are never disturbed if the precaution is taken properly. The attendant has merely to provide a shallow basket, containing a piece of well-warmed flannel or blanket, and in this place the puppies as soon as the cords have been detached. They will now be kept warm, dry quickly and gain more speedily in vitality and strength than they would on the bed with the mother; and if the basket is placed in front of her, where she can easily see into it while lying down, she will not be likely to show any concern over the interference.

The whelping over, the mother will lie quietly for a short time, during which she should not be disturbed, but when she gets up voluntarily, all being in readiness, her platform and straw — now wet and soiled — should be removed, the floor hastily mopped and covered with saw-

dust where damp, and a dry platform and fresh, clean and dry bedding be put in.

This done, and the soiled parts of the mother hastily sponged with warm water, as soon as she has lain down the puppies should be taken from the baskets and put to her breasts. They will generally require some assistance at first, and if so let it be rendered as follows: Take the puppy in the right hand, — its back to the palm, — the grasp being well forward so that the thumb and forefinger reach to the little one's mouth. Press them inward back of the jaws, and so open the mouth. Now with the thumb and forefinger of the other hand holding the nipple its insertion in the mouth will be easy.

Oftentimes this duty will greatly tax the patience of the attendant, but he must persist in it until success is reached, for unless a puppy nurses well within the first two or three hours the chances are much against its living. But once it tugs vigorously it may be left to itself.

All this having been faithfully done, the mother if of fairly small breed may be left for a time with her puppies cuddled up to her, provided her bed is well out from the walls of the room, for were it close to one of them, when she got up the little ones might move over and narrow the space between them and the wall, and choosing this always she would crowd herself into it and very likely crush some of them. If, however, she is of large breed, no matter how favorable her situation, she ought to be watched for the next twenty-four hours.

This is the period of greatest danger, and after it the liability to the accident declines rapidly, but it only ceases when the puppies have become so strong that they can cry out and make vigorous protest if the mother is on them.

Aside from this danger there is yet another that is

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"BELGRAVE JOE," IN HIS 15TH. YEAR.



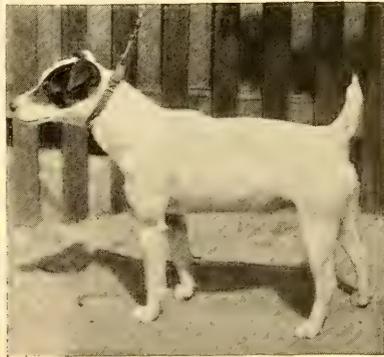
"SPICE."



"OLD TRAP."



"VESUVIAN."



"VENI."

occasionally threatened and makes watching advisable, especially with all that are mothers for the first time, namely, the puppy-eating tendency, which is very strong in some bitches, and beyond doubt can very generally be attributed to the deprivation of meat, although now and then it seems due to love, fear or other passion the true nature of which it is hard to determine.

The influence of the first as a cause has been clearly demonstrated in a large number of cases in which the deplorable tendency was entirely cured by feeding generously on meat during the period of gestation; while that it can be excited by the passions is evident from the following instance related by a well-known breeder.

A bitch that had never before shown any such tendency gave whelp to seven puppies — in color, six black and one red. Being a great pet the members of the family visited her often and made much of her little ones, until at last she ate all the black ones.

Certainly into this case the question of diet did not enter, for meat had been its principal ingredient from puppyhood, her owner being strongly prejudiced against all other foods, and it is reasonable to assume that love or fear lead her to do as she did.

In evidence that other passions than these may possibly cause bitches to eat puppies the writer records an instance that occurred in his kennels. A bitch had a litter of eleven puppies, six of which were taken from her and destroyed. One week later another of the same breed whelped and subsequently lost all but one of her puppies, largely in consequence of neglect on the part of the kennelman, who failed to detect that she had but little milk. The facts of the case being discovered the survivor was put to the breasts of the first; and she resented what she evidently considered an imposition by eating the

intruder as soon as he was left alone with her, notwithstanding he was then three days old. And although she afterwards had four litters during the time she remained in the kennels this is the only instance in which she was guilty of such an act.

When bitches have been fed generously on meat during gestation the chances are many against their eating their puppies; but still, all will bear watching during the first twelve hours at least, and then those that have never exhibited the tendency with previous litters can be considered quite safe from it. But a bitch once guilty should be held in suspicion until the second day.

It is well to add that many breeders are strong in the belief that once this habit is indulged it will persist and the victim of it be ever afterward worthless for breeding purposes. This, however, is a mere notion, for the tendency can be overcome by a meat diet and careful watching, and if one litter is saved the subsequent litter will generally escape, the habit having been cured by the break.

Surveillance over the mother during the first hours after whelping should be as quietly enforced as possible, otherwise it must be irksome and perhaps disturb her greatly; and instead of remaining in the quarters the attendant will do well to make seemingly a casual visit occasionally, or have a peep-hole through which without being seen or heard he can observe how affairs are going on within. And when visiting her he must not break in upon her suddenly, but as he nears her quarters he should walk slowly, call her by name, indulge in some kindly expression, and so prepare her for his coming.

When a bitch has been alone during her whelping it is especially important that this course be pursued on the first visits whether her nature is amiable or otherwise, for

at such times good dispositions are singularly liable to be perverted. It should be the rule, also, with all when they approach a mother to devote their entire attention to her at first, and not appear to notice her little ones until after her natural distrust has been dispelled and she is assured that she is of most importance. And when she has allowed the visitor to fondle her she will not object to his handling her puppies a bit if he is manifestly very careful in doing so.

But the mother should not be interfered with nor her puppies handled excepting when it is absolutely necessary; and above all from their birth and until the little ones are on their feet, and the novelty of the mother has entirely worn off, all others than the members of the family to whom she is most deeply attached should be excluded; and visits from them even should be "few and far between" during the first week.

As for strangers or mere acquaintances who may happen to wish to see the recent arrivals, they should be impressed with the fact that bitches usually inoffensive and amiability itself are sometimes intensely ugly when with puppies; consequently a visit by them might result disastrously.

While a bitch is whelping there should always be at hand a vessel of cool, fresh water, and from this she will take a few swallows almost every time she gets up.

If her labor is tedious and prolonged she must be given nourishment, and being but little if at all inclined to eat, milk will be the most acceptable and best at this time.

During the first twenty-four hours after whelping a little nourishment should be given every four or five hours, and it should be of milk, every alternate feeding being thickened with bread crusts or well-boiled rice. Or

if milk does not seem agreeable, broths can be substituted and the same foods used for thickening.

For the second day, three meals will be quite sufficient. And as early as this it is very generally safe to begin the use of solid foods, notwithstanding the popular notion that soups should be wholly relied upon in the first and largely during the second week. As a matter of fact, as generally prepared such products of meat are very rich, and if frequently given they disturb digestion and loosen the bowels. And these effects are singularly liable to be passed on to the puppies, through the milk, and they in consequence made to suffer from diarrhœa, which in them is usually attended with colic. Manifestly, therefore, these foods must be given cautiously; and rarely are they allowable oftener than once daily; while if the intestinal discharges are liquid they should be withheld entirely.

Milk may properly be the basis of the breakfasts, and it will be ample support if fortified by bread crusts, crackers, or dog cakes that have been crushed, soaked in cold water and then boiled for a time.

As some breeders give their bitches very large quantities of milk while on puppies, with the idea that it "makes milk," it is necessary to introduce a word of caution here and remind the reader that this food in very considerable quantities will often cause "acid stomach;" and this digestive trouble in a nursing mother is quite likely to render her breast milk highly acid. Consequently, only moderate quantities of milk should be allowed at any one time, and it is advisable to add lime water to it, in the proportions of from one-half to two-thirds of a teacupful to every pint.

Unless the discharges show that they are contra-indicated, broths can constitute the midday meals, provided

they are thickened with bread, well-cooked rice, barley or other light starchy food, and at least one-fourth of the whole is meat.

Another word of caution here. Beef trimmings and bones are very generally used for making soups or broths, and these, as a rule, contain much fat, which when cooked is somewhat of a tax upon the digestive organs of even sound dogs, and much too great a burden for bitches that have recently whelped. Moreover, this fat might cause excessive acidity of the breast milk. Consequently, in all instances the soups or broths should be allowed to stand until cold and then treated to a faithful skimming.

The last feed of the day should be practically a solid one, and consist of finely chopped beef or mutton in the proportion of one-half; while the other half should be made up of, say, one-third vegetables, one-third bread and one-third well-boiled rice or oatmeal.

As broth is required to soften the starches it is necessary to cook the most of the meat, yet about twice a week a goodly proportion of this food may be in the raw state. For instance, instead of all being cooked, half of the meat given for supper can be raw; but it must be finely minced, and with the two kinds should be mixed vegetables and starchy foods in the same proportion as when all the meat allowed is cooked.

Meat is often withheld from members of the human family while they are liable to acute inflammations, as immediately after surgical operations, severe traumatic injuries, parturition, etc., and this fact has led some to assume that it should be given only sparingly, if at all, to bitches in the puerperal state, for fear of adding to the liability of fever. But analogical reasoning in this instance is clearly unsound, and it is a fixed fact that when a dog is weakened by disease, accident or other cause, as

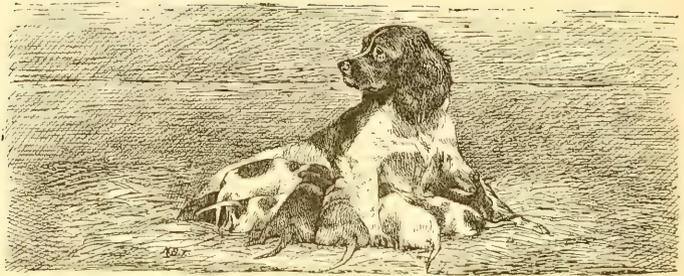
long as his stomach can digest it no other food will give him such solid support as meat, or as quickly restore the vitality he has lost. Nor is there any other food which he can digest with greater ease at such times. Beyond this, puerperal fever is extremely rare among bitches, and scarcely ever occurs except in consequence of a dead puppy being retained *in utero*, severe mechanical injury or exposure to intense cold.

All nursing mothers should be at liberty to go and come as they please, unless, of course, they are wanting in solicitude for the puppies. But they rarely are so, and in fact the majority must be urged to take gentle exercise at least during the first week. And such being the case, after her puppies are two or three days old the mother should be taken out and walked about near the house every morning and afternoon when the weather is mild and the ground dry. These outings should be made as enjoyable as possible that she may not be uneasy about her little ones; and after the first week should she still apply herself too closely the amount of exercise should be gradually increased from day to day.

A word further in regard to the after-birth, which, as already stated, is eaten by the mothers. Nature prompts them to dispose of it in this way; but she seemingly ignores the changes in condition wrought by domestication. It is easy to understand why the untamed mother should have had this propensity, for in gratifying it she provided herself with nourishment sufficient to sustain her until the immediate effect of her painful experiences had passed off and she had recovered strength and was again able to hunt for food. But with ample nourishment at hand the tendency in question seems a perversion of the appetite, and it is safe to say that it can properly be obstructed if one cares to interfere. To the

writer this method of disposing of the after-birth is most repugnant; therefore his rule has been to have it burned, and no ill effects have been noted in the mothers. But upon this point he fully realizes that he may be a victim of sentiment, hence refrains from advising.





CHAPTER V.

CARE OF THE NEW-BORN.

EARLY spring is far the most favorable season for whelping, since ere the youngsters have reached the weaning they can be put out of doors for a few hours at least on all pleasant days, where they are sure to gain in health, strength and vitality with infinitely greater rapidity than when between walls. Breeders of long experience fully appreciate this fact, also, that where open and pure air and sunshine are denied during the early days of life the future is greatly prejudiced; consequently they have a decided preference for those brood animals that come in use during the first three or four months of the year. And where the rule, fixed with some, to mate only in this period is observed, the puppies not only do not require such extreme care and attention but thrive infinitely better, while being far on the road to maturity they are well fortified against cold weather before it sets in.

If warm, clean and well-ventilated quarters are provided it is, of course, possible to rear winter puppies, yet even in the presence of these conditions they scarcely ever do as well and develop into as hardy specimens as those much

beyond walls ; and it can safely be accepted that the exceptions are seldom met with among the largest and heaviest varieties, which are ever likely to prove flat failures unless under the most healthful influences from the very first.

In the fact that for several days they are very feeble and extremely sensitive to cold appears one of the first great dangers encountered by puppies born in inclement seasons ; hence the advice in the foregoing chapter, that during the whelping the temperature of the room be about 80° Fahr. And this degree should be maintained until the little ones — very wet when they come into the world — have thoroughly dried and gained measurably in vitality. Then the temperature may be allowed to fall to 75°, where it should stand until the following day. After that, if the puppies are vigorous they ought to be able to bear a temperature of 70°. But no lower degree will be safe for the next four weeks ; nor will any very considerable fall be allowable before the fifth or sixth month.

These limits are set for fairly hardy breeds, yet there are some, black-and-tans, Italian greyhounds and other toys, for instance, which require a higher degree of warmth. In fact these varieties can scarcely be too warm during the earliest days of life.

It can safely be accepted that if a puppy becomes chilled during the first two or three days the chances are nearly all against recovery, also that when this happens in a room kept as warm as it ought to be the victim is naturally weakly, and even were warmth restored it would scarcely be possible to rear him.

Doubtless inferring as much from the limitations of the human mother, whose milk secretion is often as long delayed without injury to her child, some who have publicly discussed the subject of breeding have stated

that the secretion of milk in the canine mother may be delayed from twenty-four to forty-eight hours and yet be within the normal limits. But the obvious method of reasoning is not justified in this instance, and certainly the assumption is wholly at variance with experience, which has shown that in the majority of cases milk forms in the breasts of the latter before birth; also, that new-born puppies must be put to them as soon as possible, for where they have failed to nurse within the first few hours of life they have very generally died.

While milk is usually present at birth the supply is seldom abundant in the first twenty-four hours, during which period, fortunately, puppies are easily satisfied; but, as a rule, under their vigorous nursing, which acts as a potent stimulant, the quantity soon becomes greater, and afterwards keeps pace with their increasing demands. Cases are not infrequent, however, where the breasts fail to respond as they ought and their supply remains scanty; in which event the mother must be encouraged to drink freely of liquids, as milk, gruel, water, etc., for the purpose of securing an increase. And such efforts must not be delayed until they are clearly demanded, but be made as soon as there appears the barest reason for suspecting that the supply will be insufficient.

This treatment, while of value in some cases, is, however, far more often ineffectual than effectual, no matter how faithfully applied, consequently to rely upon it solely would be extremely hazardous, and in all instances preparations should be promptly made to nourish the puppies artificially in the event their mother fails them.

Unfortunately it is impossible even twenty-four hours after whelping to determine positively whether the quantity of milk will be large or small; but still products of experience, far from being certain, however, enable breeders to form a probable diagnosis.



MR. T. S. BELLIN,
ALBANY, N. Y.

The outlook may be considered favorable if at this time the breasts are large and a fairly good flow of milk has been established. The chances are also increased somewhat where puppies have been previously born, for in many instances the quantity of milk is notably greater after the second and third litters; and it would seem that in certain mothers it grew more abundant after every whelping, up to the fourth or fifth year.

The kind and amount of food also bear upon this question, — more heavily even than the age, — and in all cases where the mother has not been wisely and generously fed during gestation a scanty supply of milk is the rule, while in exceptions to it, in which there is an abundance of milk after whelping, its early decline in quantity or quality, and generally both, may be confidently expected. Again, the health of the nursing mother is a matter of infinite importance, and the fact need not be urged that if her constitution is poor or she is a victim of harassing and debilitating disease her milk supply can never be abundant; moreover, that what little she has will be vitiated and unwholesome if not absolutely poisonous.

Summarizing briefly, for the purpose of emphasizing the first essentials brought out in the foregoing: The puppies should be put to the breasts and made to nurse if possible as soon as the whelping is over and the bedding has been changed. Duly considering the facts stated, an estimate should be made of the chances of having a goodly supply of milk, and if they seem poor everything needful should be at once obtained and kept in readiness to nourish artificially as soon as indications for such treatment appear.

