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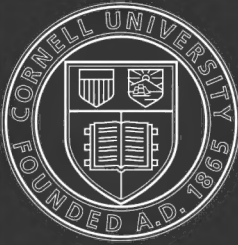
THE N. Y. STATE VETERINARY COLLEGE.

1897



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THE  
HOMŒOPATHIC  
VETERINARY DOCTOR

GIVING THE HISTORY, MEANS OF PREVENTION,  
AND SYMPTOMS OF ALL

DISEASES OF THE HORSE, OX, SHEEP, HOG, DOG,  
CAT, POULTRY AND BIRDS,

AND THE

MOST APPROVED METHODS OF TREATMENT,

BY

GEORGE H. HAMMERTON, V. S.



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CHICAGO:  
GROSS & DELBRIDGE, PUBLISHERS.  
1890.

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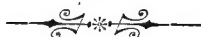
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## PUBLISHERS' PREFACE.



**T**HAT one plan of organism runs through the various forms of animal life is an accepted fact of science. From this fact comes the natural inference that similarity of organism gives rise to similarity in disease and calls for similarity of medicinal treatment. While rapid advance has been made in the care and treatment of man, the animals which serve him, particularly the horse and ox, are still the victims of the cruel and often fatal notion that they require massive doses of drugs. The most skillful veterinary practitioners have demonstrated that the horse does not require much more medicine or much stronger external applications than an adult man, except only when laxatives or anodynes are required.

The chief defects in previous veterinary books for the masses have been: (1) Incomplete directions upon how to know what disease the animal is suffering from; (2) Disregard of the rational and humane rule that the dumb animal is to be treated upon the same principles as man.

The most casual reader will notice the great care taken in the present volume to so fully describe diseases, before prescribing the treatment, as to clearly answer that most perplexing of all questions, "What is the matter?" Such careful description is the more imperative when two or more ailments are so much alike in symptoms as to be particularly liable to confusion. The parallel tables of symptoms—which are now so valuable in medical books upon the human family—are freely used in this work. Observation being the only means of determining upon the ailment of dumb animals, no pains have been spared to provide cuts which illustrate to the *eye* distinctive symptoms which the patient, from lack of speech, cannot explain to the *ear*.

Full directions having been given to decide what disease affects the animal, the application of the humane rule of treatment above laid down is consistently observed.

A separate part, boldly set off, is devoted to each animal treated, thus enabling the reader to confine his study to a specific limit when investigating the needs of a particular animal, free from the distractions inseparable from books in which prescriptions are made for several animals in the same

chapter, or on the same page. The repetitions which this plan would otherwise involve are avoided by suitable cross-references, an arrangement which has materially reduced the size of the volume, without producing poverty of information.

The author has acted upon the broad principle that many good men know more than one man, and has freely drawn upon a long list of the highest authorities, notably, Lord, Rush, Mayhew, "Stonehenge," Law, Harris, and Martin, the works of Lord and Rush being the basis of the treatment of the horse, ox and sheep.

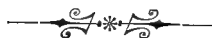
The publishers confidently claim a more popular style of language than has been heretofore attained in any similar publication, and a happier adaptability to the wants of the non-professional practitioner.

GROSS & DELBRIDGE,

48 *Madison St., Chicago.*



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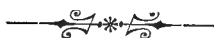
<p>Aconite.....3x trit.                      Antimonium Crud.....3x trit.                      Antimonium Tart.....3x trit.                      Apis Mel.....3x dil.                      Arsenicum Alb.....3x trit.                      Arnica Mont.....2x dil.                      Belladonna.....2x dil.                      Bryouia Alb.....2x dil.                      Calcarea Carb.....3x dil.                      Calcarea Phos.....3x trit.                      Camphora.....2x dil.                      Cannabis Ind.....3x dil.                      Cantharis.....2x dil.                      Cocculus.....2x dil.                      Cimicifuga.....2x dil.                      Cina.....1x dil.                      Cinchona.....1x dil.                      Colchicum.....2x dil.                      Colocynth.....2x dil.                      Digitalis.....2x dil.                      Dulcaamara.....2x dil.                      Euphrasia.....2x dil.                      Ferrum Sulph.....3x trit.                      Gelsemium.....1x dil.                      Glonoine.....3x dil.                      Graphites.....3x dil.                      Hamamelis.....1x dil.                      Hellebore.....2x dil.                      Hepar Sulph.....3x trit.                      Hydrastis.....2x dil.</p>	<p>Hyosyamus.....2x dil.                      Iodine.....3x dil.                      Ignatia.....2x dil.                      Ipecac.....3x dil.                      Kali Bich.....3x trit.                      Kali Brom.....3x trit.                      Kreosotum.....3x dil.                      Lycopodium.....3x trit.                      Murcurius Cor.....3x trit.                      Murcurius Iod.....3x trit.                      Murcurius Vivus.....3x* trit.                      Nux Vomica.....3x dil.                      Opium.....3x dil.                      Phosphorus.....3x dil.                      Phos. Acid.....3x dil.                      Phytolacca.....2x dil.                      Plumbum.....3x trit.                      Podophyllin.....3x trit.                      Rhus Tox.....2x dil.                      Sabina.....2x dil.                      Silicia.....3x trit.                      Spigelia.....3x dil.                      Spongia.....3x trit.                      Stramonium.....3x trit.                      Strychnia.....3x trit.                      Sulphur.....2x trit.                      Tart. Emet.....3x trit.                      Thuja.....1x dil.                      Urtica Urens.....2x dil.                      Veratrum Vir.....2x dil.</p>
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### SPECIAL LIST.

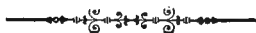
Chloral Hydrate,  
 Arnica Tincture,

Calendula Tincture,  
 Hamamelis Extract.

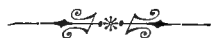
## SIZE OF DOSE.



- For a Horse full-grown, 3 times the dose for a Man.  
 " 3 years old, 2 " " "  
 " 2 "  $1\frac{1}{2}$  " " "  
 " 1 year old, usual dose for a Man.  
 " 6 months old,  $\frac{2}{3}$  " "  
 For an Ass full-grown, 2 to 3 times the dose for a Man.  
 " 1 year old, usual dose for a Man.  
 " 6 months old,  $\frac{2}{3}$  " "  
 For a Mule, same as for an Ass.  
 For an Ox full-grown, 3 to 4 times the dose for a Man.  
 " 1 year old, 1 to 2 " " "  
 " 6 months old, usual dose for a Man.  
 For a Sheep full-grown, the dose for a Man.  
 " 6 months old,  $\frac{1}{2}$  " "  
 " 3 "  $\frac{1}{3}$  " "  
 For a Goat, rather more than for a Sheep.  
 For a Hog full-grown, the dose for a Man.  
 " 6 months old,  $\frac{3}{4}$  " "  
 " 3 "  $\frac{1}{2}$  " "  
 For a Dog full-grown, the dose for a man, less for small breeds.  
 " 6 months old,  $\frac{1}{2}$  dose for a Man.  
 " 3 "  $\frac{1}{8}$  " "
- Doses for Cats, Poultry and Birds are given with the treatment.



## FORMS OF REMEDIES.



**TINCTURES.**—A tincture is an extract obtained by subjecting a drug to the action of strong or dilute alcohol, or whisky, and is a fluid in form.

**DILUTIONS.**—A dilution is made of a given part of a tincture to stated parts of alcohol or water. The *first* dilution, for example, is composed of

one part of the tincture to ten of alcohol or water; the *second*, of one part to one hundred, etc. Dilutions and triturations are both thus compounded on the decimal scale, and in this form are found at the homœopathic pharmacies, being by the latter marked 1x, 2x, 3x, etc. The subjoined illustrations will be of service in using medicines:

1st dilution (1x),	1 part of tincture to	10	of alcohol or water.
2d " (2x),	1 " " "	100	" "
3d " (3x),	1 " " "	1,000	" "
4th " (4x),	1 " " "	10,000	" "
Etc.,	etc.,	etc.	

It will be seen that there is a wide difference between one dilution and another in the amount of the drug involved. Though in some cases it may make no material difference in the effect whether the first or second is used, in others it is absolutely essential to give that which is recommended, particularly in using very powerful or very poisonous drugs, which are to be administered in the high dilutions.

**TRITURATIONS.**—A trituration contains a given part of the drug ground with stated parts of sugar-of-milk, being obviously in the form of a powder. the *first* trituration contains one part of the drug to ten of sugar-of-milk; the *second*, one part to one hundred, etc. The characters "1x," "2x," etc., are used to distinguish them. Observe the same cautions about using the particular trituration prescribed as were given above for Dilutions.

**DECOCTIONS AND INFUSIONS.**—A *decoction* is made by *boiling* the medicinal substance in water; an *infusion*, by *pouring* boiling water upon it and allowing it to cool.

**SOLUTIONS.**—These are made by *dissolving* the medicinal substance in some liquid, as alcohol or water. A "saturated solution" is alcohol containing as much of a substance as it will hold in solution.

**LOTIONS OR WASHES.**—These are mixtures of medicinal agents and water, for local use. Formulas are given on page 427.

**CERATES.**—A cerate is a compound of a drug with oil or oily substances, and formulas for the same, with the uses, are given on page 427.

**OINTMENTS.**—These are similar to cerates, and their formulas are given on pages 427 and 428.



PART I.

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THE HORSE AND HIS DISEASES.





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DRAWN FROM LIFE BY L. F. CAGWIN.



## PART I.

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# THE HORSE AND HIS DISEASES.

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## INTRODUCTION.

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### THE PREHISTORIC HORSE.

**F**OSSIL bones of the horse have been found in both hemispheres together with those of other animals which indicate an antiquity as great as any fossil quadruped. The relics found in Europe in the bone caves and drift deposits consist of innumerable skeletons as well as representations by drawing and carving on reindeer horn, bone and ivory, executed by their contemporary man countless ages before history began. Ecker says that the European horse of the fourth epoch probably gave birth to the small stunted breed with the large head, rounded forehead and short neck, which is found in fossil remains at Solutre and is still represented by the wild horses of the Rhone delta and the steppes of Russia; but he adds that this primitive breed was almost entirely supplanted by an Asiatic breed larger and more robust, and that our domestic horse is the result of a mixture of the two. The problem of the origin of the horse can no more be solved than that of man; unless we assume the unity of species, and that the Great Architect created each kind in a specific mould at the beginning, subject to the law of variation, limited by the power of reproduction each of its kind, that man, animals and plants had attained a degree of perfection in variety at some period or periods in the remote past, and that the process is now going on, slowly recovering from the great inundation which overwhelmed the earth during the glacial epoch.

## THE HORSE IN HISTORY.

Traces of the horse have been found in nearly all ages and all countries since the flood, the period at which history seems to have dawned. From time to time as the exigencies have demanded varieties of the horse have been produced suitable for the purposes required of them. In following the march of civilization from the very first, the finer breeds appear to have been maintained by the introduction of the Arab stock. Egypt, the most ancient of civilized monarchies that have left monuments to tell their history, as we gather from Rawlinson's "Ancient Egypt," introduced horses, probably from Arabia, under the eighteenth dynasty, and they seem not to have been known in the earlier times. They were regarded as too noble and perhaps too valuable for draught and agricultural purposes, like the ass and the ox, but were commonly either ridden or employed to draw curricles and chariots, chiefly by men of the upper classes. Great numbers were required for the chariots and cavalry. A brisk trade was carried on with Syria and Palestine where they were in great request and commanded high prices. It appears that they were not allowed to graze in fields but were kept constantly in stalls and fed on straw and barley. They seem to have resembled the Arab stock, being light, agile and high-spirited, and were probably introduced into Egypt by the Hyksos.

The same class of horses apparently figures on the monuments of the ruins of Nineveh, Babylon, Assyria, Persia, and other ancient oriental countries, while later, toward the decline of the Persian Empire and the rise of the Grecian, and about the time that the horse was beginning to be cultivated in Europe, the cavalry and war horse was stouter, of heavier quarters and limbs, drooping more at the croup, and altogether of a stockier mould and darker color. Peering into the realms of fancy we can weave a picture which the insufficient light of history can not satisfactorily complete. We can perhaps see the relation and conclude that the parent Aryan stock of the Caucasian civilization was the original possessor of the fine breed of horses known to oriental countries as the Arab, the white albinoish color and the refinement and symmetry peculiar to both going far in evidence.

The great epoch in the history of the horse is at the time of the rise of the Indo-Germanic nations. Spain before England was the nursery of the fine blooded horse. The northern countries supplied the ponderous horse used for war. The cavalry of the time, requiring the heavy armor for both rider and horse, created the necessity of a heavy animal, and to this fact we are indebted for the introduction of the modern draught horse about the time of the Norman conquest.

From that time the variety of purposes to which the horse has been

found useful has given rise to all the so-called breeds, such as the draught horse, thoroughbred race horse, hunters, cobs, hackneys, coach horses, saddle horses, trotters, pacers, buggy horses, ponies, and others, the fashion continually changing so that new breeds are coming forward and old ones falling out; but none of these necessarily become obsolete, as they can at any time, if fashion demands, easily be cultivated to a standard in a few generations.

### THE MODERN HORSE.

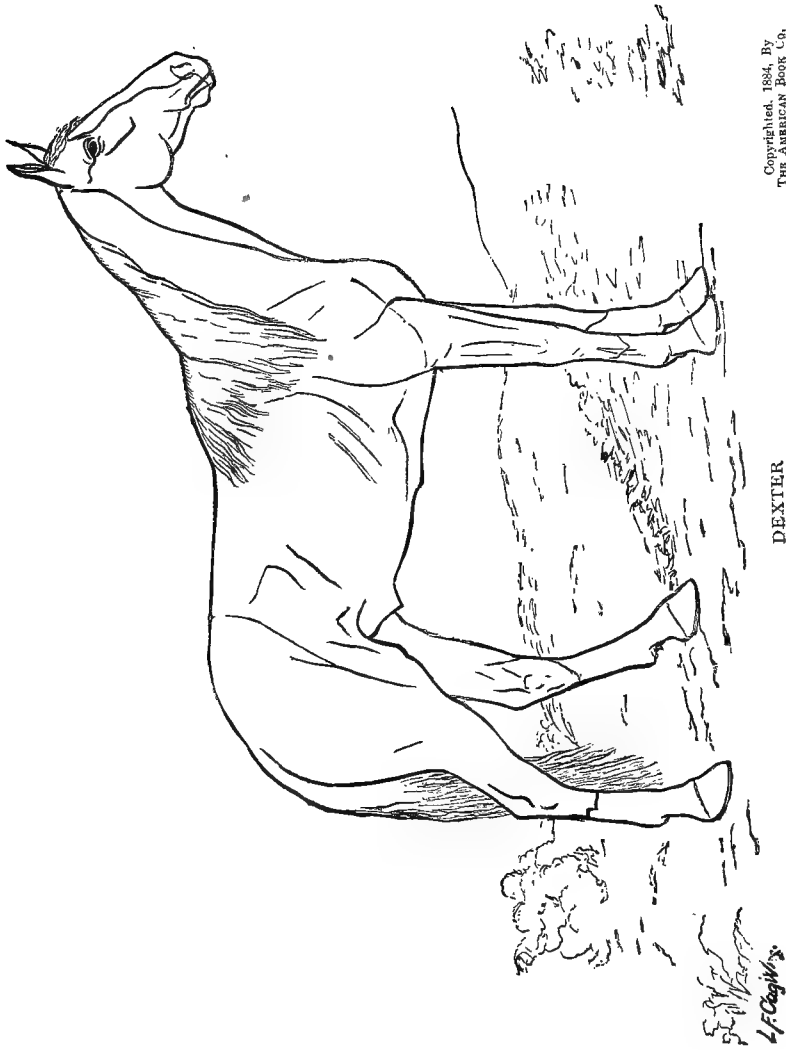
Presuming that the perfect horse combines all the possible requisites after the original design, we may further state that individuals of the species are subject to variation, so that no one animal combines all qualities in perfection, and no two are exactly alike, the physiological causes of which will be discussed under their respective heads. The classification that appears most suitable comprises four groups, namely: The Primitive, the Refined, the Varied, and the Common or Domestic.

*The Primitive.*—The primitive stock, now found as a type in the high latitudes, is most nearly identical with the prehistoric horse. Left to their own resources, without domesticating influences, these are small, tough and hardy, of round build, large heads, short, heavy necks, sturdy limbs, dark and shaggy coats, familiar to all who are acquainted with the Shetland ponies, or better, with the old French and Scotch.

*The Refined.*—This class is typified in the Arab horse of ancient and modern times. The white, gray, and delicate lighter shades are an index of their refinement and purity; their artistic mould, the superb design of their proportions, and the exquisite carving of their form being very suggestive of antique statuary, there being a marked contrast to the more sturdy northern horse.

The Arab of ancient history is finely represented in bas-relief in the ruins of Konyunjik, as we learn from Layard's "Nineveh and Babylon." A satisfactory description of the modern Arab also appears in the same work, from which we gather that great attention is paid to pedigree, it being the first consideration. Arabs divide their thoroughbred horses into five races, descended, as some declare, from the five favorite mares of the Prophet. The greatest number now, as formerly, is to be found in Mesopotamia and the great plains watered by the Tigris and Euphrates. The best are probably those of the Shamas and Aneyza tribes.

The Arab horse is remarkable for its exquisite symmetry, united with wonderful powers of endurance, rather than for extraordinary speed. Their color is generally white, light or dark gray, light chestnut, or bay, with white or black feet. Black is exceedingly rare, and Mr. Layard never



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DEXTER

remembers to have seen dun, sorrel or dapple in the true-bred Arab, and when these colors occur the breed has been crossed. Their average height is fourteen to fourteen and a half hands, rarely fifteen, but they have great strength and courage for their size. Their most remarkable power is manifested in an ability to perform long and arduous marches upon the smallest possible allowance of food and water. In consequence of such labor they are lean, unsightly, and therefore disappointing to travelers who rarely see them at their best in the freedom of spring pastures, where they are sleek, and indeed beautiful. The Arab has but two paces, a quick and easy walk, averaging four or five miles an hour, and a half-running canter. They are fed on camel's milk, dates when they can be had, and sometimes flesh. They are rapidly deteriorating. They are shod with a circular shoe which covers the bottom of the foot except a small hole, and which is fastened on with six nails. [Nineveh and Babylon.]

*The Varied.*—This class is the product of the union of the two previously mentioned, or may be produced as a freak without regard to breeding at all. The laws of breeding have a wide field of operation when these opposite forces combine. The modern varieties of the horse seem in most all cases to trace their origin to this system of violent crossing. Even the French draught horse, the mighty Percheron, is stoutly claimed to be a descendant of the Arab; but it is plain that its stocky shape and heavy head, neck and mane never came from that source; so that it is probable he has the elements of both, and it is not beyond the range of probability that these were the prime elements, resulting in the first instances as a freak of nature, which cultivation and selection have at last succeeded in reducing to a standard breed. It has been claimed that the Clyde draught horse originated from the Shetland pony; yet we see evidence of eastern blood in the white markings noticeable in this breed of horses. The English race horse is another instance, although he leans very much more to the Arab; still evidence of a northern character may be seen in his stouter, more arched back, and general bulk of bone and muscle. We could thus analyze others, but this brief statement will suffice.

*The Common or Domestic.*—The last classification shows the gradual diffusion of all the elements until they constitute an animal furnishing all the requisites of the horse in general and none in particular, much as we oftenest see him in every-day life and in daily use, ready to gallop across the country under the saddle, to drive in the light buggy, useful for the plow, the team, or the cart, for every one in fact, and for every purpose. It would evidently be impracticable to give an analysis of this group. It is only in comparatively few instances that two individual animals have even the same blood.

## THE THOROUGHBRED HORSE.

The blooded horse of the present age is best known as a type in the English race horse. The founding of the stud-book has led to the formation of a race that in perpetuity of quality is not inferior to the Arab, and in other respects superior. In delicacy of organism the Arab is still the standard representative, although the English horse is sufficiently so to lift it above the varied class. The admixture of thoroughbred blood with the cold-blooded horses of the north will however produce the same phenomena as the Arab produces.

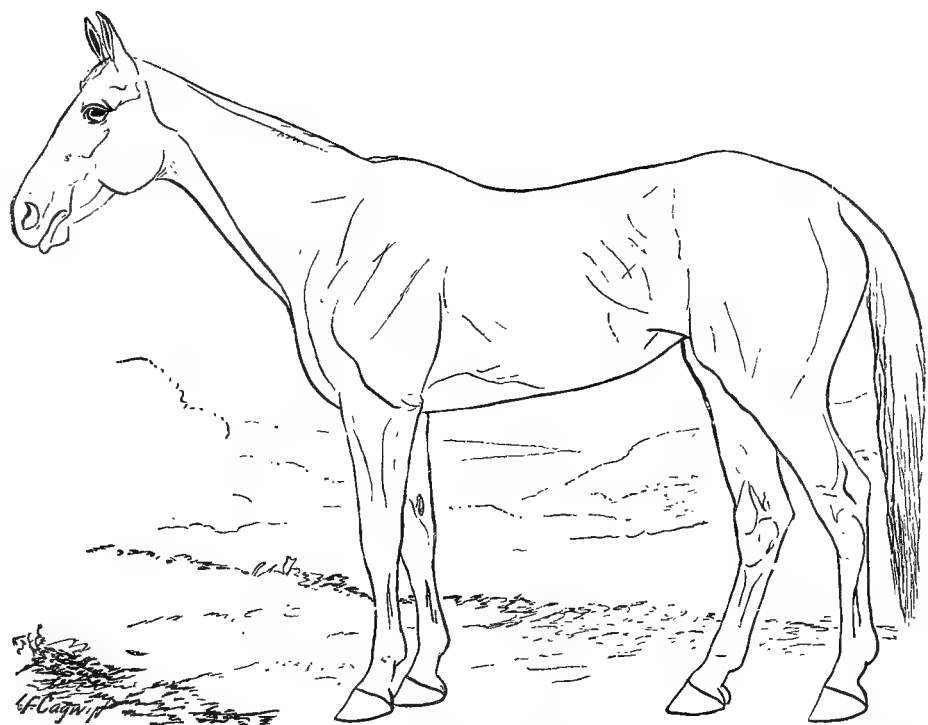
Though the distinctive breeding of horses entitled to a place in the stud-book is Arabian, the best and most lasting results are traceable to but very few. In fact, three horses have given us the majority of all the recognized thoroughbreds at this time, and their lines have been handed down through celebrated individuals, while all others have been lost to view. The three horses of Arabian blood which thus figure so largely in founding the race were the Darley Arabian (imported from Aleppo), the Byerly-Turk, and the Godolphin, *supposed* to be a Barb or Arab. The lines of breeding from these are respectively known as the Darley line, the Herod line (Herod being the main branch of the Byerly-Turk descent), and the Godolphin line.

Numerous other Arabians, Barbs, Turks and Spanish horses lent their influence in strengthening the race, but in a comparatively subordinate degree, and their names are to be found in the more remote crosses of tabulated pedigrees, so that this triple division may stand.

## THE DARLEY LINE.

The celebrated Flying Childers gave prominence to the Darley Arabian by virtue of performance, although another son of the Darley and a full brother to Flying Childers, called Bartlett's or Bleeding Childers, perpetuates the fame of his sire in the male line to a greater extent. The Darley was a light bay, with three white feet and a snip. The principal value of his line is its quality of producing game and lasting race horses, the more so if they take on the character, color and marks of their famous founder.

This line is held to be the most valuable of the thoroughbreds. Flying Childers, by the Darley, was a bay, with four white feet and a snip, was fifteen hands high, and is accounted by some to have been the swiftest and best race horse ever known. He is best represented in the male line through his sons Blaze and Snip. But the grand current of succession is through Darley, Bartlett's Childers, Squirt, Marske, and Eclipse, in the order named. Childers' dam was Betty Leeds; Squirt's dam a Snake mare (a



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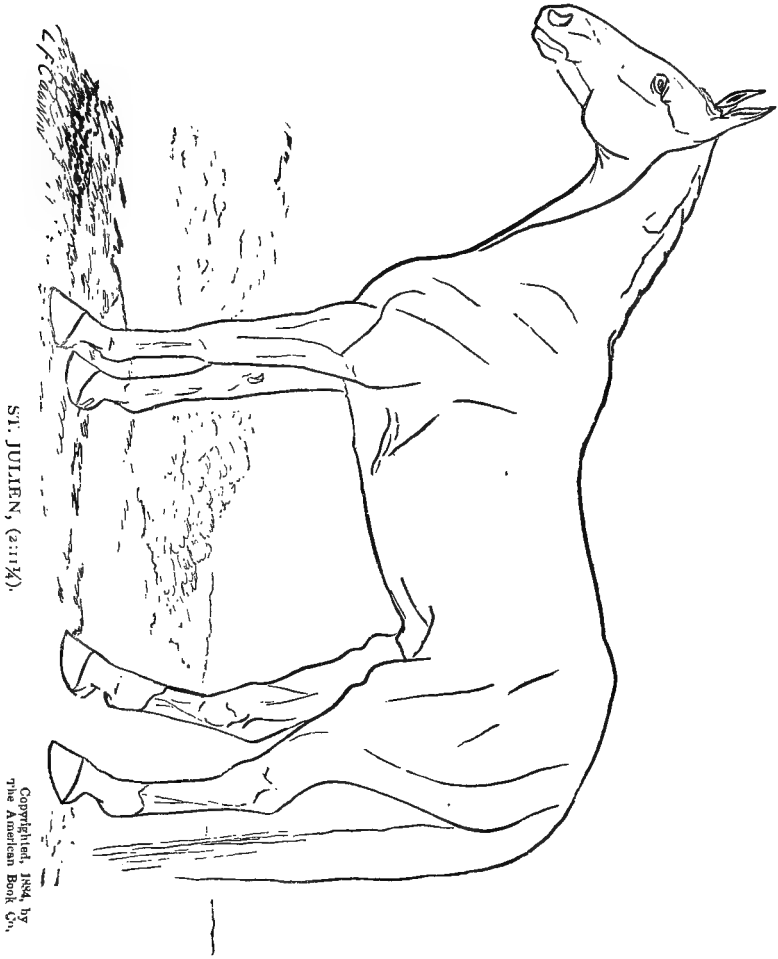
half-bred Arabian); Marske's dam, by Blacklegs, by a bay Turk, second dam by Bay Bolton, third dam by Foxcub, his dam by Leeds' Arabian; Eclipse's dam, Spitella, was by Regulus, by Godolphin, second dam of mixed blood through the Bald Galloway. Squirt was a chestnut, Marske a brown, and Eclipse a chestnut.

Eclipse, the principal perpetuator of the Bartlett branch of the Darley line, was as phenomenal in form as he was as a racer. He was sixteen hands high, and much higher over the croup. The hind cannons were very long, and the fore cannons very short, and for this peculiarity he was condemned as deformed and unfit for racing purposes and sold, but afterward his extraordinary success in vanquishing every competitor with ease, in fact distancing a field of the best racers of the day, led to the adoption of the Eclipse pattern for race horses. He also had very oblique shoulders, high whirl-bones, massive thighs and a deep chest. He was the sire of three Derby winners, Young Eclipse (1817), Saltram (1783), and Sargeant (1784), and one Oaks winner, Annette (1787). His blood in the male line is through his sons Pot 8 os, King Fergus, Jo Andrews and Mercury.

Pot 8 os' dam was by Sportsman, by Cade, by Godolphin, with back-cross of Darley. He had three Derby winners and one Oaks; he also had one St. Leger winner, Waxey, whose dam Maria was by Herod, the main artery of the Byerly-Turk line, with remote strain of Darley through Blaze, by Flying Childers. With this combination of blood Waxey is termed the "ace of trumps" of the stud-book. He was sire of Pope, Whalebone, Blucher and Whisker, all Derby winners. Whalebone, the best, had two Derby winners and one Oaks, all bays. The branches of his family were through his sons Camel, Defense and Sir Hercules. Camel was sire of Touchstone and Sir Lancelot, St. Leger winners. Touchstone united through his dam fresh strains of the blood of Eclipse, and was sire of Derby and St. Leger winners. His son Surplus won both for the first time in forty-eight years. Orlando, a bay with white nose and hind legs, by Touchstone, was the most distinguished as a producer, and his best son was Tiddington, a horse which measured but sixty-three inches in girth. Newminster, by Orlando, was more successful in the stud. Adventurer, by Newminster, begot Pretender, winner of the Derby in 1869. Hermit, the greatest of English sires, is a son of Newminster. Sir Hercules was the sire of Birdcatcher, sire of the Baron, sire of Stockwell, one of the most fashionable of English sires.

King Fergus, the second of the four great sons of Eclipse, founded two branches of his line through his sons Hambletonian and Benningbrough. From the former came the Blacklocks, and from the latter Emilius, Priam, Plenipotentiary and Muley Moloch, the sire of Alice Hawthorne, dam of





ST. JULIEN, (2:11 $\frac{1}{2}$ ).

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Thormanby, a Derby winner (1860) and one of the best of modern sires. Benningbrough, a bay, was sire of Orville, also a bay, sire of Octavius, Emilius, Margrave, and Muley, sire of Little Wonder and Muley Moloch. Emilius, by Orville, begot Priam (imported to the United States), a chestnut, and Plenipotentiary, a chestnut, both colts and Derby winners, though neither was very prominent in the stud. Hambletonian, son of King Fergus, begot Blacklock from an inbred Pot 8 os mare. Blacklock begot Hetman Platoff, Derby winner of 1847, and Voltaire, sire of Charles XII., and Voltigeur, Derby and St. Leger winners of 1850.

Mercury, a chestnut horse, son of Eclipse, dam by Tartar, begot Gohanna, a bay horse, sire of Catton, sire of Derby winner of 1835, and our own imported Trustee, sire of Fashion and the twenty-mile trotter Trustee.

The last of the Ecliptic quartette, Jo Andrews, a bay horse by Eclipse, perpetuates his line in the male descent through his son Dick Andrews, a bay horse, sire of Tramp, also a bay, sire of Lottery, a bay horse, sire of Sheet Anchor, sire of Wetherbit, a bay horse, sire of Beadsman, Derby winner of 1858. Beadsman was sire of Blue Gown, Derby winner of 1868, who died at sea on his way to the United States in 1880, and Pero Gomez, St. Leger winner and second for Derby of 1869.

#### THE GODOLPHIN LINE.

The so-called Godolphin-Arabian, a brown horse whose history is a myth and breeding unknown, but whose qualities are none the less remarkable, was the second of the three prime founders. The descent of this horse in the male line is through Cade, a bay horse, by Godolphin, out of Roxanna, by the Bald Galloway; Matchem, a bay horse by Cade from a Partner mare; Conductor, a bay horse by Matchem from a Snap mare; Snap, by Snip, by Flying Childers; Trumpator, by Conductor, was from a mare of a variety of strains. From Trumpator descended Paynator and Sorcerer, a black horse, sire of Soothsayer, a chestnut horse (St. Leger 1811). Tiresias, a brown horse by Soothsayer, won the Derby of 1819, and Smolensko (Derby 1813) was sire of Gulnare (Oaks 1827) and Jerry, a black horse (St. Leger 1824). Jerry was sire of Tomboy (sire of Nutwith, St. Leger 1843) and Jericho; Nutwith was the sire of Knight of Kars. Comus, a chestnut horse by Sorcerer, begot Reveller, a bay horse (St. Leger 1819), and Humphrey Clinker, a bay horse, sire of Rockingham (St. Leger 1833), and Melbourne, the great sire of winners. Melbourne was sire of Sir Tatton Sykes (St. Leger 1846); his dam Cymbria was an Oaks winner. Rockingham was sire of the dam of the great Sir Archy, the founder, in a great degree, of the American race horse. Melbourne was also sire of West Australian, sire of

Australian, the great Kentucky sire of Woodburn farm until his death. West Australian won the triple event of Derby, St. Leger and Guineas in 1853, the first time it was ever accomplished. Marchioness, by Melbourne, won the Oaks of 1855 and Blink Bonny, by Melbourne, Derby and Oaks of 1857. West Australian's dam was by Touchstone, and was full sister to Cotherstone (Derby 1843).

