HORSE

Recent importations of pure-bred horses to the west together with the report that other horsemen are preparing to go abroad for more stock emphasizes the fact that horse breeding is even now one of our most progressive industries. Nothing is more certain than that we must have horse power and that even when mechanical power is cheaper to buy than animal power the advantage is with the latter for the reason that it is home produced. In this sense the farmer who raises horses becomes the manufacturer of his own motor traction and by the way, has about as large a margin of profit as the manufacturers of mechanical traction.

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A meeting of breeders and others interested in Standard-bred Trotting and Pacing horses was recently held in Toronto, for the purpose of organizing an association and establishing a pedigree register under the National Live-stock Association of Canada. A committee was appointed to draft a constitution and by-laws, which, at a subsequent meeting, were adopted. The standard will be the same as that of the American Trotting Register Co. Robert Davies, Toronto, was elected President, and John W. Brant, Ottawa, Secretary.

Some Diseases of the Respiratory Organs

PART I.

By J. FIELDING COTTRILL, V.S.

When speaking of the diseases of the respiratory organs we must first know what those organs are. Roughly we may name them thus :— First, the nostrils, leading to the nasal chambers, into which open the sinuses or hollow chambers in the skull. Next we come to the pharynx, common to both the windpipe and the gullet. The larynx or voice-box, containing Adam's apple, comes next and is followed by the windpipe or trachea, and this, as everyone knows who has killed and dressed a pig, divides into the left and right bronchi, and each of these branches into the bronchial tubes, which divide and subdivide until they become almost microscopic in diameter, and ultimately end in the minute air cells. It has been said, and very rightly, that this tube and its sub-divisions bears a great resemblance to a tree, the trachea being the trunk, the bronchi, the arms or limbs, and the bronchial tubes, the branches and twigs. Finally the air cells may be said to represent the leaves. Anatomically this description is very crude, but it is sufficient for our purpose. The lining membrane, of such delicate structures, must be still more delicate and, therefore, extremely liable to get out of order.

Then surrounding these delicate parts are the blood vessels, so small that the combined walls of the two air cells, with the blood vessels separating them, does not exceed 1-3500 of an inch.

Just fancy for a moment what this means ! There is a lining membrane to each air cell; there are the structures composing the walls of the air-cells; there is the blood vessel with its three walls, doubled of course, and the blood space or lumen between, and the whole combined does not exceed the tiny particle which would be left if an inch were divided into three thousand five hundred parts. 100 sheets of the paper I am writing upon measure $\frac{3}{4}$ of an inch in thickness, therefore, each sheet of paper is about thirteen times the thickness of all the structures I have just named.

Can one wonder that such delicate structures are very susceptible to foreign matters in the air ! They are very little affected by the natural atmospheric changes, for Nature has arranged things upon a most admirable plan, provided some parts to warm the air before it reaches these sensitive bodies; planned others to add moisture to or withdraw it from the air, according to the requirements of the lungs. There are sieves, as we might term them, to arrest dust or germs. There are other minute organs for providing a special lubricant for this delicate machinery, and others still more minute, working incessantly to carry to the outside any excess of this lubricant, together with the dusty particles or arrested germs. Treated properly these bodies are ample to answer all the requirements of Nature. They need no assistance from us to adapt themselves to the changes from summer to winter, from the Canadian zero to the African tropical heat, but such change does not occur naturally without warning or giving time for these structures to adapt themselves to the changed conditions.

Here it is we often go wrong.

Instead of proceeding gradually, we jump from one extreme to the other, and compel this delicate machinery to do the same. Loyally it tries to do so, but the strain is too great. Some frail, tender link gives way, and the whole machinery is thrown out of gear, the balance is lost, every part works furiously or not at all, there is nothing to check them, nothing to keep them in harmony, all is confusion and the result is disease.

The whole interior of these tubes and air cells is, as I have said, lined with a very delicate kind of membrane, which is termed a mucous membrane, because one of its duties is the secretion of a kind of lubricating substance known as mucus.

This membrane, being tender, is especially subject to disease. It requires but little to cause it to become inflamed, and then, at first, the secretion of mucus is temporarily arrested, but this is soon followed by a profuse and superabundant secretion, which passes up the trachea to the head and is discharged from the nostrils, hence we speak of it as a nasal discharge.

It is this discharge which is in many cases the first thing seen by the owner.

Very often, we are asked to stop this, and probably we could , but think for a moment about the wisdom of doing so. This secretion is not normal either in quantity or quality. It is most unhealthy, most abnormal. And Nature is getting rid of this unhealthy substance by means of the nostrils.

Do you want the horse to retain this poisonous germ-laden mucus, or to get rid of it ?

Quite right. You want it to come away. But this is an effect and every effect has a cause. Therefore, the cause of this abnormal secretion must be found and removed. Then the effect will cease by itself. Rain falling upon our bed is an effect, the cause of which is a hole in the roof. We may move the bed, but this is of little practical use. Remove the cause, fill up the hole and the effect will cease by itself. For a time, therefore, we will consider what are some of the causes of these lung troubles.