As for signs manifested by little ones that are denied sufficient milk, their abdomens instead of being well rounded out and somewhat resistant to pressure are quite flat, the walls being relaxed and flaccid; they sleep much of the

time and seem unwilling to make any attempt to nurse, and when taken in the hands are limp and feeble. These symptoms in the main are those of weakness and may be occasioned by a large variety of influences, yet the conditions of the mother's breasts being questionable they must point to starvation as the cause.

Breeders generally seem impressed with the idea that most canine mothers suffer from milk fever, yet this is by no means the rule where puppies are born alive and continue to live and nurse vigorously during the next forty-eight hours. And the reason why they so often escape appears in the fact that they begin to suckle their young very soon after whelping, consequently their breasts are seldom very much swollen even when the milk is abundant.

Where puppies that have reached an advanced stage of gestation are born dead or die shortly after delivery, usually, but not invariably, all the phenomena of milk fever manifest themselves, *i.e.*, the breasts become much swollen and evidently painful, the skin is hot and dry and the pulse quickened; there are thirst, loss of appetite and a decided disinclination to activity. Of these symptoms generally the fever and acceleration of pulse are the first to disappear, and in the course of from twenty-four to forty-eight hours, at which time the breasts, although still greatly distended, are evidently less acutely painful. The rapidity with which the swelling in them subsides depends much upon the treatment, but even when none is applied the natural state of things is generally restored ere the end of a week.

The dangers of this and other fevers after whelping have been very greatly exaggerated, and in consequence the notion is prevalent that all mothers should be kept on low diet, and especially "sloppy foods," for the first two or three days at least, as a preventive measure; whereas

milk fever is not in the slightest degree dangerous, and deserves consideration only where the puppies have been lost. And even then it occasions discomfort merely. As for puerperal fever, the only fever peculiar to the whelping state which need disturb the minds of apprehensive breeders, that is very rare in canine mothers, and a person may breed extensively for years without seeing a case of it.

Where the puppies are lost and milk fever occurs it is eminently right and proper that treatment be applied for the purpose of lessening the mother's discomforts. But "sloppy foods," which are so generally supposed to be the least favorable to inflammation and fever, are the very ones that must not be given in this instance, for they would surely tend to increase the secretion of milk and so intensify the existing trouble. And the same can be said of water merely. Consequently for several days the patient should have such foods as boiled rice, broken dog cakes or well-baked bread-crusts, — in limited quantity always, — softened by a little milk or broth, and be allowed water only at intervals of five or six hours, and then even but a little at a time.

If her breasts are badly swollen and what is popularly termed "caked," the mother should be quartered in the kitchen or other convenient, well-warmed place until her discomfort has abated. During the day hot, dry flannels should be applied to her breasts for fifteen or twenty minutes at a sitting, and the application be repeated as often as possible; while at night they should be gently rubbed with camphorated oil, the same being used generously.

Notwithstanding the notion that cathartics are always required in cases of this sort, neither these nor any other drugs need be given, for under the simple treatment advised very considerable improvement will take place

within forty-eight hours, and the milk "dry up" as quickly as under dosing. And it is well to add that the breast pump must not be used in these cases, for while it would afford temporary relief it would greatly retard recovery.

Only rarely are mothers wholly destitute of milk in the first days after whelping, but not infrequently it happens that the supply is far from sufficient for all the puppies, and in no small number of instances the flow is abundant at first and then lost altogether in the course of a week or two; in which cases it is necessary either to provide a foster mother or nourish artificially—alternatives that are extremely vexatious and generally difficult to meet.

Those who have large kennels and breed extensively are to some extent fortified against these accidents, for very often they have two or more bitches come in at about the same time and if the milk of one is insufficient or lost she is assisted or her entire duty assumed by the fortunate mother or mothers. But in the absence of such happy conditions it is extremely difficult and more often than otherwise impossible to obtain a suitable foster mother.

If a mother lost her last litter because of failure of her milk supply it by no means follows that she will be as unfortunate with her next, still her owner should have a foster at hand to prevent this accident if again threatened. And he who has a bitch of great value and has paid a large price for "service" can wisely do likewise, for the chances are many that even were the assistant not an imperative necessity she might yet be used to very great advantage and prove a profitable investment, — results, by the way, that may confidently be expected where this provision is made for first litters.

Foster mothers can generally be obtained for trifling

SCOTCH TERRIERS.



MR. W. W. SPELMAN'S "TEAZER."



MR. W. E. ALCOCK'S "TIREE."

sums, but very rarely indeed within a day or even a week ; therefore they should be sought for early ; and the course that suggests itself as the easiest and surest is to advertise the want in the kennel papers at least a month before the bitches they are to assist are expected to whelp.

Quality need not enter into the considerations in choosing a foster mother, for a mongrel will do as well as a pure breed, and perhaps better. Nor is the question of size a very important one, notwithstanding some breeders insist that the two mothers should be of about the same size ; and while it is better, of course, that they be nearly so, or the foster the larger, a difference in the other direction need not weigh heavily unless very great.

But it is of the highest importance that the foster mother be in good health, and imperatively necessary is it that she be not only absolutely free from mange and other contagious affections but that there exist not the slightest danger of her being the carrier of disease. For instance, did she belong to a kennel in which there were or had recently been cases of distemper, although she herself might be perfectly safe from the disease she would yet be ineligible, since she would likely transmit the germs in her coat.

With due regard to possible irregularities in the duration of gestation, it is advisable that the foster mother be due to whelp about a day earlier than the bitch whose duties she may be called upon to assume. Yet nice adjustments need not be attempted, for milk three or four days older than that of the adopted is generally well borne, and, in fact, instances are not infrequent where puppies in the first or second days of life do well on milk from a week to ten days old.

As for puppies that are in the last part of the first week, milk even three or four weeks old is often kindly

received by them. And in one case the writer put puppies of this age to the breasts of a mother and brought back her milk, which had nearly all disappeared, after she had weaned her own litter.

Another case of even greater interest than this was that of a Gordon. Some five months after whelping, one of her mates, a toy, had a litter of puppies, of which this setter at once became very fond. And as she was *entente cordiale* with their mother she was permitted to pass much of her time with them and snuggle them as she would her own. Very strangely, indeed, ere the end of the second week—and doubtless in consequence of frequent tugging by the puppies—milk appeared in her breasts, which were absolutely dry when these little ones were born; and she nursed them regularly until weaned. More than this, after the toys had been weaned, two mastiffs about a week old were put to her breasts, and these, also, she carried to the weaning.

Considering that delay is extremely liable to prove fatal, obviously the transfer of the puppies to the foster should be made as soon as signs appear indicating that their mother will be unable to nourish them. And the fact deserves emphasis that to wait for positive proof in this instance is always hazardous.

As to disposal of the foster's puppies, if they are worth raising efforts should be made to nourish them artificially, otherwise they should be given to the suspected mother, and in case her milk takes on an increase some of her own little ones can be returned to her.

In discussing this subject it is quite the custom to intimate that it is a hard task to induce foster mothers to do their duty by their charges, yet the writer's experience is at variance, and only in one instance has he encountered any difficulty, although he has made many transfers, while

in this exceptional case the introduction was so abrupt and due formalities so slighted the results occasioned no surprise.

A wise course to pursue in making the transfer is to remove both litters, put all the puppies into the same basket and keep them together for several hours. In the mean time the breasts of the foster mother will fill up, and the distension causing her some discomfort, she will generally receive the strangers as cordially as she would her own. If, however, to delay is dangerous they should simply be put to her breasts and she be made to understand that she has no choice in the matter. Careful watching will, of course, be advisable for a time, but if all goes well the first day no uneasiness need be felt thereafter.

Puppies can be fed by means of a spoon or nourished in the same way as infants deprived of their mother's milk. And in event of the latter, which is the easier, the apparatus used should consist of merely a small bottle and rubber nipple, in the top of which has been placed a small piece of perfectly clean sponge, which fits easily without compression. But as most of the nipples found in shops have such small holes, and the milk does not flow as freely as it ought, it will be necessary to enlarge one or more of them to about the size of a "darning needle."

Puppies that are nourished artificially require feeding nights as well as days, and during the first week once every hour and a half is none too often; while every two hours should be the rule in the second week, and three hours in the third.

All this time they must be kept in a very warm place, and in a basket lined with a piece of flannel or soft blanket. And during the first few days a fold of this should be laid over them lest draughts strike them and they become chilled.

As for the quantity of food to be given at each feeding, it should be sufficient to fill out their abdomens, but not distend them — merely enough to overcome that flabbiness of the abdominal muscles which is so apparent when the stomach is empty.

Milk is the food required, and it may be direct from the cow or in condensed form. In the first instance it should be scalded, allowed to cool until merely “blood warm,” and then to each feeding should be added a “pinch” of the saccharated pepsin, an agent which contains the digestive principles of the gastric juice. By this means cow’s milk will be rendered nearly, if not quite, as easily digestible as the canine mother’s, and dilution will not be necessary, nor would it be advisable, for the former is not so rich as the latter.

Milk properly condensed has essentially the same composition as before evaporation, minus the water, — that is, unless cane sugar has been added or the heat has been carried too high,—but that which is commonly used for domestic purposes is not above suspicion of sophistication and indifferent methods of preservation, therefore only the brands intended largely for infant feeding should be used. As for the dilutions required, they vary with the preparations, but as a rule half a teaspoonful of milk to eight teaspoonfuls of water is about the correct proportion.

While feeding artificially it is highly important that the apparatus be kept perfectly clean, also that the intestinal discharges be constantly watched, and in the event they become diarrhoea-like it may be accepted that the milk is too rich and requires dilution, while if they have a sour odor it will be necessary to give at each feeding as much lime-water as milk. And the discharges being watery and sour-smelling, colic either exists or is imminent, hence one drop of laudanum should be given between each feeding until a change for the better shall have occurred.

MR. HENRY BROOKS' SCOTCH TERRIERS.



"KILROY."



"KILCREE."

If a puppy takes kindly to the bottle the first day the chances of carrying him through are fairly good. But only an occasional one will do this, and even he is likely to fall victim to diarrhœa, colic or other digestive disturbances. However, this unfavorable outlook ought not to deter any one from endeavoring to save valuable puppies when this is the last resource.

In some countries infants deprived of their mother's milk are often nursed by animals, and most frequently by the she-goat, which, besides being docile and easily trained to yield nourishment to the child, has teats of a very favorable shape and size, and this animal has proved as convenient a foster mother for puppies of large breeds. The sheep has also been pressed into like service, but being generally wild and intractable she has rarely proved an eminent success. As for the small breeds, to secure a foster for them is easier, as cats can as a rule be readily persuaded to adopt them; and their milk seems well suited to puppies, for in many instances they have been nourished by it from birth and thrived as well as they could have done on the milk of their natural mother.

Returning to the real mother, even if she has a goodly supply of milk she can rarely do justice to more than eight puppies, and were it the rule to reduce all large litters to six, breeding would be far more profitable than it is now; moreover, there would be a marked improvement in the canine race. But the man who has paid a large price for his bitch and a heavy fee for "service" is generally anxious to "get his money back" as soon as possible, and the larger the litter the greater his delight. As he views the matter, every puppy has a fixed value, and to sacrifice one is simply to throw away so many hard dollars; therefore, he looks to the mother to nurse them all, even if there are ten or more — that is, unless he has learned from experience that he is expecting altogether too much.

The infinite majority of those who have yielded to such irrational promptings have met with bitter disappointment and seen puppy after puppy drop off with alarming frequency. And oftentimes within such experiences the few remaining at the end of the third week have scarcely been worth raising; whereas had the litters been properly reduced in size at first, very many of the puppies would doubtless have been saved and reached the weaning strong and healthy.

While nursing a litter of good size a mother is under a strain that may affect her vitality. Unless a puppy has an abundant supply of milk to draw from he cannot thrive and develop well; and were one deprived of it to live he must be more or less weakly and stunted. Acting in accordance with these important facts the intelligent breeder who has too large a litter will promptly reduce its size, either by providing a foster-mother, by artificial feeding or drowning. If the latter means must be resorted to, as a rule he need not apply it the first day unless there are several females in the litter that he does not care to raise; in which event the sooner he disposes of them the better.

Other weedings may be left to the second day, because it is rarely possible on the first to distinguish between the weakly and the healthy and vigorous, and of course the former are to go if a sacrifice is demanded. And even with a litter reduced to fair size the chances are that more than one member of it will drop out before the weaning period has been reached.

Bearing strongly upon this point is the important fact already stated, that puppies should have ample nourishment in the first few hours of life. Now, if the milk supply is scanty during the first week, even if abundant afterward, the deprivation will very generally have a

permanent effect. In other words, the puppies will as a rule have experienced a set-back, from the ill effects of which they will never recover, and if they live they will be but indifferent specimens of their breeds. The results from this cause, not unnaturally, are the most pronounced in the largest breeds, and are exhibited by impaired growth, malformations, etc.

Notwithstanding every precaution is taken, mothers will sometimes be found with puppies under them; and while many of the little victims of this accident are crushed and at once beyond all hope, now and then one is suffocated without other injury; in which instance recovery is possible if treatment is applied promptly. Consequently, if a puppy that has been lain on is warm when found, efforts should always be made to restore him, even if there are no signs of life. Enveloped in hot flannel, his head only left uncovered, one thickness of clean cloth should be spread over his gaping mouth, and to the upper side the holder should put his own mouth and slowly inflate the unfortunate's lungs. That done he should remove his mouth and gently compress the chest, so as to force out the air that he has driven in. And this artificial respiration should be persisted in for at least ten minutes.

While fortunate results from this treatment may be rare, in consequence of too great delay, it should always be tried when there appears "a living chance," the fact being kept in mind that in these cases, as in other experiences, success sometimes attends when least expected.

Impediments to nursing due to temporary or permanent malformations of the teats are not common, still that they sometimes occur justifies their consideration here.

Where the breasts are very much distended with milk it may be difficult for new-born puppies to seize and hold the teats, in which case it is merely necessary to draw

them out with the fingers and press them into the little ones' mouths.

In extremely rare instances a teat is so much shorter than usual the fingers cannot grasp it, and the following means — often resorted to in like cases in human mothers — must be employed: Take a beer or ginger ale bottle and rinse it with very hot water. Dip the neck, merely, in cold water and allow it to remain in the same for about ten seconds; then surround the depressed teat with the mouth of the bottle and maintain gentle but firm pressure against the breast. As the bottle cools the teat will be drawn up into the neck, and after being fixed there for ten or fifteen minutes it will when released very generally project enough to enable a puppy to obtain a firm hold.

Extremely long and misshapen teats are sometimes encountered, and with these nothing can be done in the way of treatment. Fortunately, however, seldom more than two or three such are found on the same mother; and although the puppies may refuse them at first, as a rule they take kindly to them in the course of a few days — that is, unless, as is sometimes the case, the breasts from which they project are incapable of secreting milk.

About the third week, in consequence of being bitten and scratched by the puppies, the teats as well as the breasts often become quite sore, and in fact with some varieties the mothers generally require much persuasion at this period before they will allow themselves to be nursed, so painful is the operation.

In such cases weaning should be effected as soon as possible consistent with the welfare of the puppies; and until then the treatment should be the application of the so-called apple-butter, which can be made as follows. Remove the skin and core of an apple of medium size. Slice and crush in a mortar, and put into a frying-pan,

SCOTCH TERRIERS.



MR. W. W. SPELMAN'S "BRADESTON DUNDEE."



MR. H. J. LUDLOW'S "KILDEE."



MR. HENRY BROOKS' "CULBLEAN."

together with a lump of perfectly fresh butter — but just churned and yet without salt — about the size of a hen's egg. Stew these with gentle heat until the apple has all disappeared, and then pour them into a bowl and set away to cool.

This mixture, which cools to about the consistency of vaseline, should be freely and often applied to the sores; and being of innocent ingredients the puppies cannot be endangered by it, as they would be by medicinal applications having any considerable action.

After the weaning this remedy can be persisted in until the sores are healed, or the ointment of the oxide of zinc, which is generally more easily obtainable, can be used, and it will speedily effect a cure.

As for "drying up the milk" after weaning, but rarely will it be necessary to make any efforts to this end, for mothers very generally do well when left entirely to themselves. If, however, it so happens that the breasts are much swollen and painful, warm camphorated oil may be freely applied; and beyond this no other treatment will be required.