#### THE BYERLY—TURK LINE.

The Herod line, from the Byerly-Turk, the third of the great primary trio, descended through Jigg, by Byerly-Turk; Tartar, by Jigg; and King Herod (or Herod), by Tartar. Herod's dam was by Flying Childers. His line is further perpetuated by his sons Woodpecker, a chestnut horse, and Highflyer. The Woodpecker line is famed for its great speed, and the Highflyer line for its great staying quality. Buzzard, by Woodpecker, produced from one mare three celebrated horses, namely, Castrel, Selim and Rubens. Castrel begot Pantaloon and he begot Ghuzner, an Oaks winner, Satinet, a St. Leger and Ascot winner, Libel, Sleight-of-Hand and Windhound, sire of Thormanby. Sultan, son of Selim, brother to Castrel, another and important branch of the Woodpecker line, was sire of Glencoe, whose dam was Trampoline, by Tramp, out of Web by Waxey. Glencoe, a chestnut horse, was sire of the famous brood-mare Pocahontas, dam of the great modern English sire Stockwell. Glencoe was also sire of a great number of mares in America whose success on the turf and in the stud is unparalleled. Rubens, the third of the trio of own brothers by Buzzard, is more distinguished for his daughters. Highflyer, by Herod, was a bay. His sons Noble, Sir Peter and Sky Scraper were Derby winners and his daughter Violante was an Oaks winner, and he had three St. Leger winners. Sir Peter begot Gladiator who begot Walton, sire of the dam of the French horse Gladiateur, which was the first foreign-bred horse to win the English Derby. Gladiator was sire of Queen Mary, the famous brood-mare, dam of Blink Bonny, Bonnie Scotland (sire of Luke Blackburn and Bramble, the Tennessee cracks, and a host of other good ones), and also of Balrownie. Blink Bonny won the Derby and Oaks of 1857 and was the dam of Blair Athol, a Derby winner and great sire of winners. The dam of Caller-On, a Derby winner, was also by Gladiator.

The foregoing will enable the reader to trace the breeding of most of our best strains, determining their line of descent and learning to which of the great channels they properly belong. As the most prominent only have been chosen to perpetuate the qualities of the race horse, the others are rejected and become obsolete, so that it will be found comparatively easy to trace most racehorses and sires to some of the collateral branches.

## THE AMERICAN RACE HORSE.

The English thoroughbred began to be imported into America from the first. Direct descendants of the leading primary strains were imported into the United States, but our blood is based principally upon that of imported Diomed and his descendants, collaterally replenished by the blood of succeeding importations. Diomed, by Florizel, son of Herod (founder of his line), was the first winner of the English Derby and the father of American race horses. He was a chestnut without white, except a small touch on one heel, fifteen and three-fourths hands high, rather dished face, straight hocks and springy pasterns; he was started in England fourteen times and won eight, and won the Derby in 1780. He won £8,268 in all and was good at all distances. In England he produced many great race horses, including Young Giantess, and was imported into Virginia in 1798 in his twenty-second year, where he was more popular than any other horse had been until Sir Archy eclipsed him. Of his get, Sir Archy, Ball's Florizel and Duroc (sire of American Eclipse) were the greatest. He died in 1808. The current of succession was mostly through Sir Archy, although Duroc got American Eclipse, whose blood in a pedigree is by some considered the touchstone of success.

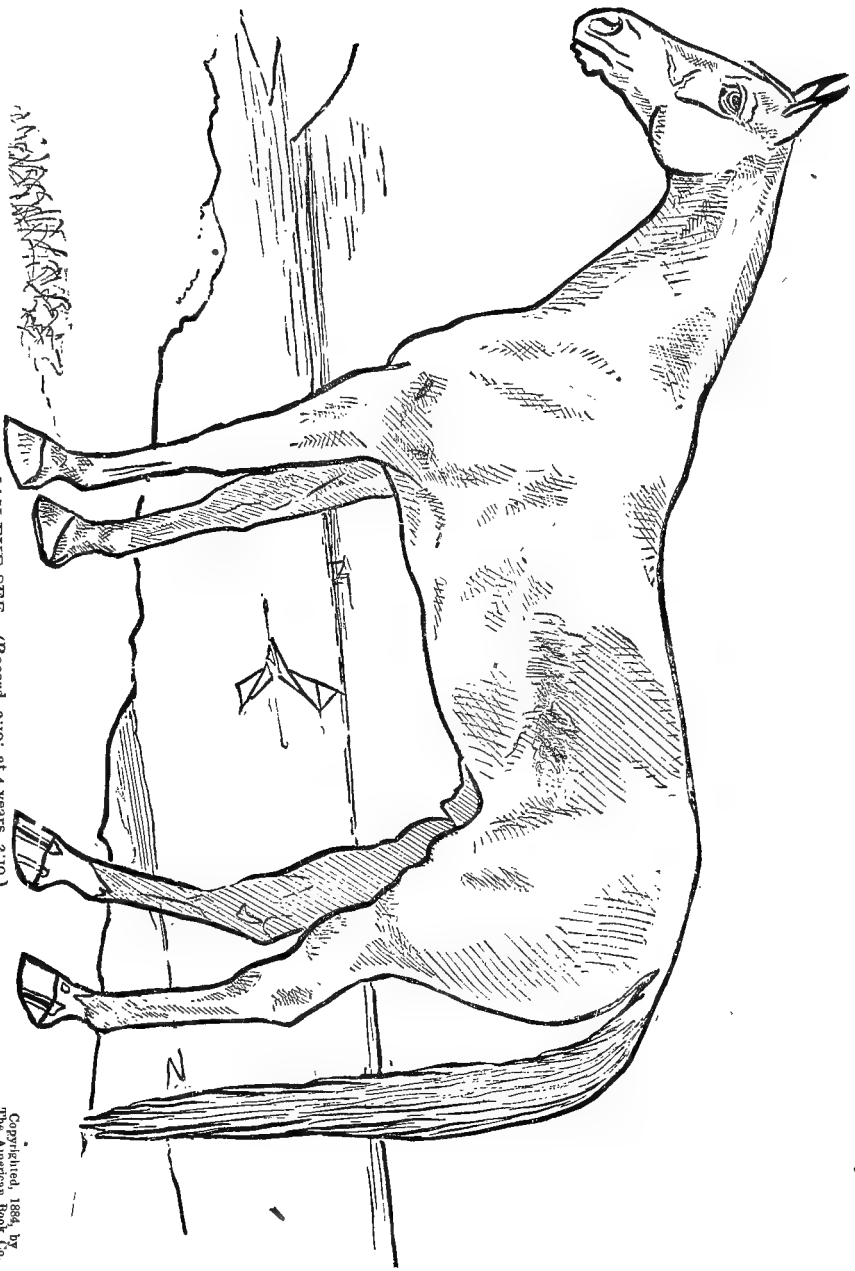
Sir Archy by Diomed, foaled in 1805, stood highest of all horses bred in this country, and yielded his owner \$70,000. His dam Castaniri was by Rockingham. Sir Archy was a rich bay, right hind pastern white, sixteen hands high, with deep oblique shoulders, full girth and short back. He produced winners from mares with all sorts of pedigrees, and some from mares with no pedigree at all. He was succeeded by his son Timoleon, whose dam was by Saltram (imported), son of Eclipse, out of Virago, by Snap, by Flying Childers. Timoleon was foaled in 1813. He started fifteen times, won nine, lost two, walked over four, and was a great horse in his day. His highest achievement was in producing the great race horse Boston, who in turn was the sire of the still greater Lexington, without a peer as a native sire. Boston was a chestnut, with a stripe and white hind legs, and familiarly known as "Old White Nose." He had a plain head, with dish-face, short neck, inclined shoulder-blades, a prodigious chest, great length, immensely powerful loins, hocks and thighs, short limbs, straight but very springy pasterns, and altogether great substance, almost coarse with his prominent ragged hips, rather flat ribs, but well-ribbed loins. He died in 1849 in his seventeenth year. His dam was by Ball's Florizel.

Lexington, by Boston, inherited his greatness in the male line, although the granddam of Iroquois is by Boston, thus skipping over the Lexington

DRAWN FROM LIFE BY L. F. OARWIN.

JAY EYE SET. (Record, 2:10; at 4 years, 2:19.)

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cross. As a producer of race horses Lexington stands at the head of American sires. His daughters are now proving themselves as good in the stud as his sons were on the turf. None of his sons inherit his prepotency to as marked a degree, although some of them are quite reputable as sires. It was through imported Glencoe mares that Lexington met with most success. Imported Leamington succeeded Lexington in popularity, and through his sons has become so generally the leading strain in the popular estimation in this country that every considerable breeding establishment of race horses has a stallion of the strain, or is seeking for one. Bonniè Scotland was very popular latterly, and is the foundation of General Harding's choicest breeding. The present blood of America is constantly being freshened by English importations which for some physiological reason harmonize with our strains to a degree that makes the crosses better than either branch; so it seems at least by the way our horses have succeeded in England.

### THE HEAVY DRAUGHT HORSE.

In speculating on the origin of the heavy breeds of horses it will be remembered that we proposed to discuss the physiological causes of the variations of breeds by the union of two such opposite elements as the oriental horse and primitive horse of Europe.

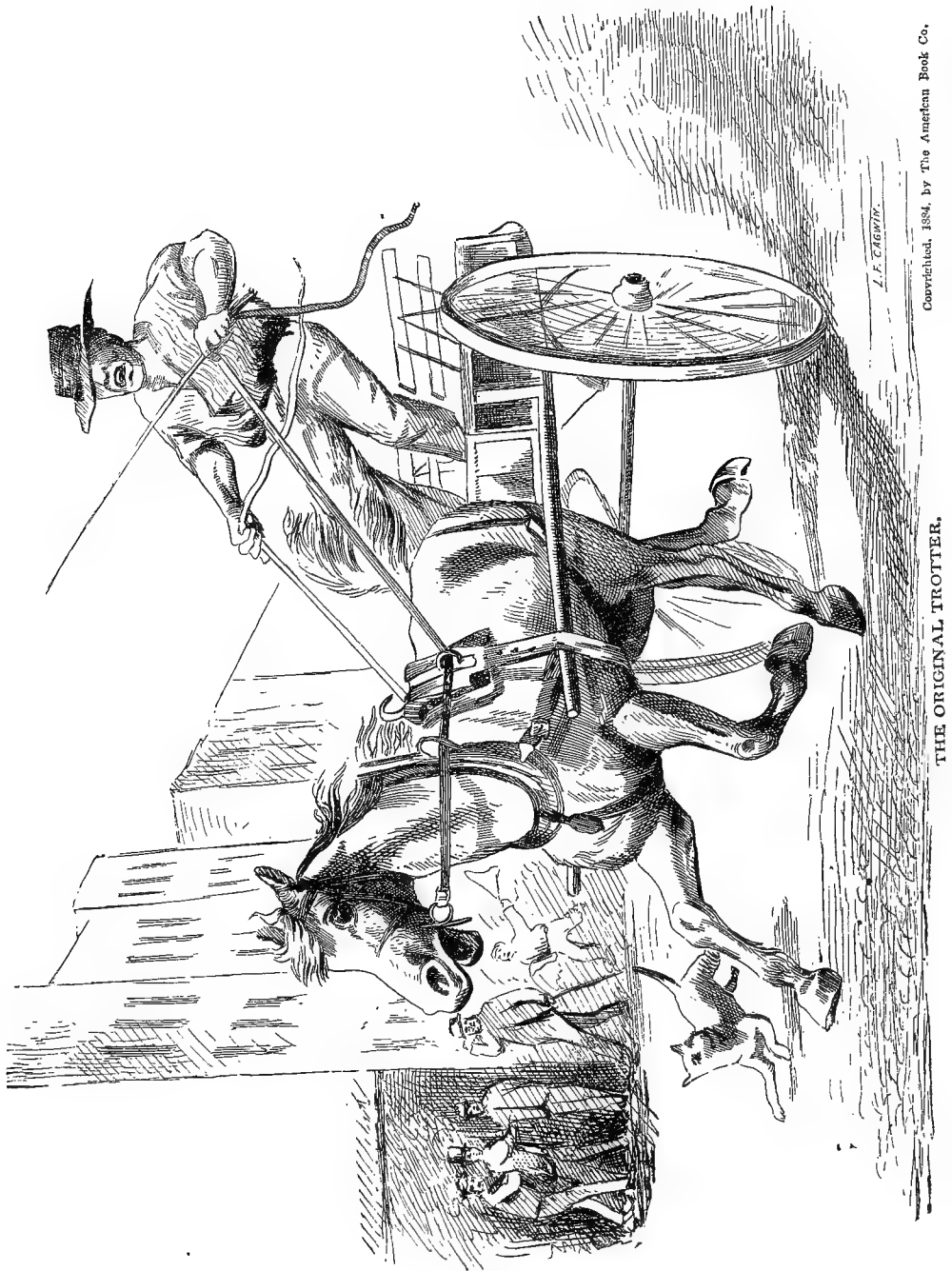
According to the theory that like begets like or the likeness of some ancestor, which is the fundamental law of breeding or heredity, it will be understood that a slight or marked reversion to some ancestor more or less remote, from physical causes which it is impossible to determine, will make the produce of these opposite elements, even from the same sire and dam, so widely different that one of the offspring may take the character wholly of one of the parents, or intensify some quality of an ancestor, or perhaps partake of the characteristics of both parents. In fact, the variation may be unlimited. If a breed is to be established, something more definite than this is required, and we must select an animal that not only has the physical traits which we wish to perpetuate but which also has the additional power of reproducing himself. That individual instances of this kind have existed and do exist admits of no successful dispute. To secure perpetuation, animals must be sought for mating which will cross kindly with them, so that their character will assimilate without altering those characteristics, except perhaps when it is desired to correct some defect. By this process a satisfactory result will in time be secured, and such animals will with reasonable certainty produce their like. Hence, in taking the cases of two animals, the one carefully bred, and the other equal as to other particulars but not so well bred, a wide difference will be seen in their offspring. One will re-

produce itself and the other will very likely beget something as different as one could well imagine.

Now the Arab horse has a comparatively short thigh-bone, with a long hip; the European horse has a long thigh and a short hip; the cannons of the Arab are long, while those of the European are short—and a like difference is seen in other parts of the skeleton. By breeding a stocky native stallion to a fine Arab mare one might get almost anything. The produce may take on the long bones of both parents, or the spongy tissue of the one and the length and looseness of the other. The extreme vital and nervous temperaments may be neutralized in the offspring and the bilious and lymphatic temperament predominate, the produce then becoming coarse, and gross, and thereby characterized by a tendency to excessive growth.

This is one of the physiological influences mentioned as productive of variations. We may be pardoned for believing, sincerely enough to advance the conviction, that such was the foundation of the heavy horses now found all over Europe and the United States, which were first known in Flanders, and are still called by the general term "Dutch horses." By taking such individual horses as were of more than normal size and breeding them by judicious crosses with a view to preserving those specimens which are most capable of reproducing those qualities of size and power, we now have a variety of horses which is quite common. They were first extensively known in Flanders, were introduced into England in the time of William the Conqueror, and all the famous British breeds are by some attributed to those importations. The breeds now known to be thus descended are designated as Suffolk Punch, a sorrel breed, Lincolnshire Blacks, Cleveland Bays, English Cart-horses and the Clydesdales of Scotland, but all are of the same stock as the Norman of France, the Belgian and Hanoverian breeds, and also the Danish draught horse from which the Conestoga horse of the United States is sprung. These horses have been imported into America so largely of late that their form and character have become generally known. Bulk of bone and hair are cultivated, as well as breadth and compactness of frame. The largest specimens weigh over a ton.

The famous Norman draught horse of France and the heavy breeds of the Netherlands are from the same Flemish stock. These monstrous horses have been imported into the United States so largely of late years that their characteristics are familiar to nearly every one. The most popular importations are the Normans, Clydes, English draught and Cleveland Bays. The Normans tend to gray in color and some of the darkest grays are very beautiful. The predominance of their iron-gray color is a strong point with the Normans. The Clydes are usually bay, sometimes marked with white legs and faces. Their bulk of bone is immense, and they are distinguished for the



J. F. CAGWIN.

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THE ORIGINAL TROTTER.



shaggy appearance of their legs, the fringe of long hair beginning just under the hocks and knees and reaching to the ground, all round the hoof in some specimens. The heavy draught horses of England are very bulky, but the Clevelands are more rangy and stylish. All the large breeds have heavy and wavy manes and tails, thick neck, large head and great round feet.

### THE AMERICAN TROTTING HORSE.

American progressiveness, the wonder and admiration of the Old World, is manifested in many ways, not the least important of which is the rise and development of the trotting horse. Trotting began in a humble way, and yet one of utility. The ponies of the bakers or butchers were hitched to their carts and urged by honest endeavor to reach their patrons in advance of similar outfits of equally enterprising rival shopmen.

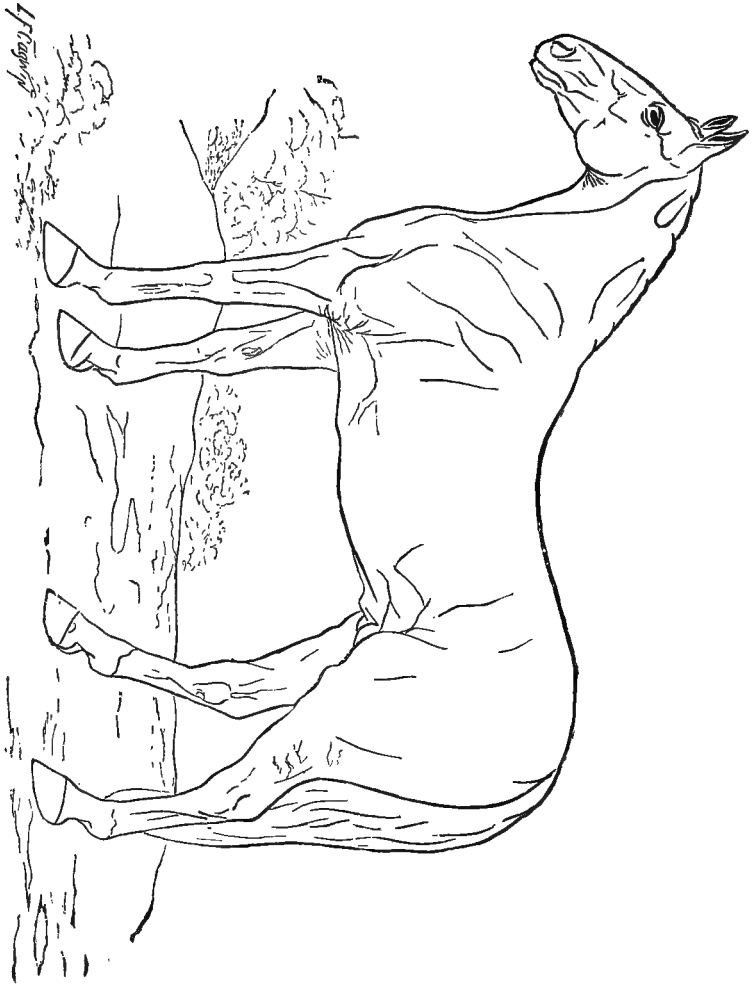
Professor Brewer, of Yale College, has brought to light the fact that a horse called Yankey trotted a mile in 2:59, believed to have never before been excelled in this country, that time having been made in June, 1806, an account of the same appearing in the *New York Spectator*. This was the dawn of trotting for a time-record. Professor Brewer also shows why trotting became popular as a sport. He says: "Under the hostile laws against *racés* other means were taken to gratify the instinctive pleasure of seeing horses get over the ground swiftly. A *race*, as then understood, was a contest between two or more horses, to see which could run the fastest, as it still is in most countries. Men did not dream of a race being run by *one* of anything. Moreover, in those times *horse-racing* meant *horses running*; so when horse-racing was a crime, punishable by fine and imprisonment, the good law-abiding citizen who owned a good trotter, and who instinctively yearned for the pleasure of seeing a spirited horse in action, would not run him, nor race him; he merely trained him and had occasional trials of speed in which he could hold his watch and see how long it took his horse to trot a given distance, and the *timing* of trots became common long before the system of records was established."

It was not until the year 1843 that the present standard of speed, 2:30, was beaten, when Lady Suffolk trotted in 2:28. This mare afterward trotted under saddle in 2:26½ and was hailed the queen of the trotting turf. Before this time long distance was more the test, the heats being two, three and four miles, the culmination being reached with the great performance of Dutchman, ridden by Hiram Woodruff, three miles against time in 7:32½, and this was not beaten until Huntress, by Volunteer, did it in harness in 1872 in the remarkable time of 7:21½. Dutchman and Lady Suffolk had many contests, but Dutchman was too much for the Lady

at these long distances. After she trotted her fast mile, mile heats came into vogue, generally best three in five. Lady Suffolk was a gray, by Engineer 2d, he by Engineer, by Messenger.

A greater star soon appeared in Flora Temple when she trotted at Kalamazoo, in 1859, against Princess and Honest Anse, making 2:19¾, the first to trot a mile better than 2:20. She there appeared in her exhibition exercise with her driver, James D. McMann. Thousands of people were on the track, and when the business-like little creature, with her great eyes sparkling in anticipation, made her appearance, submissively followed by the celebrated Ethan Allen, great was the demonstration of delight, and when the accommodating McMann consented to "give her a brush or two," loud and continued applause arose, at which Flora wheeled short around, tossed her head, kicked up her heels, and before McMann could gather the lines, dashed off at full speed, and soon reappeared with her fine electric stroke, her head eagerly extended, and her long mane flying in tangled confusion about her neck. Old Ethan was given a few spurts, and the beauty of his action could be seen, but he did not attempt to rival the flights of the little bay mare. Flora Temple became celebrated by her biography, charmingly written by Mr. George Wilkes, in his *Wilkes' Spirit of the Times*, which first made its appearance at about this time. She was perpetuated in art, and the fine picture of her by Maurer, published by Currier & Ives, of New York, is considered, by horsemen at least, as a prime work of art. As we remember Flora, she was a bay about fourteen and a quarter hands high, with black points, roan on the off side, a blotch of white near the crupper, and a fashionably docked tail. She had a pacing conformation, stout legs and feet, a fine head and neck, and high withers; but her chief characteristics were her very large, full, hazel eyes, and her decidedly business-like expression and action.

Flora Temple's harness-record remained the best until August 14, 1867, when Dexter at Buffalo trotted in 2:17¼, having previously trotted under saddle in 2:18½. Dexter is a brown gelding, fifteen and a quarter hands high, with four white legs and white face, by Rysdyk's Hambletonian, out of Clara by American Star, she out of the McKinstry mare, the dam of Shark, a fast trotter by Hambletonian. The Star blood was most apparent in Dexter, for, although very blood-like, he has a pacing-pony mould, lower at the croup than at the withers, fine shoulders, deep chest, strong loins but light waist, round, drooping quarters of great volume and compactness, back slightly roached, and strong legs. He trots with unsurpassed resolution and energy. Forward he makes some apparent waste of effort, but the way he gathers his hind legs, without that extreme tension seen in what is called big-gaited horses, gives an idea of nervous locomotion that



HAMBLETONIAN (RYSBYR'S).

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is superb. The writer first saw him to wagon. He rises forward and his manner of moving gives the appearance of uprightness like a man walking. He was led from his stable onto the course by two attendants, whom he fairly dragged along with his quick walk, such was his nervous ambition. He was a hard puller and bore heavily on the check. He also had that side-to-side motion forward so noticeable in the Star blood. He never had the chance to show his best on the turf, for Mr. Robert Bonner purchased him (for \$35,000), and it is well known that he never trots his horses for money. We believe, however, that he trotted in 2:14 under saddle for Mr. Bonner. His most formidable competitors were Lady Thorn, George Wilkes, and Ethan Allen and running mate, these latter defeating him by making a record of 2:15.

Lady Thorn was a large bay, sixteen and a fourth hands high, by Mambrino Chief, out of a mare by Gano, son of American Eclipse; back of that, pacing and thoroughbred. A first impression of Lady Thorn was that of a blood-like animal of great length and angularity. With propelling powers of the grandest character, she looked as though she could "step over a house." Like Dexter, she was high-strung, but not so sensitive; she had a nervous habit of digging the air with a fore foot while in the stable; her length of limb was very great, but she had a low, easy stroke, settling close to the earth, trotting with great resolution. A smaller horse would look large alongside. She could do the home-stretch with an effect truly marvelous. Although her record is but 2:18 $\frac{1}{4}$ , she is said to have trotted in 2:10 in a trial. She was cut short in her career by a deplorable accident while being shipped from Rochester to Buffalo where she was to trot against Dexter's time. She fell from the platform while entering the car, and permanently injured her hip—and Lady Thorn's day was over. Although this great mare had the refined quality of a thoroughbred, she was somewhat unsightly. The right eye was gone, and this made her push her nose far out, and to one side, while one of her ears was pointed forward and the other backward. Beside this, she had a sinking of the neck forward of the withers. She was more beautiful to go than to look at, although at any time she was an impressive mare.

George Wilkes, a brown horse, one hind pastern white, fifteen hands high, by Hambletonian, was the fastest stallion of his day, and considering his ability for speed of the fastest quality, and capability of producing speed in his descendants, he ranks as the best son of Hambletonian. Many marvelous stories are related of the wonderful flights of speed to which this horse attained. When the writer saw him trot it was with Lady Thorn, American Girl, George Palmer and Lucy. In that race Wilkes would

reach the three-quarter pole far in advance of the others, Lady Thorn being last. Thence home his speed would wane distressingly, but he would rally to a good position at the outcome, still in marked contrast to the terrific home-rush of Lady Thorn, the winner. He was not so in the early part of his career, it is said. His remarkable action has often been alluded to. While he trotted low and easy forward, he seemed to drag his hind legs, without drawing them under as in the case of his half-brother Dexter. He carried rather a low head. He was high at the croup and preserved somewhat the Hambletonian model, as distinguished from the pacing angularity. The grand trotter Wilson (2:16) bids fair to make one of the first of the age. He is the best of the get of George Wilkes.

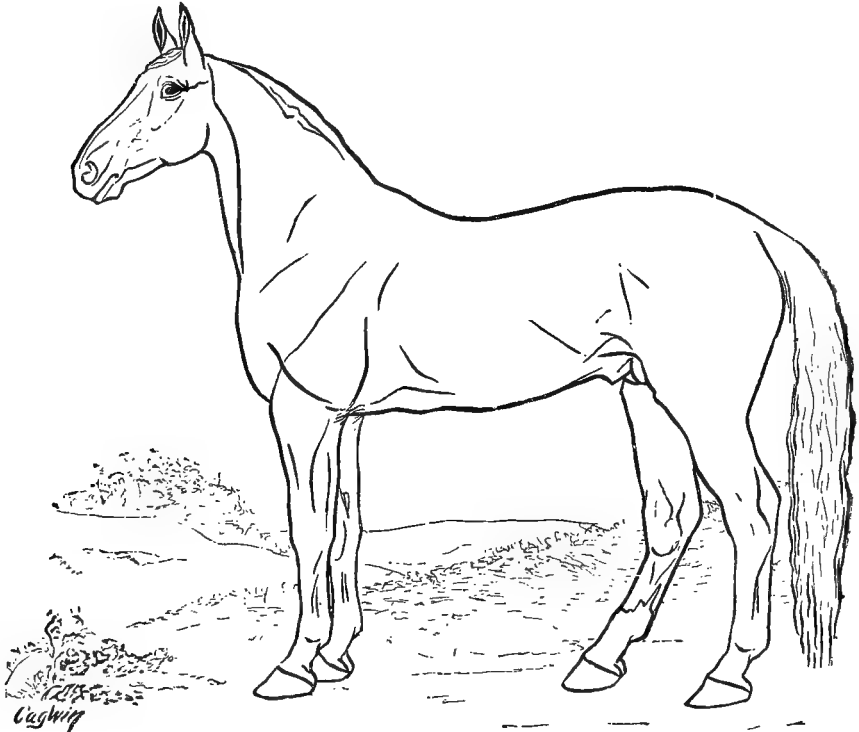
George Wilkes' record, 2:22, has been surpassed by only one entire son of Hambletonian, Jay Gould, whose dam was by American Star, and he need be mentioned only as having the purest and best balanced of trotting strokes, the poetry of motion.

Dexter's 2:17 $\frac{1}{4}$  remained the fastest record until 1871, when Goldsmith Maid lowered it one-fourth of a second at Milwaukee in a race with Lucy. She steadily decreased this until she trotted a heat in 2:14, which she was unable to excel. She was a bay, fifteen and a fourth hands high, of a wiry build and blood-like appearance, and wide, rakish hips that show the pacing incline. She had a slinging, loose way of moving, and when she became the nonpareil, she would intersperse her trotting with a few judicious breaks so cleverly taught as to almost escape detection. For severe service on the turf she has never been approached. She trotted one hundred and twenty-one races and won \$364,200. Prominent among her competitors were Lucy, Lady Thorn, from whom she could not wrest a heat, American Girl, Smuggler, Gloster and Rarus. Lucy was a large bay mare by George M. Patchen, with a big lunging stride, fastest heat 2:18 $\frac{1}{4}$ . Lady Thorn has been described heretofore. American Girl, a bay mare without white, sixteen hands high or nearly (by Amos' C. M. Clay, Jr.,) was a large-boned, powerful animal that scored 2:16 $\frac{1}{2}$ . Smuggler succeeded in getting one or two heats from the Maid, and scored 2:15 $\frac{1}{4}$ , still the fastest stallion record. Smuggler is pacing-bred and a pacer himself naturally. His grand sire Cadmus was the sire of Pocahontas the pacer, 2:17 $\frac{1}{2}$  to wagon, the fastest on record. Gloster was a bay gelding, seventeen hands high, of the rarest promise, though it was cut short by death. Gloster was by Volunteer. He was a grand trotting horse, of fine texture, with the pacing hip, and legs of the finest character. While he was moving one could detect a slight nod. He jogged peculiarly slowly, but this need not have signified any lameness at all, as it is not uncommon among trotters.

Rarus succeeded in wresting her proud title from Goldsmith Maid, and

placed it to his own credit in 2:13¼. He was a rangy bay gelding, hind ankles white, a star and a snip, sixteen hands high, and a very fine, elastic mover, with his long neck well up, and a graceful precision of stroke rarely seen. He is the *ocau* ideal of a gentleman's trotter. Robert Bonner has him now, so that his turf career was necessarily short.

Scarcely had Rarus disappeared from the public when St. Julien made a record of 2:12, which he afterward improved to 2:11¼. He is a



BASHAW (GREEN'S).

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bay gelding, white hind ankles and a small star, about fifteen and three-fourths hands high, of a rakish pattern and a pair of inclined, branching hips and angular leverage, unmistakably pacing-like, but never known to strike a pace. Although distinguished for intelligence, his head, according to the popular notion, does not suggest such intelligence, it being large and marked by a receding skull and Roman nose. In movement he is so powerful and easy as to give the impression that some outside force is propelling

him, there being neither much knee-action nor width of propulsion behind. When entering the track, it is amusing to see him scan the grand stand, as if estimating the attendance. He is by Volunteer, dam by Harry Clay.