We may briefiy state them to be :—

(a) Badly ventilated stables, some not even being ventilated at all.

(b) Stables too hot. They may even be too hot as well as unventilated. Far better use blankets, if in a cold stable, than use a hot close stable.

(c) Stables cold and damp. The coldness, I have just said, may easily be corrected by blankets. Besides cold stables, if not draughty, will cause very little disease; but dampness is deadly.

(d) Stables badly drained. The air, here, is constantly polluted with foul gases, which act as chemical irritants to the lungs.

(e) Allowing an overheated animal to dry by evaporation. The result is practically certain to be disease. Far better rub the animal down, cover with a light blanket, and walk till cool. If the walking cannot be done at least the rubbing and blanketing can.

(f) One other fertile cause may be named and that is overwork and over exertion when not in condition. The result is practically certain to be congestion of the lungs. It is an easy matter to prepare the horse for work by doing a little every day for a few days before the bulk of the work comes on. If this is too much trouble, tie a long rope to the bridle and make him run in a circle for five or six minutes every day. Surely you can spare time for this. However, you want to know about the diseases. Those of the nostrils, nasal chambers, sinuses, etc., may all be omitted, not because they are not important, since they may even be fatal in extreme cases, but because they are not an every day occurrence. We shall confine ourselves to some diseases of the lungs, that is, to the smaller air tubes, bronchi, bronchial tubes, air cells, lung substance and the lung covering.

CONGESTION OF THE LUNGS

Congestion really means an excess of blood to a part.

This may, therefore, be abnormal or normal, healthy or unhealthy.

Whenever an organ is used Nature hurries an extra supply of blood to it, to allow it to perform its physiological functions, and if the demand is not excessive, the nerves have the power of increasing the power of the bloodvessels to allow this greater volume of blood to pass to this organ and to diminish the size, when it is desirous of checking this flow. It may even happen that an organ may be *trained* to do a much greater amount of work than usual. Of course, more blood will pass to this organ when functionating, and the vessels by the training will have acquired stronger and more elastic coats.

When the demand for this blood ceases, the stimulus is withdrawn, the nerves, acting the part of the drill sergeant to his soldiers, cry, "Stand at ease," the elastic coats of the blood vessels resume their normal condition, that is, the elastic tissues recoils, the diameter of the vessels is decreased, the blood driven back from the lately active organ and everything is again quiet.

I have just said an organ could be trained. It will even increase in size and strength, and though this extra strength is not required when at rest, it is there whenever there is a demand for it.

Let me give an example :

The heart of the trained racer is much larger and stronger than that of his untrained brother, and the volume occupied by the lungs is increased, together with the quantity of elastic tissues in them, because during the race there is an imperative demand for an increased amount of blood to the lungs. The ordinary heart could not supply this, therefore, the pumping organ is increased in size and power, and unless the lungs were also increased proportionately in size and power it would result in congestion. But, having gained the increased size and strength of these organs, it is necessary that they be exercised regularly, or they will lose their power, since disuse will weaken any organ.

Suppose now that your horse has been doing little or nothing all winter, and on the approach of spring you hitch him up, and drive him along at a smart pace for say five or ten miles. He will start off as in the previous fall, full of fire and go. The air whistles past your ears, the regular pad, pad, of his hoofs on the ground strike your ears with musical regularity, and you mentally say, "By Jove, Jack is better than ever!" Then you almost decide to enter him in the race at the fair, but while you are building your castles in the air Jack begins to go slower. You cherup and he picks up his stride again, but soon slackens. Then you touch him with the whip and once more he answers to the demand, but almost at once reduces his speed. He appears to be tired and wants to stop. This is queer, you think. You pull up and go to his head, and what do you see? Why, the nostrils are dilated, the head stretched out, the breath is coming almost in sobs, the flanks heave, the countenance looks worn and haggard, and the horse appears almost to be suffocating. If you are unwise enough to make him move, he will stagger, and may even fall. Now you are alarmed and wonder what is wrong.

Well, it is simple enough.

The blood vessels in the lungs have become weakened by disuse. You suddenly make a great demand upon them. They are unable to control the great volume of blood pumped into them, and you have what we term congestion of the lungs. This is, of course, abnormal. Had your horse been in condition the elasticity of the vessels could have controlled this blood supply.

Notice the word "condition." In it you have the key to the whole affair.

To prevent congestion of the lungs, get your horse into condition. Exercise him gradually after a rest. Make him go a little further or a little faster every day until he does his best, then exercise him frequently to prevent him getting out of condition.

However, that won't cure Jack as he stands in the road or maybe, in the stable after a sharp run.

Let us look at him again and make a list of what we see and feel. Here it is :—

Head.—Extended but hanging down.

Eyes.—Probably wild and staring, but may be dull and sunken.

Nostrils.—Dilated.

Breath.—Coming in gasps or sobs.

Ears.—Probably cold.

Feet.—Probably cold.

Flanks.—Heaving spasmodically.

Body.—Covered with perspiration and perhaps trembling.