Instances are numerous in which mothers have had an abundance of milk yet their puppies, apparently healthy and vigorous at birth, have all died in the course of three or four days, and the popular assumption has been that the milk was either lacking in essential nutritive elements or contained noxious properties. The writer has found the former the rule, yet he has encountered cases where the milk was up to the standard quality, and although no poisons could be detected he felt convinced that they were there, or had been there, to account for the fatality. And in several of these he made experiments, the results of which led up to the belief that the harmful properties, if there were any in the milk, were limited to that furnished during the first day.

In three cases where puppies were dropping off quickly on the third day, he took from free-milking mothers puppies of about the same age as those dying and put them to the suspected breasts, and kept them there until the weaning, which they reached in good condition; while in two other cases he was fortunate enough to be able to try the same experiment on the second day with the same good results. And in this way he narrowed the poisons down to the first day.

A short time before these experiments were made a well-known and highly intelligent breeder advanced the theory that it was the very first milk that contained the noxious properties, and he advised that the breast-pump be applied the day before whelping and all the milk be drawn out.

In discussing this treatment shortly afterward the writer said in substance as follows: Were it possible to interpret correctly the wants of a bitch in whelp, to know just what forms of nourishment are essential to her support and to maintain her in the highest state of health, with all her functions unimpaired, then, if consonant with this knowledge proper care was administered, it would seem like an unwarrantable interference to attempt to nurse her artificially previous to whelping. This perfect familiarity with her wants, however, is denied, and doubtless there is often something wanting in her composition, and its loss prevents her reaching perfection of health. Nor would slight or even considerable deviation from the normal be inconsistent with the outward evidences of health, for functions might be disordered to a considerable extent and yet the fact remain concealed from even the most careful observer. And did any weakness or disorder of the system exist the milk would likely be more or less vitiated. But it is not alone sufficient to consider

mere abnormalities of this nature, and one must go farther and include psychical influences which have a most decided bearing. For instance, in the human race the disturbing passions will cause certain secretions to become corrupted and even acquire poisonous properties. Beyond doubt the same causes are nearly if not quite as active in the lower orders, for the bite of an animal goaded to desperation heals less rapidly and is attended with greater inflammation than one administered when the system is uninfluenced by excited passion. And if great mental disturbances in the human mother diminish or vitiate the secretion of milk and it becomes hurtful and even deadly to the nursing child, assuredly it is reasonable to assume that the same effects would follow like cause in the canine mother. Another fact to be considered is, that seldom are valuable bitches in the last few days of pregnancy permitted to follow their own instinctive promptings, but very generally they are kept under rigid restraint, lest accidents occur; and if they have been allowed constantly liberty, as they ought, they must be more or less nervous, fretful, and discontented.

All of which goes to show that the influences which may affect the milk of the dam are many and varied, and each and every one must be considered and given due weight in discussing this important question.

Experience acquired since giving expression to the foregoing has led the writer to believe that where a large number of dogs are kept together, are much restrained, and the preparation of the food and the feeding and watering are left to hired help, — in which instance such duties are scarcely likely to be attended to with absolute faithfulness, — it is a wise procedure to use the breast-pump and draw out all the milk on the day previous to whelping. If, on the other hand, the expectant mother

is alone or has but one or two mates, has been given ample exercise, fed from her master's table and otherwise treated with the consideration she deserves, to empty the breasts as advised is rarely necessary. Also, that the operation can do no harm if it fails to do good.

An abnormal condition of the milk that is responsible for not a few deaths among puppies is excessive acidity. Now, the milk of a healthy dam is either slightly alkaline or else neutral, and a slight acidity is not appreciable to the eye, but when this reaction is a decided one the milk is thicker than usual or distinctly curdled, and gives rise to colic and diarrhœa, which are speedily fatal unless prompt relief is afforded.

This peculiar trouble is often caused by fermented foods, as meal puddings that have been too long kept. There are some mothers, also, that exhibit it no matter how they are fed, and in them it is attributed to some functional derangement, possibly in the organs concerned in digestion. And it may be suspected if the puppies, healthy at birth, begin on the third or fourth day to moan and cry, grow cold and clammy to the touch, and at the same time emit a sour and otherwise offensive odor.

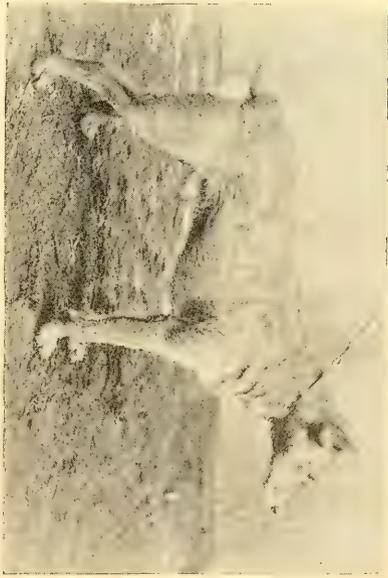
As soon as these signs are noted a piece of blue litmus paper should be obtained of the nearest druggist for the purpose of testing the milk, and if the same turns it red it is very acid, and the puppies must be taken from the mother and vigorous treatment applied to her at once.

By means of a breast-pump all the milk must be drawn out, and this operation repeated three or four times during the next twelve hours. As soon as possible, also, the mother must be given an antacid in the form of bicarbonate of soda, of which the dose for other than toys is

IRISH TERRIERS.



MR. W. J. COMSTOCK'S "DUNMURRY."



MR. E. A. WIENER'S "BRICKBAT."



DR. J. H. MARSH'S "BREADDENHILL."



MR. H. BENNER'S "STERNFIELD VIC."

one-half a teaspoonful, to be dissolved in about one-half a teacupful of water and poured down the patient's throat, while for toys it should be decreased one-half. And this medicine, in like doses, should be repeated at intervals of three hours during the first day, once in six hours the next, and three times daily throughout the remainder of the week.

During the period in which the breast-pump is in use the puppies must not be allowed to nurse the mother, but kept near a fire, in a basket lined with well-warmed flannel or blanket, and treated as follows :—

Put four tablespoonfuls of lime-water into a cup and add to the same sixteen drops of laudanum. Of this mixture give each puppy one teaspoonful. Half an hour later, to every one that is still crying and moaning give another teaspoonful of the mixture. After that, until they become quiet, give one teaspoonful every hour to all that moan or cry.

No effort should be made to nourish them until the fourth or fifth hour after they have been taken from their mother. Then they should be given a mixture of cow's milk and lime-water in equal parts, to which should be added boiling water in quantity merely sufficient to make the whole "blood warm." And of this four or five teaspoonfuls should be administered every two hours, by means of a spoon.

On the day following that on which the acidity was detected, the milk in the mean time having all been drawn out three or four times as advised, the puppies may be returned to their mother and permitted to nurse, provided always her milk is no longer acid. If, however, it is still sufficiently so to turn litmus paper red the puppies must be kept from her and nourished artificially until the soda has rendered the milk secretion alkaline or neutral ; in

which condition it will no longer affect the color of this paper.

If the bicarbonate of soda is faithfully given the mother for a week there will be but little danger of her milk again becoming excessively acid; but still it will be best to continue to use means of prevention, and lime-water is the antacid to be relied upon after the first week. This should be added to milk in the proportion of one teacupful to every pint; and of the mixture she should be encouraged to drink freely several times daily. But in event she refuses it, it may be accepted that she tastes the lime-water and the proportion of the same must be lessened.

The means of anticipating excessive acidity has been advised in chapter "Before Whelping," and that — the precipitated phosphate of lime — should be given daily to every expectant mother that has ever experienced this accident.



CHAPTER VI.

EARLIEST PUPPYHOOD.

THE first six weeks is practically a puppy's infancy, and during this, as in infancy proper, the mortality is far greater than in any other period of life, for the reason that the resistant powers are then very feeble and in consequence the system is easily deranged and diseased. Considering which, notwithstanding the general rules of management have been discussed at length in the preceding chapters, the special requirements during earliest puppyhood will bear further emphasis, and even repetition can properly be indulged in if necessary to give due prominence to the important essentials.

The first fact to be enlarged upon is, that except in hot weather all very young puppies must have artificial warmth, not alone because they are poorly able to resist the depressing and destructive influences of cold, but because they are in imperative need of that extraordinary vivifying effect of warmth which reaches to all parts of the body and excites stronger and healthier action in every important organ. Indeed, so great is the susceptibility of the new-born to cold it can properly be said that

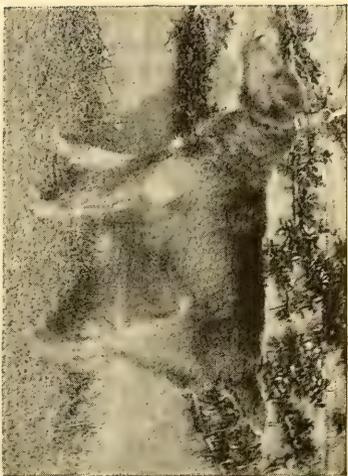
it is hardly possible to keep them too warm, and certainly the degree of heat already advised for the whelping room — 80° Fahr. — cannot be any too great.

Obviously the period of greatest danger from cold exists in the first few hours after birth, while the little ones are wet with the amniotic fluid, yet even when they have dried and their own natural bodily heat has developed they are very easily chilled. Nor do they gain resistance rapidly, but continue in danger of this accident for at least three weeks — the degree, of course, gradually subsiding.

It will doubtless seem to some that the period of special liability to chilling having passed, puppies might with safety, even in cold weather, be put into stables, kennels or other buildings unfurnished with heating arrangements; and to believe this is made easier by the mistaken impressions which are so prevalent about the invigorating effects of cold. Without attempting to discuss these notions it is merely necessary to say that cold is to some degree invigorating to men and superior animals, provided their bodies have sufficient covering to retain the internal warmth and they are well developed, abundantly nourished, healthy and robust.

In all presenting these conditions cold will ordinarily tend to promote vigor and energy, but it can never do so when any of them are in considerable degree wanting; and certainly it cannot properly be considered other than inimical to the very young and very old, in whom the powers of resistance are invariably low.

Clearly, therefore, young puppies should not be exposed to cold excepting when they are sure to resist its depressing effects by free exercise. It is evident, moreover, that such exposures should not be of longer duration than the requisite exercise. And accepting this as essential to the preservation of the health of puppies, also the fact, too



MR. W. S. GLYNN'S WELSH TERRIER, "DIM SAESONAC."



MR. W. B. DAVENPORT'S WELSH TERRIER, "BON GOUT."



MR. EDWARD BROOKS' DANDIE DINMONT TERRIER, "AMPHION."

plain to be mistaken, that they cannot possibly thrive if they are denied the force-producing and vitalizing influence of heat, the conclusion is inevitable that they must have comfortably warm quarters throughout the growing stage.

Breeders are singularly reluctant to go thus far or acknowledge the entire truth of this ; and while they may appreciate the importance of artificial heat in the first month of life, no small proportion of them, even during severe weather, put their puppies into unheated quarters as soon as they have been weaned, under the impression that they will be healthier and develop more rapidly there than they would were they kept warm. And, as might be expected, such breeders are never eminent successes, for these practices invariably tell sorely and result in impairment of the general health, constitution and growth, and in very many instances in deformities.

The writer is convinced that no more dangerous rock lies in the way of breeders, hence his efforts to give it every possible prominence. And to this end he draws from his experience in raising pugs.

Some ten years ago he bought a small kennel of this breed for the young members of his family, who at once gave the little ones the freedom of the house. Not long afterwards he learned from various sources that pugs were very hard to raise and losses from almost every litter might be confidently expected. Yet notwithstanding the reputed high rate of mortality there have been whelped at his home over one hundred and fifty of these toys, and not a single one among them all has died. Of course there has been now and then a weakling, but such were all promptly disposed of, and, as stated, not a natural death has occurred in this wide experience.

The reason for this phenomenally good fortune appears

in the fact that all whelpings occurred in the kitchen excepting when the weather was intensely hot; and until long after the weaning the youngsters rarely encountered a temperature lower than 80° , while oftentimes during days it ran much higher than this in their corner, which was within two feet of the cooking range, and on several occasions, for the purpose of experiment, quite intense heat was kept up day and night for a week or more, during which times the little ones actually grew faster and became plumper, stronger and hardier than while the temperature was at the usual degree.

It is, of course, impossible to fix the temperatures which puppies require in their various stages of growth, for obviously the toys require a higher degree of heat than the big ones, and as a rule the short-haired a higher than the long-haired. But niceties of adjustment are not necessary, provided the degree is high enough, for it is scarcely possible to keep any puppy too warm during his first month.

As previously stated, after the weaning, and when some decided resistance to cold has been acquired, a lower temperature than 75° will in many instances be allowable, but in none ought it to fall more than five, or at the most ten, degrees before the puppies are five or six months old.

A nearer adjustment than this would scarcely be possible without duly considering the influence of existing conditions. For instance, if five or six puppies were together it would not be necessary to keep the quarters quite as warm as it would be were they occupied by only one or two. Some puppies are more playful than others, and the active require less artificial heat than the sluggish. The coat makes a very great difference also, and manifestly a short-haired puppy cannot bear a low tempera-



MR. W. S. JACKSON,
DEER PARK, ONT.

ture as well as one which has long and thick hair. Quarters accessible to the sun's rays for several hours daily are comfortable with less heat than those to which they are denied or only admitted for a short time. Finally, there is a decided difference in sleeping quarters and bedding materials.

Weighing the matter carefully, one ought not to be in doubt as to the degree of warmth required by his puppies, but if so, let him give the little ones the benefit of it and add five or ten degrees to his estimate, remembering always that they can bear quite a high degree with benefit, whereas a low degree will positively ruin them. Let him accept, also, that if puppies are put into too cold a place their lives will be spent in sleeping, huddled up to each other trying to keep warm, whereas if they are in a warm place they are far more likely to be up and on the move — the importance of which condition has been duly emphasized in the discussions on feeding.

But the responsibility bearing in this direction does not, by any means, cease with the fifth or sixth month, for even although puppies are then fairly well able to resist cold when applied for short intervals, they must inevitably suffer from prolonged exposures ; and, besides, they still imperatively need the vitality-giving influence of heat. Hence the conclusion that their quarters should be kept comfortably warm even up to the age of maturity.

There are doubtless some breeding only in a small way who are so situated that it would be simply impossible for them to provide heated quarters for their puppies after they have been weaned, although previous to that time they might give them a place by the kitchen fire. Such being the case they should obtain a packing case made of matched boards, cut a hole in it large enough merely for the puppies, and curtain the same with a piece of carpeting.

But this packing case must be a very large one even if the puppies are of small size. For instance, were they cockers and two or three in number, its dimensions should not be less than three feet each way; and on every side, at the uppermost parts, there should be at least two holes, an inch in diameter, for the purpose of ventilation; while for larger breeds a corresponding increase in the size of the box and openings for ventilation is, of course, demanded.

Properly there should be nothing over a puppy's head except the roof of his kennel; and especially ruinous are the low boxes which some breeders resort to, for the air in them must be always bad; and besides his health being impoverished in one of these, the puppy, feeling there is something over his head and rubbing or bumping against it a few times, gets into the habit of crouching, and instead of standing straight he goes wrong in front with a rapidity that the novice could scarcely credit. Again, if the puppies are long-coated, there are many of them, and their box is small it will likely prove much too warm for some of them, especially the strongest, which are sure to be at the bottom of the nest, and covered by the others — all huddling for warmth — they often sweat freely, and in consequence sometimes lose much of their hair. Such loss from this cause is not a common one, of course, but it has been noted, and suggests the advisability of dividing up all large litters.

In a word, never use sleeping-boxes excepting when puppies can in no other way be kept warm, for, as stated, at best they are ruinous. And really he who cannot keep his puppies comfortably warm without boxing ought not to attempt to breed them.

Beyond keeping them warm and as free as possible from vermin, and their quarters clean, well lighted and

ventilated, healthy puppies require but little of the caretakers up to time of weaning. These duties, however, must be faithfully met; and not the least important is that of lighting. Although puppies are not, like plants, absolutely dependent for their growth upon the rays of the sun, they share with all nature its benign influence, and when kept constantly in places from which it is shut out they never thrive as they ought, and are prone to diseases that go hand in hand with debility. Therefore, by all means let the little ones have their daily "sun-bath;" and the longer it lasts the better.