Unfortunately for St. Julien's prospects, he too soon had a stubborn and successful rival in the renowned Maud S, who now has the title of queen of the trotting turf. Yet she has it by a slender thread, for her kinsman, the black five-year-old Jay Eye See, is shadowing her so closely that her wonderful performance pales by comparison, noting the time at which she achieved it. Maud S, a chestnut, no white, fifteen and three-fourths hands high, is a light-boned, very muscular mare with fine limbs. Her action is rather high forward, owing to the use of toe-weights no doubt, and she has a peculiar gliding but far-reaching stroke, a folding and backward reach of the hind leg, together with a wide-open and lateral out-reach that is peculiarly her own, with a spiralescent flexion and extension of the limbs. We learned from Mr. Bair, her driver, that she was not a natural trotter at first, nor yet was she a true pacer; she had a mixed gait which was overcome by the use of toe-weights. "She was high-strung," he said, "but susceptible to good treatment and willing to do right, but resented compulsory methods and severe treatment." She was by Harold, dam by Pilot, Jr., second dam thoroughbred—think she inclines to the Pilot-type.

Jay Eye See is a black gelding, hind ankles white, fifteen hands high, by Dictator, out of Midnight by Pilot, Jr., second dam Twilight, by Lexington. The breeding of Maud S and Jay Eye See, being so nearly identical, affords material for study; for, leaving out the Hambletonian influence which does not appear decided in either of them, Jay Eye See shows a Star energy that affixes him somewhat to that strain, with some of the Pilot characteristics; otherwise there are peculiarities in common between these great horses. The gelding is a more natural trotter than the mare, and this would seem to favor the Star blood, a most potent element in a trotting pedigree. His dam produced Noontide by Harold, a great mare, but not so great by nearly ten seconds as Jay Eye See; this again speaks for the Star cross. On complimenting Bither, his driver, for having made such a trotter, he disclaimed all credit for making him, and said: "He was a natural trotter from the start and made himself. All the credit due me is for not spoiling him." He has not that fine spiral flexion and extension of the hind leg that Maud S has, and there is where perhaps she would prove the superior if she were not handicapped with toe-weights. The Pilots, then, have the finest propelling action, and the Stars the clever faculty of getting the fore feet out of the way of the hind ones naturally, without mechanical aids, and the writer considers the propelling action of Maud S without a parallel among all known trotters.

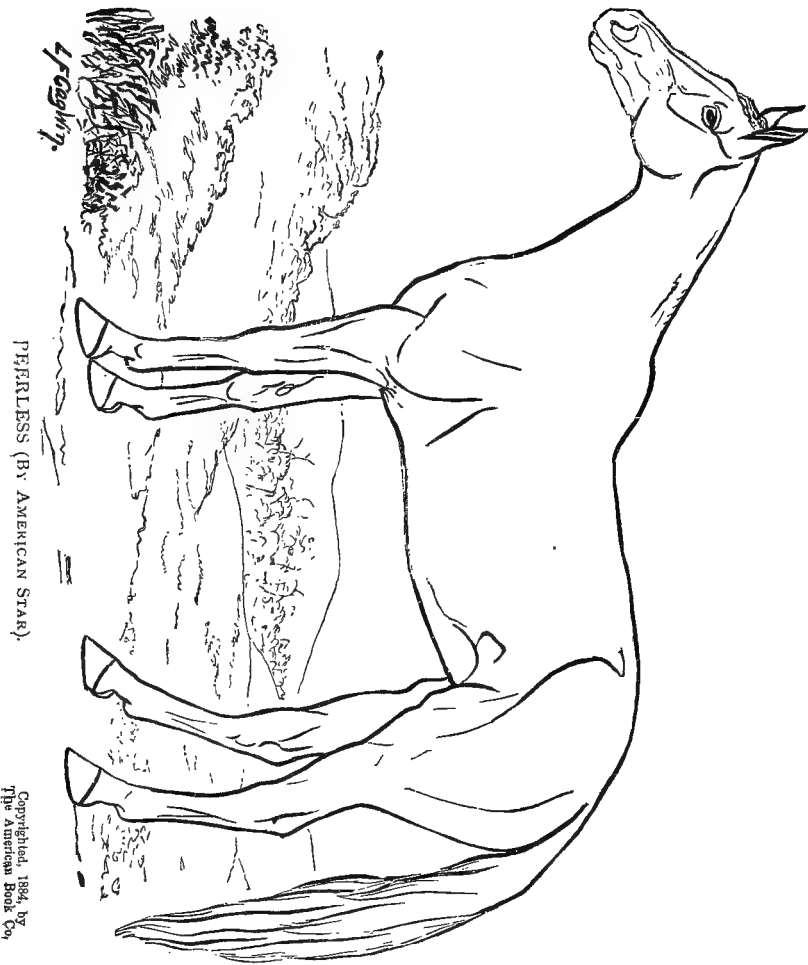
## ULTIMATE TROTTING SPEED.

To what rate of speed will the trotter finally attain? Many theories have been advanced upon this question. One mathematical professor has calculated from a law of progression that, taking the period from the time that the trotter became distinctly recognized to the present as the base, and the average reduction in speed from that time to the present as the ratio, the extreme limit will be about 1:31 to the mile. Absurd as this may seem, Mr. Wallace thinks that when horses are bred so that they become as natural at the trot as they now are at the run, so that they may be urged without fear of breaking, and not be hampered by the restraint of the bit or clogged with toe-weights, it may be possible for them to rival the runner in both speed and endurance. The *Spirit of the Times* says that, taking the extreme rate of speed for short distances as a base, with the natural improvements that time will bring to forward the continuance of that rate, considering also the fact that trotters and pacers have been known to go a quarter or even half a mile at a better rate than a mile in two minutes, a mile in two minutes or better will be made. The trotting horse Frank and his running mate J. O. Nay have a record that way of going of 2:08½. John Murphy, their driver, in order to satisfy himself as to the influence the runner actually had in assisting the trotter, harnessed him to a sulky, and with full trotting weights up drove him a mile as fast as he could run, and he could just make it 2:01½; the first quarter, 31¼ seconds; half, 1:01½; three-quarters, 1:31½. From this it would seem, the conditions being equal, that the trotter is now the equal of the thoroughbred runner, though it is claimed that a horse has run a mile to a sulky in 1:52, or thereabouts. Those who have seen the pacer Mattie Hunter get away from the score will agree that it would take a good runner to head her.

## THE ORIGIN OF THE TROTTER.

What is the origin of the trotter, and how can he best be cultivated? Three distinct methods of producing the trotter are just now under discussion among the breeding public. The first is that of breeding a trotter with the trotting faculty to others with the same faculty, expecting that by this means a trotting breed of horses will in time become as standard as the breed of running horses is now. The second is by the introduction of thoroughbred blood into our present trotting strains, and thus giving them more refinement and speed, as these qualities are transcendent in the thoroughbred and Arab, care being necessary not to use so much as to destroy the trotting action or steadiness, qualities which the thorough-





bred and Arab do not possess at the trot. The third theory is that all trotting is derived from modifying the pacing gait or faculty, shown by some examples only among horses.

The first theory is the one most desirable to arrive at, but in considering its probabilities we see that time will be required to form a breed of trotters by selection of the best examples possessing the qualities of speed, steadiness and game-endurance, as well as the power of reliably reproducing these characteristics in their progeny. The running horse shows but little improvement upon those examples which originated the breed, as Eclipse and Flying Childers. Except for the improvement of methods, it is doubtful whether out of the great numbers of race horses any could be found to have the natural qualities of speed and endurance much, if any, superior to those two horses. Running is a natural gait, and, so far as history shows, may always have existed as such. Is not it possible to make trotting just as natural a gait by carefully eliminating the running tendency? How long this may take, and whether the same object might not be accomplished differently, time will determine.

The second theory, the engrafting process by the union of examples already found to possess the trotting faculty with the more quickening impulse of the thoroughbred, is not reliable. Observation has led us to conclude that neither speed nor endurance of any kind is possible without the aid of Arab blood or its equivalent. The difficulty with this method is its uncertainty and consequent want of value to the average breeder, although individual examples of the highest class may now and then crop out.

In drawing special attention to the third theory of producing the trotting quality, the writer will try to first show how the pacers originated, according to his idea. That they are a distinct species is impossible, because they are fertile with other horses, and therefore belong to the same species. If they were a breed caused by circumstances, the outgrowth of a demand for that gait by some people in the remote past, and if those pacers now found reverted to some such ancestor, we should be able to trace them; but when we attempt to do so, we find that they trace back to two distinct breeds in every case where their breeding is known, and we are confronted on the one hand by the Arab horse, and on the other by the native European horse, neither of which furnishes as many pacing examples as when the two are combined. This brings us to the idea previously alluded to, namely, that all of our strains have arisen from the union of animals which present antagonistic characteristics, mental or physical, or both. Of such unions one result was the marked tendency to excessive growth, as found in the draught horse. By crossing two opposite temperaments both were neutralized and a third temperament was produced. The idea is now

advanced that the pacing gait and habit result from an intermixture of temperaments, not producing growth, as was the case with the draught horse, but the predominance of the physical structure of the one and the mental quality of the other, though by what physiological process or law this takes place is only guess-work.

To illustrate our meaning we will take as an example the stout and rugged northern horse, of which the French Canadian is a familiar example, disinclined to a gallop or any gait less leisurely than a walk, slow and difficult to arouse, activity at any gait an impossibility. On the other hand, we know that the Arab or thoroughbred has a nervous energy and a constant desire to go, but at a gallop; he can not restrain himself to trot, having no more trotting action than a cow, and he knows it and can never be taught to trot, but his swiftness at a gallop exceeds that of any other quadruped in existence. Now in the amalgamation of these extremes there may be produced, if not in the first cross, in some succeeding and more harmonizing remove, an animal that has the physical structure, angular frame and consequent angular action of his coarser ancestor, with the muscular refinement and nervous temperament of the finer one. He desires to go fast; running would for him require great waste of muscular energy and be an arduous task at which he would soon tire; he could not effect the graceful canter and gallop; he could adopt a compromise of a walk, a square trot and a run, and such as would be easiest for him would be likely to be the pace, especially in his first steps when a colt at his mother's side; and thus an original mental faculty would be developed.

Without such a faculty in some ancestor the writer believes it is not possible to teach a horse to trot fast, for while the ability to trot is possessed by most horses, fast trotting can only be derived from a modification of the pacing faculty, and this we believe to be the origin of the "trotting instinct," so called. This pacing habit once formed, like any other oddity, may be so fixed as to be perpetuated several generations without the necessity of doubling its strength, and even with doubling and redoubling may be difficult to preserve.

A careful observation of Goldsmith Maid led the writer to the firm conviction that trotters derived their form and gait from a source other than the thoroughbred. In studying her over he concluded then and there that she had a pacing form, and suddenly the thought struck him that the key to trotting was the pacing faculty modified, an impression of which he could never free himself. Under date March 10, 1874, the writer sent the following letter to Mr. J. H. Wallace, editor of the *Trotting Register*:

"I see in a late number of the '*Spirit*' that you qualify your Messenger theory of trotting instinct by admitting pacers as next to Messenger stock for imparting that in-

stinct. Now, a year ago last September I wrote you a letter inquiring about Jim Irving and your views about his thoroughbred pedigree, and you wrote me that his sire was a pacer and not a thoroughbred, which you have since proved to your satisfaction. Shortly afterward I was in Chicago, looking at Goldsmith Maid with a view of trying to make out her likeness to a thoroughbred, as others had, having in my mind at the time that breeding gave a trotter his speed; but I failed. I could see no particular resemblance, but those hips, thighs and stifles set my mind inquiring what particular breed they belonged to, for they looked decidedly familiar. At last I was persuaded and exclaimed that Goldsmith Maid was a pacer in form, consequently in breeding, although I was aware that there was no known pacing blood in her. So firmly was I convinced that pacing blood gave the trotter his speed that I then referred to all the known instances from Highland Maid down to the pacing sires and trotters of the present day. I wrote you a long letter, but destroyed it, not willing to trouble you before I had investigated further, and not wishing to disturb the Messenger theory on which you had already written one book and were compiling another. I did investigate and found every circumstance strengthened the proposition that the pacing element in a trotter gives him speed.

\* \* \* The question whether the world will be benefited by a knowledge of the fact that our grand trotters, our beautiful fast flyers, are after all descended from an insignificant scrubby pony, or worse, the long-despised pacer, will be answered by asking whether the world will be set right, or go on blindly breeding to horses and from mares that have no more trot than a Newfoundland dog, simply because they are Hambletonians, Mambrinos, or thoroughbred."

In reply, Mr. Wallace wrote as follows, from Allegheny, Penn., under date March 16, 1874:

"Your very interesting letter is before me, and it is a real sorrow that I have not time to consider it in detail. \* \* \* It is a truth as firm as the everlasting hills that English Mambrino and his son Messenger did found a race of trotters, without any *known* assistance. It is a truth also, just as well established, that fast trotters have come from pacing ancestors. All the trotting speed of this country comes from one or the other of these sources, except possibly from the dam of Vermont Black Hawk. Whatever speed the Morgan possesses and imparts comes from the Canadian. I propose to make the Canadian a subject of careful investigation the very first leisure and opportunity that I have. He is worthy of great consideration in the problem, but he cannot displace Messenger as a fountain of trotting blood. Why not give your ideas to the public through the *Spirit*? I assure you they are valuable."

Since that time Mr. Wallace endeavors to show that his ideal trotting founder, Messenger, derived his faculty from the old English pacing breed.

#### TROTTING BREEDS, ETC.

The foundation is already laid for a breed of trotters; the Hambletonians being noted for general make-up, for substance and quality, as well as for positive trotting capacity; the Mambrinos for size and lasting endurance; the Clays for tenacity of trotting action; the Black Hawk and other Morgans for their general utility; and other strains for remote crosses. Other



families will no doubt come forward with much more prominence for the furtherance of the trotting habit and the establishing of a breed of trotters. Therefore it must be plain that, according to the law that like begets like, if these examples thus show the tendency to either trot or pace, in time a breed of trotters must result, if such animals with this tendency are selected for breeding purposes as have the further capacity to reproduce numbers as well as individual examples. This brings us to the question, What has been done toward establishing a breed of trotters?

In the early history of trotting in this country it was found that the blood of imported Messenger was frequently met with in the horses, so that it became very popular, and its best use has culminated in the descendants of his son Mambrino through two channels, the main one of which was through his son Abdallah, and through Abdallah's son Rysdyk's Hambletonian. The other Mambrino branch came down through his grandson Mambrino Chief.

The horse Hambletonian became popular in the stud because of the Messenger blood he inherited, and because he was a son of Abdallah, the popular trotting sire of his day. Then his son George Wilkes, by virtue of his performances, gave him great notoriety, quickly followed by Dexter and others, until now he has thirty-six representatives in the 2:30 list. Hambletonian heads the list as the foremost prepotent element in the formation of a breed. A great deal of writing and tabulation of statistics has been advanced to show his excellences, but that the arguments may not be one-sided, the following comparison is presented: The stud-books of Hambletonian show that he begot over thirteen hundred foals, thirty-six of which trotted in 2:30. Woodford Mambrino begot eighty-nine foals, ten of which have trotted in 2:30. This shows about three per cent. for Hambletonian and ten per cent. for Woodford Mambrino. This fact is attracting attention, and the stud-books of other horses are to be investigated.

To what extent a sire will attain to the perpetuating capacity is a question which deserves as much consideration as the rate of speed. That Hambletonian's record will be far surpassed there can be no reasonable doubt. Other horses with like chances might perhaps have done as well or better, but this strain has in some way been forwarded, and has evinced a harmonizing and neutrally composing element which will be advantageous in a lasting degree. Next to George Wilkes, Volunteer is the most prepotent of Hambletonian's sons, with twenty-three 2:30 performers, five of which have marked below 2:20, and one 2:11¼. Dictator, brother to Dexter, has three trotters in 2:17 or better, and one in 2:10¾.

Harold has the fastest trotter of all the sons of Hambletonian, or any other horse, in the performance of Maud S in 2:10¼, though a great

many other sons have produced numbers of 2:30 horses. Beside this speed-production, Hambletonian has begotten horses with his capacity of reproducing producers, the most prominent of which is Alexander's Abdallah, who produced the trotter Goldsmith Maid (2:14), and the great producing stallion Almont, who has produced twenty-three trotters and one pacer with 2:30 records or better, three of which have beaten 2:20, beside several stallions that have produced 2:30 performers. Among the other sons of Alexander's Abdallah that have produced 2:30 trotters are Jim Monroe, Belmont, Major Edsal, Thornedale, Wood's Hambletonian, and Abdallah Pilot. Many grandsons of Alexander's Abdallah have also produced well.

The other Messenger branch, through Mambrino Chief, is scarcely less important. While not giving us as many trotters or as great speed, for other purposes perhaps just as desirable, it has done much to preserve the trotting form. Its representatives incline to size and style, as well as to constitutional vigor, vitality and lasting power. Their founder was a large, coarse, heavy-headed, but strong and resolute horse, with a very powerful, sweeping gait. He has six 2:30 performers to his credit. His son Mambrino Patchen, brother to Lady Thorn, has thirteen; Woodford Mambrino, another son, has ten; of his other sons, Clark Chief has eight, Mambrino Pilot six (one in 2:17¾), Ericsson five, Manbrunello two, Fisk's Mambrino Chief four, Idol three, Ashland Chief two. His grandsons bid fair to produce equally well. This in the main brings down Messenger.

If we classify pacers under the head of distinct individual founders, one pacing stallion would still take rank in direct prepotency, although his powers of perpetuation have gone no farther than the first generation to any extent. We refer to Blue Bull, and it is a question whether he does not take equal rank with Hambletonian in this respect, and some claim that he even surpasses the latter. He has thirty-four trotters to his credit in the 2:30 list (another being doubtful), and he has one pacer, so that in this matter he would equal Hambletonian's thirty-six, if the pacer and doubtful trotter are reckoned. Besides, it is very certain that he will surpass him in the future. If the present standard should be cut down to 2:25, each would have fourteen; if it were reduced to 2:20, Hambletonian would have two and Blue Bull one, both being then surpassed by a number of others. (Since the foregoing was written two other trotters of the 2:30 class have been added to Blue Bull's record).

The next greatest of the pacing families are the Pilots, the descendants of old Pacing Pilot, through his sons Pilot, Jr., Tom Crowder, and a few others of less note. Pilot, Jr. has seven or eight trotters in the 2:30

list; of his sons, Bayard has three, Tattler two, Roscoe one, Pilot Temple one, Pilot Duroc one. Yet it has been through the female lines that his blood has gained its greatest celebrity, one of his mares producing a 2:10 $\frac{1}{4}$  trotter and another a 2:10 $\frac{3}{4}$  performer. Many other daughters of Pilot, Jr. have produced wonderfully well, and no mares are more eagerly sought than his. The Crowder branch of the Pilot stock is most favorably known through Tom Wonder, sire of four 2:30 trotters, and there are many other scattering examples of the Pilots.

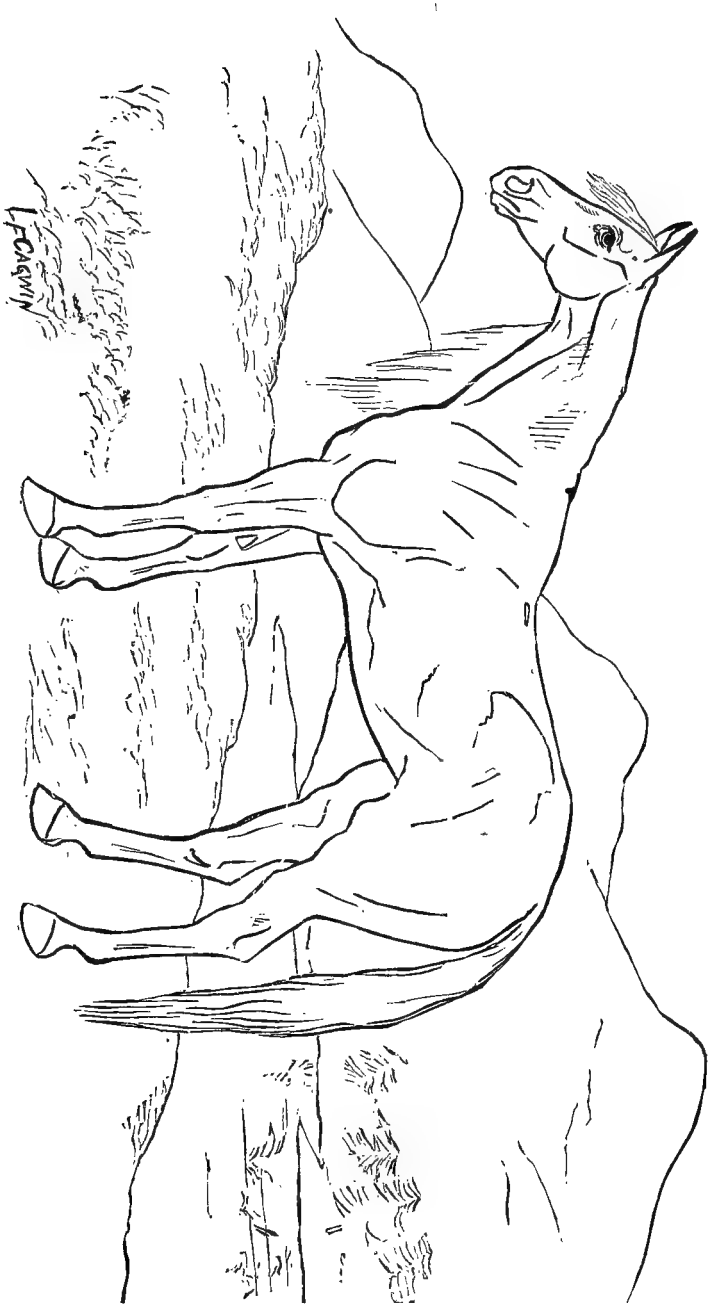
The Hiatogas were great speed-producers, both pacers and trotters. Scott's Hiatoga was the sire of six 2:30 pacers and five 2:30 trotters. The Cadmus family were descendants of Iron's Cadmus who was the sire of Pocahontas (pacer, 2:17 $\frac{1}{2}$  to wagon), and grand sire of Smuggler (2:15 $\frac{1}{4}$ , the fastest trotting record by a stallion). Pocahontas was the dam of Tom Rolf, sire of Sleepy Tom (pacer, 2:12 $\frac{1}{2}$ ), Gem (pacer, 2:13 $\frac{3}{4}$ ), Lady Rolf (trotter, 2:22 $\frac{1}{4}$ ), Tom Hendricks (trotter, 2:25), and Young Rolf, a newcomer, is now also added to his 2:30 list. Tom Rolf was also the sire of Pocahontas Boy, sire of Buffalo Girl (pacer, 2:12 $\frac{1}{2}$ ), the fast pacer Gurgle, and about a half-dozen of 2:30 pacers and trotters. Bonner's Pocahontas (2:26 $\frac{3}{4}$ ) was a daughter of Old Pocahontas, and the fast young stallion Revenue, by Smuggler, is descended through his dam from old Pocahontas.

The Davy Crocketts have a large showing, though scattering, the best results being reached through Legal Tender, sire of Red Cloud (2:18), and several other 2:30 pacers and trotters. Then there are the Tom Hals, Redbucks, Corbeaus, with many others, and when the fact is appreciated that these horses were mostly kept in the back ground, with no opportunities and a nominal service fee, not held for the purpose of breeding trotters, and when we further consider their limited produce, we may reasonably suppose that, with such chances as are now afforded stallions, much greater celebrity might have been attained.

Looking at the unhampered results of the produce of pacing-bred mares, we see a legion of trotters that spring from this source which, when gathered together, are a convincing proof that the pacers are the Cinderellas of the trotting world, and their proud sisters, if their breeding were studied and the pages of their history were fully open, would after all be seen to be of the same plebeian origin.

Whence came the pacing tendency in the Hambletonians? has been asked. Whence, indeed? There are many gaps to fill in the Hambletonian pedigree. Perhaps it is in these. Look for it in the dam of Abdallah, or even in the dam of Hambletonian himself. You do not know that it is in them, nor do you know that it is not there, though you do know that, if they have it, they must have received it from *some* source.





WILD FLOWER. (Record 2:21 at 2 Years).

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In reviewing the claims of the pacer as a progenitor of trotters, we see that the fastest trotter in the world, Maud S ( $2:10\frac{1}{4}$ ), is a converted pacer, for she paced and racked. The fastest trotting stallion, Smuggler ( $2:15\frac{1}{4}$ ), was originally a pacer. The greatest progenitor of trotters (if we accord to Blue Bull this distinction) was a pacer and the most of his best trotters were converted pacers. The fastest trotter under saddle, Great Eastern, was once a pacer. Trinket ( $2:14$ ) was converted to the trotting faith, though a very fast pacer, and a majority of the best trotters pace or amble more or less, which it is well known the best thoroughbreds never do. Moreover, nearly all of the best trotters have a pacing conformation.

The next family of trotters is that of the Bashaw blood, generally understood to have originated with imported Bashaw, an Arabian or Barb horse. It is sub-divided thus: (1) the Bashaw proper; (2) the Clay, through the descendants of Henry Clay, the son of Andrew Jackson, son of Young Bashaw, by imported Bashaw; (3) the Patchen, through the descendants of George M. Patchen, son of Cassius M. Clay, by Henry Clay. To the descendants of the Bashaw proper belong Long Island Black Hawk and his descendants, chiefly represented by his grandson Green's Bashaw, who has eleven  $2:30$  performers to his credit. Long Island Black Hawk was by Andrew Jackson. The Clays are the descendants of Henry Clay, principally through his son Cassius M. Clay and his descendants (not including the son of the latter, George M. Patchen, and his descendants, which constitute the Patchen branch). Two of Cassius M. Clay's sons produced each four  $2:30$  trotters, and another three; another produced American Girl ( $2:16\frac{1}{2}$ ), the fastest representative of this branch. The Clay blood is further diffused through their sons and is considered very valuable in both the male and female lines, the dam of St. Julien, by Harry Clay, son of Neaves' Cassius M. Clay, Jr., being the choicest specimen in the female line. Other descendants have more or less distinguished themselves, as the dams of Hattie Woodard ( $2:15\frac{1}{2}$ ), George Wilkes and others. Among the much-sought Clay mares those of Harry Clay have heretofore been the favorites. George M. Patchen, sire of Lucy ( $2:18\frac{1}{4}$ ), is best represented in the male line by Godfrey's Patchen, sire of seven  $2:30$  performers, one being Hopeful with  $2:14\frac{3}{4}$  to his credit, with the best wagon time,  $2:16$ .

The next family to be noticed will be the Morgans with their innumerable branches, chiefly known through Vermont Black Hawk, and he mainly through two channels, Ethan Allen and General Knox, the first a son and the second a great-grandson. Ethan Allen produced seven  $2:30$  trotters, his sons Daniel Lambert twenty-six, Woodard's Ethan Allen six, Bacon's Ethan Allen three, Honest Allen two. Many other sons have produced well, as

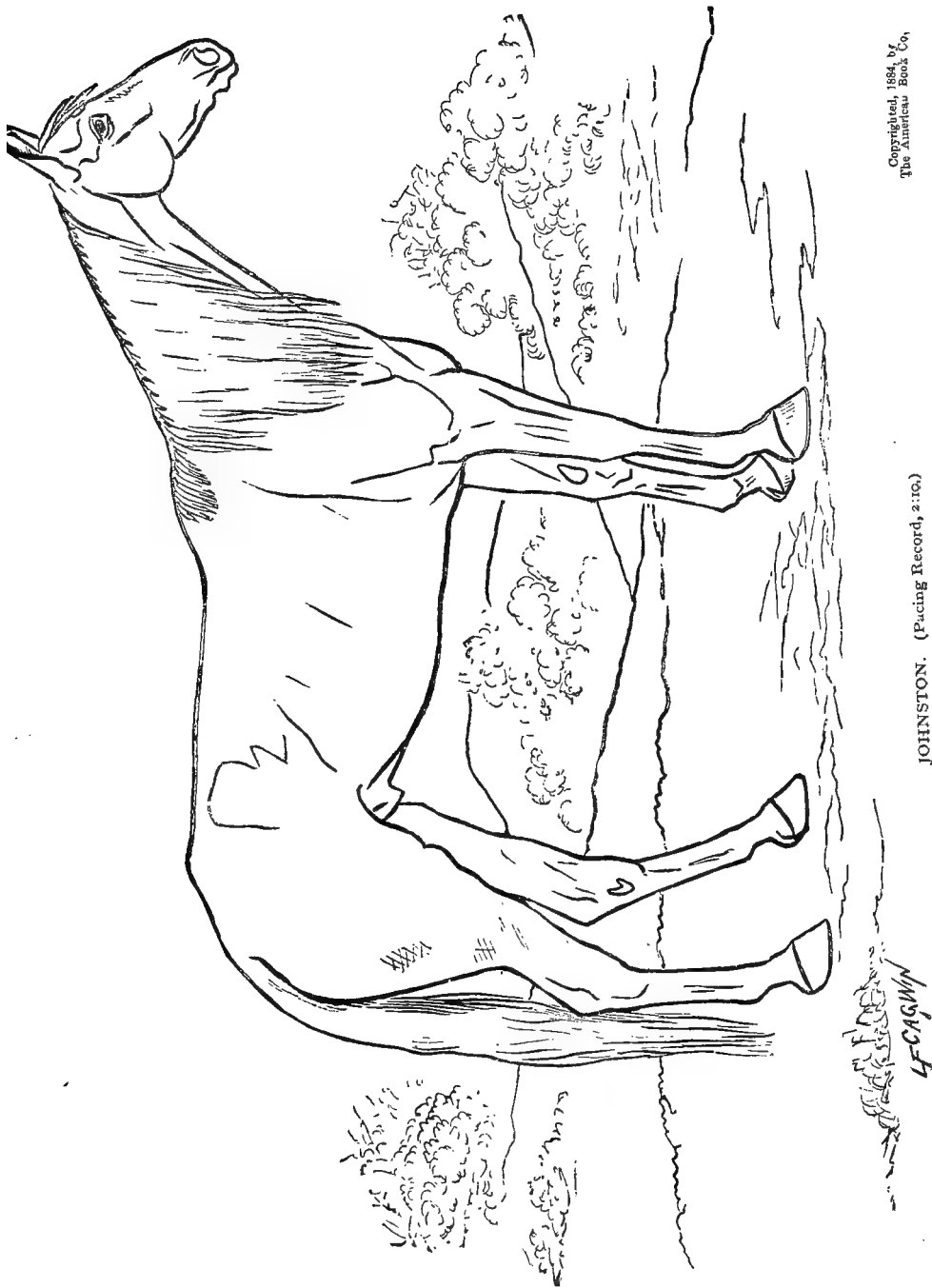
also the sons of Daniel Lambert. General Knox produced eleven and his son Gilbreth Knox three 2:30 performers, and others of his sons have produced well. Golddust, a Morgan, produced five 2:30 trotters.