In the way of vermin, fleas and lice are the most constant intruders during earliest puppyhood, and while the latter are at all times easily disposed of, in warm weather, certainly, perfect immunity from the former, no matter the protective means applied, must often be impossible. However, temporary relief at least from these most resistant of nuisances can be obtained by energetic treatment, which should be administered as follows:—

As soon as the mother and puppies are found to be infested with fleas they should be removed from their quarters, which, after the bedding has been taken out and burned, should be thoroughly cleaned. The weather being very warm or the heating arrangements such as will insure their drying quickly, the floors and walls should be liberally sprinkled or sponged with the tincture of flea powder or the crude carbolic acid solution prepared as advised in the chapter devoted to "Troublesome Insects." If, however, speedy drying is for any reason out of the question a faithful sweeping must suffice in the way of cleaning; after which Persian insect powder—in the dry form—should be freely applied to the ceiling, walls and floors, and thrown into every crack and cranny.

The mother and her puppies should then be taken to a

convenient out-building and treated with the same powder, which should be used generously and well worked into their coats.

This powder, by the way, is not at all likely to do mature dogs harm, but in very young puppies it may produce symptoms of poisoning, the most pronounced of which are extreme prostration and paralysis of the hind legs. Consequently, after it has been used and allowed to remain in the hair for about five minutes the most of it should be brushed or combed out. And he who need not be sparing of time should use the comb, — a fine one, — by which means he will remove many fleas that are apparently dead yet merely narcotized and promise to be as lively as ever in the course of an hour.

The mother, when released, will shake herself and throw off most of the powder from her coat, therefore she should be kept lying down and prevented from doing this for ten or fifteen minutes. Her breasts wiped with a cloth, and the floor swept — precautions necessary lest the powder get into the puppies' mouths — and new bedding, that has been lightly sprinkled with kerosene oil, put in, she and her little ones can be returned to their old quarters. And as a rule they will be comparatively free from the pests for two or three days, when the same procedures will again be demanded.

The treatment required by puppies infested by lice has been fully described under "Troublesome Insects," therefore it need not be gone into.

Those who breed should be fully alive to the fact that the milk secretion is susceptible to no small number of influences which may arrest it, deteriorate it, or even render it highly poisonous. And among them the painful emotions, as fear, grief and anger, are some of the most potent. Let a mother be the victim of either of

these, the disquietude being intense or prolonged, and the chances are that for a time she will have much less milk ; also that what she furnishes will cause colic, diarrhoea and perhaps much graver symptoms in her puppies. Consequently, to treat the nursing mother kindly, make her perfectly contented, and above all to prevent her from fighting, are essentials of the very greatest importance. And were either to be further emphasized it must be the last, for a hard fight, even if the wounds received are trifling, will sometimes so poison the milk it will actually kill puppies that are less than ten days old.

It should also be borne in mind that there are a number of drugs which when given the mother to some extent pass out in her milk and have their characteristic action upon her young. It follows, therefore, that to dose a nursing mother must be somewhat hazardous, and the safe rule is to give medicine to such only when its use is sanctioned by a physician or thoroughly educated veterinary skilled in canine diseases.

The same can be said of dosing puppies, excepting in colic and the presence of worms, in which affections persons of intelligence can be trusted to apply the simple measures of treatment that promise relief. And as no more favorable opportunity is likely to present, the measures essential in the former can be properly discussed here.

In colic keep the little patient very warm and give of the tincture of opium—laudanum—one drop for each week of life, every second hour until the moaning has ceased. That is, the dose in the first week of life should be one drop, in the second week two drops, and in the tenth, ten drops.

This dose and method of increase are proper and safe in early life, for all breeds excepting toys, for the largest

of which the dose should be one-half a drop for every week, while from one-fourth to one-third of a drop will be sufficient for the smallest.

Doses adjusted by this rule may seem to the reader to be very large, yet they are simply moderate or medium, for laudanum and other preparations of opium have much less effect upon the canine than upon the human race; and in fact a dose that would deeply narcotize a man would scarcely have any appreciable effect upon a dog, especially if suffering from colic.

As for treatment of worms, the subject is so important and there is so much to be said upon it, an entire chapter, or more, can properly be devoted to it.

Considering that all men do not appreciate how essential fresh air is to their own health, and that there is a popular prejudice, not altogether confined to the uneducated, against it under certain conditions, its importance to canine mothers and their young is not likely to be felt in all instances, consequently there is necessity for emphasizing it here among the special requirements of early puppyhood.

It is simply impossible for a mother to retain her health and the integrity of milk secretion, or for her little ones to thrive, in a stagnant and vitiated atmosphere. And while all must invariably suffer greatly when fresh air in abundance is denied, the young suffer the most intensely from this cause, and under its influence their blood becomes poor and scanty, nutrition is greatly impaired and growth obstructed; and their vitality constantly lowering, they are easy victims to derangements, which are now singularly liable to end fatally, whereas in the presence of fairly good health they might have been resisted, or the resistant powers failing, more than likely they would soon have been recovered from.

None who have kept dogs need be told that the atmosphere of a room holding one of them soon becomes loaded with offensive emanations from the tenant's body. Now add to these impurities others, even in greater abundance, such as arise continually and from numberless sources wherever there is a litter of puppies, and contamination is so rapid that efficient and safe renewal is well-nigh impossible excepting in the mildest weather.

In considering the question of ventilation the quarters of nursing puppies may be likened to sick-rooms, for the tenants of the latter require much more fresh air than they would were they in good health, and yet the renewal of the contaminated air must be less rapid owing to the increased susceptibility to draughts. Puppies in proportion to their size need more pure air and suffer greater harm from bad air than mature dogs, and they, also, are feeble and highly susceptible to draughts. Consequently in both instances where artificial warmth is required, to secure good ventilation will never be easy, and always impossible without care and watchfulness.

In warm weather, when open windows and doors are matters of course, there is but little difficulty in obtaining an abundant supply of fresh air, but the necessity is none the less in cold weather, — a fact much too little appreciated, — and to meet it in the case of puppies, as with the sick, one of the most important essentials in a generous use of fuel.

Duly mindful that draughts are a deadly menace to puppies, the careful breeder will resort to some of the numerous devices for opening the windows and at the same time protecting the inmates. The simplest of these devices is a board, about one foot in width, on the window-sill, and nailed or otherwise fastened to the inner casing, about an inch from the sash. With this in place

the window can be raised six or eight inches if necessary, and the air admitted at the lower aperture and between the two sashes will be directed upward. Or if the windows are small and intended especially for ventilation, such owner will see to it that they are hinged at the lower edge on the inside and provided with a deep frame, to prevent side draughts, and adjustable chains; that they may be opened and fixed at any desired angle.

The importance of cleanliness deserves as strong emphasis, and in fact no amount of ventilation will keep the air good in quarters that are not clean.

Where a mother is correct in her habits and allowed to go in and out at will, cleanliness is easily maintained during the first three weeks, and there is but little to do aside from renewing the bedding daily and changing the platforms every two or three days. But when she no longer cleans up after her little ones it will be necessary to look to the floors every day.

He who has two rooms or pens, to be occupied by the mother and puppies on alternate days after the first week, is especially fortunate, for one can be used while the floor of the other is being disinfected and well dried. In the absence of such favorable conditions all filth should be removed daily and the floor beneath mopped with a cloth wet with the permanganate of potassium solution, the formula of which is given in chapter on "Kennelling." Disinfectants in powdered form would greatly favor convenience, but obviously it would be inexpedient to use them where the puppies were very young; nor is it expedient to use sawdust, dry sand or the like on the floors before the fifth or sixth week, for the reason that many of the particles would get into the little ones' mouths, and, swallowed, cause indigestion.

While on the subject of cleanliness it will be as well to



MRS. D. MCLAREN MORRISON'S CHOW-CHOW,
"MANDARIN'S GIFT."



MR. F. W. CONNOLLY'S SCHIPPERKE,
"COPLE SOPHIA."



MR. W. E. ALCOCK'S BEDLINGTON TERRIER,
"JACK WARKWORTH."

go further and consider the importance of practising this virtue when caring for the feeding-vessels which are used with puppies at the time of weaning and while cow's milk is being given.

All may not know that under certain conditions there is generated in milk a virulent poison, bearing the name tyrotoxin, which was first discovered in cheese, and eventually proved to be the active agent in ice-cream poisoning, epidemics of which have been frequent in this country.

The special influences which develop this poison are heat, foul air and moisture. The first alone is scarcely sufficient, for it does but little more than cause the acid changes or souring, —and, as all know, sour milk is innocent of harm, —but when combined with emanations from filth its evil effects are greatly intensified, and these are still further favored by moisture.

The symptoms of milk poisoning in adults are essentially the same as appear in severe cholera morbus, while in children they are identical with those of cholera infantum; in fact there is ample reason for the belief that these so-called summer complaints in most instances are, pure and simple, attacks of milk poisoning. Now, while dogs, old and young, are far better able to resist food poisons than members of the human race, such is the nature of tyrotoxin it is scarcely possible for them to be wholly insensible to it. And since diarrhoea of a rapidly depressing and fatal character is by no means infrequent among young puppies in hot weather, it is not at all unreasonable to suppose that they, also, suffer from this poison.

Assuredly if they are susceptible to milk poisoning the loose methods of many caretakers must do much to make puppies frequent victims of it; and more than likely the poison is usually generated in the feeding-vessels, which

are often filled and left in the pens between feedings, and before fresh milk is put into them what remains of the previous meal is simply poured out, or at best they are but indifferently rinsed in cold water from the drinking-pail.

Until it has been proved that dogs are, by some peculiarity of constitution, protected from the danger of milk poisoning, clearly it is the duty of breeders to close every door through which this accident might possibly enter. Nor will prevention be difficult provided the milk is properly kept before it is served out, for all that is then required is to maintain cleanliness of the feeding-vessels. And to this end, after they have been used they should be well rinsed with cold soda- or lye-water, then filled with boiling water and allowed to stand upon the top, or in the oven, of a hot stove for ten minutes; by which means, and by none other, can they be made perfectly clean and sweet, notwithstanding the notion that the scalding process—merely pouring boiling water into them and at once out again—is quite sufficient.

While this method should be invariably applied in hot weather, breeders will do well to persist in it during other seasons, for one can never be too careful in his management of young puppies, especially in the matter of foods and all pertaining thereto, for even slight defects in them are likely to be felt, and oftentimes with fatal consequences.

Attention to the skin and jacket is another matter for consideration while on the subject of cleanliness, but it need not long engage attention, for aside from keeping them free from fleas and lice, and grooming them with a brush every day after they are old enough to play about, puppies demand but little in this direction. Grooming, by the way, is advisable not alone because it stimulates

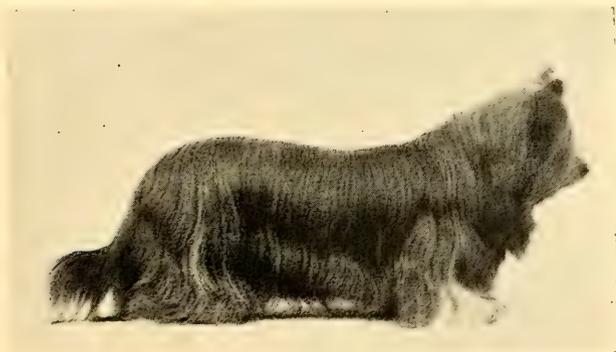
MRS. E. M. WILLIAMS' SKYE TERRIERS.



"SILVER QUEEN."



"CARLO III."



"OLD BURGUNDY."

them, favors cleanliness and nutrition of the skin and health of the hair, but because it leads to the early detection of eczema, mange, or other troubles of this sort if any present themselves. As for washing, it is scarcely safe before the fourth month has been passed, because of the inevitable fright, more or less severe shock to the system, and danger of cold. Nor is it likely to be necessary earlier than this if the general management has been good and cleanliness maintained in the quarters. A safe rule to cover this point is to delay washing puppies until it is absolutely necessary, and then to resort to it no matter what the period of life, using always every precaution against chilling.

As no better opportunity is likely to be afforded it is well now to call attention to the fact that large breeds at a very early age—even in the fifth or sixth week—sometimes begin to be deformed in their legs or feet owing not only to the comparatively great weight of their bodies, but to a deficiency, in their composition, of bone-making materials. And this is especially liable to be the case if proper precautions are not taken with the mother before whelping and while nursing, which consist mainly of highly nutritious foods and the use of the precipitated phosphate of lime, as advised in chapter “Before Whelping.”

There may be actual rickets to account for the deformity, yet without this constitutional trouble the forelegs may bend inward or outward at the knees,—generally the latter,—the feet turn out, the hind legs become what is called cowhocked, or the pasterns give way, making the puppies walk on their ankles.

If a puppy is healthy at birth, properly nourished by his mother and afterward wisely fed, and meanwhile given plenty of exercise and provided with good wholesome quarters,—dry, clean, well ventilated, etc.,—there will be

but little, if any, danger of such deformities. But all these essential conditions are rarely present; moreover, no small proportion of puppies have some inherent defect at birth, consequently to all of large breeds it is a wise plan to give the precipitated phosphate of lime for two or three months at least. And the use of this should be commenced about the seventh week provided no signs of deformity have been noted; or if they appear earlier, it should be given as soon as it is indicated. A moderate dose of the drug is one-fourth of a teaspoonful, and one dose each day — with the last meal — will generally be sufficient, yet if deformity is threatened it should be given in the food twice daily, and the dose be increased to one-half a teaspoonful.

It being a common custom in America to deliver at about the eighth week the puppies that have been pre-engaged, the subject of selection can properly be considered in this chapter.

Beginners, and some old fanciers perhaps, should be impressed with the fact that in breeding, as in all lines of business, to be financially successful they must establish reputations for fair dealing. And the first rule which they should fix is: Never sell a badly developed or badly formed puppy, or one that is really ailing, at any price.

The importance of this it is scarcely necessary to emphasize, for every puppy sold is a living advertisement, and even principle aside, no breeder can afford to have out against him bad ones in the form of unsound or crippled specimens.

In some instances when puppies must inevitably turn out poorly they present evidences of the fact before they are eight weeks old, but except they are weaklings, have pronounced congenital deformities or are bad in markings, fatal defects, as acquired deformities, a snipy face, prick

ear or the like, can seldom if ever be detected until a later age. But when any such defects are clearly evident, as a rule he is wisest in the end who destroys the victims, for although he might dispose of some of them for a few dollars, the sums received could scarcely compensate him for the risks he takes of endangering the reputation of his kennel.

It is well to add here that if the unfortunates are more than two or three weeks old they should not be destroyed by drowning, but the dilute prussic acid should be given them, and not less than half a teaspoonful to the youngest and smallest victims, while to the others, four or five months of age, or older, the dose should be one teaspoonful.

Although these doses are large they are none too large, for there must not be any failure in the attempt to destroy.

It is the custom of not a few breeders, when they have very large litters that must be weeded out, to sacrifice the bitches whether or not they are superior to the dogs in size, form, markings, etc. There is, of course, a better market for their choice, but still such a hard-and-fast rule must be deplored, for far better a good bitch than an indifferent dog even if the latter will sell for a trifle more. And when there are two doubtful specimens in a litter, a bitch and a dog, and one of them must go, the owner will do wisely to keep the former, for should she turn out but moderate she might still be of value for breeding purposes; whereas the dog, if an indifferent specimen of his breed, would generally be hard to dispose of, would be practically shut out from bench shows, and seldom profitable as a stud.

In fact it is a good plan always to keep what promises to be the best bitch in each litter until she is mature or at least so well developed that it is possible to tell with near

certainty how she will develop. And even if he who follows this sells all his dog puppies he will know whether or not he is breeding judiciously.

To make good, judicious selections from large litters within the first week is impossible in most instances, for puppies often undergo rapid changes, and not infrequently the one which appears the least robust becomes the strongest ere the weaning is reached. Considering this, in every case where the litter is too large for the mother to nurse safely and it must be weeded, he who is in doubt should try to nourish artificially what appears to him to be the poorest of it.

As for minor defects, they sometimes remain concealed until the victims are well on towards maturity. In fact, in not a few instances what has seemed to be the best puppy in the litter has fallen off between the sixth and eighth months and ultimately proved one of the poorest. In some instances, also, the least promising has even at a later age taken a tremendous stride in the way of improvement and jumped to the front rank.

Manifestly, therefore, to make judicious selections early will never be easy, and oftentimes impossible except in the presence of deformities or decided feebleness, or on the basis of color and markings. However, he is not likely to fall into many and grievous mistakes who is influenced by the condition of health and outward appearance, and gives the preference to the best-looking as well as the hardiest and most active puppies.

Some fanciers sell their poorest puppies first and keep their best until the last. This rule does not conflict with that laid down in the foregoing, — never allow bad specimens to go out at any price, — and it can wisely be adhered to in the absence of contract, for in order to make breeding successful in a monetary sense it is necessary to put

before the public, at dog shows, unmistakable evidences of the worth of the stock in use. Moreover, puppies of unusual merit gain rapidly in value as age progresses; and as kennels but seldom prove profitable, the breeders, of all others, deserve the happy "windfalls."

As stated, the age at which puppies that have been pre-engaged are generally shipped from the kennels is the eighth week; which is none too early, because in most cases the earlier a puppy is in his new home the better for him and others concerned, since the purchaser, if having but one dog to care for, can give him much better treatment than he would likely receive in his old home; moreover, under ordinary conditions, when alone a puppy thrives far better, has higher health and is much less liable to fall a victim to disease than while with his mates.

This fact deserves to be dwelt upon in the interests of breeders who are often inclined to refuse fair offers and allow their puppies to accumulate that they may be sure of the best among them. Such policy rarely proves otherwise than short-sighted, for with dogs, young or old, as with members of the human family, the nearer they live to each other the greater the danger of sickness; and where four, five or more are quartered together, the death rate, as in tenement houses, must inevitably be higher than where there is less crowding. Again, strangely perhaps, even at the same prices oftentimes puppies of average merit are in greater demand when two or three months old than others twice this age. Then there is the cost of keeping to be considered, and this is by no means a trifling item. Finally, specimens of exceeding merit and considerable value are "few and far between," and one might breed a long time even with the best of stock before he materialized a wonder. And even such happy result might bring him greater gain in the hands of another.

Hence it is advisable for breeders to dispose of the most of their young stock as speedily as possible, and even let their choicest go when good prices are offered, unless of course they are sure winners of the blue, in which event the question of selling should be considered long and well.

A word further as to shipping puppies. It is not becoming a breeder to use store boxes and other two-penny, unsightly and uncomfortable affairs unless they are properly built over; and really it is more economical, and far more to his credit, to have crates made for him, costing as they do but a mere trifle. Or if his puppies are of large size he will do well to provide himself with wicker hampers; and those used in importing seltzer and other mineral waters will often do nicely. With a piece of carpeting in the bottom and a little straw over it, one of these is ready for a puppy, and besides being of light weight, ample in size, capable of good ventilation and yet affording protection from draughts, it cannot be packed too closely with other baggage on account of its barrel-like shape.

In a suitable crate—made as light-weight as possible always—to which is attached a feeding-pan, and ample directions as to the hours of feeding and the quantity to be given at each meal, a puppy barely eight weeks old ought to make several days' journey and reach his destination in good condition.

There are so many absurd notions about teething the subject is deserving of at least brief consideration here.

As the permanent teeth are developed they cause absorption in the roots of the first and temporary teeth, which eventually become loose, and when so they have fulfilled their purpose and can properly be extracted. Yet instruments ought not to be used on them except in rare cases, for when it is time for them to come out they can be easily

PUGS.



MR. WILLOUGHBY HOLDSWORTH'S
"KING OF DIAMONDS."



MR. THOMAS T. CRAVEN'S
"MAYOR OF LEEDS."



MR. T. I. BALLANTINE'S
"LORD CLOVER."



SEMINOLE KENNELS'
"BONSOR."

removed by firm pressure to one side with the thumb or forefinger.

Some writers have urged extraction of old teeth before they have loosened in all cases where they appear likely to displace the new, thinking thereby to prevent irregularity in the permanent. But this is not advisable, because instead of obviating threatened deformity it is quite sure to increase the danger of it, for if an old tooth is extracted before the new one is well formed and pushing it out, the teeth at the sides of it will encroach upon the vacant space, and finally when the new one tries to come through it finds its rightful way difficult or blocked, and pushes through where it can do so the most easily, but outside of the line of the other teeth.

Consequently, as a rule, only when the old teeth are loosened and must soon fall out if left to themselves should they be removed.

As for the notion that convulsions or other serious results are caused by swallowing teeth, that is all moonshine, for the tooth of a puppy is not at all likely to meet with any difficulty or excite any disturbance in its transit through the body.

There remain to be considered docking and the removal of dew-claws, and as the writer is without experience in either he has turned to his friend, H. Clay Glover, D.V.S., of New York, who has kindly responded with the following brief discussion:—

The practice of docking, which has been in vogue many years, does not in any way add to the utility of the dog, and the only object of it is improvement in the appearance of the animal. The breeds generally subjected to the operation are cocker, clumber and field spaniels, all varieties of toy spaniels, airedale, Welsh, Irish and fox terriers, and a few other breeds, including the bob-tail

sheep dog, which is not, as some suppose, generally born without full length of tail, although occasional instances of its being wanting very likely occur.

An old practice was that of removing two, three or more joints from the tails of pointers and setters, the reason advanced being that they were less liable to keep the ends sore from whipping in the brush. But this has fortunately fallen into disuse.

Docking is best done about the tenth day after birth, as the bone is then scarcely more than cartilage, and only trifling hemorrhage results. The operation consists in simply removing as much of the tail as desired, and by the means of very blunt scissors, that the tendons may be drawn out—not severed as would be the case were a sharp instrument employed. And drawing the tendons leads to a lower carriage of the tail, which is desirable, as most of the short-tail kind are inclined to carry this appendage too high.

In docking mature animals and a nice finish is desired, an incision should be made obliquely on both sides of the tail, which should then be unjointed, the lateral sacral artery taken up and the edges of the flaps drawn and stitched together. After which the patient should be muzzled to prevent his disturbing the stitches. While operating, the tail should be very tightly ligated at the base to obviate hemorrhage. In dressing the wound the ordinary antiseptic precautions should be taken, as after all operations.

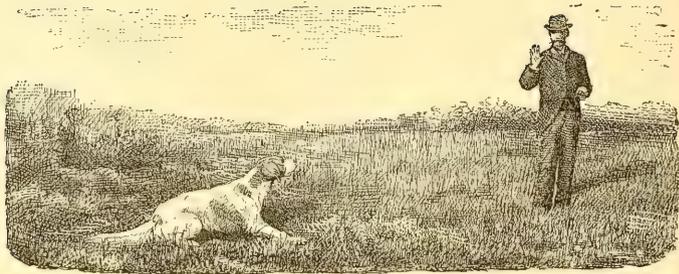
Dew-claws are simply supplementary toes on the insides of the hind legs, slightly above the feet. There was a time when some value was attached to them in St. Bernards by authorities and breeders, it being held that they were of assistance to these animals and prevented their breaking through the snow. They were also considered

an evidence of good breeding. Yet they are of no possible benefit to the dog; in fact they are a detriment, liable as they are to become torn and sore from contact with ice, briars or sharp grass. Moreover, these claws are singularly inclined to cut into the flesh, since not being in use like the other claws they are not worn down.

Dew-claws appearing in other than St. Bernards are regarded with suspicion by some as evidence of impure breeding. But this is a mistaken notion, for they may appear on any breed of dogs, even of the bluest blood. And in my opinion they should be removed in all instances. As for double dew-claws, I consider them not only useless but hideous monstrosities, which tend to turn the feet out and the hocks in — or at least they appear to do this in large breeds. Furthermore, the legs have a much cleaner and more trim look without them.

The removal of dew-claws should be effected shortly after weaning and the puppies have been separated from their mother, who might disturb or tear off the bandages. If merely fastened to the skin they may be clipped with sharp scissors; and this instrument will answer every purpose even when they are attached to tendons. But when fixed to the canon — metatarsal bone — it will be necessary to dissect them from the bone; in doing which the operator should avoid the internal saphenous vein. And were this accidentally cut it should be ligated.

If the wound is of sufficient importance the edges should be stitched together and a bandage applied; and the same should be kept on until healing has occurred, which usually requires from seven to ten days. Some do not bandage after the operation, but it should be the rule, for the purpose of keeping the wound clean and its edges together. A rubber ligature around the leg above the hock will generally be advisable while operating in difficult cases.



CHAPTER VII.

TRAINING.

TRAINING is a wide subject, and of much too great importance to warrant mere touch, as would only be possible in this book; moreover, there are but few men capable of handling it as it deserves, for an accurate knowledge of one department simply—that which bears upon field work—can be acquired only by those endowed with eminent qualities, and after years of personal observation and practical experience. The writer might, of course, wander over this vast field and point out some of the landmarks, but there are others more familiar with many parts of it than he; hence he limits his efforts to general rules and admonitions that will favor correct every-day behavior and habits in and about the home, and urges the reader who has a dog that he wishes to train for special work to provide himself with a guide in the form of a treatise by some recognized authority.

The education of puppies may commence at a very early age, but efforts must for the first few months be largely directed to the cultivation of specific virtues, as cleanliness, obedience, etc. And while aiming to make the exercise of these virtues habitual, bad habits must be anticipated and prevented if possible.

Puppies that have yards connected with their kennels and they are accessible day and night, soon become voluntarily cleanly; and until they do so the droppings should be removed once or twice daily and the floors treated to a deodorizer.

House-breaking should never be thought of during cold weather, as cleanliness in habit is then out of the question, for in order to promote it a puppy must be put out of doors not less often than once an hour. Nor must he be permitted to pass a night in the house before he is five or six months old; at which age this virtue will ordinarily have become fixed if invariably practised during the day. And in the absence of a convenient outbuilding for sleeping quarters he should be put into some other room than that which he is allowed to occupy during the day, together with a shallow box of sawdust or dry earth, to which he will soon learn to turn, provided for a few nights it holds one of his droppings.

A custom of many people who attempt to teach puppies neatness is to bedabble their noses with filth and toss them out of doors. It ought not to be necessary to urge that this is as stupid as it is nasty, and that the infliction is no more effectual than a scolding administered while the offender is held close to the soiled spot. Accepting the facts that dogs inherently are far from being filthy animals, that they are uncleanly in their habits only when their natural tendencies have been perverted by restraint or neglect, also, that they are capable of some understanding at a very early age, such beastly practices as this will never be indulged in by people of sense who undertake to teach them correct deportment.

It is a well-known maxim that first impressions strike the deepest. And he who assumes the education of a puppy will do well to keep this ever in mind. Beginners

who are not breeders are, as a rule, at fault in the introduction of puppies to their new homes, where they are generally cordially welcomed and made much of by all in the family, and when night comes given places in the kitchen, the basement, or, perhaps, in the sleeping-rooms of some of the younger members. Innocently enough, being unbroken, they prove something of a nuisance, but are usually tolerated for a few nights, when becoming too much of an infliction they are put into the wood-shed or other outbuilding to sleep. Against this treatment a vigorous protest naturally follows, and oftener than otherwise it is successful ere midnight, and they are brought back to the quarters to which they had so soon grown habituated.

The writer has found it only a pleasure to share his comforts with his humble friends ; in fact, during the last ten years not less than four of them have lived under his roof, where they have been literally as much at home as himself ; manifestly, therefore, he has no prejudice against allowing dogs in the house. But the line must be drawn at unbroken puppies, or at least all such should be excluded nights until habits of cleanliness have become fixed.

At once after reaching their new homes puppies should in every instance be put into kennels or other quarters prepared for them, and for forty-eight hours they should see but little of their new owners except at feeding times ; at the end of which period they will have become accustomed to their changed surroundings and quite content with them. More than likely, of course, they will cry during the first night, but it being accepted that nothing will pacify them except companionship they should be left absolutely to themselves, to "have it out."

Very short visits to the house should be the rule at first,

BLACK PUGS.



MISS ROBINSON'S "LITTLE NAP."



MRS. FIFIELD'S "DOATIE DARLING."

BLACK CORDED POODLE.



LADY DE CLIFFORD'S "JOE II."

and where this is observed puppies will soon be free from their most objectionable habit. And cleanliness established, one of the greatest difficulties has been overcome, while what is to follow will be comparatively easy if good judgment, patience and perseverance are invariably exhibited.

Dogs are not human, yet they are not far removed, and that they are capable of reasoning at a very early age is plainly evident from the fact that invariably when admitted on the same footing to several persons they single out some one for whom they show a marked preference. The infant barely six weeks old, and while still a stranger to the world, will respond to human expression, for a smiling air or cooing sound raises a smile to his lips, showing that sympathy is already at work. So it is with the puppy. While yet his brain is comparatively inert he is accessible to influences, whether kindly or unkindly, and these impress him more and more forcibly as he grows older. Therefore, in efforts to teach him and regulate his conduct, as with the child, there should be habitually exhibited those qualities which the educator desires him to possess. In other words, that he may be kind, gentle, affectionate, intelligent and courageous, he must grow up under a master or mistress who is naturally all this, or whose conflicting humors are under wholesome restraint.

There is no difficulty in fixing the time at which the education of a puppy should commence, for a person of intelligence can always detect when the little one is capable of reasoning. This stage reached, he should be subjected to salutary restraint and prevented if possible from acquiring bad habits. Moreover, every time he falls very far from grace he should be at once corrected for it. The reader must not assume from this that rigid propriety is

to be enforced or severe punishment inflicted for every breach. The idea that the writer desires to convey is, that precisely the same methods of restraint and correction — and no more exacting — should be employed with him that a wise parent would employ with her child while yet it was strong in impulses but poor in will-power. In a word, let the first treatment which is administered to a puppy be much the same as that which reason tells is right and proper for a child between one and two years of age.

Puppies acquire powers of discernment with very great rapidity, and where they are much with their masters or mistresses they are soon able to detect changes in humor by the voice, hence are almost, if not quite, as easily influenced as a child; and when they do wrong a mild scolding and a tap of the hand will generally be sufficient penalty.

Perversity and self-will are, of course, inevitable in all higher orders of animals, and unless held in check until reason asserts itself they are sure to warp the nature and make no end of trouble in the future; therefore, obedience is a quality that must be fixed at the earliest possible age. Nor will this be difficult if correct methods are employed, although, unfortunately, many who attempt the training of puppies stray at this point, and by impatience and severity break their spirits if their tempers are mild, or if they are unusually obstinate, render them more wilful as well as dull and surly.

It is not too much to say that all puppies under judicious management from the first can be thoroughly trained and governed ever afterward by kindness, for surely no other animals are endowed with natures so affectionate, honest and loyal as their kind; and with these qualities an anxiety to please can never be found wanting. Con-

sidering which, no sounder advice than this can be given beginners: Open the way to this natural disposition to please. Be ever kind and patient with your charges. Never give an order either in or out of the house without making them obey—provided always you are sure that they understand what you want. Emphasize your orders by pointing or other motions which they can interpret. Speak encouragingly but firmly—never much above a conversational tone if it will reach them—and as briefly as possible, else you will confuse them. Let your manner slightly increase in earnestness as they are about to obey and while doing so. And when each required act has been performed show your approval by a few pats on the head or some toothsome morsel. Above all avoid nagging, expect nothing unreasonable, and let your lessons and orders be as few and far between as possible at first, otherwise your puppies may regard you in the light of an infliction.

There are times when puppies, no matter how obedient usually, are likely to prove intractable, and at such the easiest way out of the difficulty is the best. For instance, if a puppy, brimful of vitality and play, is on a romp with an acquaintance of his kind he is scarcely likely to respond to a call uttered several hundred yards away; consequently his master, if intelligent, would naturally withhold it until he had gone near enough to be able to enforce obedience. Here, again, many beginners stumble badly by severely whipping their puppies when they fail to respond; in consequence of which treatment for a long time afterwards they very generally run from them on like occasions; whereas the only sensible method to be employed under these conditions is to catch the culprit by the collar and gently lead or draw him in the direction from which the call was sent.

rebuking him meanwhile, and after proceeding a short distance stop and reassure him with a few pats; then, for a time, to be even more kindly demonstrative than usual. Teasing and over-petting are also errors that beginners are especially liable to fall into, the one inevitably injuring the temper and exciting aversion towards the offender, while the other is absolutely incompatible with implicit obedience.