The blood of American Star, now so fashionable, is to be met with almost wholly in the descendants of his daughters, about thirty of which have produced 2:30 trotters, many of them two each, and Clara, the dam of Dexter, produced three, being also the dam of Dictator, the premier sire. All of these were by Rysdyk's Hambletonian, and it was to Clara that the Hambletonian Star cross owed its first impetus. Widow Machree, a daughter of Star, and one or two others were the only trotters he can claim for the 2:30 list, but the Widow produced Aberdeen, who has more 2:30 performers to his credit than any other stallion of this cross—nine trotters and one pacer, the fastest of which is Hattie Woodward (2:15½). Beside these, the others of this cross who have produced well are Jay Gould, Enfield, Masterlode, Independent, Startle and Walkill Chief; and some of the sons of American Star are represented by one, two or three each. The breeding of American Star is not certainly known, but as he and his descendants possessed many physical characteristics in common with the Pilots and Blue Bulls, it is most probably the case that the pacing element was the dominant feature of his ancestry, well ground in with thoroughbred, especially if his daughter, the gray mare Peerless, owned by Robert Bonner, may be taken as a model.

There are many other valuable strains of trotting blood, mostly of Canadian origin, among which are the descendants of Champion, Royal George, Columbus, St. Lawrence, and many others that will no doubt in the future rank high. Some individual trotting sires have other merits as well as speed to recommend them to favor. Especially is this the case in regard to size, style and showy appearance. The most noted are Daniel Lambert, Mambrino King, Don Cossack, King Rene, and Almont Lightning.

#### COLT TROTTING.

The educating of the trotting horse in his infancy has attracted much attention of late years, and is very important to breeders, for it enables them to dispose of their stock much more quickly than if they were obliged to wait for the animal to mature. The first notable colt performance was that of Ethan Allen on May 10, 1853. He gained a record of 2:36 when four years old. Magna Charta, at four years, on October 14, 1859, scored 2:33½. Erricsson, in 1860, lowered the record to 2:30½; Bruno, in 1865, to 2:30; Galatea, in 1877, to 2:25½; Elaine, in 1878, to 2:24¼. Trinket was the first to get below 2:20, making 2:19¾. Jay Eye See lowered the same



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JOHNSTON. (Pacing Record, 210.)

LF CAGM W

three-fourths of a second, and Bonita now holds the scepter with 2:18¾.

As a three-year-old, Cora, in 1860, made 2:37¾; Blackwood, in 1869, 2:31; Lady Stout, in 1874, 2:29; Phil Thompson, in 1881, 2:21; and Hinda Rose, in 1883, obtained the fastest heat on record, 2:19½.

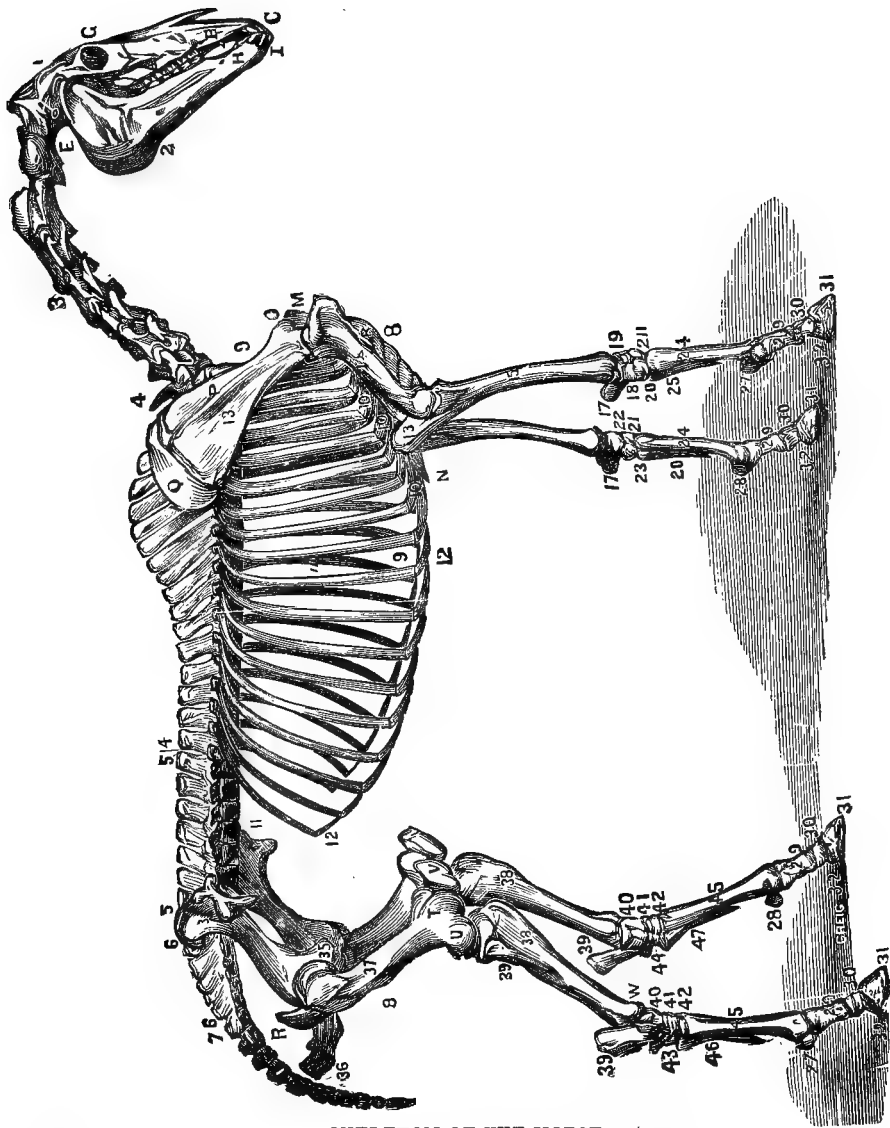
At two years, Julia Ann Johnson scored 2:45½ in 1871. The following year Doble lowered this record to 2:40¾; in 1877, So-So made 2:38½; in 1880, Fred Crocker made 2:25¼; in 1881, Wild Flower made the remarkable time of 2:21, and Sweetheart 2:23¼.

The great yearling performance of Hinda Rose, 2:36½, stands alone and unapproached, and is a remarkable record for that age.

### PACING.

Nothing like the attention has been devoted to the pacer that the trotter has received, so that his history and performances are obscure. There have no doubt been many fast pacing records that are now lost through neglect. In old times such horses as Roanoke, Oneida Chief and Hero were accounted on a par with the trotters of the day; but when the wonderful mare Pocahontas distanced Hero in 2:17½, and drew a wagon, and that too with an overweight driver, with the greatest ease, it was found that the trotters of the day were not up to that record. Since then the record has been gradually lowered, till now 2:10 has been reached by the bay gelding Johnston, and this also eclipses the trotting record which for a time held the supremacy. It is the popular belief that the star of the pacer is in the ascendant, but it is very doubtful whether pacing can ever compare with trotting, especially when we can breed trotters from trotters with certainty, so that the trot will be as natural as the pace now is. Already we see so many examples of great performers bred directly from trotting stock that we may hope in the near future to rely on the actual establishment of a breed of trotting horses, and a pure-bred trotter will be much more desirable than an animal produced by the hap-hazard method of hybridizing from which most of our great trotters have sprung.

[At Chicago, on July 10, 1884, when the above was standing in type, the pacer Westmont, a chestnut gelding, by Almont, with his running mate Firebrand, a thoroughbred by Fireball, made the marvelous record of 2:01¾ on an exhibition turn—first quarter, 30¾ seconds; half, 1:00; three-quarters, 1:30. In spite of a break at the finish, he thus did the fastest mile ever made in harness, and handsomely led all former pacers and trotters. Frank and mate had astonished horsemen in the fall of 1883 by a score of 2:08½.—EDITOR.]



SKELETON OF THE HORSE.

- |                                   |                                  |                                  |
|-----------------------------------|----------------------------------|----------------------------------|
| 1. Cranium.                       | 13. Scapula.                     | 29. Os suffraginis.              |
| 2. Lower jaw.                     | 14. Humerus.                     | 30. Crown bone.                  |
| 3. Cervical vertebræ.             | 15. Radius.                      | 31. Hoof.                        |
| 4, 4. Dorsal vertebræ.            | 16. Elbow.                       | 32. Wing of pedal bone.          |
| 5, 5. Lumbar vertebræ.            | 17. Os Pisiforme.                | 33, 34, 35, 36. Os Innominatum.  |
| 6, 6. Sacrum.                     | 18, 19. }<br>Carpal bones.       | 37. Femur.                       |
| 7, 7. Coccygeal vertebræ.         | 20, 21. }<br>Carpal bones.       | 38. Tibia.                       |
| 8. Sternum.                       | 22, 23. }<br>Carpal bones.       | 39. Os Calcis.                   |
| 9, 9. True ribs.                  | 24. Large metacarpal bone.       | 40. Astralagus.                  |
| 10, 10. Cartilages of true ribs.  | 25. Outer small metacarpal bone. | 41, 42, 43, 44. Tarsal bones.    |
| 11, 11. False ribs.               | 26. Inner small metacarpal bone. | 45. Large metatarsal bone.       |
| 12, 12. Cartilages of false ribs. | 27, 28. Sesamoid bones.          | 46. Outer small metatarsal bone. |
|                                   | 47. Inner small metatarsal bone. |                                  |

# CHAPTER I.

## SIGNS OF HEALTH AND DISEASE.

### ANATOMY AND PHYSIOLOGY.

**W**HATEVER may be one's opinion upon the great question of evolution, even a little observation will demonstrate to every one that the Creator of the universe has maintained a marvelous *unity of design and organism* throughout the various orders of animal life. While man is "fearfully and wonderfully made," the same wonder is aroused when we see that the several animals, particularly of the higher kinds, have substantially the same physiological organs and functions. He who has made a study of the human body has the material facts about the horse, ox and other domestic animals. (It would evidently involve tiresome and unnecessary repetitions to give the general anatomy and physiology of these animals after the treatise which we have set forth on those subjects as related to man. The reader will find about all the information on these topics that he will have occasion to apply in the domestic treatment of his animals if he will refer to the introductory pages of the appropriate chapters in Part I.) To be sure, the functions vary not a little and a few differences in organism exist, but these will be mentioned in the course of the following pages as the treatment will most properly demand. It is obvious, too, that after the horse has been fully treated, very much will have been said that is applicable to other animals, the cow, sheep, hog and dog in particular. Hence, the part of this book which is devoted to the Horse will not only give all needful information upon the comparatively few disorders of the Ass and Mule, but will be frequently referred to in the parts devoted to other animals.

In giving the Signs of Health and Disease of the Horse, we ask the reader to understand that he has before him very much that applies to other animals, and can gain the required facts by substituting the name of the one which he is studying in the context.

**SIGNS OF HEALTH.**—The following are general signs of health: Smooth and bright coat, loose skin, medium warmth of all the parts, clear

and bright eyes, natural but not excessive appetite which is not affected by ordinary work, regular and easy passages from the bowels and bladder, regular respiration from eight to ten times a minute, uniform heart-beats about forty-five per minute and a medium load of fat. If any of these are materially disturbed some derangement exists, and more or less disease is present if such disturbance is more than fitful.

**SIGNS OF DISEASE.**—The family physician is helpless unless he knows the symptoms of his patient, but these he can learn with more ease by asking questions than one can determine the condition of a dumb animal. He who would treat the latter must wholly depend upon his observation. Indeed, the owner of such an animal can scarcely be deemed less than cruel if he is so careless as not to extend to it a reasonable attention to ascertain whether it is in health. Any one can be reasonably certain whether his domestic animals are sick or well if he but be observing.

Prominent signs of disorder are these: Failure to notice a sound or the approach of another animal or a person, heedless standing, hanging head, general dullness, with eyes and ears perfectly still or drooping. Such signs are to be seen whether the animal is tired, old, abused, sleepy or sick. If the skin is pimply, or cold and damp, or unusually hot, dry and harsh, or sticks closely to the flesh and bones; if the hair stands on end and is not bright and smooth; if the nose, ears and feet are unduly cold in moderate weather; if the animal paws his bedding, or shows an unusual disposition to lie down, or looks around at his sides, switches his tail in the absence of flies, or uneasily stands on different feet successively, then pain is most likely present, and certainly the animal is not well. A more detailed notice of some signs is now in order.

*The Pulse.*—The pulse is the stroke felt at a point where an artery comes near the surface. In man, it is more commonly sought out on the wrist; in the domestic animals it is more easily found at the edge of the jaw. Passing the finger from the angle of the jaw along the lower edge, we will notice a slight depression or notch, and by pressing the finger into this we feel the pulsations of the artery. Whereas in man in adult life the heart beats, or the pulse, will be from 65 to 72, and may be increased a half or even doubled by excitement, those of the horse are much less, ranging about as follows: At birth, 100 to 120; at two weeks of age, 80 to 96; three months, 68 to 76; six months, 64 to 72; one year, 48 to 56; two years, 40 to 48; four years, 38 to 48. The average after three years is about 45. These figures may be considered the standard of a healthy pulse, some allowance being made for variations of temperature.

In health the pulse is regular, full, round and distinct, and when increased by excitement it retains the same relative characteristics. It is



well to frequently examine the healthy pulse that the finger may become accustomed to it. In doing this we should note not only its rate, but the characteristics as well, with the conditions surrounding the animal, for the characteristics and rate materially depend upon these conditions. In disease there are many variations, and a few of the most common will be given.

When the pulse is quick and strong, from 60 to 120 beats per minute, and the artery feels full and not easily compressed, it is an indication of fever or some inflammatory disease.

When it is quick and small, the artery appearing not full, and the pulsations are feeble, it indicates a state of depression or debility, such as is found in low, exhausting diseases, as typhoid pneumonia in the latter stage.

When the circulation through the brain is obstructed, the pulse is full and strong but slow, sometimes the beats being one-third below the normal standard. When this condition exists and the pulse is feeble, it indicates apoplexy or other serious brain disturbances, as paralysis for example.

Sometimes the pulse is intermittent, losing a beat occasionally; it may be the result of some functional disorder of the heart, or permanent and point to some organic diseases of this organ.

The compressible pulse is full and plump, a very light pressure will detect the pulsation, and if the pressure increase the pulsation ceases; this indicates a weak circulation and is usually the result of congestion.

*The Nervous System.*—If any of the following symptoms are seen, affections of the nervous system are indicated, and such diseases should be studied under their special divisions:—Defective hearing or sight, or complete loss of the same, eyes changed in color, general stupidity, loss of use in some part of the body, tremors, twitching, convulsive motions, stiffness, marks of dizziness, perhaps with falls, repeated turnings around, frights without cause, enlarged or injured head. If these symptoms are noticed, further examination should be made to ascertain especially whether the pulse is right, as well as the temperature of the body and the breathing. Of course the tongue, mouth and urine should be examined.

*The Digestive System.*—Evidences of disorder in the digestive system are these:—The tongue and mouth may be dry, hot, furred or slimy, or of a bad odor, or may show eruptions or sores; the appetite may fail, or be unnatural, as shown by eating poor instead of good food, and licking iron, dirt or stones; the thirst may be unusually great; the belly swollen, giving a hollow sound when struck; the dung may be hard, dry, light or dark-colored, difficult or infrequent in passage, or too soft and thin, passing too frequently or involuntarily, or it may be discharged with apparent fear, may smell disagreeably, or be bloody; the teeth may be decayed or worn.

short, and the animal, even when eating good food, may suddenly stop eating and soon commence (in such cases an examination should be made to ascertain if there are not sharp edges on the teeth to be filed down, or whether there is not a thorn or other foreign matter to be removed).

*Breathing.*—It being well known that any disorder in a horse's breathing depreciates his value very much, this subject should be well studied. Breathing consists of two parts—the taking in and the expelling of air, marked by the swelling and falling in of the flanks, which should be even and barely perceptible. Symptoms of disordered breathing are a cold nose (in ordinary circumstances) or nostrils unusually red, dry and hot, or giving out a discharge with or without bad odor; raw or ulcerated nostrils, the breathing though being perhaps interrupted by swelling, mucus, or warty growths in them; dry, short, or spasmodic coughs; sneezing; coughs, with phlegm-discharges, and short, obstructed, or painful breathing. Breathing is most rapid in young animals. It becomes more rapid by overloading the stomach and by other causes which impede the action of the lungs. Any excitement, as a fright or exercise, will have a like effect. By a test on one horse which normally breathed ten times to the minute, the number was nearly trebled after a walk of a few hundred yards; after a trot of five minutes, the respirations exceeded fifty, resuming their natural conditions after three minutes of rest; by a gallop of five minutes the number was extended to sixty-five for one minute.

A quick, short respiration denotes pain, most probably in the intestines, and a catching and interrupted respiration indicates pleurisy.

The respiration in which the heaving of the flanks is seen at a distance is a sign of inflammation either in or about the lungs.

The respiration in which the rising of the flanks is suddenly cut short, and the expulsion of the air performed by two efforts successively of the muscles of the belly, indicates broken wind; but may also be seen in influenza in horses having heart-disease.

Deep breathing indicates water in the chest.

Retarded respiration usually attends diseases of the brain.

The breathing of most animals in health is through the nostrils, with the mouth shut, is noiseless and without any manifestation except that of the slow, prolonged heaving of the chest in the larger animals, and the still, even, and regular though quicker movements of the chest in the smaller ones. The latter can breathe either through the nostrils or the mouth, but the horse is prevented by the formation of the soft palate from inhaling by the mouth; he therefore has extended nostrils to admit a large supply of air. In disease the nostrils may be contracted or widely opened at each inspiration; the breathing may be too quick, short, labored, irregu-

lar, jerky, superficial, wheezing, or grunting, as if each breath caused pain, one side of the chest may fill out more than the other; the pressure of the hand on the chest may cause the animal to flinch or groan. Beside the cough, which may be barking, croupy, whistling, or dry and hard, the sounds which are heard within the chest in health, when one applies the ear to it, may be altered greatly in character, as also may the sound heard when the chest is smartly struck. These various sounds enable an experienced person to detect the character of the mischief within the chest.

*Urinary and Generative System.*—The urine and general functions of the urinary and generative organs are deemed of great importance in treating man, and are of equal relative value in animals. We give the most important deviations from the healthy condition of these organs, and the best methods of detecting the same.

In the female there may be discharges from the womb or from the vagina; the sides of the exterior opening may be swollen and red; the udder may be swollen, tender, hard, or inflamed; the teats may be cracked.

In the male the penis may be inflamed or ulcerated, the foreskin (the end of the sheath or covering which incloses the penis) may have warty or other growths on or within it.

The urine in either sex may indicate derangement by being either scanty; seldom passed; thick; whitish; darker than usual; strong-smelling; bloody; discharged in too large quantities; paler than usual; passed in small quantities, accompanied with straining, or in spurts with pain.

All that is passed in twenty-four hours should if possible be collected and measured, and an observation should be made as to whether more or less than the usual quantity is passed. A healthy horse will discharge from five and a half to seven and a half gallons in the time named. A part of the amount passed during different portions of the day should be tested as to its *specific gravity*. This test may be made by the urinometer, which every veterinary surgeon should possess. Placing water at 1,000, the normal urine of the healthy horse will show a specific gravity of 1015.

Sometimes the urine contains albumen. This element is one of the constituents of the blood, and its presence in the blood is indicative of a serious disorder of the kidneys, and its early discovery is of great importance.

Occasionally, though not often, sugar is found in the urine of animals; this also indicates serious disease. It is known as diabetes, and when present the urine is passed in large quantities and has a clear, syrupy appearance and high specific gravity, reaching in some cases as high as 1030. When urine preserves this high specific gravity a test for sugar should be made.

## CHAPTER II.

### THE NERVOUS SYSTEM.

#### BRAIN FEVER.—INFLAMMATION OF THE BRAIN.

**T**HIS disorder affects the brain or its membranes, or both, and is caused by over-exertion in warm weather or exposure to the sun on a hot day; insufficiency of water; very stimulating food; hard blows on the head. It is not common among horses. At first the symptoms are mild, including heavy eyes, with red membranes under the eyelids; loss of appetite; the head rests on some object or between the legs; sleep,



96. VIOLENT SYMPTOM OF BRAIN FEVER.

followed by sudden waking, staring, and dozing again. In a day or two there will be delirium with convulsions and fits of excitement; heaving flanks; wild, red, staring, bloodshot eyes, wide open; nostrils stretched out;

the breathing has a snoring sound; constipation; scanty urine. Then may follow dullness, convulsions, loss of consciousness, and death; or the horse may grow more violent before death, plunging about, pawing, biting and striking at every one near, with eyes standing out from the sockets, breathing and pulse rapid, and mouth hot and dry; the horse dashes violently against any object by him, falls exhausted, foaming at the mouth, sweating, and then dying. Symptoms of colic may be confused with these, but in colic *rolling* is prominent, as it is not here, and consciousness is not lost. The symptoms of brain fever, or "mad-staggers," should be carefully compared with those of *apoplexy*, or "sleepy staggers," found in the next section. But those of stomach staggers (see section on that disease) are most likely to be confused with the indications of brain fever. Hence the following distinctions made by Gamgee should be carefully noted:

## INFLAMMATION OF THE BRAIN.

Very rare; never epidemic.

History indicates the cause to be some local injury; sometimes due to disease of the ears.

Originates and progresses slowly.

Usually very slight functional disturbance of stomach and intestines, indicated by costiveness.

High fever of a persistent type.

Stupor, listlessness.

No signs of colic, and rarely sweats.

Permanent uneasiness, ranging very slightly in intensity; delirium occasionally marked, but more frequently coma.

Symptoms yield slowly and with difficulty to treatment.

*Consequences.*—No tendency to ruptured stomach; suppuration often results, with marked symptoms of coma or blood-poisoning.

## STOMACH STAGGERS WITH DELIRIUM.

A common disease; often epidemic.

History indicates the cause to be repletion of the stomach.

Comes on suddenly.

Marked signs of derangement of alimentary canal.

Febrile symptoms easily dispersed.

Symptoms of severe pain.

Colic, sweats, tremors.

Paroxysmal derangement and severe delirium.

When evacuation of the stomach is obtained the delirium disappears, and the animal soon recovers.

*Consequences.*—Death in a few hours in many cases; ruptured stomach, indicated by symptoms of vomiting.

**TREATMENT.**—The most common treatment is free blood-letting, with powerful cathartics. While this may give temporary relief, the depletion, even if recovery takes place, will often produce a useless animal, a fine-spirited horse scarcely ever becoming more than a broken-down hack. A much better treatment consists in arterial sedatives which lessen the fever and allay the inflammation. Among the best of these we mention

tincture of veratrum viride in five-drop doses every half hour to two hours until the pulse is diminished in frequency and the symptoms improve. Aconite is another good remedy for the early stages, especially for prominent and persistent fever-symptoms; hard, rapid pulse; labored breathing; inflamed nostrils and eyes. Belladonna is needed for dull, red, or wild eyes; vessels of the head swollen, and those of the neck pulsating; hot, dry mouth; plunging; raging; unconsciousness; increased paroxysms; convulsions in the legs; foaming at the mouth; the horse falls, sweats, lies a short time, and rises again with violent actions. Give opium for constipation; slow and full pulse; drowsiness; stupor; breathing slow; glassy eyes; nostrils spread. Gelsemium is desirable when the disease results from direct exposure to the hot sun; much weakness of the muscles; enlarged pupils. Give glonoine when the eyes protrude, with wild, staring look, *without the fury which indicates belladonna*. Arnica (putting ten drops of tincture in a pint of water, and giving a tablespoonful every hour, or oftener) is desirable when the disorder arises from a blow or other external injury. Bromide of potassa in half-drachm to one-drachm doses, or chloral hydrate in doses of twenty to forty grains, will allay the delirium and violent symptoms. Put cold cloths about the head, and give as diet a little hay or grass, with a free allowance of water, keeping the animal in a cool, airy stable and insure as complete quiet as possible.

#### APOPLEXY.—SLEEPY STAGGERS.

This is characterized by an impairment or loss of consciousness, feeling, and power of motion, caused by pressure on the brain from concussion, congestion of blood-vessels. We treat apoplexy and sleepy staggers together, though they are not the same. The former is much more rapid in its course, but calls for such measures as are here indicated, if time is given for any treatment.

*Symptoms.*—Dullness in the stable or harness; hanging of the head, often with some object as a support; sight and hearing dull; pulse and breathing slow; the horse takes food with his lips, dozes, wakens and renews eating; the dung does not pass frequently, and is scanty. As the disease increases, the horse may be startled by a sharp noise, as the cracking of a whip, but is unable to move; prefers to stand, the legs being in strange positions, pushed forward or back, or even crossed; falls, and cannot rise; hind legs sometimes convulsed; then the eyes protrude, staring fiercely and immovably, the pupils becoming enlarged; grinding teeth; swallowing difficult, or wholly stopped; muscles twitch; vessels of the neck are enlarged; nose cold; dung passes involuntarily; sometimes nervous excite-

ment and delirium, followed by stupidity. It is not attended with swelling of the stomach, as in the case of Stomach Staggers.

**TREATMENT.**—Treatment is seldom beneficial, but the remedies most likely to relieve are here given, and should be administered while the horse is kept perfectly quiet in cases of Apoplexy. Belladonna is desirable for wild, staring, immovable eyes, with enlarged pupils; twitching and jerking of the legs; involuntary passage of urine. Continue it some time. Give nux vomica for lessened consciousness; constipation; involuntary discharge of urine; inability to move the limbs; spasmodic jerks. Opium may be given for drowsiness, or deep sleep; irregular, snoring breathing; full, slow pulse; contracted pupils. In the case of Apoplexy, keep the horse perfectly quiet. When Sleepy Staggers are under treatment, do not work the horse at all in warm weather, and never to excess at any time. While the former is rapidly fatal, the latter may continue even for years, though the animal is not fit for breeding purposes after it has appeared.

### PARALYSIS.

This is a loss of the power of locomotion, perhaps with loss of sensibility, resulting from a disorder of the nerves. It usually affects only the hind parts, but may be found in any portion of the body which is influenced by the nerves that are disordered. It is caused by attempts to stop a heavy load when descending a hill; by slipping up; by straining in a leap; by a severe blow on the back; by turning in a stall; by casting in the stable; by violent exertion during a surgical operation; by a fall in a race, in which case the horse lies a short time, rises slowly, is stiff, drags his legs, lies in the stable unable to rise, indicating great pain, quivering and slight spasms of the muscles of the hind quarters if there be a strain in the muscles; (if the spine be injured by such a fall, the muscles are quiet and soft to the touch). Another cause is the bringing of young horses to a sudden halt, throwing them upon their haunches.

*Symptoms.*—In slight paralysis, dragging of the hind legs; in other cases, inability to rise, excepting to receive a support on the front legs; loss of sensibility in the affected parts; involuntary discharge of dung and urine; mortification. It should be said, in general, that any portion of the body, however small, may be paralyzed.

**TREATMENT.**—The first aim in the treatment is the discovery and removal of the special cause, if that is possible, whether it be a derangement of the urinary, digestive or uterine organs, congestion, inflammation, or the pressure of some foreign substance on the brain. When paralysis is due to some inflammatory condition of the brain or spinal cord, with wild, staring

eyes, fever, and other symptoms of congestion, belladonna should be given. Hellebore is useful in cases marked by dry skin, retention of urine and dung, and when the disorder comes on suddenly. The various nerve-stimulants will be found valuable in protracted cases, and among them strychnia and nitrate of silver hold the first rank. They should be given in small doses, and be continued some time. Give nux vomica for stiffness of the back, and when the cause of the paralysis is not known; also when it results from insufficient food. When the cause is blows, contusions and other injuries of the kind, give arnica. Rhus is needed when the paralysis is caused by strains, running, jumping, or general over-exertion, or rheumatism. Of the last two medicines, a wash may be applied externally on the injured part.

Rub the affected part frequently. Give nourishing food. A current of electricity passed through the affected part will be of great value, but should be applied only by one who has been well informed.

#### EPILEPSY.—CONVULSIONS.

This is a disorder of the brain or nerves, marked by sudden fits. It is not frequent in the old horse, though it sometimes attacks the foal. If neglected, it will lead to much danger. Its causes are injury to the nervous system from disordered blood, brought on by exposure to the heat of the sun; difficult teething; grazing upon low pastures, chiefly when much dew falls; sudden change from poor to very rich food; protracted complaints, as fever and jaundice.

*Symptoms.*—The animal, having been perhaps in apparently perfect health, suddenly stops feeding, stares, trembles, staggers, falls, is seized with sudden and often severe convulsions; the eyes are much sunken, roll, or are distorted; affected breathing; teeth grind; mouth foams; muscles of the neck stiff and contracted; body twisted, perhaps violently; insensibility. Then the colt may rise, eat, and be in seemingly good health again. The fit may last several hours, and may recur in a few weeks, growing more frequent if not prevented, and many repetitions will probably cause death. This disorder is due to reflex irritation of the nervous system, and generally has its origin in some deranged state of the digestive tract, most cases being due to worms, the removal of which will cure the affection. Remove the cause, if possible, whatever it be.

*TREATMENT.*—For general convulsions, especially of the mouth, eyes and face; sparkling, red, staring, protruding eyes; difficult breathing; foaming mouth; limbs stiff and stretched out; loss of sensibility; involuntary passage of urine and dung; body stiff, and head drawn back during



the fit; falling down of the horse, and for irritation of the teeth, give belladonna night and morning for a while; then at night for several weeks, to prevent a recurrence. Should belladonna fail, give stramonium for the same symptoms, but resume belladonna for several weeks after an attack, five to ten drops of the tincture at night. Nux vomica is desirable when indigestion or constipation is the cause of the attack. When the cause is teething, the gum may be lanced and belladonna be given. If the animal is excitable and robust, give less nourishing food, and more exercise; if weak, tone up the system with nourishing food. During the attack prop the mouth open with a stick, to prevent injury to the tongue, and allow the animal to inhale ammonia slowly and with the greatest caution.

### FITS.—VERTIGO.—MEGRIMS.

This disorder is a congestion of the vessels of the brain, marked by sudden faintness and insensibility, without convulsions, and with speedy recovery. One form (called megrims technically) is caused by pressure of the collar on the jugular vein, by which the blood is prevented from passing out of the vein. This form is most common in horses with peculiarly shaped heads; in those which carry the head high, with stiff neck, the nose being stiffly held out, so that running is difficult ("star-gazers"); and in such as carry the head on one side. Horses are predisposed to the complaint by the following (and perhaps these are the whole cause in some cases): Hot weather; high temper; hard work and bad feeding, or little work and high feeding; excessive exertion; pulling heavy loads uphill; bearing reins; sudden and tight reining.

*Symptoms.*—The horse may be in such good condition as to give no outward signs of liability to the disorder, even to the practiced eye of the veterinarian. All at once, perhaps on a hill at a critical moment of work, he shakes his head, perhaps his whole body; lays back his ears; throws up his head, with twitchings in the muscles of the neck; looks wild, his whole body trembling; nostrils and eyelids quiver; eyeballs are prominent; sometimes he then is quiet a moment and the fit passes away; at other times he reels, falls to the ground, lies nearly or quite insensible, and convulsed; urine and dung may be involuntarily passed; free sweating at the close of the fit. The attacks are periodical, and more often occur during hot weather, and at hard work.



AFTER REPEATED ATTACKS  
OF MEGRIMS.

**TREATMENT.**—When the premonitory symptoms appear, stop the horse, loose the collar, cover the eyes, and wet the head with cold water. Drawing a little blood from the mouth often relieves at once. Bromide of ammonia or potassa will be found useful as a preventive of further attacks, and should be given in doses composed of a half-teaspoonful of the salts in a half-pint of water one to three times a day. Stramonium is of the highest value when the symptoms are trembling, convulsions, rolling eyes, and sudden fall. Give once in two or three hours, according to the severity of the case. Aconite will immediately give relief if the disorder results from fatigue in hot weather; but should the attack not abate readily, it is probably of the nature of apoplexy, with like cause, and the section devoted to that trouble should be consulted. Nux vomica may be given if the dung is hard and the urine scanty. It may also be given at night, followed in the morning by sulphur, the alternation being kept up as a preventive of recurrence of the attack. In this case give ten drops of either.