The importance of instilling good habits at the earliest possible age is by no means always appreciated by those who undertake the education of puppies, and frequently traits are encouraged that sooner or later must prove extremely annoying. One of these is, emphasizing every affectionate greeting with the forefeet — an act which, of course, no person neatly dressed can tolerate. This tendency seems quite uncontrollable during the first few weeks of life, yet it can soon be overcome if patience and firmness are exhibited from the first, and the forefeet of the offender are invariably tapped and he is forced back on all fours. But assuming that a puppy has reached his sixth or seventh month and this bad habit exists, the following method, recommended by Mr. Waters in his most valuable work, "Modern Training and Handling," should be resorted to: When the puppy places his forefeet upon the person, grasp a foot gently but firmly in each hand, speaking to him in the blandest tones and the choicest pet phrases, the manner being the perfection of kindness, at the same time stepping on his hind feet just hard enough to pinch them. He will soon endeavor to break away, notwithstanding the kindness of manner; but the punishment should be continued a few minutes before releasing him. Soon thereafter call him up and repeat the lesson. Usually two or three of these simple lessons are ample. He cannot then be induced to put his



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feet on the person. Occasionally, at long intervals, he may forget himself for a moment, but the slightest reminder adjusts him to instant correctness.

The habit of barking is another extremely unpleasant fault, and once settled it is scarcely possible to overcome it except by the whip, which it must be borne in mind should never be used except at the immediate time of the offence.

A few words here regarding corporal punishment. Undeniably in some instances it is salutary, but as a rule it is absolutely pernicious; moreover, the infinite majority of dogs can be governed by kindness purely. And certainly nothing approaching nearer such punishment than smart taps with the hand should ever be administered to young puppies. After the sixth or seventh month, where mild measures fail the only proper means of correction is the whip, but the use of it even then can be justifiable only after acts of positive disobedience and wilfulness; and before maturity severe applications of it are rarely ever required. The writer has never found occasion to resort to the whip, for suasion has always proved potent with him, yet he has noted some instances where had he been the owner of the dogs he would have applied it, and perhaps vigorously. In all these, however, manifestly there had been a woful lack of proper management during early life.

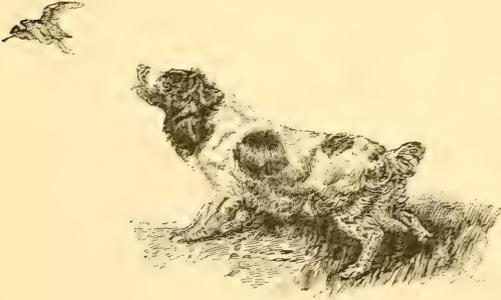
While the opponents to the use of the whip are many, it is a significant fact that none of the notable trainers appear in their ranks; and what is still more surprising, with no small proportion of these same people who denounce it kicking is the popular substitute. It ought not to be necessary to urge that neither this nor the use of the broom handle or like instrument is ever pardonable, nor will they suggest themselves to other than brutes.

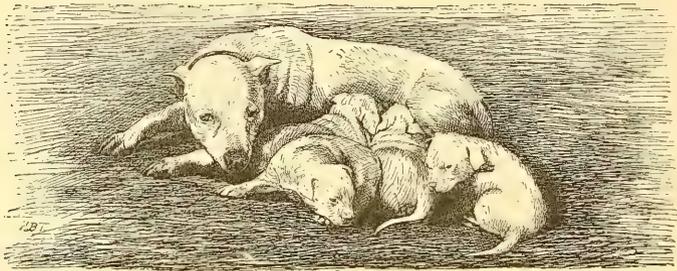
Beyond being accustomed to wearing a collar and led about, taught to come when called by name, lie down, and obey a few other common orders, puppies of non-sporting breeds do not require any formal course of training, for if they are given their liberty from the very first and admitted often to the house, are much in the company of the members of the family, and restrained or encouraged as is necessary, they will, if naturally intelligent, in time not only acquire surprisingly good manners but very nice discrimination. Nature is not, of course, alike bountiful to all, nor are all puppies equally gifted with powers of observation, but the infinite majority when under favorable conditions can, as said, be safely left much to themselves to learn by association.

The foolish notion is very prevalent that puppies intended as guards should be put on the chain at a very early age that they may know none others than the members of their own families. As a matter of fact such treatment dulls understanding as well as warps body and limbs, and the victims become in consequence merely noisy and dangerous machines. A puppy can never be made a good, safe and efficient guard by any such means as this, and instead of being put into seclusion he should be given the liberty of his master's premises, where it will be possible for his instincts and faculties to develop. Meeting then all classes of callers he will soon learn from the manner of his people and by outward signs, as dress, speech, etc., to discriminate between those to be readily admitted and others who should be regarded with suspicion. He should also be widely introduced to his own kind, a familiarity with which begets courage and an easy, self-confident bearing.

To teach all puppies, of whatever breeds, to retrieve is always a wise plan, for the accomplishment can be utilized

in exercising even if not absolutely an essential part of the education. But this is within the province upon which the writer does not care to intrude, and he advises all who would train their dogs to provide themselves with the book already alluded to, "Modern Training and Handling," from the pen of Mr. B. Waters, who is the acknowledged authority on field trials, handling and kindred subjects.





CHAPTER VIII.

INTESTINAL PARASITES.

THE species of worm with which puppies are most often infested is the *Ascaris marginata*, called also the *Ascaris lumbricoides* and round worm, which has a certain superficial resemblance to the common earth-worm, or what boys in the country are accustomed to term angler's worm. This is cylindrical, tapers at both extremities, is slightly pinkish in color, and under the knife, unless the same is very sharp, offers considerable resistance, and when mature cuts like India-rubber. Full growth having been attained it is from two to six inches in length; but the worms found in puppies under four weeks of age usually measure from two to four inches. And they much resemble pieces of cotton twine.

It is not positively known in what ways puppies acquire worms, but it is highly probable that they oftentimes swallow the eggs and larvæ directly, also take them up with their food and drink. And certainly very generally the most favorable opportunities for infection are afforded, as will appear from the following:—

The eggs are laid in the intestines of their hosts and expelled with the waste matters, in great numbers and sometimes in great masses, and once in the world they

retain their vitality for a long time. But after being expelled it is necessary for these eggs to mature, and conditions favorable for their doing so are found in fæcal matter, water or damp places; and this essential stage of development having been completed all is in readiness for the final stage. Now let the eggs be taken up and enter the stomach, and the young worms will burst the shells and speedily mature.

Such, in brief, is the course of infection with this worm; and considering the ease with which it occurs it is not at all surprising that puppies rarely escape it.

A mother harboring the pests is constantly throwing out of her body immense numbers of eggs, and these are deposited about in her kennel and yard, in which, even if the fæcal matter is removed daily, some are sure to be left and find here and there, upon the floor, sleeping-bench and ground, the moisture which is necessary for their development. Ignoring the danger of self-reinfection, and assuming that she herself has been treated for worms and all have been expelled, she must inevitably take immense numbers of these eggs up in her coat and carry them with her wherever she goes. Consequently, if removed from her usual quarters to whelp, her new quarters must soon become infested, the eggs being deposited over the floor, on her bedding, etc.

Clearly there is now absolutely nothing to prevent her puppies from ingesting these eggs, even during the first days of life, and swallowing them directly from her breasts, hair, bedding or the floor; and even did infection not occur in this way it must subsequently occur through the food or drinking water, from which it would be simply impossible to keep the eggs, scattered about in such abundance.

Considering the size which worms in puppies have usu-

ally attained by the third week, it is evident that infection very generally occurs early in the first week; and such being the case the eggs must be swallowed directly, the same being lodged upon the mother, her bedding, etc.

Now will be seen the reasons for the advice, given in a previous chapter, that the bitch in pup be freed from worms if possible, and she and her quarters be thoroughly cleaned and disinfected a day or two before whelping. And the importance of these measures cannot be too strongly urged, for they will do much to protect puppies from their deadliest foes.

Undeniably cleanliness is the most potent safeguard against infection by worms, and if breeders will drive them out of their mature dogs and afterwards keep their kennels and yards clean, their puppies will be far less frequent victims of them than under less favorable conditions. Furthermore, if their little ones then become infested it will likely be with comparatively small numbers only, which, as a rule, are much less dangerous to life than large numbers.

Efforts to secure cleanliness should include disinfection of the mother's intestinal discharges in the whelping-room and quarters subsequently occupied by her and her little ones, the fact being duly appreciated that she might be harboring worms and not manifest any suspicious signs. And for this purpose quicklime should always be at hand to be dropped on the waste; and that removed, the soiled floor should be washed with boiling water, by which means all ova not touched by the lime would be speedily destroyed.

The symptoms manifested by worms very generally depend not so much upon the mere presence of the lodgers as upon the accompanying and peculiar condition of the mucous membrane of the alimentary canal. And



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this is one of irritation with an excessive production of mucus; which secretion would seem essential to their development and existence.

When worms are present in large numbers very much if not all of the internal surface of the intestines is, as a rule, irritated and shares in this mucous flux, but when the numbers are small, portions of it only are very greatly affected; and these are in proximity to the pests.

If only a small number of round worms, three or four, perhaps, were present and the victim well on the way to, or had passed, maturity, they would scarcely give rise to very marked symptoms. On the other hand, were he in the first months of life and the number small, even, they would likely prejudice his health; while, were they numerous they would surely start a long train of evils which would be very liable to end in death.

One of the earliest evidences of the presence of worms is the appearance, in the intestinal discharges, of mucus, which people are wont to term "slime." This manifested, although at first the bowels may move with normal frequency, or even be less free than usual, with very young puppies certainly it is seldom long before diarrhœa sets in, in consequence of the irritation of the presence of the worms.

Now this symptom, diarrhœa, beyond pointing to worms as the cause, presents peculiarities which are instructive, for they indicate with some degree of certainty whether or not the number of the parasites within is large or small. For instance, if the number is large the diarrhœa is generally persistent; that is, it occurs day after day, and the discharges are thin, scanty, and largely made up of mucus, which is usually reddish in color and voided with some difficulty, as evinced by straining. On the other hand, if the number of worms is comparatively small the

diarrhœa is, as a rule, less persistent, and may be present for a day and then disappear, not to return again for several days or perhaps a week or more. Usually, also, the mucus, while possibly quite abundant, is colorless or only slightly pinkish, and rarely is it of as deep red color as in the first instance.

This reddish color, by the way, is due to blood which has been forced into the mucous and submucous tissues, and its presence is evidence that the internal surface of the intestines is inflamed. Moreover, the deeper the color the more intense and extensive this inflammation.

The appetite of a puppy harboring a considerable number of worms generally fails at first, then becomes capricious, being now almost absent, and again well-nigh insatiable.

This calls to mind the absurd notion that the increased desire for food in these cases is occasioned by the clamor of the worms for better support. This is far from the truth, for the change is partly due to a morbid craving excited by the irritation which is caused by the fermenting contents of the stomach and intestines, digestion always being slow where these pests abound, and partly to the demand of the tissues generally for more nutriment than is supplied by the imperfect digestion and impeded absorption; while the defects in digestion and absorption are due to the mucous flux already alluded to, which, covering the internal surface of the intestinal canal, not only obstructs the flow of digestive fluids but the absorption and passage of the food elements into circulation.

Abdominal distention is always marked where there is any considerable trouble caused by worms, and although the victim may eat but a very moderate quantity he bloats up with astonishing rapidity, the distention being due to

TOY SPANIELS.



MRS. THOMPSON'S BLENHEIM,
"DANDY."



MRS. THOMPSON'S RUBY,
"RUBY PRINCESS."



MR. WM. PHILLIPS' PRINCE CHARLES, "KING OF THE FANCY."



MRS. R. L. CRAWFORD JR.'S JAPANESE,
"TOOTSIE."



MRS. F. SENN'S KING CHARLES,
"ROMEO."

gas. Vomiting also occurs at times, and in occasional instances worms are expelled in this way.

Obviously, with worms interfering with digestion and nutrition a victim cannot long hold his own. As a matter of fact, evidence is soon manifested that he is not thriving as he ought, and even in quite mild cases the skin very generally lacks natural softness and elasticity and the coat is dry and rough, while in severe cases these changes are all more pronounced, and the hair sometimes falls out in patches, the mucous membrane of the mouth is pale, showing a poverty of blood, there are emaciation and lack of strength, and in some cases complete paralysis of the hind legs.

But the worst remains to be told. Worms often cause death either by sapping the strength of their victims, intestinal obstruction, convulsions, secondary affections, or boring through the intestines. And while there is no knowing which of these causes is the most frequent, there is reason for believing that the latter is not the least so.

As a rule, the anatomical characters presented after death by round worms are, redness, swelling and softening of the lining membrane of the intestines. These changes may be limited to small patches, but oftener they extend over considerable portions of the internal surface. The lining membrane is also covered with a tenacious mucus, which is either colorless or of a pinkish or brownish red hue; while if perforation has occurred there appears on close examination a small opening, oval in shape, in the intestinal wall and generally through the base of a gland.

Now to consider the measures of treatment required by young puppies infested with worms. Although very many drugs have been credited with anthelmintic properties the list has been shortening rapidly of late years, and at the present time powdered areca nut, santonin and the

oils of wormseed and male fern are mainly relied upon. These are highly efficacious and safe when wisely employed. But all are to a certain extent absorbed by the system, some depress it more than others, and all have peculiar properties which specially recommend them for certain kinds of worms, consequently that the best results may be attained from their use the writer will dwell upon them at considerable length.

While in occasional instances puppies are seriously disturbed and even destroyed by worms before they have passed the third week, as a rule these dangerous tenants do not give positive evidence of their presence until after the weaning, which seems to have rather an exasperating effect upon them. And but for this tendency to delay to make themselves felt the mortality from them must be infinitely greater than it is now, for puppies previous to the period stated are yet feeble and poorly able to withstand the effects of simple drugs, much less those of depressing vermifuges.

Nor is it expedient to try to relieve nursing puppies of worms by the means of drugs given the mother and sent out to them through her milk. Theoretically this plan seems sound, but practically it is a failure. As a matter of fact, while some medicines enter the milk the number of such is much smaller than generally supposed. Again, the proportional quantities of those that appear in that secretion are very much less than accepted; and really only the most powerful drugs acting through the milk would have any decided effect upon the nursing offspring.

Take turpentine, for instance, that is readily absorbed from the intestinal canal and from the lungs. But it is eliminated by the breath and kidneys, and only a very small proportion of it enters the milk. And assuming that a

nursing mother is given one-half a teaspoonful of this oil twice daily for several days, not enough of it would reach the puppies to have any anthelmintic effect. Furthermore, to give even this dose of turpentine and repeat each day for several days would be hazardous with most mothers; and certainly doses large enough to furnish the milk with the quantity necessary to destroy worms in the puppies would likely greatly injure the parent organism.

Very generally it is between the fifth and seventh weeks that positive symptoms of worms first appear. And duly recognizing the fact that the liability to infection is great, also that a large proportion of puppies suffer from the pests, breeders generally hold that all should be given worm medicine near the eighth week, whether or not they present suspicious signs.

Notwithstanding that the liability and danger are all that breeders assume, such an iron rule is open to objections. For instance, were the bitch the only one of her kind in a family, or had she no more than one or two mates, and none were quartered in kennels, but all had places by the kitchen fire, and there the whelping had occurred and she and her little ones had been kept until the weaning, then to apply this rule and dose for worms in the absence of symptoms would scarcely be advisable, for the chances are many that under such happy, cleanly conditions the puppies would not be infested, or if they were the number of worms would be too small to do great harm.

But, on the other hand, had the mother several mates, all were kept in kennels, and the whelping occurred in quarters which had been frequented by other dogs, then it would be far too much to expect that the puppies had escaped infection, and the rule in question could properly be applied.

Here it is well to consider briefly the various estimates put upon the danger of treatment for worms. Some hold that judiciously selected and wisely applied, such treatment can do no harm if it fails to do good. Others, however, believe it to be somewhat hazardous with young puppies, no matter its nature or how carefully administered. Those who hold to the first are right provided the patients have passed the eighth week; and those at the other extreme are also right if the little ones are under this age. That is, all who dose puppies under eight weeks of age run some risk of killing them, but with older puppies death from suitable vermifuges is scarcely likely to occur.

But while there is danger in dosing puppies that are not yet two months old, it is very slight, and if the medicines are wisely chosen and given in proper quantities, it is doubtful if there is any beyond that of intestinal stoppage. Even this is extremely rare, and never occurs unless the patient is harboring an immense number of worms; in which case the parasites are suddenly aroused into unusual activity and carried rapidly downward by the action of the bowels, until before the outlet is reached there is an accumulation of them which dams up the passage.

Now, this accident will scarcely happen except in very young puppies in which all the powers are low, and which are only capable of a slight expulsive effort, and even this is lessened by the pain excited by the unwonted activity of the worms when the medicine first reaches them; whereas older puppies, having much greater strength, would under such conditions expedite the removal of the worms by constant straining, and so prevent their massing.

Considering these simple facts, the conclusion is justified that worm medicines should not be given to puppies

that have not reached the eighth week unless quite pronounced symptoms of worms have been manifested. Also, that instead of dosing all puppies as soon as, or shortly after, they have reached this age, exceptions should be made of little ones born of house pets and kept in clean quarters; in whom evidences of worms are never likely to be overlooked, since it is necessary to renew the lining of their basket or box several times daily, and mucous discharges or worms expelled must be at once noted.

But where puppies are born in kennels and these signs of worms are not likely to be detected promptly, to give a vermifuge soon after the eighth week would probably be advisable; and yet he whose puppies were thriving well and free from all signs of the pests would often be the gainer by waiting a week or two before applying the "worming treatment."

The first vermifuge to be given puppies is wormseed oil; and this failing, *santonin* should be tried.

It occurs here that there is quite prevalent a mistaken idea about *santonin* which it will be well to uncover before going further. This notion is, that no matter how *santonin* is given — whether the crystals alone, in powders or solutions — it has invariably the same effect. As a matter of fact this drug as ordinarily administered is dissolved by the gastric juice; and the solution takes place so rapidly that even large doses are generally absorbed in the stomach and do not enter the intestines, the habitat of the worms. Obviously, therefore, it should not be given in powder, for much, if not all, of it would be taken up in the circulation, and failing to reach the worms — turning out of its course as it were to avoid them — its vermifugal effects would be largely, if not entirely, wasted. Moreover, by this rapid absorption its constitutional and poisonous effect

upon the patient would be greatly intensified. And here appears the reason why santonin in the hands of some is singularly prone to cause convulsions in puppies.

In order to reduce to the utmost the liability of this accident, also that the santonin may reach the worms, it must be administered in some agent which will practically float it through the stomach and keep it intact until it gets into the intestines where the worms are located. Water certainly will not serve the purpose, for it has been shown by experiments that santonin crystals floating in it will not affect worms. They are killed, however, when brought in contact with an oily solution; and, besides, such solution is not absorbed by the stomach.

Consequently this drug should invariably be given in a fat or an oil, and preferably castor oil; which must not, however, be in too large quantity, because if the santonin is rushed, as it were, too quickly through the intestinal canal it does not have time to produce the desired effect.

Wormseed oil, which, as stated, is the first vermifuge to be given young puppies, should also be mixed with castor oil; and those who desire to use it should *show* the following directions to their druggist:—

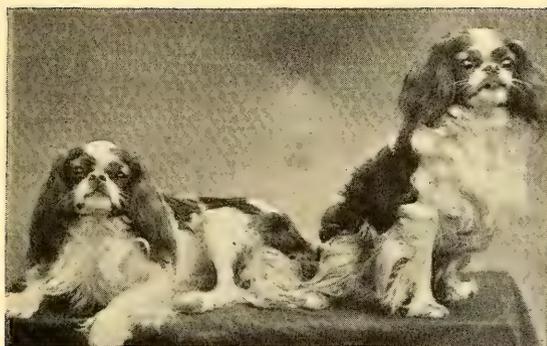
Take of wormseed oil, sixteen drops; oil of turpentine, two drops; oil of anise, sixteen drops; olive oil, three drachms; castor oil, four and one-half drachms.

Put into a two-ounce bottle, and direct to warm slightly, and shake well before using. Also label—Worm Medicine No. 1.

This medicine should be administered early in the morning, on an empty stomach; and it should be floated on a little milk—a quantity about equal to that of the medicine will be sufficient.

Assuming that the puppy to be treated is of large or medium-sized variety and under six weeks of age, the ap-

BLENHEIM SPANIELS.



"BOWSIE" AND "BEACONSFIELD."

KING CHARLES SPANIELS.



"DUCHESS II."



"JUMBO II."

propriate dose of No. 1 will be half a teaspoonful. This should be put into a dessert-spoon which contains the milk, and the whole poured down his throat.

But if the puppy is between six and eight weeks of age he can be given one teaspoonful of this medicine in one dose; while if he has passed the eighth week the treatment should be one dose of one teaspoonful of this medicine and another like dose in the course of an hour or an hour and a half.

As some might assume that the oil of turpentine is introduced into this mixture and its associate No. 2 for its anthelmintic effect, the explanation is made here that it is used solely for the purpose of quickening the movements of the intestine and improving the condition of its lining membrane.

This Worm Medicine No. 1 contains such a large proportion of castor oil in many instances the bowels of very young puppies taking it will move in the course of an hour; if they do not, however, and the patients are under eight weeks of age and they are to have but one dose of this medicine as advised, then to the average puppy a teaspoonful of castor oil — in about a like quantity of milk — should be given at the expiration of an hour or an hour and a half after giving the worm medicine.

Where the patient has passed the eighth week and this medicine is to be repeated in the course of an hour or an hour and a half, the second dose is likely to move the bowels if the first fails to do so. If, however, they have not moved in the course of an hour after giving the last dose, then one or two teaspoonfuls of castor oil should be given.

Worm Medicine No. 1 should be relied upon up to the eighth week, and in the event it is given and no worms are expelled, and yet symptoms of the pests persist, it

should be repeated in the course of a day or two, the doses being graduated as before.

If after his eighth week a puppy had been given No. 1 and the desired effect had not been attained — that is, no worms had appeared in his discharges and symptoms of them still existed at the end of the second day after this treatment — then the druggist should be again sought and instructed to prepare the following : —

Take of santonin, four grains; wormseed oil, twenty drops; oil of turpentine, three drops; oil of anise, sixteen drops; olive oil, two drachms; castor oil, five and one-half drachms.

Put into a two-ounce bottle, and direct to warm slightly, and shake well for a minute before using. Also label—Worm Medicine No. 2.

This mixture should be given like the first, — before breakfast, — and unless worms have passed freely during the interval it should be followed in two hours by another dose containing the same quantity, the puppy meanwhile being denied food.

And if the bowels do not move within four hours after the *first* dose, one or two teaspoonfuls of castor oil should be given.

If under the use of Nos. 1 and 2 — with an interval of two days between each as advised — worms have not been expelled, the chances are that if the puppy is between eight and ten weeks of age he is not harboring any; and more than likely his symptoms supposed to indicate worms are due to some other cause, and probably indigestion. Yet were his owner not satisfied he might try mixture No. 2 again in a day or two.

These doses of mixtures Nos. 1 and 2 are appropriate for all puppies except *small breeds* and toys — see page 333. For the former they should be reduced one-half;

while the latter should take no more than one-fourth of the quantities advised. And the doses properly adjusted they should be administered under the rules laid down — that is, they should be given on an empty stomach, not be repeated unless the patients are eight weeks of age, nor should No. 2 be used until after that age and No. 1 has been tried and found wanting.

Here intrudes another delusion, namely, that it is always necessary carefully to graduate doses of worm medicines to the size of the patients. While in some instances variations can be made on this basis with perfect propriety, great ones and nicety of adjustment are not invariably required during puppyhood, for no very marked difference exists between the alimentary canal of a puppy of medium-sized variety and that of one of large breed. Certainly it is not very much larger in one case than in the other; and assuredly the difference in capacity counts but little. Moreover, worm medicines are intended for the tenants, not the hosts, consequently unless very powerful drugs are given — drugs that are largely absorbed and taken into circulation — until matured a setter may be given as much as a St. Bernard of the *same age*. But the latter, maturing later, will bear increases after leaving the setter, and until he, in turn, has reached maturity.

Excluding small dogs, for the reason that many of them are of notoriously delicate natures, the age and the condition of strength are the considerations that should weigh most when estimating doses of worm medicine, or at least medicines of the nature of those herein recommended.

Returning to Worm Medicine No. 1, the reader is again reminded that it is never wise to give medicine of any kind to very young puppies unless they positively require it; also, that vermifuges should be withheld until after the eighth week unless there is evidence that worms are

present. But should such evidence be offered, then the victims should be treated even if they are yet nursing.

To dose puppies that are only three or four weeks old is no simple matter, for they do not swallow what is given them from a spoon nearly as easily as when drinking well and feeding themselves from a dish. However, if puppies are much troubled with worms at this early age there is but one thing to do, namely, drive out the tenants even though risks are incurred in doing so, for in many instances speedy death is inevitable unless it is done. And the signs which justify this treatment are vomiting of worms, convulsions, or diarrhœa with mucous discharges of reddish color, the same being attended by colic, which is indicated by moaning, or general prostration.

These symptoms appearing in a puppy of large or medium-sized variety and between three and four weeks old, one-half a teaspoonful of No. 1 should be given; and followed by three drops of laudanum in a teaspoonful of water, in all cases of convulsions or colic — but in none other.

If, now, at the end of an hour worms have not begun to pass, another half teaspoonful of No. 1 should be administered; and this should be followed in an hour by a similar dose of laudanum if convulsions or pain persist.

But if worms have been passed during the first hour it will not be advisable to repeat No. 1. The laudanum, however, should be given in three-drop doses every two hours until the convulsions or pain have subsided. And this dose of laudanum is appropriate for all puppies excepting *small breeds* and toys.

This worm and opiate treatment is not likely to do harm if it fails to do good. And now comes the reason why preference is given to wormseed oil for use in earliest puppyhood. It is destructive to worms, less so, however,

than santonin, and at the same time it is non-irritating and perfectly safe when given in the quantities herein advised. Beyond this, it really possesses tonic properties that are felt especially by the lining membrane of the intestine, which fact has been shown in many cases by improvement in the diarrhoea and other symptoms attributed to worms when those symptoms were due, not to worms, but to other causes, and very generally to indigestion. Finally, the writer doubts if it is poisonous even in very large doses, for he has many times given, without injury, four teaspoonfuls of No. 1, and repeated the doses in one hour, to pug puppies that were in their third week; while to the same puppies he gave one drachm doses of pure wormseed oil when they were in their seventh week, and the only marked effect produced was constipation. But these experiments were for the purpose of locating the safety lines, and of course no reader would be justified in repeating them. Nor would it be necessary, for the small doses advised act quite as well on the worms.

As already intimated, when severe symptoms of worms appear in a puppy about the third week the chances are many that death will result, and more than likely be due to perforation of the intestinal walls, failure of the vital powers induced by intestinal inflammation, obstruction of nutrition or diarrhoea; or it may be occasioned by profound impression of the worms upon the head centre of the nervous system, the same being exhibited by convulsions.

While both the worm medicines advised are practically harmless they sometimes cause symptoms with which the reader should be familiar, for otherwise he might be made uneasy by them. Slight frothing at the mouth, evidently a disposition to spit, and shaking the head for a few minutes, are induced by the unpleasant taste of the drugs.

Nausea is another occasional symptom; and it is well to add that it is generally excited in young puppies by all medicines that contain considerable quantities of castor oil; and while puppies six weeks old or older often find relief from it in vomiting it rarely occurs at an earlier age. For a time the little patients are in some instances more or less sluggish or as many are wont to say, "dumpish;" they are then disinclined to move about much or nurse, and generally soon fall asleep, to wake up in the course of an hour as bright and active as ever.



CHAPTER IX.

POTENT WORM-DESTROYERS.

AFTER puppies have passed the tenth week the mildest of the medicines advised, mixture No. 1, can be laid aside—in a cool place if it is to be kept—and No. 2 used thereafter, in the same way as during the earlier age.

For puppies of large and medium-sized varieties, the dose of No. 2 should be the same—one teaspoonful—up to the fourth month, when it can be increased one-half; that is, one teaspoonful and one-half can be given at one dose. From the fourth month this dose should be persisted in until the seventh month, when another increase of one-half a teaspoonful can be made. In other words, such puppies seven months old can take two teaspoonfuls of No. 2 at a single dose.

At the tenth month another increase of one-half a teaspoonful will be allowable with No. 2; and this made, the dose will be two and one-half teaspoonfuls.

Three months later, or at the thirteenth month, still another increase of one-half a teaspoonful can be made, and this will bring the dose up to three teaspoonfuls, which will be large enough for all mature dogs excepting the

largest breeds, for which there should be one more such increase after the eighteenth month.

For puppies of *small but not toy* breeds the increase in dose of No. 2 should be one-half the original dose, — which was recommended to be one-half a teaspoonful, — and this increase can be made every three months. That is, at the fourth month their dose would be three-fourths of a teaspoonful; at the seventh one teaspoonful; at the tenth one and one-fourth teaspoonfuls; and after the thirteenth one and one-half teaspoonfuls.

For toy puppies, as Yorkshires, the same methods should be employed in graduating the doses of No. 2. Starting with one-fourth of a teaspoonful as the original dose, this should be increased one-half every three months, or by about seven drops each time, estimating a teaspoon to hold between fifty and sixty drops of the mixture.

Let the reader bear in mind that in every instance where No. 2 is used, whether with large, small or toy varieties, and notwithstanding the increase in the dose, every time it is given it can be repeated in two hours if the first dose has not had a very decided effect, worms having been passed during the interval.

Mixture No. 2 very generally proves all-sufficient during the first six months, and not infrequently it can be wholly relied upon not only until maturity is reached, but for a long time afterward; and such being the case it should be persisted in. But in some instances along about the fourth or fifth month puppies become infested with worms which yield less readily to santonin than to some other vermifuge. And when such cases are encountered and No. 2 fails to expel the intruders powdered areca nut should be tried.

Areca nut is a product of an East India tree belonging

MISS H. M. MACKENZIE'S ITALIAN GREYHOUNDS.



"SAPPHO."



"JUNO."

BLACK-AND-TAN TERRIERS.



DR. H. T. FOOTE'S "BROOMFIELD SULTAN."



MR. A. W. SMITH'S "BUFFALO LASS."

to the family of palms, and its active constituent is *arecoline*, a colorless oily fluid. *Arecoline hydrobromate*, a salt of this alkaloid, resembles *pelletierine*, an alkaloid obtained from the root-bark of the pomegranate, and is a local irritant when applied to mucous membranes. In medium doses it produces vomiting and diarrhœa, while small doses slow the movements of the heart, render respiration difficult and have a paralyzing action on the brain.

Some who have discussed areca nut in public print have denounced it as unsafe and poisonous, while others have claimed it to be perfectly safe and incapable of doing any harm whatsoever. Both sides are at fault on this question. For puppies four or five months of age and upwards, and matured dogs, areca nut is one of the safest of vermifuges, but puppies much under this age do not always bear it well. In fact the writer in his experiments with it has killed puppies six and seven weeks old by only moderate doses. And in these fatal cases evidently the drug produced a profound impression on the heart, which caused its failure.

More than likely areca nut has often been given to quite young puppies without harmful results; still the danger line can scarcely have been left before the fourth month, and until then if it is used it should be in very small doses. But once this doubtful period has passed there will be no necessity for nice adjustment of doses, and excepting where the puppies to be treated are *small breeds* and toys, the health, strength and age are considerations of first importance in estimating them.

A distinction has been made between *small breeds* and *toys*, but this is vague, and before going further the lines must be drawn as closely as possible; but instead of giving a list of the varieties included in these classes it will be as well, besides favor convenience, to fix them by weight

and include in the *small breed* class, dogs, of both sexes, that when full-grown weigh over ten pounds but not much over twenty pounds ; and put all others weighing less than ten pounds when matured in the toy class. Of course this classification is far from exact, but still it will answer every purpose, moreover obviate the danger of error.

Powdered areca nut can safely be given in *even* teaspoonful doses to all varieties of puppies, from the largest down to *small breeds*, that have recently passed the fourth month, provided always the patients are fairly healthy and strong.

For puppies of *small breeds* of about this age the dose should be one-half a teaspoonful.

For toy puppies of like age the dose should not be over one-fourth of a teaspoonful.