The medicines selected should be continued, a dose a day, for at least a week after the attack. Avoid undue pressure on the veins by collars, bands, and tight reining; shade the top of the head when in the sun, keeping a sponge wet in cold water between the ears. If the animal is robust, give an abundance of moderate work and restrict the feed. After an attack, turn the animal out for a while, and insure rest and quiet.

### CONCUSSION OF THE BRAIN.

Concussion of the brain results from a violent blow or other mechanical agency on the head, and may lead to serious disorders.

**TREATMENT.**—Apply arnica lotion freely, and give a dose of five drops of diluted arnica three times daily, or oftener if the severity of the case demands it. If inflammation ensues, treat as for Brain Fever.

### CEREBRO-SPINAL FEVER.

The true causes of this disease are unknown, but it is probably due to various debilitating conditions, such as over-exertion, indigestible food, foul water, or sudden exposure to extreme heat.

*Symptoms.*—Many of these are similar to those in man: Sudden cramps of the voluntary muscles of the neck and hind limbs, trembling of the whole body, and when the attacks come on slowly there is extreme dullness and lassitude for many hours, with paralysis of the throat and lips, causing a great flow of saliva. General paralysis follows these conditions, and eventually the animal is unable to stand, and lies prone upon its side

with lax and extended limbs. The usual symptoms of coma and stupor appear. Recovery may ensue in mild forms of this disease. A good, but not excessive appetite throughout is a favorable sign. The pulse, at first slow and soft, becomes weaker and more rapid in the latter stages; external temperature cool; bowels costive, with involuntary voiding of urine with no change in its character. Often there is tenderness of the spine, which may be detected by pressure.

**TREATMENT.**—In some cases little can be done in the way of treatment. Unless there is complete paralysis, the patient should be placed in as comfortable a position as possible, and be fed on laxative food, as bran-mashes and like articles, with cold water to drink. The spine may be rubbed with stimulating liniments, or alternate applications of hot water and ice. The limbs should be kept warm, and frequently given a hot mustard-bath. When the fever is high and the pulse rapid, *veratrum viride*, in three to five drop doses, should be given until the heart's action is controlled. If there be great coldness of the limbs and ears, quick pulse and hot mouth, *aconite* may be given in five to ten drop doses of the tincture. Bromide of potassa in twenty-grain doses will be found useful in the early stages to allay the pain and quiet the animal. It may be given in alternation or with either of the above remedies. Should the horse be unable to swallow, the medicine can be put on the tongue or injected in a watery solution under the skin. After the acute symptoms have subsided, mild tonics will be found useful; if paralysis supervene, treat that.

### NERVOUS FEVER.

This is rare, and is caused by insufficiency of space allotted to the horse in his stable. In such case, the stable being closed during the night or during bad weather, the air becomes impure and produces the fever.

*Symptoms.*—Shivering; cold legs and skin; no sweats; pulse from 70 to 100, small, thready, and growing very weak; respiration quick and short, about 60 per minute, with working of the wings of the nostrils; great weakness and dejection; increased flow of saliva; tongue and membranes of the mouth seem congested; difficult swallowing; glands not swollen; pain, as shown by an anxious eye; pawing; looking at the flanks; attempts to lie down, the horse immediately resuming the standing posture, with the head on the ground or under the manger; urine scanty and high colored; bowels constipated, or pass a few soft balls covered with slimy mucus; at an early stage, wind in the stomach, with frequent belching; pressure near the stomach gives pain; the action of the heart grows feeble, fluttering, and then silent, or hardly perceptible; breathing may be

labored and deep; perhaps dysentery or diarrhœa; frequent passage of wind; straining; dung chiefly mucus, tinged with blood; in fatal cases the horse walks around, knocks his head against objects about him; lies down; tries to rise, but fails. The animal has pains in the abdomen, but does not roll and often rise as in colic.

**TREATMENT.**—For the shivering, give aconite four times an hour, for one hour in five-drop doses, then lengthen the interval between doses. For the symptoms in general, give nux vomica every quarter or half-hour, according to the severity of the case. If the abdomen be not swollen and full of wind, give it once in two hours. If the swelling of the abdomen be great, and not relieved by nux vomica, give ammonium causticum or cocculus as long as the distension lasts, the dose being ten drops in a wine-glassful of water every twenty minutes. Arsenicum will be found useful when there are scouring of the bowels and a low state of the system; give one-hundredth of a grain, or three to five drops of Fowler's Solution.

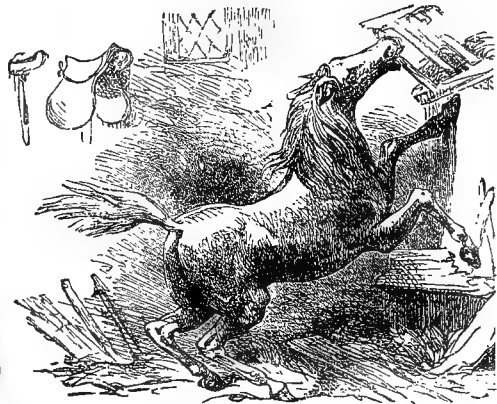
#### MADNESS.—RABIES.—HYDROPHOBIA.

This is never spontaneous with the horse, but is always occasioned by the virus of madness, usually received from an infected dog, whether the dog bites the horse or licks a wound, or the horse in some way swallows the saliva of the dog. When a dog is around the stable showing the symptoms of madness (see under Madness in the Dog), the matter demands immediate notice.

*Symptoms.*— Though the disease usually appears in about



FACIAL EXPRESSION IN HYDROPHOBIA.



VIOLENT SYMPTOMS IN HYDROPHOBIA.

three days after the infection from a dog, the horse should be guarded and treated for six weeks, if the disorder do not sooner occur. At first, among

the symptoms, the upper lip quivers; head down; anxious and sad look; legs, ears and mouth cold; staring coat; loss of appetite; eyes closed, or have an inquiring look, or become suddenly fierce; shivering skin; eyes, jaws or limbs become convulsed. Then there occur great restlessness; violent convulsions; wandering eyes; dread of cold air; aversion to light; prominent sexual excitement in stallions and mares; tendency to bite any object; great thirst; violent snorting; grating of teeth; change of voice when neighing; foaming mouth, with phlegm discharged in strings; kicking; pawing; plunging, or flat prostration on the ground or floor, the legs and head dashing about; tearing of the flanks and fore legs; partial paralysis of hind parts; increased convulsions in death. Madness may be confounded with inflammation of the brain, but in the latter consciousness is lost, while it is not in the former.

**TREATMENT.**—If the bite or infection be known at the time, wash the wound, if there be one, with cold water (into which it is better to put a few drops of belladonna), removing as much of the virus as possible. Then thoroughly cauterize the wound, as directed for Hydrophobia in the Dog, cover the bite with bandages saturated with water and belladonna, and continue the application as long as any traces of the wound remain. Give five drops of belladonna four times a day for six weeks. If a mad dog has been among a number of horses, even when it is uncertain whether he has bitten any, treat all with the belladonna, as directed, for ten days or two weeks.

When the active symptoms have appeared, it is best to kill the horse at once, in view of the improbability of a cure and the danger to attendants.

### INSANITY.

This is generally not distinguished from madness, but that it exists in horses as well as in man there is good reason to believe.

*Symptoms.*—These are a perverted or depraved appetite; change in the affections and temper; viciousness. Many horses which suddenly become vicious and violent are affected with insanity, and not with obstinate, willfully bad temper. The horse may be permanently afflicted, when it is easy to distinguish the disorder from madness; or he may be only temporarily insane, with an absence of some of the more special symptoms of madness, recovering after the cause (inflammation, abscess of the brain, thickening of the membranes of the brain, etc.) has disappeared.

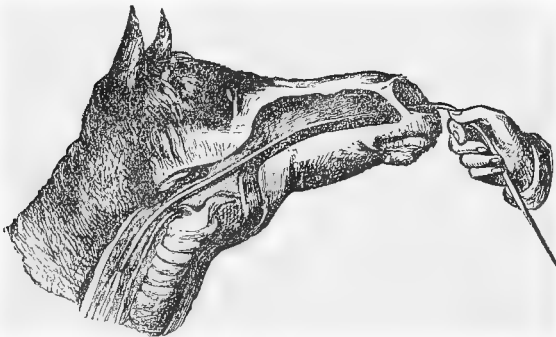
**TREATMENT.**—Give belladonna when the disorder results from an affection of the brain, when the symptoms indicating this medicine, as

mentioned under belladonna in inflammation of the brain, occur. Give stramonium for the symptoms indicating belladonna, if the latter remedy fails. Hyoscyamus is beneficial for great excitability, enlarged pupils, and sleeplessness. Put ten drops of the chosen remedy in a pint of water and give a wine-glassful once in from one to six hours, according to the severity of the case. Chloral hydrate or bromide of potassa will be found useful in violent cases, to produce quiet, twenty to forty grains at a dose.

### LOCK-JAW.—TETANUS.

This is a general or partial contraction of the muscles. It is more common in old horses. The causes we divide, for convenience, into two classes:—(1) Exposure to cold after clipping; snow and cold winds; excessive heat; severe weather of any kind; over-exertion; worms in the bowels; bots in the stomach; disordered digestion; inflammation of the stomach, bowels, lungs, or liver; advanced stages of stomach staggers (which see). (2) Wounds, especially those that are not inflammatory, such as result from clipping; docking; nicking; castration; cutting of abscesses; bruises; pricks in shoeing; open joints; broken knees; nails in the sole of the foot; dirt; rust, or points of instruments in wounds; galling of saddle or harness; severely crushed bones. Slight wounds and injuries most often lead to it because they are too much disregarded. Horses are rendered more liable to lock-jaw by low condition, cold weather, starvation, and other debilitating conditions.

*Symptoms.*—Though these may occur within a half-hour, especially when the cause is found under (1) above, the effects may not come on,



MODE OF FEEDING IN CHRONIC LOCK-JAW.

when resulting from a wound, until the wound is nearly healed. At first, the horse seems to be in good health, neighs when a person approaches, as if hungry; appetite usually good throughout; difficulty in taking food with the lips; champing of jaws; grinding of teeth; mouth closed,

or so nearly so that the horse can not feed; free discharge of saliva; any excitement causing twitching of the muscles of the neck and face; perhaps

colic and constipation. In later stages, the mouth is firmly shut, the muscles of the lower jaw being contracted and hard; head raised; neck stiff and immovable; nose stuck out; nostrils enlarged; breathing loud and quick; pulse hard, frequent, and unyielding; eyes wide open, fixed, drawn backward into the socket, with the white drawn over the eyeballs; lips firmly drawn across the mouth, exposing the teeth, which are clenched or slightly parted; saliva drops from the mouth; ears erect, stiff and pointed forward; the look is distressed and frightened; as the disease progresses the head is fixed in one position; neck stiff on one or both sides, drawn to one side if that only be affected. The limbs are not usually involved at first, but later their muscles are hard and stiffened, the feet being placed wide apart, the horse standing fixed to one place; any movement causes great pain, all joints appearing inflexible; the upper muscles of the neck contract, producing "ewe-neck;" belly hard and tucked-up; tail elevated and trembling; the alimentary system is involved, causing costiveness and perhaps scanty urine; swallowing difficult, if the horse can indeed suck up liquid food. Any excitement exaggerates the symptoms. Lock-jaw may not commence with spasm of the jaws. It often begins with contraction of the muscles of the hinder extremities and extends to the whole body, becoming severe, if not fatal, when it "locks" the jaws.

**TREATMENT.**—In the early stages a cure may often be effected by giving a small piece of stale bread saturated with fifteen to twenty drops of tincture of camphor, followed by another dose in an hour, another two hours later, a fourth four hours later, or more frequently if the urgency of the case demands it. Arnica may be used instead of camphor for cases caused by mechanical injuries. Give aconite for early stages of cases resulting from exposure to cold. Nux vomica is the leading remedy and should be given when the spasms are first discovered; it is useful when lock-jaw results from disorders of the alimentary canal; for twitchings and jerks; increase of spasm by excitement; stiffness of muscles; head drawn upward and backward, and the body arched and bent rigidly backward. For symptoms indicating nux vomica, strychnia is invaluable, *but must be given cautiously, alone*, and never more than one-fifth of a grain at once, the usual dose being one-hundredth of a grain. Arnica may be applied externally to wounds, pricks in shoeing, and sores from nails in the sole of the foot; in such cases it may be given internally as well, alternated with nux vomica. Gelsemium is very good for shivering, great distress and complete loss of muscular power. To relieve the spasm chloroform internally, in twenty drop doses, or by inhalation, will be of great service, inhalation being the more efficacious. Sulphuric ether may be used in the same manner as chloroform. If all other remedies prove ineffectual,

twenty drops of nitrate of amyl may be given by inhalation. Put it on a small towel and let it be *slowly* inhaled by the horse. It may be repeated in two or three hours if no perceptible effect has been produced.

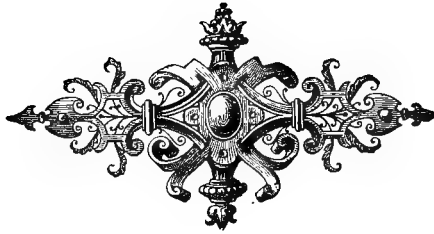
The slightest excitement will aggravate the distress. Loud noises, exposure to the sun's rays, angry words, the presence of spectators, and even the rustle of straw, are excitants. Hence, let the attendants be as few as is consistent with proper care. Let the stall be comfortable and removed from annoyances, with but little light. Chop the bedding into short pieces, to allow free movement of the feet, changing it often; have plenty of dry clothing, using the amount required by the circumstances, and changing frequently on account of the free sweats incident to the disorder. If a prick in shoeing or stepping on a nail be the cause of lock-jaw, remove the shoe, pare and rasp the foot thin; remove all foreign substances from the wound; squeeze out the pus or watery matter; then make a poultice of bran soaked in sixteen fluid ounces of hot water, into which has been previously put one ounce of tincture of arnica. Apply this to the wound two or three times a day. Such a poultice may also be put upon the spine. Tincture of lobelia, aconite or belladonna, may be used in place of the arnica. When a flesh wound has caused the disease, a warm arnica-wash may be applied to the wound, one ounce of tincture of arnica to sixteen ounces of hot water. Aconite or belladonna may be used instead of the arnica, if the symptoms indicate. Soak a sponge in this wash and bind it to the wound with linen strips, fixing the ends of the latter to the skin with glue or collodion, taking care that the lotion does not drain out of the sponge so as to moisten the glue on the ends of the strips. Do not try to force open the jaws that are firmly set. If food can not be taken naturally, and if suction be impossible, broth, milk, or rich gruel may be injected with a syringe into the bowels through the rectum. Frequent and careful rubbing of the body is very useful for stimulating the action of the skin and reducing stiffness of the muscles. Back-raking with a well-greased arm and hand should be carefully applied, as it is very useful.

### STRINGHALT.

This is a peculiar irregular and spasmodic action of the muscles, due to some nervous disorder that eludes accurate discovery, causing a singular movement of the hind legs; the fore legs are seldom affected. The hock is bent, and the leg is lifted high in locomotion, with a twitching or convulsive action in picking it up. It is not lameness, and diminishes or wholly disappears after the horse has been in motion a while. It increases as the horse grows older, and in later years interferes seriously with traveling.



TREATMENT.—This disease is by many deemed incurable, but it is not necessarily so. Give a teaspoonful of cimicifuga night and morning, alternating with nux vomica. For constipation, twitching or jerking of the limbs or sets of muscles, impaired appetite, and other marks of disordered stomach, with irritable temper, give ten drops of nux vomica three times a day. A lotion of rhus or poison oak may be applied with benefit.



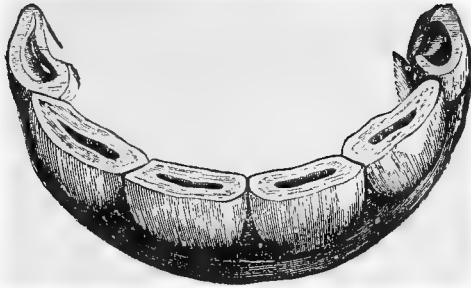
## CHAPTER III.

### THE DIGESTIVE SYSTEM.

#### THE TEETH.

THE great importance of the teeth of the horse as an index of age calls for a special notice and copious illustration. Points in determining the age are the following:—There are two sets of teeth, the temporary or milk-teeth, and the permanent, the same number being on each jaw.

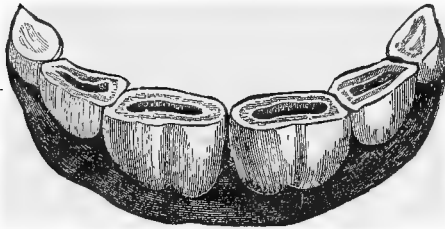
The *temporary* are twelve front teeth, or incisors, and twelve molars, or grinders. The *permanent* set has twelve incisors, twenty-four molars, and *four canines or tushes in the male*. At birth, or within about ten days afterward, the two central incisors are found, and about the same time three molars on each side of either jaw appear; at six months, four more middle incisors are seen; about the eighth month, two corner incisors on each jaw; at one year, there is the full temporary set. During the second year are cut two molars on either side of each jaw—eight in all—making twelve incisors and twenty molars, of which twenty-four are temporary and eight (molars) permanent. At two years and a half two permanent incisors displace the two temporary central ones, and are distinguished by increased size and a dark mark in the center. Between three and four years the next incisors are displaced by permanent ones. Between four and five, the corner incisors are likewise changed, and about this time the twelve temporary molars are replaced by permanent teeth, to which are added the remaining molars of the *mare's* mouth. At about four and a half, the four canines or tushes of the *horse* are seen and become fully grown at five. At six the central incisors of the *lower jaw* lose the dark mark in the crown which appeared at about three, perhaps a little before. At seven, this mark disappears from the middle incisors, and at eight is worn from all of them. At ten, eleven and twelve, the mark disappears from the central, middle and corner incisors respectively of the *upper jaw*. We thus have a fair index to the age. The teeth becoming longer, their edges triangular (tushes round and blunt), dishonest men attempt to practice various impositions, by



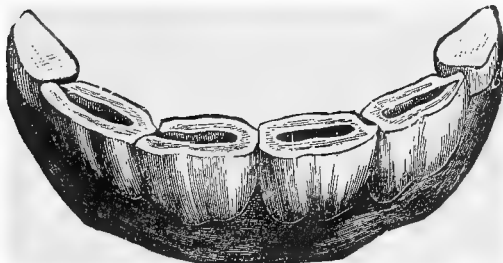
ONE YEAR.



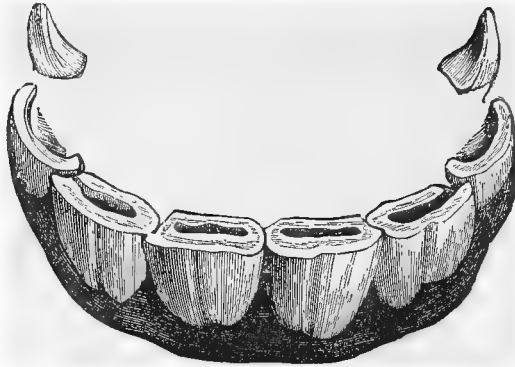
TWO YEARS.



THREE YEARS.



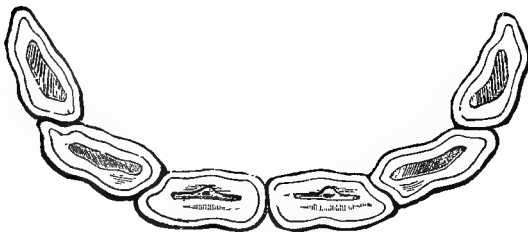
104. FOUR YEARS.



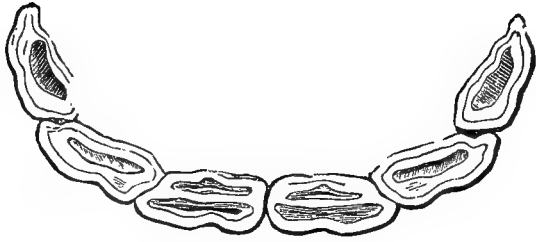
FIVE YEARS.



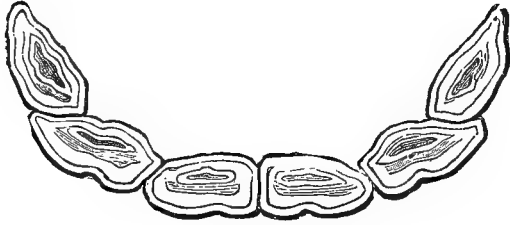
SIX YEARS.



SEVEN YEARS.



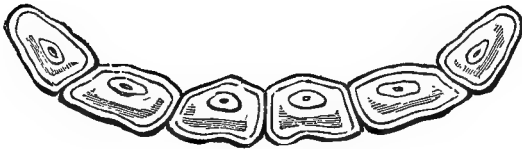
ANOTHER VIEW AT SEVEN.



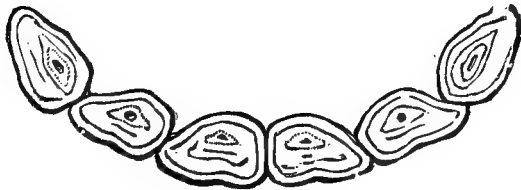
EIGHT YEARS.



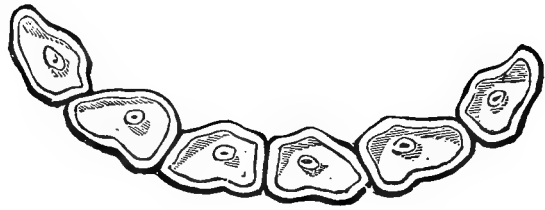
NINE YEARS.



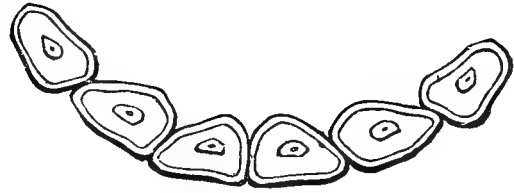
TEN YEARS.



ELEVEN YEARS.



TWELVE YEARS.



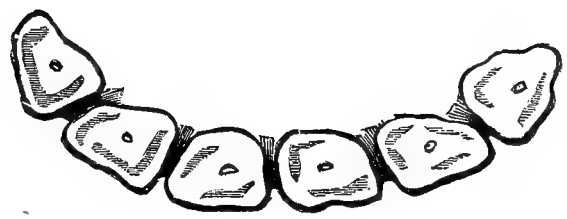
SIXTEEN YEARS.



TWENTY YEARS.



TWENTY-FOUR YEARS.



EXTREME AGE.

changing their appearance—"bishopsing" the teeth. For instance, a three-year old may be made to appear older by drawing the teeth which would soon drop out, thus allowing a more rapid growth to the permanent teeth; or a cavity is cut into the surface of the corner teeth and darkened with a hot iron or other means, to make a horse look younger.

### COLIC.

This should not be mistaken for inflammation of the bowels (enteritis), or for stomach staggers. The following table will aid one in distinguishing it from the former, as well as from other disorders.

ENTERITIS.	COLIC.
The attack comes on gradually; restlessness and fever-symptoms being present five or six hours before the violent symptoms.	The pain comes on suddenly, without any symptom, and is violent from the first.
Pain continuous, with but slight intervals of comparative ease.	Pain comes on in paroxysms, with marked intervals of ease.
Pressure on the abdomen gives pain.	Pressure or friction on the abdomen gives relief.
The pulse quick and full, or hard and thready; as the disease advances, rising to double the number of beats, or even more.	The pulse not affected, except during the paroxysms of pain, or after the latter has continued some time. It is thus variable; sometimes natural, at others small and feeble, then full and quick.
The extremities cold.	The extremities warm.

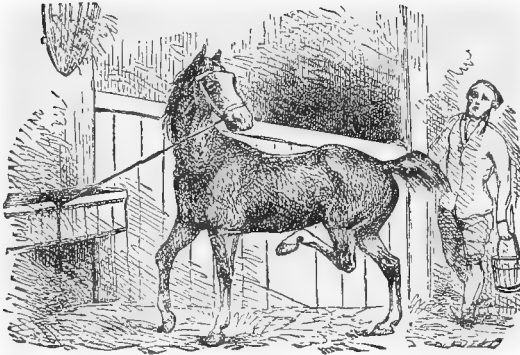
Colic is of two kinds, the *spasmodic* and the *flatulent* or windy, and the two kinds require separate description and treatment.

#### SPASMODIC COLIC.

This form is caused by impure air and irregular exercise, with dry, poor food and insufficient water. It is aggravated or excited by sudden chills, chiefly after hard work; free drinking of cold or mineral water; constipation; gritty lumps in the intestines; violent purging; green food in undue quantities.

*Symptoms of Spasmodic Colic.*—Severe pains in the abdomen coming on in paroxysms; the horse, in apparently previous good health, turns his nose toward the flanks with a frightened look, paws, and is uneasy. As yet the pulse is natural; an appearance of ease is now observed for a short period, then the symptoms return and are aggravated; the horse stamps

and kicks at his belly; starts to lie down, but again stands up; suddenly snatches up a leg and slowly lets it down again; walks around uneasily, occasionally dashing his head on some object; stops in the midst of mastication, resuming the eating as usual during the temporary ease, shaking him-



FIRST STAGE OF SPASMODIC COLIC

self at these times; draws the legs to the belly, or stretches them out rigidly; sometimes rolls violently on the back; puffs at his belly; if the attack is often repeated, he falls with a grunt, and stretches himself at full length, lying quietly until another spasm occurs, when he will rise or roll, resting his back against the wall; the pulse during the pains is hard or wiry, and

small, but is full and soft during the periods of ease; as the disease advances the eye grows wild and haggard, the pulse imperceptible, the breathing short and hurried, the sweat clammy and cold; the horse dashes his head around until it becomes cut and swollen. When death is near, the bowels are constipated and the urine stopped.

**TREATMENT OF THE SPASMODIC FORM.**—Give aconite (every ten minutes, gradually increasing the intervals to thirty minutes) when the colic results from chill, or drinking cold water when the horse is heated; for frequent but fruitless attempts to pass dung or urine; and when the abdomen is tender, swollen and rumbling. Give nuxvomica as often and at the same intervals as aconite, when the disorder is caused by over-eating or unsuitable food; when there are constipation, hard lumps



SECOND STAGE OF SPASMODIC COLIC.

and no urine resulting from attempts at evacuation; and for great pain, indicated by the animal lying down, being restless, and frequently looking



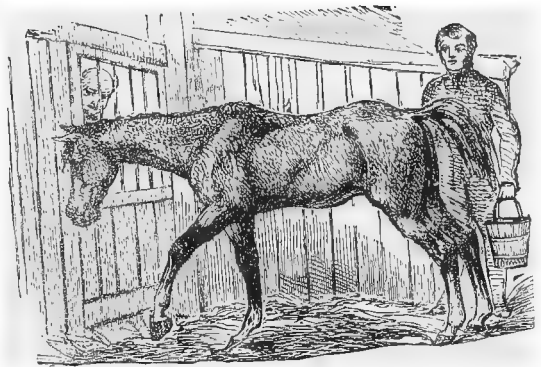
at the side. Cantharis is serviceable for stoppage of urine; if it fails, give hyoscyamus. Opium is valuable for constipation when the dung is scanty and blackish, in which case injections of soapsuds should also be administered. Nux vomica and opium may be alternated for obstinate constipation which tends to keep up the pain of colic.

A very superior remedy when the colic results from eating green food, when the belly is swollen with gas, and watery dung and wind are expelled, and when the horse rolls violently in severe pain, is colocynth. It should be given in five-drop doses every half-hour until relief ensues. Arsenicum should be given when there is much wind, and when the colic is occasioned by imperfect digestion, bad or excessive food, or drinking cold water. Use injections of warm water and soap, as they are preferable to back-raking. Apply cloths wrung out in quite warm water in severe cases (See cut 123). Keep the horse in a loose stall, with an abundance of straw for him to roll on as he is inclined, confining him thus without exercise until the attack passes off. After the violent symptoms have subsided, give gentle exercise and soft food for a few days.

**WINDY OR FLATULENT COLIC.**—This form arises from excessive or bad food, especially green clover; a hearty meal eaten greedily after hard work or a long journey; irregular exercise; or anything that promotes indigestion.

*The Symptoms of Windy Colic* are similar to those of the spasmodic, with the addition of frequent passage of wind, and a drum-like enlargement of the abdomen by gas.

**TREATMENT OF THE FLATULENT FORM.**—Nux vomica, ammonium causticum,



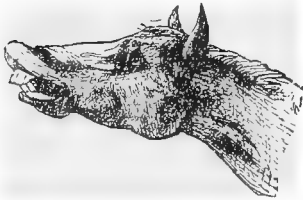
FIRST STAGE OF FLATULENT COLIC.

arsenicum and colocynth are valuable remedies. Cocculus is best for all cases of windy colic when it does not result from eating excessively, or the taking of green food. Rub the abdomen with the hand with considerable pressure, and give warm injections. Immediate relief will often follow a drench of a pint of dilute vinegar and a thimbleful of powdered chalk, well shaken and given quickly before it wastes by fermentation. In other respects, observe the directions above on the general care in spasmodic colic.

## INFLAMMATION OF THE BOWELS.—ENTERITIS.

Inflammation of the muscular coat of the intestines is caused by exposure to cold and wet; excessive exercise, with sudden chill; drinking cold water when heated; over-feeding; want of work; bad treatment or neglect of colic; strong purgatives; continued constipation; rupture in the intestines.

*Symptoms.*—These are similar to those of colic, from which they should be studiously distinguished. (See the table of symptoms under Colic.) The pain is continuous, not paroxysmal; pulse hard and small, ranging from 60 to 100, and in extreme cases imperceptible or thready; mouth hot, and usually dry; nostrils expanded, red and hot; bowels very much bound; urine stopped; abdomen tender and tucked up; extremities cold; copious sweats, becoming cold and sour-smelling in latter stages; breathing quick and short; the horse paws; lies down and rises often; strikes his belly; looks at his flanks as if in great pain; as the pain increases, the horse drops, rolls, and lies on his back; these symptoms, after some hours, may be followed by a subsidence of pain, the body being still covered with a cold, clammy sweat; the eye becomes lusterless; the lips hang; the mouth is very cold; tremor occurs in the muscles, particularly in the extremities. These symptoms indicate an inflammation of the outer



GENERAL SIGN OF ABDOMINAL IRRITATION.



PRESSURE TO DETECT ENTERITIS.

muscular coat. An inflamed inner coat will be marked, in addition to most of the above, by warm ears and extremities; discharge of liquid, frothy dung, sometimes bloody; feebler and quicker pulse; the taking of breath is short, and its expulsion checked and then completed with a groan. In extreme cases the horse totters, knocks his head on various objects, falls, and with a few struggles dies.