Strangely, perhaps, in dealing with medicines it is the trifles over which people are most likely to stumble ; and it being assumed that some may not know how to measure an *even* teaspoonful of powder the following advice is given : Take up a heaping teaspoonful, and with a small card or knife blade, or anything else that has a straight edge, sweep off all the powder above the edges of the spoon. This done, if the spoon holds powdered areca nut, the quantity left in it will weigh about sixteen grains, provided the spoon is of the old-fashioned sort, which is a little smaller than the make of to-day.

At about the eighth month the dose for the toys can be increased to about one-half a teaspoonful ; and that will be quite enough for them thereafter, even when matured.

As for the *small breeds*, they will bear an increase of about one-fourth every third month after the fourth ; that is, starting at the fourth month with one-half a teaspoonful, about the seventh month the appropriate dose will be



MRS. M. A. FOSTER,
BRADFORD, ENG.

three-fourths of a teaspoonful; the tenth month an even teaspoonful; while once fully matured they can safely be given nearly one and one-half teaspoonfuls.

For all puppies of varieties of medium size, as collies, the dose of areca nut should be increased by one-half a teaspoonful every second month until the sixteenth month is passed; that is, commencing with one teaspoonful after the fourth month, after the sixth it should be one and one-half; the eighth, two; the tenth, two and one-half; the twelfth, three; the fourteenth, three and one-half; the sixteenth, four; and this should be the dose thereafter.

The reader is reminded that the basis of these estimates is an *even* teaspoonful.

In adjusting the doses of areca nut for the largest breeds, precisely this same method of increase should be employed; that is, commencing with one teaspoonful after the fourth month if this dose is increased by one-half a teaspoonful every second month, in the sixteenth it will be the same as for medium-size breeds. But the increase should be persisted in, and in the same ratio, until after maturity, which is about the twenty-fourth month. In other words, the dose after the eighteenth month will be four and one-half teaspoonfuls; the twentieth, five; the twenty-second, five and one-half; and the twenty-fourth, six.

Doses estimated on these lines are only of moderate size, yet, as a rule, they are quite as effectual as much larger doses. And it is always better in cases of worms to resort to fairly small doses and repeat than give a single very large one.

When giving powdered areca nut to quite young puppies the best vehicle is milk; but the quantity should not be over a tablespoonful, for force must be used in administration.

The usual form in which it is given to puppies that have passed the sixth month and to mature dogs is that of a bolus, which can be made as follows: Place the required quantity of powder in the centre of a plate; drop on it two or three drops of molasses, and with the tip of a table-knife incorporate the whole, meanwhile adding more molasses as required. After all the grains of the powder adhere, take up the mass on the end of the knife and dip it into dry wheat flour. Now remove it with the fingers and roll it into a ball; while doing so it will be necessary to sprinkle more flour over it, otherwise it will stick to the fingers.

In administering this it is necessary to force open the patient's mouth, lift his nose in the air, drop in the bolus and with the forefinger push it back as far as possible, then *quickly* bring the jaws together and hold them tightly until it is swallowed.

But when the subjects will gulp small pieces of meat the most convenient way of giving areca nut is in a very thin slice of beef, folded or rolled so that the powder is concealed. And this should be tossed to the patient, so that he will catch and bolt it, after he has been teased with a few bits of meat.

Where the required quantity of areca nut is considerable, manifestly it would be advisable to give it in divided doses; that is, use several small slices of beef rather than a single large one.

Its active constituent being a volatile oil, areca nut speedily loses its value as a vermifuge after it has been reduced to a powder and exposed to the air, consequently the nuts should be invariably purchased and powdered as required. This powdering can be done at home by means of a nutmeg grater. And the lightest-colored nuts should be chosen, for they are of more recent growth

than the dark-colored, therefore richer in the essential properties.

Along about the eighth month—but it may be much earlier or much later—puppies are likely to become infested with tapeworms, and although areca nut will oftentimes expel these troublesome tenants there are other agents that are more destructive to them, and with one of these the reader should be fortified.

Of the anthelmintics peculiarly adapted to this species of worm, male fern is one of the most active; and the form and combination should be as follows:—

Oil of male fern, one-half an ounce; olive oil, one and one-half ounces.

For puppies between six and eight months old, excepting, again, the *small breeds* and toys, the dose of this mixture is one teaspoonful.

For the *small breeds* an appropriate dose is one-half a teaspoonful; while one-fourth of a teaspoonful is right for the toys.

This mixture, like all others containing disagreeable oils, should be floated on a little milk, as previously advised with worm medicines Nos. 1 and 2.

For all varieties of medium or large size the doses of the male fern mixture should be increased by one-half when the second year has been entered; while with the largest breeds another and similar increase should be made at the beginning of the third year—or in other words they should then be taking two teaspoonfuls of the mixture.

In every case when male fern fails to have the desired effect, it should be administered again after an interval of a week.

Obviously in all cases where worm medicines, of whatever kind, are given, for the best results the intestines should be comparatively empty that the drugs may be

brought in more thorough contact with the worms; consequently fasting for as long a time as wise and safe should be the rule. But in cases where the puppies are still nursing, a fast of two or three hours will be quite sufficient; and if such little ones are in imminent danger there need be no delay.

For puppies under five months of age oftentimes a fast of a night will be long enough; and a light supper of milk having been given, the worm treatment can be administered before breakfast. But where a tapeworm is the lodger to be expelled, about a week of preparatory treatment is advisable. And the importance of this appears in the following: While evacuations of many of the segments of the worm are easily brought about, but little has been really accomplished until the head is expelled, for reproduction is steady and rapid as long as that remains. This portion is very obstinate indeed in its adherence to the lining of the intestine, and being minute in size it is easily shielded from the action of the worm medicine by the tenacious mucus, which is always secreted in excess when a tapeworm is present.

It is essential, therefore, to diminish this secretion before commencing the actual treatment, and much can be done in this direction by dietetic means alone. To the desired end for about one week the diet should be restricted to raw beef, and milk or broths thickened with a few well-toasted bread crusts. And these foods should be limited in quantity. In other words the diet should be of the "starvation sort," provided, of course, it can be safely instituted, the subject being fairly strong and hardy.

Under this restriction in diet the mucous secretion will have greatly lessened, and perhaps sufficiently, but still those who can spare the time required will do well to administer during the dieting the following mixture: Chlo-



LADY GIFFARD'S MALTESE TERRIER,
"HUGH."



MRS. M. A. FOSTER'S YORKSHIRE TERRIER,
"TED."



MR. F. P. COMSTOCK'S JAPANESE SPANIEL, "NANK-I-POO."



MRS. E. J. THOMAS' POMERANIAN,
"BLACK BOY."



MISS HAMILTON'S POMERANIAN,
"ROB OF ROZELLE."

ride of ammonium, two drachms; fluid extract of senna, six drachms; water sufficient to make three ounces. Dose, one teaspoonful twice daily, in a little water, between the feedings.

This dose is appropriate for all breeds excepting the small and toy. For the former the dose should be one-half a teaspoonful, and for the latter one-fourth of a teaspoonful.

The week of preparation having ended, the night before the male fern is to be administered, and four or five hours after the patient has had a light supper, a goodly dose of castor oil should be given. Then, the bowels, having been thoroughly evacuated and the tapeworm uncovered, as it were, the destroyer can work to advantage.

As the wormseed oil and santonin mixtures—Nos. 1 and 2—contain a large proportion of castor oil, a cathartic will not always be required after them. That point, however, has already been covered in their discussion. But the other vermifuges, areca nut and male fern, should invariably be followed in an hour and a half, or two hours, by a cathartic; and here again the preference should be given to castor oil, and the dose of the same graduated according to the age as follows:—

For all puppies six months of age, excepting *small breeds* and toys, it should be one tablespoonful. For the *small breeds* it should be one-half a tablespoonful; and for toys, one teaspoonful.

After this age and up to the twelfth month the doses for all varieties can be gradually increased until they are nearly or quite doubled; and rarely will further increase be necessary for the toys, small and medium-sized breeds, but for the largest dogs three tablespoonfuls of the oil is generally required for very decided effect.

Attention is again called to the fact that puppies in-

fested with worms suffer from considerable inflammation of the intestines; and while this very generally subsides rapidly after the noxious tenants have been driven out, it sometimes persists and keeps the patient ailing for a week or more if it does not eventually kill. Therefore, everything possible should be done to favor restoration of the affected parts. And the essential treatment is, to exclude all farinaceous substances from the dietary save toasted bread, and allow but little of that even, and rely chiefly on milk, eggs and scraped beef. If the mucous discharges have been large it will be well, also, while restricting the diet, to give an alkali to discourage further excessive secretion of mucus, and this requirement is best met by the bicarbonate of soda, "a pinch" of which should be put into the milk three times daily.

Before summarizing and leaving this subject there are a few crumbs to be swept up.

Dogs are threatened by many different kinds of worms, and while some of the pests are destroyed by a certain vermifuge, others are not affected by it or by any other agent excepting their own peculiar antidote, as it were. Moreover, far oftener than otherwise it will be impossible for the owner to determine excepting by treatment the kind of worm his dog is harboring. Now, wormseed oil, santonin, areca nut and male fern constitute an admirable battery, and when one member of it is resisted some of the others are pretty sure to prove all-powerful; but acting singly, while sweeping out their own enemies, they must in many instances leave others behind, hence it will often be necessary to unload them all upon the intruders.

Such occasions as this, however, seldom present themselves in the first year of life, and as a rule one member of the battery does the work for all. But after the sixth month,

should a case be encountered in which the symptoms of worms persist after one of the vermifuges recommended has been given, then it will be advisable to administer the others, allowing always an interval of a week between each. As, for instance, give mixture No. 2 the first week, areca nut the second, and male fern the third. And this course pursued, the work of ejection ought to be complete, each agent finding its own special victims.

But puppies having passed the first year and acquired a resistance to the unpleasant effects of such drugs, were it necessary the entire battery could be turned loose at one and the same time—that is, if in any instance the symptoms of worms did not disappear after each one of the vermifuges advised had been used in turn they might all be given together, in a single dose.

Nor is it likely that this single dose would do any harm were it made up of full doses of all the ingredients, but no risks should be taken with a good dog, therefore it would be advisable in every instance to give in the combined dose only two-thirds of a dose of each. In other words, it would be necessary to consider the age of the dog to be treated and estimate according to the rules already laid down the quantities of areca nut, male fern and mixture No. 2 suitable for him, and then take of each only two-thirds.

To preclude all possibility of error the writer will go further and assume that the reader has a collie about fourteen months old which presents symptoms of worms that have resisted all the mixtures advised, the same having been given singly, and he now desires to try them together. Turning back to the different preparations it is found that for dogs of this age the following doses were recommended:—

Of No. 2, two doses of three teaspoonfuls each, or six

teaspoonfuls in all; of areca nut, three and one-half teaspoonfuls; and of the oil of male fern mixture, one and one-half teaspoonfuls.

Therefore he will take of each two-thirds of these doses, or of No. 2, four teaspoonfuls, areca nut a trifle over two and one-half teaspoonfuls, and the oil of male fern mixture one teaspoonful.

Now, these proportions of No. 2, areca nut and male fern should be put into a bottle, together with about two tablespoonfuls of warm milk, and administered as soon as they are as well mixed as possible by vigorous shaking. And this dose should be followed in the course of an hour or an hour and a half by not less than two tablespoonfuls of castor oil.

This, which can properly be called a "shot-gun mixture," for it must scatter and hit the mark *somewhere*, should never be given excepting to dogs, of either sex, that are very vigorous and healthy; and to such it is never at all likely to do any harm when prepared on the lines laid down.

As for adjusting the doses for the *small breeds* and toys, that should be done in precisely the same way for each class.

In works treating of worms and anthelmintics it is generally recommended that santonin be given two or three times daily for several days and finally followed by a cathartic. The writer believes that this method of administration is open to objection, especially with very young puppies, since it must increase the liability of poisoning by the drug; hence he has combined it with wormseed oil; and two doses of this mixture he has found to be more efficacious than several doses of santonin alone given over several days. However, should the reader desire to give mixture No. 2 to the same puppy several

times within a week, he can do so safely if he allows between each treatment an interval of a day.

The influence of diet upon worms has been considered with the subject of "Feeding," and it is merely necessary here to emphasize the fact that worms are greatly favored when the stomach and bowels are kept loaded with indigestible or half-digested food, under which conditions the parasites grow and increase in number far more rapidly than under a happier one. Liquid foods are also, as a rule, friendly to the pests, whereas solids tend to dislodge and sweep them from the body.

As to the prevention of worms, beyond the measures already defined there are none of any special value. Sour milk, very likely, has some action on the egg-shells of worms, and it may be able to penetrate them and destroy their contents; or it may, possibly, soften these shells so that the gastric juice can reach the young worms, which it is thought invariably to kill. But, as far as puppies are concerned, worms are almost always entrenched before this food can properly be given them.

The writer once thought powdered charcoal had some preventive as well as destructive action, but long experience and close observation have since taught him that he greatly over-estimated its effects in this direction, and that if it has any such action it is but slight, and an appreciable effect can only be obtained from very large doses; to give which to puppies is impossible except by force, for small quantities, even, mixed with their food often cause them to refuse it. Consequently he now discourages the use of this agent as practically inert.

Summarizing briefly, cleanliness is the most potent preventive of worms. In the absence of threatening signs worm medicines should be withheld until after the eighth week; but in the event any such signs appear, dosing

should be promptly resorted to. Mixture No. 1 should be relied upon until the eighth week; then if it fails, No. 2 should be tried, and depended upon afterward as long as it proves efficacious — even up to and during maturity. When No. 2 is found wanting areca nut should be used; and that failing in turn, the male-fern mixture can be called into service.

A combination of these vermifuges should be made only when singly they are incapable of doing the work; and after the twelfth month, previous to which one after another may be given if *necessary*, but always with intervals of several days between each.

Finally, infection is always in lurk in kennels, consequently it is advisable under such conditions to give puppies that have passed the tenth week a dose of vermifuge occasionally, until after the eighth month.

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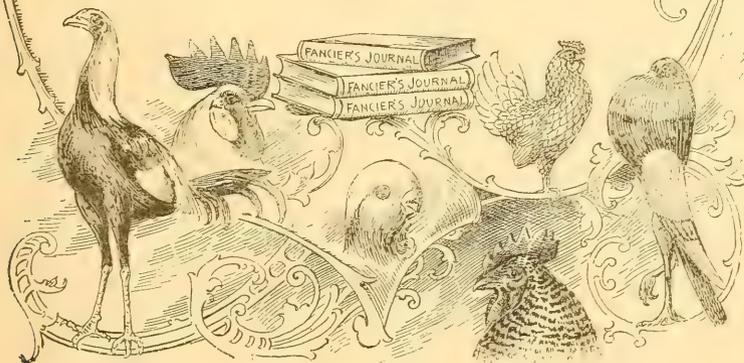


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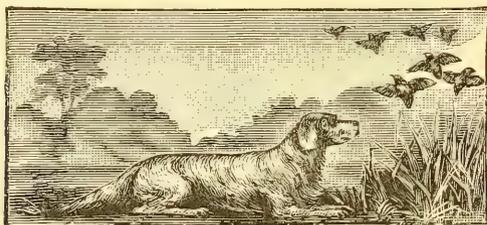
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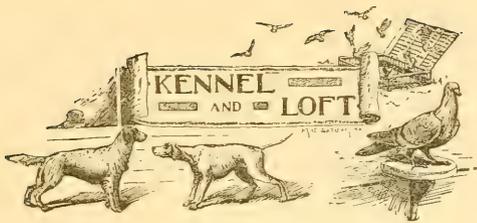
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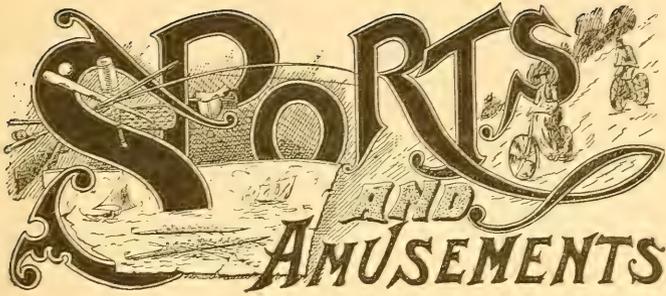
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