*TREATMENT.*—Treatment should be given as soon as possible, and since the disease is most likely dependent upon some derangement of the mucous surface and the cellular tissue under it, it should not be entirely

local, but general as well. Aconite is by far the best remedy, and if administered in the early stages, will usually effect a cure. It should be continued as long as the pulse remains hard, and the pain severe. After giving several doses fifteen minutes apart, it should be administered every half-hour, or in alternation with another remedy if the pulse continues hard and quick. If the constipation is inflexible, give *nux vomica*, followed in fifteen minutes by aconite, and continuing the alternation in this manner. Give belladonna, *not in the first stages*, as a remedy intermediate between aconite and arsenicum, when the pulse becomes feeble or thread-like; the eye red and wild-looking; the animal delirious; prostration; mouth and body yet warm; belly swollen and tender; great pain. Arsenicum should be given when the inflammation has resulted from cold, drink taken when the body is warm, or from irregularity of feeding; also, if there be rapid prostration, restlessness, cold and clammy sweats, hurried and weak pulse. Colocynth is desirable, perhaps in alternation with aconite, when the large intestines are mainly affected, and there is wind in the belly, with ineffectual attempts to pass dung. If there be great thirst, tender belly, prostration, shivering, perspiration, watery, offensive dung, passed with straining, sometimes slimy and bloody, *mercurius corrosivus* will be found an efficient remedy. Apply to the abdomen cloths wrung out of water as hot as the horse will bear, *without scalding or blistering*. Warm injections of starch will be of assistance. Apply to the legs mustard to restore circulation. Never resort to bleeding. Give gruel freely. An antidote must be given in cases resulting from poisoning. Since the nature of the poison cannot always be known, it is well to use Camphor as the best general antidote in enteritis. Remember, however, that *emetics are not to be given to the horse*. Give mild food until all irritation has subsided.



APPLICATION OF HOT CLOTHS.

## DIARRHŒA.—SCOURING.

This is a looseness of the bowels caused by unwholesome food, mineral or brackish water, strong cathartics, atmospheric agencies, derange-

ment of the blood, congested lining membrane of the intestines, nervous excitement, worms, derangement of some organ, as the stomach or liver, influenza or other disease.

*Symptoms.*—Frequent passages of dreggy or watery dung, without the blood which is common in dysentery, with or without griping; sometimes straining and discharge of wind; pawing, rolling and looking at the flank; discharges occasionally black and very offensive, but usually not offensive, and containing small pieces of hay; appetite lessened or lost; pulse quick, weak and irregular, and breathing hurried, though neither is much affected in *early* stages; straining increases with the advance of the disease, with more wind passing. In severe cases there will be offensive breath, cold skin and extremities, and rapid decline of flesh and strength.

*TREATMENT.*—When diarrhœa results from taking cold, or when congestion of the mucous membrane is supposed to exist, aconite will allay the inflammation. This remedy may be given in connection with mercury if the discharges are slimy and offensive, and the breath is foul. Sometimes the disorder follows constipation, and the discharges will then first be composed of dry, hard balls, then loose, and thus alternating. In such a condition nux vomica will be invaluable. In painless diarrhœa, with watery discharges, cold skin and shivering, give half-teaspoonful doses of tincture of camphor every hour until relief is afforded. Give arsenicum or phosphoric acid for watery, slimy, greenish or brownish diarrhœa, with or without griping pains; also when the animal is weak, thin, with poor or no appetite; and for diarrhœa in fevers of a typhoid nature. Cinchona is very useful in cases induced by hot weather, and not of an inflammatory character; for chronic cases, with painless discharges, loss of flesh, appetite and strength; for intermittent cases, and as a tonic after the acute symptoms have disappeared. Give veratrum album when the discharges are altogether watery and involuntary, the pulse collapsed or almost imperceptible, the nose, mouth and ears cold, parts of the body moistened with cold sweat, the expression haggard; thirst, and occasional griping pains; administer it every quarter of an hour at first and increase the intervals as the diarrhœa declines. Use mercurius corrosivus every half-hour when the dung is mixed with blood, or is merely mucus with wind and straining. If there is much pain, administer colocynth. Large draughts of linseed or olive oil will clear the bowels of any irritating substance, and they should be followed by starchy and mucilaginous drinks. Astringents and opiates should be given with caution, and never when there are any irritating substances in the bowels. Give three or four times a day three table-spoonfuls of flour paste in a quart of water, or more water if the horse is thirsty, especially if the disorder has resulted from an overdose of physic; clothe

the body and legs warmly; omit all exercise for two or three days, and when the appetite returns feed boiled oats or barley.

### DYSENTERY.—BLOODY FLUX.

Inflammation of the membrane lining the large intestines occasions an unusual secretion of mucus, usually tinged with blood, attended with straining, and this is called dysentery, or bloody flux. A fever of a low typhoid nature may cause it, or extreme heat, or indeed anything that depresses the nervous system may be the cause, as well as exposure to cold and wet, sudden chill, diseases of the skin and breathing organs, bad, excessive, or insufficient food, low, marshy grazing, oppressive, dry, sultry weather long continued, and it may result from diarrhœa. It is not common among horses, except in the chronic form.

*Symptoms.*—These are in some respects like those in diarrhœa, but it will be observed that the disease under question is marked by a mixture of *blood* and mucus in the dung; pulse small and quick; great thirst; quickened breathing; at first, shivering and fever-indications; appetite gone; slight griping; frequent straining; pain in belly; end of rectum sometimes protrudes in straining; loss of spirits. When the discharges are occasional, following marked constipation, and consist of a small hard ball or two, with wind and much straining, the disease is true dysentery; when they are dreggy, it is called diarrhœa, the discharge not being attended with straining.

*TREATMENT.*—Dysentery is often the result of clogging or impaction of the bowels, giving rise to inflammation, and in such cases this cause is to be removed by giving large draughts of olive or linseed oil, together with full injections of starch-water. When this has been effected, and the disorder is still accompanied with severe straining, protrusion of the rectum, discharges of blood, or of slimy, bloody mucus, with hardened dung, or with discharges nearly black and mixed with tough lymph, and frequent and straining attempts to pass urine, mercurius corrosivus will be invaluable. Give nux vomica if the dysentery is attended with constipation at times, with frequent passage of one or two hard balls, straining and unsuccessful efforts to pass urine and wind. Phosphoric acid is very serviceable for dysenteric diarrhœa, with fevers of a typhoid character. Give arsenicum if the dung is liquid, passed nearly involuntarily, bloody, offensive, and greenish, or nearly black; rumbling and windy bowels; loss of appetite, strength and flesh; skin and extremities cold; straining and passages of wind; for debility resulting from bleeding, purging, and such diseases as typhoid fever. As food give mashes of bran, crushed wheat or

barley, or of roots. Boiled linseed, starch-water or barley-water should be mixed with the drink to allay pain and irritation.

### CONSTIPATION.—COSTIVENESS.

This is a stoppage of the bowels, usually affecting the rectum. It is, properly speaking, a symptom of some disorder, but as its neglect may lead to inflammation of the bowels, it is here separately treated. It is caused, in addition to different specific disorders, by old age, inability to pass the dung which is in the rectum at birth, indigestible food, such as old, rough grass which clogs the rectum, deficiency of water, insufficient exercise, imperfect mastication, lack of digestive fluids, as the saliva and bile.

*Symptoms.*—Impaired appetite, indications of pain in the abdomen, straining efforts to empty the bowels, hardened dung, restlessness and irritability.

*TREATMENT.*—*Nux vomica* and sulphur will almost always afford relief, a dose of the former being given at night and one of the latter in the morning. Give regular exercise, boiled food, less oats for a while, and injections of warm soap-suds. *Back-raking* is dangerous. The bowels are sometimes obstructed by the lower part of the small intestine slipping down into the upper end of the larger one (invagination), and in such a case powerful cathartics are extremely dangerous, and indeed should never be used. If free injections will not relieve this latter condition, the abdomen may be opened by skillful hands, though it is a hazardous operation. Relief is sometimes afforded by jumping from a bank about two feet high. Manipulating, by the hand in the rectum, has produced good results.

### INFLAMMATION OF THE STOMACH.—GASTRITIS.

This is of two kinds, which, for the sake of convenience, we will call *special* and *general*. The distinction should be carefully made, as the treatment of the one differs from that of the other.

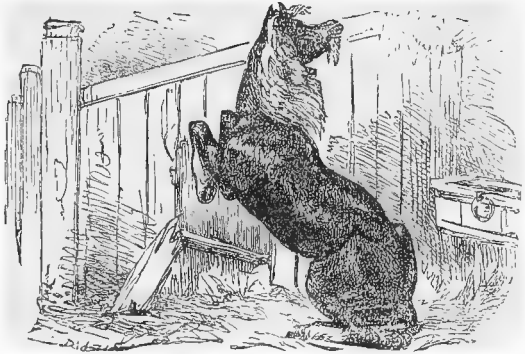
#### THE SPECIAL FORM.

This is caused by some vegetable or mineral poison or animal irritant taken into the stomach, especially by too much aloes, oil of turpentine, corrosive sublimate, arsenic, lead, copper, antimony, ammonia, cantharides, oxalic, nitric and sulphuric acids.

*Symptoms.*—Quick pulse (80 per minute), steady, small, perhaps imperceptible; thirst usually great; partial sweats; cold extremities; saliva

flows from the mouth; indications of dysentery, such as straining and passage of bloody mucus; weakness; perhaps paralysis; increasing pain in later stages; in cases of vegetable poisoning, stupor and great drowsiness, enlarged pupils, paralysis, snoring, breathing; in mineral poisoning and animal irritants, nausea, pains in belly, horse looks at his left flank, paws and rolls. In all extreme cases the horse dashes against the walls, or throws himself upon the ground, becoming delirious, and dies.

**TREATMENT.**—In all cases the poison must be removed, or neutralized by antidotes. For *metallic* poisons, as arsenic, corrosive sublimate, verdigris, lead, copper, etc., give white of egg in water, soap-suds, or sugar and water, adding iron-rust for arsenic; for lead, give Glauber's or Epsom salts. For *acids*, as sulphuric, prussic, nitric, etc., give soda, chalk and water, ammonia, or magnesia. For *alkalies*, such as ammonia, salt of tartar, etc., give lemon juice and other acids. For any case, give linseed-tea, starch-water, or arrowroot. Injections are serviceable. Generally give mild food, and in small quantities, during treatment and some time thereafter.



SYMPTOM OF ACUTE GASTRITIS.

#### THE GENERAL FORM.

This type is caused by a subtle poison in the air, acting on the brain of such animals as are predisposed to disease by general debilitating agencies, and especially by impure air from improper ventilation, the latter being an independent cause; by the coating process attended with some chill or nerve-disorder or fever. All of these operate on the nerves of the stomach and neighboring organs, producing inflammation.

**Symptoms.**—Pulse sixty to eighty per minute, small and weak, though soft and full at the beginning; foul and slimy tongue; saliva increased; appetite wholly lost from the commencement; limbs swollen and hot, or cold and not swollen; great weakness, the horse walking with legs wide apart, or dragging them; membrane of the mouth deep red, yellow, or of a brick-dust shade; eyes nearly closed, water penetrating the lids; sometimes a mucous pus instead of tears; the coat may be dry and loose, com-

ing off easily when touched, and standing up when eruptions occur, which is not unfrequently the case; no sore throat and no discharge yet, as in catarrhal troubles. The disease advancing, cough or sore throat may be added, or the lungs become disordered, with other complications; dung clay-colored or black, passed in small balls covered with mucus, or it may pass in small quantities, frequently soft and slimy; horse usually stands stupid and resting his head on the manger, indicating headache; if he lies down, he stretches out, occasionally turning the mouth, with curled lip, toward the stomach, giving evidence of nausea; sometimes marked restlessness, pawing, and walking about; the point and sides of the tongue very red, the middle being a dirty white; mucus-glands on each side much enlarged; sometimes the lining of the cheeks and lips is of a saffron color, with scarlet blotches on the gums, and red streaks on the membrane of the nose, though without sore throat; in other cases, ulceration of the inside of the lips and the gums, with a craving for lime, the horse licking whitewash if it is in reach; teeth covered with yellow tartar, which disappears when the stomach-disorder passes off; the animal drinks water freely, *and will take gruel*; sometimes grinding of teeth; heart often affected, its beats being loud and irregular; in very bad cases, inflammation of the lymphatics on the legs and chest. In either form, inflammation of the stomach is characterized by much pain.

TREATMENT.—When the symptoms are loss of appetite and spirits, with rapid loss of strength, tongue red at its sides, with eruptions, mouth slimy, its lining membrane yellow, or with scarlet blotches, dung hard and slimy, or soft, passing frequently only a little at a time, covered with mucus, with or without indications of pain and restlessness, fever of a weak type, the pulse being quick and small, no abnormal sound in the thorax, give *nux vomica*. In cases with greatly increased saliva, offensive breath, and ulceration or congestion of the gums, give *mercurius corrosivus*. If the fever become typhoid, breath, dung, and secretions offensive, pulse imperceptible, and legs dropsical, give *arsenicum* every two hours. Give only gruel and mucilaginous drinks for the diet and drink.

### INFLAMMATION OF THE LIVER.

Inflammation of the liver, a disease that is not frequent in horses, results from excess of food, especially of that which is very stimulating; want of exercise; hot stables; exposure to sudden changes of temperature; or may result from other diseases, as influenza and inflammation of the lungs; a heavy fall on the side may cause it; as also miasmatic influences and ague. It is of two kinds, *acute* (which seldom occurs) and *chronic*.



*Symptoms.*—In the *chronic* form the symptoms are dullness; listlessness; fever; pulse hard, frequent, irregular both in number and character, occasionally slow, sometimes fuller than usual; breathing almost wholly in the abdomen; mucous membrane joining the eyelid to the ball tinged with yellow; appetite bad; coat staring; mouth foul; tongue furred and dirty; dung hard, lumpy, light-colored, sometimes white or clayey, offensive and coated with mucus; pain in right shoulder, with lameness in right leg; sometimes dropsy or diarrhœa; itchy skin; mucous membrane in general yellowish; breathing usually little affected, though fits of blowing occur, with hollow cough; glands about the throat sometimes enlarged; rapid decline of condition; occasionally dropsy of the belly; congestion may be present, gradually continuing, with no marked change in general health of the horse, until the liver bursts and causes death; inflammation may set in and cause swelling in the region of the liver, with quick, hard, and small pulse.

In *acute* inflammation the horse perhaps coughs occasionally; hangs the head; drooping eyes; loathing of food; internal pain, not severe; passages of dung small and dark; urine scanty; mouth hot; fever; later, mucous membrane of the eyes, nose, lips and mouth yellowish; urine yellow; pulse strong, quick and bounding; perhaps the horse staggers.

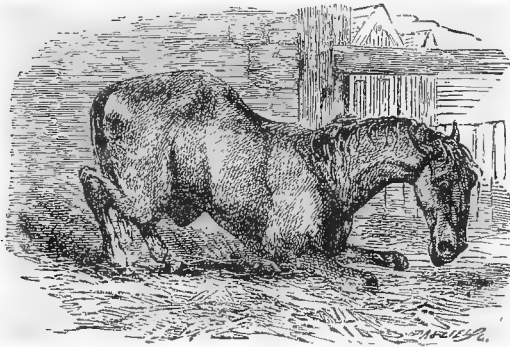
*TREATMENT.*—Give aconite for high fever; hot skin; thirst; furred tongue; restlessness; tenderness in the region of the liver, detected by the touch. In *acute* cases, give ten drops every one or two hours until the symptoms abate. If there be yellow coating of the tongue, yellowish membranes of the eyes, knotty and clayey dung, give mercurius, alone or in combination with podophyllin. Nux vomica is suitable for great tenderness in the region of the liver; thirst; costiveness; high-colored urine. This may be given in alternation with mercurius. If the disease progresses and is attended with offensive, blackish diarrhœa, weak, small and irregular pulse, cold extremities and great weakness, give arsenicum; this remedy is also efficacious when, in chronic inflammation of the liver, that organ has become enlarged, and the urine is scanty, and is adapted to dropsy of the belly, and to cases which arise from other disorders. The diet should in all cases be mild and not stimulating, such in general as is given for inflammation of the bowels. Tonics may be administered to sustain the strength, as taraxacum, cinchona and colombo, during the above treatment.

### PERITONITIS.

This is an inflammation of the lining of the abdomen and of the membrane which covers the outside of the bowels. From inflammation of

the bowels it is distinguished by greater tenderness in the *back part* of the belly, and greater swelling; while it is unlike colic in that its pain is constant and is attended with acute fever. It is caused by wounds and injuries to the abdomen; exposure to cold; over-exertion, as in running and leaping; castration, a cold setting in afterward. It is very dangerous.

*Symptoms.*—Shivering, followed by fever and inactivity or uneasiness; loss of appetite; thirst; breathing short, and mainly confined to the chest; pulse hard, quick or wiry at first, becoming thready later; the disease growing worse, the horse paws and looks at his side; stands with legs under his



FREQUENT POSITION DURING PERITONITIS AND OTHER ABDOMINAL DISORDERS.

body, with haunches against something, or crouches; motion causes more pain; abdomen tender, and in first stages tucked up, but afterward grows swollen or contains wind; nostrils wide; anxious look; the animal does not lie down and arise often, as in colic; urine scanty and high-colored. In later stages pulse very weak; cold, clammy sweats; mouth and extremities cold; tremb-

ling of muscles; the horse stands moodily in one position, finally dropping and dying. Peritonitis may pass from the acute to the chronic form, and the latter may terminate in dropsy.

*TREATMENT.*—During the inflammatory stage give aconite if there is high fever; and if there is a bloody discharge from the bladder, alternate it with cantharis. If there be great swelling and tenderness of the belly, with pain and quick, short breath, give belladonna. If the disease progresses, and is marked by great loss of strength and a dropsical condition, arsenicum will be of value, and five-drop doses of Fowler's Solution will be a suitable form for its administration. In cases attended with great swelling of the sheath, scanty urine, painful and hurried breathing, bryonia will be of value. Rub dry mustard on the abdomen and apply large cloths wrung out in hot water to the belly, holding them in place with blankets and girths, changing them every hour in extreme cases. All treatment should be applied at the earliest stage possible. During recovery be very careful about the diet, giving first linseed tea and well-boiled gruels of oat, barley or rye meal, following gradually with soft, warm mashes before the ordinary food is allowed.

## PILES.

Piles are small tumors in the muscles forming the circumference of the anus, caused by swelling and enlargement of the veins, and are the result of constipation, unwise use of cathartics, heating food, insufficient work, and an obstruction of circulation which often arises from derangement of the liver.

*Symptoms.*—Small, soft tumors at the outer extremity of the rectum, sometimes bleeding in efforts to pass dung; straining; occasionally protrusion of the outer end of the rectum; sometimes constipation; symptoms of liver derangement; perhaps matter in the rectum.

*TREATMENT.*—The bowels should be kept free, though not loose, and if there is a relaxed, paralytic condition of the rectum, accompanied by obstinate constipation, nux vomica will be found valuable, a dose being given night and morning. If the bowel protrudes, give podophyllin in small doses. Should there be much bleeding or inflammation, apply extract of hamamelis and inject a solution of equal parts of the same and water into the bowel. If the bowel protrudes and is swollen and very much inflamed, apply hot fomentations, and carefully return it after oiling well. An excellent application will be found in the ointment here given:

Stramonium ointment,	3 ounces.
Pulverized nut-galls,	1 drachm.
Morphia sulphate,	10 grains.

Mix. Apply warm, passing some into the bowel.

## CONCRETIONS.

These are balls, usually in the large intestine, composed wholly of imperfectly digested food mixed with mucous matter; or made by some hard substance which has been swallowed and acts as a nucleus in the stomach for the collection of undigested food. They vary much in size and obstruct the bowels.

*Symptoms.*—Usually no inconvenience is shown, the balls passing out when small; when they become large, great constipation.

*TREATMENT.*—If the presence of the balls is certainly known when they are small, a purge will remove them. Usually, however, this is not known until the balls have become so large as to stop the bowels. In this case treatment is of little avail, and the use of purgatives is very dangerous. Injections of soap and warm water may assist in the removal, as will also drenches of olive or linseed oil. To allay the pain, treat as directed for the spasmodic form of Colic, page 67.

## RUPTURE.

This is a protrusion of a portion of some part of the intestine, or of the membrane attached to the stomach and lying next to the front part of the intestines, through a natural or artificial opening into some cavity. It is caused by drawing heavy loads, kicking, rearing, running, straining induced by colic, injuries resulting from a blow or kick, or hereditary tendency.

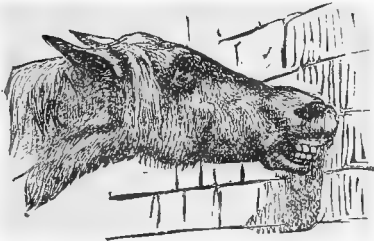
**SYMPTOMS AND TREATMENT.**—When a soft tumor is found at the navel, consisting of a sac that is elastic or inelastic, according as it contains respectively intestine or the membrane mentioned above, bad effects seldom result, the horse recovering as he grows older. Should this increase in size, and be attended with colic, a surgical operation is required at the hands of a skillful practitioner. If there be a fluctuating tumor or sac in the belly, containing a portion of intestine, which can generally be pushed back into the abdomen, a cure may often be effected by so pushing back the intestine and applying a bandage carefully and securely, *if this be done at first*. Since this kind of rupture seldom does harm, excepting as it disfigures the horse, it is usually best to omit an operation. Sometimes, when the treatment just named will not effect a cure, the intestine may be pushed up, and a strong band put around the neck of the sac which contained it, and left thus until it drops off, which will be in three or four weeks; or the band may be replaced with another after the first week. In either case, wooden clamps must be tightly placed over the skin forming the sac. If it be found that the aperture through which the protrusion has taken place has contracted so that the intestine cannot be pushed back, a skillful practitioner may perform an operation.

When the rupture is in the groin, the symptoms will be alternate ascent and descent of the testicle on the side affected, with a final ascent; cold sweats; constant colic, the horse often looking at the flank; perhaps attempts to vomit. In this case, the hand may be passed up the rectum and the intestine liberated from its confinement, though this is better done by a surgeon. When the intestine descends into the sac containing the testicles, it will disappear during rest, but reappear with exercise. Then the tumor grows larger gradually, and the aperture closes in, preventing the ascent of the intestine; there are dullness and indisposition to move; loathing of food; colic; constipation; rumbling of wind; in extreme cases, gangrene; cold sweats; shivering, and death. This form of rupture may not injure a horse's usefulness, and should be treated only by successful practitioners, if at all.

Owing to the liability to "constriction" and consequent inflammation and even gangrene, attention should be given to any case of rupture as soon as it is known to exist or is suspected.

## INTESTINAL WORMS.

Several species of worms are found in the intestines of the horse, among which may be named (1) the long white worm, from six to twelve inches long, resembling the common earth-worm; (2) the slender one, from two to four inches long; (3) the small, active, needle-like worm, found in great numbers in the large intestines and rectum, causing great irritation, and being darker than those named above; (4) the tape-worm, white and jointed into regular sections; (5) the long threadworm. Two views are held regarding the cause of worms. One is that they are injurious in themselves and wholly foreign to the animal's constitution. The other is that they are due to a derangement of the mucous membrane and its secretions, favorable to the growth of their



RUBBING THE NOSE DURING THE PRESENCE OF WORMS.



PICKING THE HAIR WHEN WORMS ARE PRESENT.

germs. In support of the latter view it has been remarked that worms are seldom found in healthy horses, or at least not in large numbers, while in horses delicate or poorly fed they exist in great numbers.

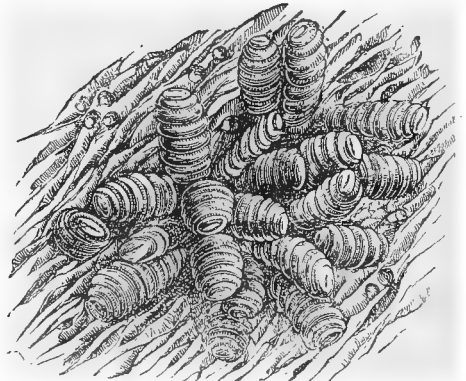
*Symptoms.*—Appetite at one time poor or wholly lost; at another voracious; low spirits; coat loses its gloss; the horse is hide-bound, licks the wall and eats dirt; dry, yellow or white matter about the anus, with itching, causing the animal to rub his tail or switch it about; dung often covered with mucus; worms in the dung are the unmistakable symptom.

*TREATMENT.*—Give salt in the food, and liquor arsenicalis, thirty drops three times a day. Or give one-fifth of a grain of arsenic night and morning in a little bran-mash; if it fails to effect a cure after two or three weeks, give five grains of sulphate of iron night and morning. In place of either of these courses, it may be well to give two powdered Croton beans in a handful of bran-mash, and a half-pint of linseed oil every morning. This has often been effectual. The Croton beans are also highly recommended

for expelling the worms, previous to the administration of the arsenic or sulphate of iron. For tape-worm, if its presence is known, *felix mas* has been deemed the best remedy, a half ounce of the decoction of the male fern being given early in the morning and late at night.

### BOTS.

These are often found in large numbers in the horse's stomach, to the coat of which they attach themselves firmly by two strong hooks. They appear to feed on the mucus of the stomach. A gadfly deposits eggs on some part of the body, which after a while produce itching, when the horse gnaws at them and so swallows them; or they may fall from the hair of the throat and breast into the feed. At this stage the larvæ are very small, but in the stomach grow to the size of a small grub, when they let go, and, passing away in the dung, turn to a chrysalis, and finally to the gadfly. It is a disputed question whether bots do injury to the horse when they remain upon the coat of the stomach, some even claiming that they are in these cases a benefit. If however they pass into the intestines and attack the sensitive tissues, their ravages are very alarming, producing colicky pains and other evidences of intestinal disorder. They may certainly be nearly if not quite harmless in a horse in ordinary health.



BOTS IN THE STOMACH.

*Symptoms.*—The symptoms which call for treatment are agony of the horse, with inclinations to violent colicky attacks; general symptoms of indigestion or colic.

*TREATMENT.*—Give *nux vomica* for the colicky pains and ensuing indigestion. The appearance of the bots in the dung, though an unmistakable evidence of their presence in the horse, does not call for treatment; indeed, this is the best evidence that none is needed and that they are passing off in a natural way. When there is great agony, with colic-attacks, pour down the horse's throat a half-gallon or more of warm milk, or, still better, fresh warm blood. This is rich food and the bots leave the tissues to feed upon it. As soon as the agony is relieved, give a pint or even a quart of linseed or olive oil, which will bring away the liquid and the bots. It is useless to

try to kill the matured bots in the stomach, as they will resist the most "heroic" remedies. Means of prevention are the shaving off of the long hairs on the fore legs, throat, breast, or other parts where the eggs are deposited so as to find their way to the mouth. Such parts may also be oiled. The proper use of cloths and branches fastened on these parts will prevent the depositing of the eggs. If any eggs are seen on the animal, they can be washed or rubbed off, thus keeping them out of the mouth.

### LOSS OF APPETITE.

Loss of appetite often results from long-continued feeding on h. y and oats, without change; from too much feeding; from insufficient or irregular work; from bad food and bad water; from a dirty stall; or it may be a symptom of some disease whose cure is the remedy for the lost appetite.

*Symptoms.*—Nothing may be observable but an indisposition to eat for a long time, the horse tossing his food around; the mouth may be hot, tongue red, breath dry and offensive; sticky mucus in the mouth.

*TREATMENT.*—Nux vomica four times daily is usually sufficient. If the mouth, tongue and breath be affected, use mercurius. For disordered stomach, marked by hot mouth, red tongue and offensive breath, together with lost appetite and diarrhœa, give arsenicum. A simple change of the food to mashes and roots will often restore the tone of the stomach and improve the appetite. When this fails and there is no such impediment to eating as too long teeth or sore tongue, particularly if the horse is listless and the coat staring, one of the condition powders mentioned in the *Materia Medica* may be used. Give moderate exercise in the open air.

### INDIGESTION.—DYSPEPSIA.

Acute dyspepsia or indigestion is caused by excessive feeding; rich food; hasty eating; copious drinks after meals; hot food; irritating plants. The chronic form results from insufficient or irregular work; badly-cured forage; a long continuance of the same kind of food without change; irregularity in times and quantity of feeding; rapid eating just before work; imperfect mastication; badly-ventilated stables; improper treatment of some disease, as by too large doses of calomel or tartar emetic.

*Symptoms.*—Tongue foul and coated; mouth slimy; changeable or corrupted appetite; unhealthy coat; sometimes ravenous eating, dirty litter and even dung being consumed; perhaps licking the whitewash on walls and manger, ending often in wind-sucking or crib-biting; or the appetite may be wholly lost; rapid loss of flesh; abdomen full or tucked up; weak-

ness; easy sweats; dung black and hard, or offensive and soft; urine thick, white, or high-colored; most of the grain is passed whole; frequently a short, hacking and irritating cough.

When there is a capricious or vile appetite, with hard, dry cough, there is derangement of the nerves of the lungs and stomach (pneumogastric nerve). The capricious or ravenous appetite, with the dung passed in hard, small, black or clay-colored balls, being slimy and offensive, the mucous membranes being of a yellow tinge, indicates gastric derangement; in which case slight pains in the abdomen are felt, skin variable in temperature, extremities cold and hot alternately, urine generally scanty and high-colored, though it may be paler than usual. If the horse becomes "pot-bellied" or dropsical, or loses flesh rapidly, or has dropsical swellings on different parts, the bowels being alternately loose and constipated, the symptoms show derangement and enlargement of the glands in the folds of the intestines. Imperfect mastication is followed by hay rejected from the mouth partially chewed, grain passing whole, the animal being in a low condition and hide-bound, and these symptoms demand an examination of the teeth with a balling-iron.

TREATMENT.—*Nux vomica* is especially demanded by capricious or depraved appetite, and is preferable to mercurial preparations when this appetite results from disease of the liver. *Nux vomica* is also needed when food passes undigested, or when the dung is hard, lumpy, or glazed with mucus; tongue slimy and furred; three to five drops of the tincture three or four times a day being suitable doses. *Arsenicum* is required in cases of long standing, with much weakness and loss of flesh, little appetite, frequent coughing after eating and drinking, dung soft, purging during work, skin scurfy and hide-bound. This drug in the form of iodide of arsenic is particularly valuable in cases induced by enlargement of the intestinal glands, with dropsical swellings of the chest, belly or legs. *Antimonium crudum* is superior for windy stomach, with pains, rough coat, thirst, and offensive dung, or when dreggy lumps are passed, and also for aversion to food. *Ipecac* is useful for nearly all forms of indigestion. *Phosphorus* or phosphoric acid is very useful for narrow-chested horses with consumptive tendency, and what is improperly called a "stomach cough" (really caused by irritation of the pneumogastric nerve), as it removes the cough and checks the diarrhoea. A few doses of *cinchona*, followed by one or two of *nux vomica*, are desirable for horses weakened by shedding the coat, which has induced indigestion and capricious appetite. *Mercurius* is desirable when both liver and stomach are deranged, the skin and eyes being yellowish. In chronic cases of indigestion marked by the general symptoms which indicate *nux vomica*, a dose of sulphur may be profitably given



every morning, with nux vomica at night. For liquid and offensive dung and total loss of appetite, give pulsatilla. Ten to twenty grains of bismuth or sulphate of soda night and morning will be serviceable.

In the way of general care, ascertain the cause of indigestion and remove it if possible. For example, if the teeth are uneven or long, rasp them; if the food be bad, change it; give a variety of green food if dry grain has been fed; give oats only when crushed; feed often, but little at a time. When exercise has been long neglected, give regular and moderate walking, avoiding quick work soon after feeding, and hard work altogether for a time. If the animal bolts the food at the beginning of the meal, give him a little hay to partially appease hunger, then follow with the oats, meal, bran, or whatever is to be given. Proper food and exercise are the essentials.

### CRIB-BITING AND WIND-SUCKING.

These are caused by a disordered stomach, or they may be acquired by imitation; hence animals given to the practices should be separated from others, lest they afford a pernicious example. They reduce the condition of the horse and induce colic. After long indulgence the gullet is irregular in width, the abdomen swells, and wind in the stomach ensues.

*Symptoms.*—Front teeth worn unnaturally by rubbing or pressing the edge of the teeth on a hard substance, as the manger; the teeth are fastened into the manger; the neck is curved, and air is sucked in and swallowed with a peculiar noise; such is called a crib-biter. The wind-sucker presses the lips, instead of the teeth, against the manger; the neck is curved; the feet brought together, and wind sucked in and swallowed.

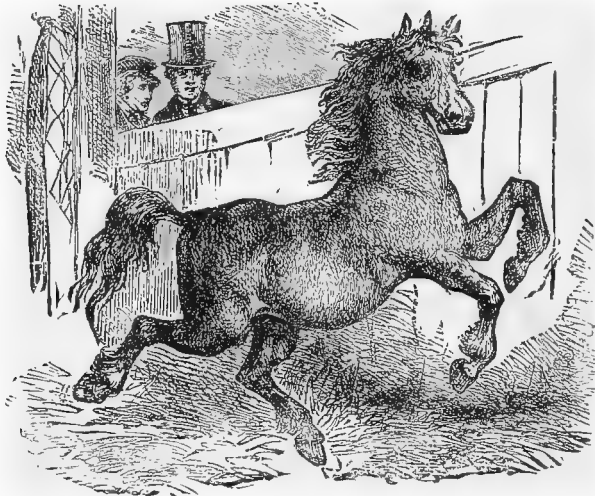
*TREATMENT.*—Straps, racks and muzzles are of little use; straps are liable to induce disorders of the air-passages which will end in roaring. Nails and sheet-iron put on the manger are apt to fail of their purpose, and will break the teeth. Aloes and coal-oil put on the manger have done some good. An effectual remedy is to remove the manger and whatever else the horse can fix his teeth or lips upon, and to feed him upon the ground. The simplest and most effective plan, however, is to put in a *smooth, hard roller* for the edge of the manger, which will revolve easily from any attempt to fasten upon it with the teeth or lips, thus preventing the practice. Some form of muzzle may be put on that will make the act impossible.

### STOMACH STAGGERS.

This disease is usually caused by overloading the stomach, especially after a considerable fast, and by quick feeding; dry hay or barley, mingled

in the stomach with water; or excessive eating at a crib may be the cause. Any of these produce a swelling of the stomach, and lead to the disorder.

*Symptoms.*—The horse stands listless, drooping, drowsy, unsteady, or staring vacantly and unwilling to move; presses hard against the wall or rests the chin on the manger; occasionally falls asleep with partially masticated food in the mouth; pulse full and slow; yellow mucous membranes; bowels constipated; urine stops; breathing deep and snoring; if the disease increases, there ensues partial paralysis of the hind extremities; wild and staring eyes, or dilated pupil and insensibility to light; the animal walks around the stable, striking his head upon different objects; some tremors and sweats, with pain in the abdomen, or delirium; he stamps and looks at his sides; lies flat down, or sits on his haunches, not rolling or throwing himself as in colic; or brain-symptoms may predominate, the pulse being full,



VIOLENCE SOMETIMES EVINCED IN STOMACH STAGGERS, BUT MORE COMMON IN MAD STAGGERS.

bounding and quickened; the horse raises the fore feet into the manger, falls back, blowing or snorting, and lies exhausted; rises, grows sleepy, the enlarged pupils of the eyes and wild expression giving place to drooping lids and hanging tongue and head, with staggering; then the furious manner recurs and, being repeated, is followed by death from ruptured stomach. These symptoms should be carefully observed, as some of them are attendant upon apoplexy and brain fever. One of these is indicated if the horse has not eaten heartily after a fast, has not been at the crib, or on rich pasture in a hot sun when he is in bad condition, has not had grain whole and

unsoaked, has not been previously attacked, or if the disease is not prevalent in the neighborhood. An explicit showing of the difference between Stomach Staggers and Brain Fever (Mad Staggers) is given under the latter disease. Read also what is said upon Apoplexy.

**TREATMENT.**—Give a drench of five drachms of horse-aloes and two drachms of carbonate of soda, dissolved in a pint of boiling water, to empty the stomach. Then treat the paralysis and brain-disorder with nux vomica and belladonna. When no delirium exists, nux vomica will suffice, given every two hours, beginning two hours after the drench of aloes. For symptoms of delirium, give belladonna every two hours in alternation with nux vomica. Should the cleansing of the stomach commence, alternate these remedies every two hours. Give all the water the horse wants, but withhold all food the first twenty-four hours, thereafter giving bran-mashes or thick gruel. Apply cold cloths to the head during treatment.

### PAIN IN THE STOMACH.

This is indicated by symptoms similar to those of colic (which see), but the horse in stomach-pain puts his nose behind the left elbow-joint, the seat of the stomach; gas rises from the stomach, producing waves along the gullet like those caused by the passage of food or drink, though in the opposite direction.

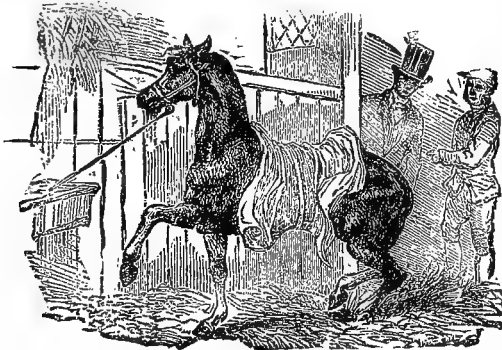
**TREATMENT.**—Give ten drops of antimonium crudum in a little flour every half-hour or hour until relief is given. A mild laxative may be given in the form of linseed oil or aloes. To quiet the pain, chloral hydrate or a hyperdermic injection of morphia may be used. Copious injections of hot water into the bowel will aid in giving relief.

### CHOKING.

Bolting oats, swallowing potatoes, apples, carrots, medicinal balls, or even a whole egg, will cause choking; it may also result from stricture of the gullet, which is mentioned below.

*Symptoms.*—Refusal of food; slobbering; water flows from the mouth in an attempt to drink; frequent efforts at swallowing, with spasmodic contraction of the muscles of the neck; occasionally a sharp noise indicating pain. When the difficulty is in the throat, slobbering, cough, quick breath, sweats and frequent retchings occur. When it is further down in the gullet, a swelling arises in the left side of the neck; when still lower down, violent retching after swallowing a fluid, with less violent choking.

**TREATMENT.**—Linseed oil forced into or through the throat will usually remove the difficulty. If the choking is in the throat, open the mouth, draw the tongue far out and put the hand into the throat and remove the obstruction, the throat being rubbed or pressed at the same time to loosen it. If it is in the neck, rub and press the swollen part, and drench with

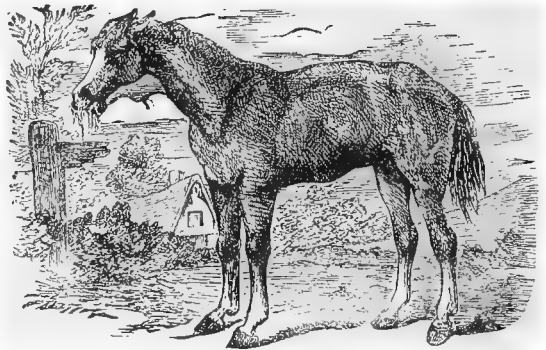


HIGH CHOKE—IN UPPER PART OF GULLET.

tepid water until the horse swallows the substance, or throws it up in retching. In the failure of these expedients, or when the offending object is out of reach by other means, such a probang as is mentioned under Stricture of the Gullet, or other like instrument, may be slowly and very gently pushed along the gutter of the roof of the mouth until the obstruction is reached,

and pressure be then gently applied to force it into the stomach. Such an operation is a delicate one, and should not be resorted to unless it is certainly known that the obstructing body has passed below the opening into the windpipe. The instrument is to be perfectly smooth and always well oiled before it is used.

When the choking persists, gag the animal by passing between the jaws a smooth roller of wood, drawing it well up between the teeth, and securing it thus by cords attached to the projecting ends and reaching up over the head. This prevents swelling of the abdomen, and the obstruction will probably soon pass down into the stomach. When using the probang, if the clogging is stubborn, it is well to stop the pressure, gag the animal as here directed, and then apply



LOW CHOKE—IN LOWER PART OF GULLET.

the probang again after a brief interval. If meal, bran and other fine food, or even oats, be fed, they will only become packed closely in the gullet, or œsophagus, after remaining a short time, and make the case worse. It is

always best in this kind of choking to pour down well-cooked gruel or water to break up the mass and carry it into the stomach a little at a time. The last resort is the opening of the gullet by a surgeon. After the removal of the object, and the stitching of the wound, no solid food should be given for some time.

### INFLAMMATION OF THE MOUTH AND TONGUE.

This is caused by bruises from severe bits; biting of the tongue; licking irritating substances; improper administration of medicines, such as turpentine and ammonia; injuries from giving balls; teething; irregular or decayed teeth.

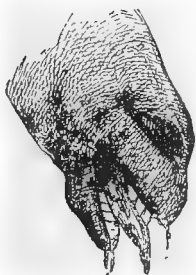
*Symptoms.*—Mouth red, painful and swollen; much fever; free discharge of mucus; peeling off of the mucous membrane of the mouth, followed by new sores, ulceration, and perhaps gangrene; the tongue sometimes hangs out, possibly with formation of matter, or it may remain stiff, hard and enlarged; difficult swallowing; obstructed respiration, with threatened choking; perhaps suppuration.

*TREATMENT.*—Should any feverish symptoms be present, give aconite every four hours. When local inflammation alone exists, give belladonna. When, after the inflammation has remained some time, the tongue is swollen and hard, and salivation continues, administer mercurius corrosivus. When the inflammation has been caused by injuries, arnica may be given internally, and a lotion of the same may also be applied to the wound. Arsenicum is valuable when gangrene is threatened or the discharge is offensive. In cases threatened with gangrene, or attended with an offensive discharge from the mouth, a wash should be used composed of two dessert-spoonfuls of Condy's Fluid and a half-pint of water. When this difficulty is a simple inflammation from deranged digestion or other causes, wash the mouth frequently with cool astringent agencies, as vinegar and water, alum, tannin, tincture of myrrh, or a very weak solution of carbolic acid, ten drops to a pint of water. Sometimes the tongue becomes so much swollen as to threaten suffocation, and matter also forms in it. In these cases a cutting or scarifying of the tongue becomes necessary, followed by washing the mouth four or five times a day with a lotion composed of one ounce of calendula and twelve ounces of water. As food, give oatmeal-gruel or linseed-tea, by drenches if necessary. Give all the cold water the animal wants. Should ulcerations "gather" or point, lance them. On examination of the list of causes one will readily infer that irritating drugs are to be given with care, the teeth to be watched, and the food carefully regulated.

## APHTHA OR THRUSH IN THE MOUTH.

This is less frequent in the horse than in other animals. It is an inflammation of the tongue or mucous membrane of the mouth, consisting of a pimply eruption which terminates in white scabs or dead skin. Though usually constitutional, it may result from a chemical process, or from a mechanical one, such as pressure.

*Symptoms.*—Clusters of white vesicles on the tongue, especially the sides and tip, and on the inside of the cheeks and lips; increased flow of saliva; difficult feeding; vesicles burst; small ulcers take place; the scaly covering of the tongue peels off, leaving a raw surface, which prevents eating; sometimes strangles occur with this disease.



APHTHOUS MOUTH.

*Treatment.*—Give mercurius three times a day, dry on the tongue. Should the mercurius not remove the disorder in two days, or if unmistakable signs of derangement of the stomach be present, give nux vomica three or four times a day. Arsenicum and sulphur are useful for ulcerations of the lips and nose. As a local remedy, one dessert-spoonful of Condy's Fluid in eight ounces of water will cleanse the mouth. A solution of bi-sulphite of soda, or of borax, will also be a good wash.

## CARIES OR ULCERATION OF THE JAW.

The use of the high bit and tight nose-band causes laceration of the palate, followed by unhealthy sores which extend to the bone and end in ulceration. Between the tushes and molars of the lower jaw a like injury may also be produced by a long check-bit and tight curb.

*Symptoms.*—Slobbering, often offensive and bloody; inability to eat hard food, which is thrown from the mouth during mastication; ragged wound in the mouth, with granulations at the bottom or on the sides; the probe easily finds the bone; sometimes mortification.

*Treatment.*—For a sloughing wound, with dingy-colored base and unhealthy granulations, touch the bottom of the wound and the granulations once a day with some mild caustic, as nitrate of silver, until the wound becomes of a healthy appearance, when treatment should cease. Give green food, if possible, not using a bit until the wound is healed. The reckless use of severe curbs and check-bits deserves the highest censure. The substitution of more grateful ones, and the proper change in the nose-band will prevent many cases.

## CARIES OR ULCERATION OF THE TEETH.

This is a result of some disease of the teeth, and produces a half-bone, half-cartilage growth on the cellular structure of the jaw, which can be remedied only by cutting it off. It is generally a corruption of the dentine and enamel and may originate at the fang, when the inside pulp is destroyed, and hence the tooth dies. If it attacks the last three upper molars, it extends to the maxillary cavities and nasal chambers, producing a discharge similar to that in glanders. Should an abscess break on the surface, fistula of the face occurs, and should be treated as directed under the section on that disease. Ulceration of the teeth may result from strangles and catarrh when the nasal discharge has been free for a long time. Hot food or large doses of mercury may cause it. Usually, however, there is an unknown cause acting through the nerves and blood-vessels of the center of the tooth.

*Symptoms.*—If the tooth aches, the horse rests one side of the head on the manger and refuses food; swollen cheek and increased flow of saliva. In other cases, the horse “quids” hay or corn, and drops it, or bolts corn, so that it is whole in the dung; offensive breath; if the maxillary cavities are diseased, a discharge of pus and mucus flow from the nostril on the side affected—from both if both sides are diseased; the glands under the jaw are swollen as in glanders; eye sometimes irritated; the horse loses flesh and becomes hide-bound; the balling-iron shows a black spot or cavity in the tooth, with collections of decomposed and very offensive food; gums sometimes inflamed and swollen.



SIGN OF CARIES AND TOOTH-ACHE.

*Treatment.*—This consists mainly in the removal of the diseased tooth by a skillful operator. If the jaw be diseased, it should be cleansed daily with carbolated water. Apply tincture of myrrh to the gums.

## IRREGULAR GROWTH OF THE TEETH.

The grinding surface sometimes becomes sharp and uneven, causing serious injury to the tongue, cheek or palate, and occasionally a disorder in the upper jaw, with symptoms similar to those in ulceration of the teeth. One of the most common forms is the projection of one of the incisors outward (“buck-tooth”); while an extra tooth appears sometimes in front of the molars (“wolf-tooth”).

*Treatment.*—Rasp the teeth or cut off the projecting parts. Some-

times remove the irregular tooth. These steps should be taken by a skillful operator with special instruments, never be knocked out with a punch.

### LAMPAS.

Lampas is a disorder occurring especially among young horses, and consisting in inflammation and swelling of the front part of the palate, causing it to descend as low as the front teeth, or below them. It results from teething or derangement of the stomach, usually preventing the horse from eating.

TREATMENT.—No treatment, as a rule, is necessary except that the horse be given bran and other soft food for a few days, and the mouth be occasionally washed with a solution made of a teaspoonful of alum and a half-pint of water. For derangement of the stomach, *nux vomica* is often useful. *Mercurius* is also beneficial. Scarifying is unnecessary, but it is best to apply some soothing wash, as one of tincture of myrrh. Give linseed-tea, gruel and bran-mashes, but no hay, until recovery ensues.

### SALIVATION.—“SLOBBERS.”

Salivation, or undue flow of saliva, is caused by eating certain kinds of green food; administering mercury, whether by the nose or mouth, or by friction on the skin; inflammation of the mouth and salivary glands. It has sometimes occurred when it could be attributed only to some derangement of the nerves supplying the salivary gland. It is indicated by an unusual flow of saliva, with or without offensive breath, and with or without sore mouth. When the administration of mercury is the cause, the teeth may be loose, the gums ulcerate, and general disorder of the stomach and bowels set in.

TREATMENT.—When the cause is green food, change the feed and give a few drops of nitric acid or mercurius night and morning; if caused by mercury, give nitric acid, iodine, and iodide or chlorate of potassium. When traceable to nervous derangement, and not to mercury, give arsenicum every four or five hours. In persistent cases, try chlorate or iodide potassa, rubbing iodine ointment over the glands, under the ears and between the jaws. A wash of hydrastia and water (one part of fluid hydrastia to ten of water), or an infusion of butternut-bark will restore the integrity of the gums and lessen the flow of saliva. “Slobbers” which arises from feeding on low clover pasturage is often very disagreeable to the rider or driver, and he may give temporary relief by feeding a pint of dry bran, but a cure comes only by a change of pasture.

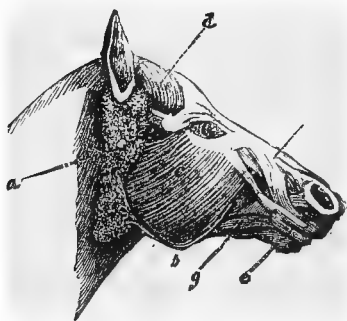


## SALIVARY CALCULI.

These are masses usually composed of phosphate and carbonate of lime mingled with animal matter, which form in the glands that pass over the margin of the jaw below the ear, or in the glands beneath these, or in those which are under the tongue. A grain of oats, barley or wheat may have lodged in the duct, and have formed the nucleus of a calculus.

*Symptoms.*—Enlargement of the ducts which lead from the glands, due to accumulations of saliva which the obstruction prevents from passing out; matter may form and burst out; chewing and swallowing are more or less impeded.

*TREATMENT.*—A skillful operator may remove the calculus by surgical means, bring the lips of the cut together, and sew and plaster it evenly. If this be poorly done, salivary fistula (see below) will probably ensue. If the calculus forms at the mouth of the duct, the duct may be expanded and the obstruction be removed with forceps. In mild cases a cure may be effected by pushing the calculus into the mouth by manipulations along the outside, over the obstructed part of the duct.



SEAT OF SALIVARY CALCULUS AND FISTULA.

*a*, Salivary Gland. *b*, Duct, in which Calculi form. *c*, *d*, *e*, *f*, *g*, Muscles of Mastication.

## SALIVARY FISTULA.

This is a tube-like sore which opens into the salivary gland at a point where the latter passes over the angle of the jaw. It is caused by some obstruction in the gland, or by a wound, and if neglected is difficult to cure.

*Symptoms.*—Discharge of clear, limpid saliva from the sore, especially when the animal is chewing; impairment of digestion and general health.

*TREATMENT.*—Keep the head elevated, tying the halter to both sides of the stall to prevent rubbing of the sore. Give gruel and soft food, putting the meals and drinks at long intervals, and allowing no oats, whole grain, or hay. Wash the wound frequently with a solution of one part of calendula to ten of water. If the fistula is of recent development, shave the edges of the sore, bring the lips evenly together, and apply enough layers of collodion to make a fastening sufficiently strong to prevent the bursting out of the secretions. Sometimes a blister over the opening is advisable. It may be necessary to close the opening with sutures of cat-

gut or other material. The natural opening of the gland into the mouth should be kept open, and thorough cleanliness of the mouth will assist in keeping it so. Mastication tends to retard the cure.

### PROTRUSION OF THE TONGUE.

Hanging or protrusion of the tongue is an indication of paralysis, wounds or injuries to the tongue, or weakness and lengthening of the muscles which control it. Paralysis of the lips sometimes attends it, the lip then hanging down, with slobbering and difficulty in picking up food.

**TREATMENT.**—Many times a faulty bit is the cause, and a change in it will relieve the trouble. When paralysis is the occasion of the disorder, the best results will be obtained by giving strychnia, one-hundredth of a grain three times a day. Plumbum will help some cases. Electricity applied to the nerves may stimulate them to action and thus afford relief. A piece of the tongue is often cut off to prevent injury, but that is seldom necessary if the treatment here noted be observed with precision.

### STRICTURE OR CONTRACTION OF THE GULLET.

This may be caused by the lodging of some food in the neck, or may occur near the stomach when only the introduction of a suitable instrument into the gullet, through the mouth, can afford relief. It is caused by a mechanical or chemical injury, by thickening of an inflamed mucous membrane, and by cancer.

*Symptoms.*—Difficulty in swallowing, with expulsion of food from the nostrils; quidding of hay and throwing it from the mouth; sharp appetite, with inability to gratify it; loss of spirits and condition.

**TREATMENT.**—Prepare three probangs, long, smooth and slender, of different sizes, made of gutta-percha, with an ivory knob on the end to prevent injury to the membrane. Oil these well and use them every day, applying the first (about the size of the little finger) until it passes down freely; then the second (slightly larger), until its passage is easy, when the third size may be used. It is a delicate operation and can safely be performed only with the closest care. Give soft, nutritious food, but no dry hay or grain.



## CHAPTER IV.

### THE ORGANS OF CIRCULATION.

#### PALPITATION.—THUMPS.

**T**HIS is an unhealthy increase in the heart's action, found in horses that are feeble, or that are subjected to severe or straining exercise, as running or drawing heavy loads up hill. We recognize two forms and give them separate treatment.

*The First Form.*—Poor blood is the cause of this form. Its symptoms are a dull, thumping sound in the breast, being heard at a distance of several yards in extreme cases, corresponding to the pulse and heart-beats; troubled breathing; increased temperature of the body; red mucous membranes; the ear placed to the heart detects "blood-sounds" about the heart, veins and arteries, made by the blood passing through the channels of the heart, and making a continuous hum; sometimes shaking or jerking of the whole body.

**TREATMENT OF THE FIRST FORM.**—Give stimulants and tonics with mild exercise. Aconite should be given every half-hour when the cause is violent exercise, and the breathing is rapid. It may be beneficially alternated with nux vomica. Arsenicum is desirable when the disorder attacks horses that are in fair condition, and when it manifests itself especially at night. The tincture of Peruvian bark will relieve the constitutional weakness, a teaspoonful or less being given three or four times a day. Nux vomica is recommended for palpitation induced by indigestion. Asafœtida is useful for the form which results from excessive physical motion, with an intermittent pulse. Digitalis should be given if there be oppressed breathing and great distress, half a teaspoonful of tincture at a dose. Give belladonna for palpitation during rest and increasing with motion; intermitting pulse; and for trembling heart, with great distress. For horses with palpitation which have been subject to rheumatism, spigelia is one of the most valuable medicines, twenty drops being given three times a day. Give moderate, nourishing diet; perfect rest for a few days after an attack, and only light work thereafter for several weeks; fresh air; freedom from draughts.

*The Second Form.*—This is often improperly called spasm of the diaphragm, which is really hiccough and is elsewhere considered. The second form of palpitation, also called “thumps,” is caused by excessive action of the heart incident to a hard or exciting run, which causes a jerking of the whole body as the heart strikes the region toward the upper part of the false ribs. The symptoms of the first form of palpitation, as noted above, attend this, together with a violent raising of the flanks which proves unpleasant to a rider. The symptoms come and go suddenly. As an aid in distinguishing this form of palpitation from true spasm of the diaphragm, or hiccough, the reader is referred to the subjoined parallel tables of symptoms.

## PALPITATION OR THUMPS.

*Hiccough* is seldom present.

The action of the abdominal muscles is increased, and the heaving of the flanks is quite visible.

The flanks are tucked-up.

## SPASM OF THE DIAPHRAGM.

*Hiccough* is always present.

The action of the abdominal muscles at the flank is imperceptible.

There is great fullness in the flanks from the abdominal viscera being pushed backward.

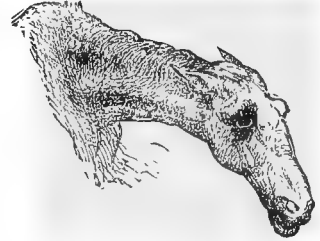
**TREATMENT.**—Digitalis is valuable for great irregularity of the heart's action, inability to lie down or walk, and much distress, a half-teaspoonful to a teaspoonful two or three times a day being suitable as the dose. Stannum has alone cured this form of palpitation. Observe the same general care as was outlined above for the first form.

## DROPSY OF THE HEART.

This is the result of an inflammation of the serous membrane which envelops the heart as a sac, causing serous fluid to be deposited within this membrane in unnaturally large quantities. It may result from exposure to cold, damp, changes of temperature; from those conditions which produce acute diseases of the breathing organs; from changes to a hot stable from the field; from a sudden transition from poor to rich and heating food. It however generally comes along with influenza, rheumatism or pleurisy.

*Symptoms.*—These are easily confounded with those of pleurisy. The horse stands still, with anxious face and lowered head, showing signs of great pain; fixed eyes; extended nostrils; pulse 100 to 120, wiry, perhaps irregular or intermittent; great fever; breathing 30 to 40 per minute, difficult, with complicated movement of flanks, much like that in broken wind; in early stages pressure in the region of the heart causes flinching and signs of pain; the ear placed in the same region perhaps detects friction-sounds,

*before the serous matter has accumulated*, not heard after that effusion; when these friction-sounds cease the heart-beats are muffled; later still, the effusion increasing, the impulse of the heart is not well defined, but is a flutter in uncertain beats, giving a peculiar pulsation to the hand; breathing grows more distressing; movement aggravates the pain; pulse feebler, being even imperceptible at the jaw; legs and ears cold; chest, abdomen, legs, and other parts dropsical; death soon ensues. In some of the more advanced stages, striking upon the parts near the heart produces a dull sound near that organ, but does not disturb the bronchial and respiratory sounds, which are affected in hydrothorax, or water in the chest. In pleurisy, the frictional sounds occur during the respiratory movements of the lungs; in dropsy of the heart, during the beats of the heart. The reader should be very careful to take note of these distinguishing symptoms.



GENERAL SYMPTOM OF HEART DISEASE.

**TREATMENT.**—During the inflammatory stage, when the sound of the heart is lessened, with strong, regular impulse, and hard, strong and quick pulse, give aconite every two hours; or alternate it with bryonia, especially in complications with rheumatism. For irregular or intermittent action of the heart, give ten to twenty drops of digitalis every four hours; and when the disorder follows or accompanies rheumatism (in which case the beats are usually jerking), alternate digitalis with colchicum. Give arsenicum or apis in the second stage, when the serous matter has distended the sac which envelops the heart, particularly if dropsical swellings exist in other parts. Acetate of potassa will induce free action of the kidneys and lessen the tendency to dropsy, and a teaspoonful may be given much diluted with water. In extreme cases, and when the collection of fluid is great, it may be drawn off with a trocar or an aspirating needle, as in hydrothorax or dropsy of the chest, the puncture being made by a skillful hand between the fifth and sixth ribs. Hot fomentations applied to the chest will tend to allay the inflammation. Mustard and flaxseed poultices will also be of service. Keep the surface of the body warm, and bandage and hand-rub the legs. Blood-letting is highly injurious in this disorder, as in most others.

### ENDOCARDITIS.—INFLAMMATION OF THE HEART.

This is a very frequent complication of rheumatism, or may result from an undue strain in severe work, is dangerous, and may lead to many serious disorders of the heart.

*Symptoms.*—The heart contracts energetically with vibrations, and often irregularly; pulse irregular, frequently intermittent, and is *feeble*, in striking contrast with the violent beats of the heart; a bellows-sound or sawing noise. In early stages the breathing is not so difficult as in dropsy of the heart, but may grow very distressing if the valves of the heart become thickened; legs generally cold; the membrane is thickened, wholly or in part, sometimes resulting in a polypus of great size.

*TREATMENT.*—For the primary symptoms aconite is the best remedy, especially in rheumatic forms, and if given in time may effect a favorable termination in many cases. It is desirable for palpitation and irregular action of the heart and for difficult breathing. Give it every hour. Give arsenicum and digitalis in alternation, four or five doses of each in twenty-four hours, if the pulse becomes feeble and intermittent. Most cases have their origin in a rheumatic condition which calls for colchicum and iodide of potassa. After the inflammatory symptoms have subsided the following prescription will be found of value:

Wine of colchicum seeds.	1 ounce.
Iodide of potassa,	½ ounce.
Digitalis tincture,	1 ounce.
Water,	1 pint.

Mix. Give a half-wineglassful three or four times a day.

## ENLARGEMENT OR HYPERTROPHY OF THE HEART.

This is a thickening of a part, less frequently the whole, of the walls of the heart. It is often found in broken-winded horses. Some of the causes are contraction of the vessels and the openings of the cavities of the heart, or deposits on the valves which lead to excessive action of the heart to overcome the obstructions, thus enlarging the muscles of the heart's walls; tumor in the aorta, or pulmonary artery; exhaustion from excessive exertion, especially from arduous labor with full stomachs. It also results from other diseases, especially affections of the lungs.

*Symptoms.*—The movement of the heart becomes and continues strong and impulsive, with an intense sound and loud, thumping, hollow beat; irregularity of heart-action; dull sound on striking a part near the heart; palpitation comes on from quick work, accompanied with an anxious look of the eye; cold ears and legs; dizziness; difficult breathing; languor; loss of appetite; in late stages, dropsical swellings on the chest, abdomen and legs.

*TREATMENT.*—This is incurable, but the life of the horse may be extended for years, even to old age. Yet this end can be attained only by

proper care. Medicines can be of little avail in correcting the essential nature of the ailment, but digitalis may be found serviceable in reducing irregular movements of the heart. Give simple but not stimulating food in small quantities, and impose only light and slow work, particularly in ascending a hill or any grade. Avoid excitement when possible.

### DILATATION OF THE HEART.

Dilatation signifies an enlargement of one or more of the cavities of the heart. Its causes are a defect of the valves by which the blood is allowed to flow back and distend the walls; loss of nervous power; certain types of fever which weaken the muscular fibers.

*Symptoms.*—The heart's action is feeble and tremulous; pulse weak, soft and small; poor appetite; languor; dizziness; difficult breathing; ears and legs cold; finally dropsical swelling of the legs, belly and chest. It may exist with enlargement of the heart (see last disease), or with wasting of the heart (see the disease next considered).

*TREATMENT.*—This disorder can not be cured, but relief may be given by using arsenicum three times a day, and insuring an easy, quiet life.

### WASTING OR ATROPHY OF THE HEART.

This is an emaciation of the walls of the heart from causes similar to those producing dilatation.

*Symptoms.*—Feeble impulse of the heart, an unusually loud sound being detected by applying the ear to the chest; pulse feeble, slow and intermittent; the veins of the neck pulsate; dullness; fastidious appetite; legs cold; dropsical swellings on the limbs, belly and chest; difficult breathing on the slightest exercise; sometimes palpitation or fluttering of the heart.

*TREATMENT.*—Arsenicum three times a day will afford a partial relief, though no known remedy is of permanent avail. Insure ease and quiet.

### INFLAMMATION OF THE VEINS.

This is rare, excepting in case of some injury, as that caused by careless bleeding, especially with rusty instruments.

*Symptoms.*—The incision for bleeding or other purpose is surrounded by a swelling, small at first but increasing, hot and painful; the lips of the wound separate, the wound itself being red and moistened with a burning, very irritable, pussy substance; matter may form externally and the disorder soon pass away. Usually, however, the swelling increases; the vein

above the inflammation is hard, hot and cord-like; the salivary gland is much enlarged, most likely leading to the obliteration of the vein; if blood begins to flow from the vein, it will be difficult to stop it; the vein being lost, the circulation is disturbed, especially when the head is down, as in grazing; if ulceration be present, internal abscesses form with fatal results. Fever will exist in most cases.

**TREATMENT.**—Give aconite for general feverish condition; dry, hot skin; full pulse; local inflammation. Belladonna is demanded for redness of the mucous membranes, sunken eyes with enlarged pupils. Give hepar if there be a pussy discharge from the wound, swelling of the glands with threatened abscesses, and for early stages of the formation of pus. Hamamelis, used externally on the wound as well as taken internally, is very desirable, and may be applied externally when any other remedy is administered. Give the horse quietness and *rest*. Apply hot fomentations freely. Tie the horse so the head can not hang down. Remove all hair, dirt and pus that may form about the wound. Let the diet be composed mainly of bran-mashes, avoiding hay and other articles that require mastication.

### SWOLLEN OR VARICOSE VEINS.

A morbid enlargement of a vein, with a knotty, unequal swelling, may render the valves useless, and thus retard the flow of blood back to the heart. It usually affects the vein that passes over the inner surface of the hock-joint, though it may form in other veins. It is caused by violent strains, in drawing and otherwise; inflammation from a prick in shoeing; often by frequent blood-letting.

**Symptoms.**—The affected veins are crooked, knotted, enlarged, and divided into separate pouches or sacs; if the disorder be at the hock-joint, there will be a tumor, increasing in size, soft, hanging slightly, and shaking when the horse walks, becoming full and tense by pressure on the vein above it, and giving out a discharge by pressure carried upward from below. The knotted or swollen condition of the affected vein will be worse during standing, working, and the like.

**TREATMENT.**—There is little chance of a permanent cure. A half-teaspoonful of hamamelis two or three times a day should be given, and applications of the same remedy be applied externally as often or oftener in the form of compresses secured by bandages. Rhus is an excellent remedy for both internal and external use. Have the animal lie down as much as practicable, standing being even more unfavorable than walking. Moderately tight bandages over the hock may be serviceable, and should be worn continuously until the vein has been obliterated.



## ANEURISM.

This is a tumor formed by the swelling of an artery. At first it pulsates and contains fluid blood; later it is filled with coagulated blood. As it grows old, the artery may burst. The posterior aorta, at the beginning of the front mesenteric artery, is very subject to aneurism as the horse grows older.

*Symptoms.*—The symptoms are so obscure and so similar to those in other diseases that it is difficult to tell when they are a result of this disorder. They come suddenly; the horse is dejected, unable to work, and thin; breathing quickened; irregular pulse and heart-beats; tenderness at the loins; stiffness in turning; swelling and cramps in the legs; paralysis.

*TREATMENT.*—If the presence of an aneurism can be known, digitalis may be useful, but the only course of any promise is to promote the general health, lower the diet and work, and insure general quiet.

## ENLARGEMENT OF AN ARTERY.

Enlargement and clogging of an artery, known as “embolism,” result from coagulated lymph, clots of fiber, pieces of diseased tissue, the elements of cancer or tubercle which are brought to the artery from the circulation and prevent the flow of blood from the artery to the limbs. Enlargement may also result from inflammation set up by parasites in the blood or in wounds.

*Symptoms.*—These, as in aneurism, are obscure, and it is difficult to determine from them whether an embolism is present or not. They are, great pain; quick, wiry pulse; anxious look; free sweats; cold extremities; local tremors; stiffness and contraction of certain muscles; the horse looks around toward the affected part; temporary paralysis of the affected limb or some of its muscles, followed by partial recovery and a similar attack of the other limb; return of the attack to the limb first affected; diminished pulse of the arteries in the limb involved; peculiar throbbing, felt through the rectum, in the posterior aorta; partial or complete paralysis of the hind limbs, or the hind quarters entire; finally death.

*TREATMENT.*—Treatment avails nothing, except it be careful guarding of the general health; cures can be effected only by nature. Aconite is the sole remedy which is even likely to give relief. Give perfect rest and apply warm fomentations to the affected part, if it can be located. If the case is persistent, several months may elapse before even a limited cure will ensue, during which time the animal should be kept in a yard where he will get gentle exercise and be well fed, so as to restore normal circulation.

## CHAPTER V.

### THE RESPIRATORY ORGANS.

#### COUGH.

**C**OUGH has so many forms, and is so frequent a symptom that a detailed study of it is very important, to determine its seat and cause. It is caused by inflammation of some part of the membrane lining the lungs and air-passages; teething; organic trouble in the viscera of the chest; nervous disorder; foreign substance in the breathing-apparatus, and the like. It may be *acute*, then being usually a symptom of catarrh, bronchitis, pneumonia, or other similar affection, and disappearing with the disease which causes it; or it may be *chronic*, as a result of some form of the acute, or as originally a simple cough, and is less easily cured than the acute. The following are the principal kinds of cough with their symptoms, condensed in the main from the "Veterinary *Vade Mecum*."—

I. (a.) From *teething*: Loud, ringing and clear, mainly in the morning and at night, met with in horses four and five years of age, probably dependent upon nervous irritation from cutting of the tushes; mouth hot; bars of palate full, as in lampas; tenderness in eating grain; general health seemingly good, as well as the spirits. (b.) If the cough results from the *pharynx*, *fauces*, and glands near them, it is moist, heavy-sounding, long, and apparently hanging in the throat; at first it may be dry and short, but a change soon comes on from a return of the secretion in increased quantities. (c.) If the cough arises from the membrane lining the *larynx*, it is fitful, and may easily be produced by pressing on the top of the windpipe; when resulting from the laryngeal membrane, the cough is hard, and has a metallic, ringing sound, followed by a long, harsh catching of breath, producing a noise akin to that of a roarer when on the canter; when resulting from disorder of the recurrent nerve, it is dry, loud, and spasmodic, often chronic, becoming loose and less painful upon the return of the secretion. (d.) If the cough results from an increase in the secretion of the membrane lining the *windpipe*, it will be long and moist, though frequent, sometimes with a thick, white discharge from the nose or mouth. On the other hand,

if the membrane of the windpipe be dry, the cough will be dry, and the ear, applied to the windpipe, will detect a cooing, deep sound, instead of the moist, rattling sound mentioned under (c). (e.) *The bronchial cough* is at first short, dry, hard, and frequent, but grows moist, muffled, feeble and prolonged upon the return of secretion. Arising from dryness and inflammation of the large bronchial tubes, it produces a cooing sound, audible to the ear placed at the root of the windpipe in front of the chest. Should the small bronchial tubes be similarly affected, the ear put upon the sides of the chest will notice a shrill or dry hissing rattle. When the secretion returns, a fluid rattle is heard, with decreased or suppressed breathing murmur, until the cough removes the secretion. (f.) *Pulmonary cough*, resulting from inflammation in the substance of the lung, is short, dry, and frequent; accompanied by difficult breathing and increased by striking on the sides of the thorax. As the disease advances, this cough becomes more constrained and painful, or ceases altogether. (g.) *The asthmatic* or broken-wind cough is short, more like a grunt than a cough, and so feeble that it cannot be heard at any distance. It is frequently accompanied by a wheezing noise in the throat, and by jerking, irregular or double movement of the flanks in expelling the breath. (h.) *The consumptive cough* is short and feeble, and may be known by an absence of murmur in circumscribed spots of either lung, with increased bronchial respiration, cavernous or foamy rattles. (i.) *The pleuritic cough* is painful, and hangs in the chest from the endeavor of the animal to suppress it.

II. *Chronic cough* is that which continues months or years without vitally damaging the general health, and may result from previous disease, or may from the first be simple, resulting from nervous derangement. It is of three kinds, namely: The hollow, groaning cough; the loud, dry, spasmodic cough; the short, feeble, hacking, grunting cough. These are here described. (a.) The *hollow* cough apparently comes from the inmost parts of the body, follows a noise made up of a half-groan and half-cough, and comes on morning and night; it probably results from derangement of the nerve lining the stomach and lungs, though it often arises from a consolidation of a part of the lung, attended with bronchial respiration in the other parts. (b.) The *loud, dry, spasmodic* cough, increased by eating and drinking, seems to depend upon an irritability of the membrane lining the larynx in an animal just brought from the stable, or upon disorder of the recurrent nerve. (c.) The *short, hacking, grunting* cough is similar to that of a horse with broken-wind, the breathing however, being even; it usually depends upon loss of nervous power, though it may arise from some obstruction of the air-passages by a deposition of lymph. Such a cough is likewise heard in rupture of the diaphragm.

**TREATMENT.**—Aconite may be used for all coughs with inflammation, either of the mucous membrane lining the air-passages or of the substance of the lungs. In inflammation of the membrane of the air-passages the membrane is dry. When the lung-substance is affected, the pulse is strong and quickened, and the breathing murmur diminished, with a sawing kind of sound, called bronchial respiration. In such cases the cough is dry, short and frequent. As soon as secretion returns to the mucous membrane, or the pulse becomes small and feeble, aconite should be left off, or alternated with some remedy adapted to the nature and location of the disease on which the cough depends, and of which it is a symptom. Give belladonna when the cough is short, dry and barking; worse in the evening or night, seemingly caused by trouble in the throat; when there is sore throat with difficult swallowing, or chronic cough. Administer arsenicum for dry cough, in the evening or at night, after eating or drinking, or going up hill, or from contact with cold air; difficult breathing; thin discharge from the nostrils; for coughs following catarrh of a weak type and influenza. When the cough is dry, hoarse and spasmodic, worse in the morning, after exercise or after eating, and attended with disorder of the stomach, furred tongue, foul mouth, uncertain appetite, and constipation, give nux vomica. Phosphorus is needed for a dry cough excited by cold air, drinking, irritation and tickling in the windpipe, and attended with discharges of phlegm and difficult breathing. Give bryonia for a cough which requires much effort, and cuts short the breathing; cough during frosty weather, or east winds, or after eating and drinking; continued dry cough, especially in the morning, attended with rattling in some part of the windpipe, caused by tenacious mucus or soft lymph, and produced by pressure on the part of the windpipe where the rattling occurs. Iodine is indicated by cough situated in the larynx or windpipe, accompanied by soft secretions, or dependent on chronic inflammation of the mucous membrane, with foul discharge from the nostrils; the same remedy is useful for irritable but not inflamed salivary glands. Tartar emetic is serviceable for bronchial cough, when it is loose and attended with an abundant discharge of mucus, loud rattling, and painful breathing. Give cannabis for frequent attacks of fitful, hollow-sounding cough, occurring only in the morning, or for coughs in the evening, and not extending through the night. Kali bichromicum is effectual for tough, ropy, sticky phlegm of long-standing cases, and when the tongue is covered with fur. Spongia is demanded for shrill, sharp, ringing cough; inflamed windpipe; or dry, hollow, barking cough; loose cough; suffocating cough; violent racking cough; rattling in the bronchial tubes. For coughs of the various respiratory difficulties refer to those ailments.

## COLD.—CATARRH.—CORYZA.

By these terms is meant an inflammation of the mucous membrane of the nose, throat and air-passages, with fever. Though often of little moment, it frequently endangers life. It is caused by stoppage of perspiration from a draught of air, or from standing in the cold after vigorous exercise. It may be confined to the nose, when it is called nasal catarrh, or may extend throughout the respiratory system.

*Symptoms.*—Apparent laziness and slowness; frequent cough and snorting; watery discharge from the nose and eyes, with inflammation; want of appetite; nasal membrane unusually red; membrane lining the eyelids and covering the eyes congested; pulse feeble and perhaps increased; sometimes swollen glands and sore throat, in which case the appetite declines, and swallowing even water is difficult, the horse holding the water in his mouth, or plunging his nose into it; the urine grows scanty, thick, turbid, strong and highly colored; the dung passes in small quantities and is covered with mucus; the nasal discharge becomes thick, white or yellow, or of a slate-color, when fever symptoms disappear, leaving no cause for alarm, excepting the liability to terminate in glanders, chronic cough, pneumonia, or the like, if neglected. Catarrh is often preceded by some constitutional trouble, and is distinguished from simple cold by local excess of blood in the mucous membrane lining the larynx, pharynx and glands near those parts, by which the natural secretion is at first stopped and then returns, or is replaced by a mucous, watery discharge, or mucous matter with pus.



SYMPTOM OF COLD OR CATARRH.

*TREATMENT.*—In the first stages, attended with staring of the coat, shivering, lassitude, yawning, watery discharge from the nose and eyes, give a half-ounce of tincture of camphor in a mixture formed from the white of an egg and a teaspoonful of oil beaten together, and added to a gobletful of water; repeat the dose in half an hour if shivering continues. Aconite is needed when fever comes on with quick and full pulse after the cold symptoms; for respiration exceeding fourteen per minute; for a skin alternately hot and cold; dry, short, and frequent cough; mouth hot, and appetite bad; highly colored urine. It is not suitable for the late stages, or for fever of a weak or low type. Give nux vomica when there is fever of a low type, with gastric symptoms, constipation, and white or shining coat on the tongue. Administer mercurius for thick mucous dis-

charge from the nose; sore throat; swelling of glands under the jaw; difficult swallowing; slobbering; sticking together of the eyes. Should there be prostration after the active symptoms have declined, bad appetite, swollen legs, great running at the nose and eyes, arsenic in some form will be useful, five to ten drops of Fowler's Solution every four hours being a suitable dose. When the attack comes on in dry weather, during the prevalence of dry, cold winds, in sudden changes of weather, or when cough is present and threatens bronchitis, give bryonia. Kali bichromicum should be given for a discharge of thick, yellowish matter, accumulating on the sides of the nostrils; cough; ulceration of the membrane; swelling under the jaw; very offensive odor. Put ten grains of the salt in one quart of water, and give a wine-glassful of this every two or three hours. This may be used as a wash by injecting it into the nose.

Give the horse a clean, well-drained, and well-ventilated box, with plenty of fresh air, *without draughts*. Give food in moderate quantities, allowing only bran-mashes for a few days. Night and morning clean out the nostrils as well as possible, and let the horse inhale fumes of vinegar. This may be done by putting in a nose-basket bran soaked in hot water, and pouring in a half-pint of vinegar. (See page 105.) Or vinegar may be poured on a hot brick placed under the nose. Another way is to boil a mixture of bran and vinegar in a kettle, and convey the steam to the nostril by a flexible tube. In any case, care must be taken not to scald the nasal membrane with the steam. The inhalation causes sneezing, and thus the discharge of obstructing pus. The fumes of burning tar or balsam of pine are very grateful and often open the passage.

### BRONCHITIS.

This is an inflammation of the air-tubes which unite the lungs and larynx. It is liable to be mistaken for inflammation of the lungs, though in the latter the cellular tissue is affected, not a mucous membrane. This distinction should be carefully observed, as the symptoms and treatment for bronchitis and for inflammation of the lungs are different. Its causes are exposure to cold and wet; washing when the horse is heated, without thoroughly drying afterward; sudden changes in weather; standing in draughts of air, or being uncovered after violent exercise; high feeding and inadequate work; being turned out of a warm stable into the cold, or put into a hot stable directly after being on pasture, especially in young horses. It occurs more often in autumn and winter, particularly when the weather is wet; east winds and dry atmosphere long continued encourage it.

*Symptoms.*—The symptoms at first are the same as those in ordinary

cold, then a sudden, complete failure of appetite; pulse feeble, but steadily rising; mucous membrane of the nostrils very red; the cough grows feeble, hoarse, prolonged, or may be entirely stopped, usually attended with slobbering, repeated attempts to swallow, and other signs of sore throat; nasal membrane, at first dry and red, becomes moistened with watery or thin, yellow secretion; perhaps a thick mucous discharge with pus from nostrils; temperature of some legs lower than that of the others; breathing difficult and rapid, being thirty or more; later, phlegm accumulates, causing continuous coughing; the dry, harsh sound is soon succeeded by a gurgling, caused by secretion of mucus, called the "mucus râle"; in some parts wheezing.

In extreme cases the nasal discharge is entirely stopped; the lining membrane of the nostrils is very red, or purplish, dry and swollen; cough stops, or recurs constantly without giving relief; if the lungs are involved, there are loud bronchial breathing and diminished murmur in breathing, and if the latter wholly ceases a crackling sound is heard, attended by cold extremities and deep breathing; complete loathing of food; weaker, quicker, nearly imperceptible pulse; deeper breathing, followed by quicker, so that the horse cannot lie down, but stands with extended legs; in the absence of relief the animal dies from suffocation in eight or ten days from the beginning of the disorder. If inflammation declines, the nostrils give a free discharge; the pulse and breathing become slower; the horse lies down; and only a soft cough and weakness remain, which are soon cured.

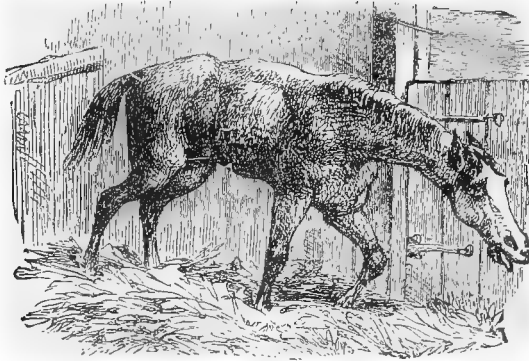


A STEAMING-BAG.

In moderate cases the nasal discharge is free; the cough distressing but loose, with free discharge from the bronchial tubes; pulse fifty to seventy; breathing not much increased, but disturbed; loss of appetite not complete. Though not so dangerous as the extreme cases, this form may result in a change of structure, or destruction of the bronchial tubes, causing thick wind. Acute bronchitis sometimes terminates in a chronic form, the discharge and cough continuing, without inflammation. In many cases it is complicated with inflammation of the lungs.

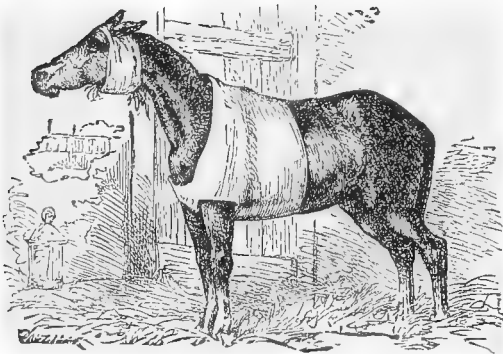
TREATMENT.—Aconite should be given for the first symptoms of feverishness; hot, dry mouth and skin; quick, full pulse; short, dry cough; difficult breathing; great thirst; red nasal membrane and suspension of its normal secretion. It is generally best to alternate aconite with bryonia. Give bryonia when the *large* air-passages are principally affected, the

inflammation having extended down to them along the larynx; when the "mucous râle" is at the branching of the windpipe, with frequent, dry, irritating cough, increased by motion; thick mucous discharge from the



THE COUGH OF CONFIRMED BRONCHITIS.

throat and nostrils; also when the horse coughs upon trotting, but not when at rest. It is often advantageous to alternate the bryonia with aconite. Phosphorus is to be chosen when the *small* air-passages are primarily and chiefly affected, small moist rattles being heard, and the cough



DRESSING FOR PROTECTION OF THE THROAT AND LUNGS,  
AND FOR RETENTION OF COMPRESSES.



EIGHT-TAILED BANDAGE FOR  
THE THROAT.

being painful and suppressed, or loud and dry, but with scanty discharge from the nostrils. Give belladonna for severe and violent paroxysms of coughing, especially in the evening; pain in the throat; difficult swallowing; rapid breathing; sneezing. It may often be beneficially alternated



with mercurius. Mercurius is indicated by cough which is worse at night, moist, and marked by slobbering; eyes and nose red; the nasal discharge thick and plentiful, though soreness continues in the throat and chest; breathing more frequent but not deep; mucous rattles in the windpipe and lower passages; glands swollen. A copious flow of mucus, loose cough, loud rattling and gurgling in the bronchial tubes, and distressed breathing call for antimonium tartaricum. Kali bichromicum is efficacious for tough, ropy, sticky phlegm, for tongue covered with yellow fur, and for confirmed cases. Give arsenicum when marked weakness and poor appetite continue after the foregoing remedies have reduced the active symptoms, and the soft cough and nasal discharge progress. In the general care provide for the horse a large box, airy, but free from draughts, dirty bedding and other offensive matter; plenty of clean straw; comfortable clothing; rubbing of the legs night and morning with the hands, and bandages of flannel applied to them; bran-mashes, gruel, water (not very cold); when recovering, boiled oats, carrots, green food, turnips and malt-mashes. For costiveness use back-raking and injections. Steaming the nose (see under Catarrh) is often useful. For great weakness and prostration at any stage, stimulants, such as aromatic or carbonate of ammonia, or wine, should be used.

#### INFLAMMATION OF THE LARYNX.—LARYNGITIS.

In this the upper part of the windpipe is more seriously inflamed than in sore throat and cold, though it is usually attended by cold. Unless checked it is liable to cause death by suffocation, or it may inflict permanent injury upon the larynx, disturbing the wind, or may terminate in chronic cough, pneumonia or bronchitis. Chronic laryngitis may result from the acute form, or may come gradually without previous severe inflammation, and has less violent symptoms. Its causes are the same as those of Bronchitis (which consult).

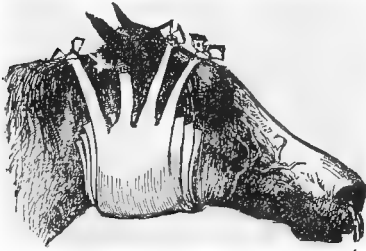
*Symptoms.*—A rough, rasping, harsh sound at the top of the windpipe; short, hoarse, hard cough, usually convulsive, produced easily by pressing the top of the windpipe, the cough being so painful as to cause stamping or uneasy movements about the stall; outside of throat hot, painful and swollen; breathing short and difficult, being from fifteen to twenty per minute; pulse from sixty to seventy, hard, quick and full; mucous membrane swollen, perhaps tinged with blood; swallowing difficult; the animal quids hay and sups water, the latter again.



LISTENING TO THE SOUNDS  
IN THE WINDPIPE.

coming out of the nose; thick discharge from the nostrils; slobbering—a favorable indication; the cough later becomes hoarse and not so loud; if the larynx becomes more inflamed, the breathing grows very labored, each breath being marked by a loud snoring; head raised and neck straightened out and stiffened; nose extended; nostrils widely opened; nasal membrane leaden-colored; larynx drawn downward to the chest and affected with spasms, causing a shrill sound; wild eyes; restlessness; increased sweating; irregular and feeble pulse; the larynx becomes sometimes so narrowed that only an opening of the windpipe can prevent suffocation.

**TREATMENT.**—Aconite is the first remedy to be given when feverish symptoms are noticed, with difficult breathing, full, hard and frequent pulse, scanty and high-colored urine. When the throat becomes hot, swollen and painful, the glands tender and swollen, the swallowing difficult, the cough intermittent, the hay quidded, and the water returned through the nose, belladonna is needed. As soon as the secretion returns to the membranes and the mucous rattle can be heard in the larynx, accompanied with hoarse cough and nasal discharge, mercurius should be given. Spongia is useful for affec-



FOMENTATION ON THE THROAT,

tions of the larynx and may take the place of belladonna for very difficult, slow and rasping breathing, the inspirations being hoarse, the cough hard and barking, or rough, or shrill; also for threatened suffocation. If there be an accumulation of tough, stringy mucus in the mouth, hoarse cough, scanty urine, and constipation, administer kali bichromicum. After all active inflammation has subsided and the notable symptoms

are loss of appetite, swollen legs, debility, nasal discharge, and cough, arsenicum is to be taken. Nux vomica is the best remedy for spasm or sudden closing of the larynx, being then taken in alternation with mercurius solubilis—ten drops of the former and ten grains of the latter being suitable, each placed on the tongue after it has been wiped with a clean sponge.

Provide a loose stall. Let the diet be composed of bran-mashes, carrots, green food, gruel, but no corn. Apply fomentations of hot water to the throat, and steam the internal part of the same, being careful to avoid scalding. For such steaming, hold the nose over a pail half filled with hot water, into which a handful of hay is placed. Other methods of steaming are described under Strangles and may be adopted here. In extreme cases, when suffocation seems imminent, the windpipe should be opened by a skillful surgeon and a tube be introduced to permit breathing.

## INFLAMMATION OF THE PHARYNX.—PHARYNGITIS.

This affection is caused by exposure to wet and cold, and by impure air and hot temperature.

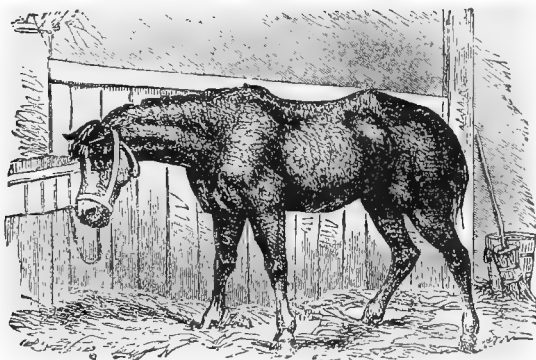
*Symptoms.*—Sore throat, sometimes difficult breathing and swollen glands of the neck. It has indications similar to sore throat and inflammation of the larynx.

*TREATMENT.*—Give iodide of mercury and belladonna in alternation every one or two hours. Steam the throat as for Strangles. Keep the animal warm with suitable clothing. If the legs are cold, bandage them. Pack the throat, a piece of sheep-skin, with the wool, being suitable for this purpose. Give bran-mashes, and keep the bowels open.

## CONGESTION OF THE LUNGS.

Congestion of the lungs is a gorging of the lungs with blood, and is caused by general weakness, which prevents the action of the heart that is requisite to the full purification of the blood and circulation; by a long day's hard work; by undue riding or driving, especially with a following exposure to wet and cold; by long runs. It is always present in the beginning of pneumonia.

*Symptoms.*—If the disorder occurs in the field, the horse suddenly stops, with anxious or distressed look; hanging head; expanded, puffed-out,



A FREQUENT POSITION IN CONGESTION.

purple nostrils; protruding, blood-shot eyes; hurried, labored breathing, going up to eighty or one hundred a minute; panting flanks; small pulse, reaching to eighty or one hundred a minute at the bronchial artery; feeble, disturbed heart, without the rattle incident to lung-inflammation. When

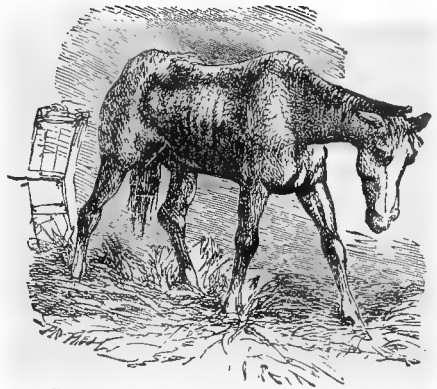
congestion results from a chill after hard work, the horse stands with the fore legs wide apart; head stretched forward toward the coolest place in the stable; breathing rapid and labored; heaving flanks; skin dry, or covered with cold sweat; legs and ears very cold; pulse not hard but quickened; mucous membrane of nose and whites of eyes of a light-purplish color. In extreme cases the animal trembles all over, and the ears and legs are as cold as in death; the pulse can scarcely be felt; the bowing of the head and other marks of brain-trouble show that death is imminent. If the symptoms do not end fatally, they are liable to lead to bronchitis or pneumonia.

TREATMENT.—Treatment may be favorable if applied early; first remove girths and other impediments to free breathing. Should the horse show symptoms when away from home, he should be given a quart of warm ale, or some spirits and warm water, and be left over night, if a *warm, comfortable* stall can be found. If in the stable, and the legs are cold, they should be moistened with mustard and rubbed, when the following process should be observed, *if enough wraps can be secured*:—Let a blanket soaked in and partially wrung out of very hot water (not so as to scald the animal) be placed over the back, and fastened around the sides and under the chest, over which place a *warm* sheet and, in addition, two other woolen blankets. In fifteen minutes the under blanket should be dipped and wrung out of hot water, but *done quickly*, and left on for about two hours, when a dry one must be substituted, and the fourth or outer one be removed, as it is not desirable to sweat these cases too much; this, however, may be avoided by admitting fresh air as soon as the skin begins to act; but great care must be taken not to give a chill after the operation. If the horse will drink scalded oatmeal and tepid water, the sweating process will be more quickly produced. Ammonium causticum has been proved to be the best remedy in connection with processes such as the above. It should be administered every hour for the first four or six hours; then every second hour. For treatment when this disorder is complicated by inflammation of the lungs, consult the following section for full and detailed directions.

#### PNEUMONIA.—INFLAMMATION OF THE LUNGS.

This is an acute inflammation of the parts composing the lungs and has the same causes as congestion. Indeed, it usually follows congestion, and also results from influenza, catarrh and bronchitis. It is likewise occasioned by the breathing of pungent, impure vapors which rise from dung and dirty litter; by taking the horse suddenly into the cold or wet after standing in a close, warm stable; by such exposure after having clothing on in the stable; by unwise feeding.

*Symptoms.*—After a cough for several days the horse shivers and quits eating; hangs his head in the manger or stretches it out; becomes listless; stands all the time with outstretched legs; if the sides are sore, groans when made to move around; dilated nostrils; nasal membrane, at first unusually red, becomes purple; mouth and breath hot; legs and ears cold; pulse at first hard, and goes up to sixty or ninety a minute, but later is full and oppressed, and still later small, advancing from one hundred to one hundred and twenty; breathing quick and labored; working of the wings of the nostrils; heaving flanks; cough short and painful, or ceases entirely; urine scanty and high-colored; bowels usually bound, but at last become relaxed (diarrhœa being a most dangerous turn); abscesses in the lungs and gangrene are followed by offensive breath and great weakness; the horse staggers, being able to lie down only a short time, and strikes his head about; the mouth finally is cold, the pulse imperceptible, and death ensues.



POSITION IN A BAD ATTACK OF PNEUMONIA.

If the pneumonia be of a *typhoid* form, the horse for several days manifests symptoms of catarrh; remains dull; refuses food; pulse soft—60 to 70 per minute; breathing rises to about 20, *without heaving of flanks*; occasional cough, which the horse tries to check as if in pain; dilated nostrils, with working of their wings; nasal membrane becomes leaden, generally with a slight yellow or red discharge of a watery nature; the horse does not lie down but stands with outstretched neck; coat and skin dry; ears and legs cold; dull sound heard upon striking the chest; pressure of the finger between the ribs produces great pain; heart-beats intermittent; placing the ear to the chest one sometimes detects a rattling sound, but usually only the beating of the heart; in bad cases, mouth cold and breath offensive; finally the animal is unconscious, staggers, falls and dies. In unfavorable cases death follows after twelve or fourteen days.

There are four stages, generally distinguished by the sounds in the chest: (1). In *capillary irritation*, the murmur of breathing is diminished and becomes harsh and dry, or confused. (2). In *engorgement*, there is a crackling sound, like that made by drawing the hair near the ear between the finger and thumb, known as “crackling râle.” (3). In *hepatization*, there is an absence of sound in some parts; in others, a noise like that of

blowing into a quill; should one lung be sound, its natural murmur is increased. (4). In *purulent infiltration*, abscesses form, *without sound*, or the lung is broken, opening into the bronchial tube and producing a deep sound, like that caused by blowing into a jug; sometimes a tinkling sound occurs, owing to pus in the cavity; if pus enters the bronchial tube, a gurgling sound arises, with coughing, by which a thick gray or white matter is thrown out of the mouth; symptoms of gangrene are also detected, but are attended by extreme offensiveness of the breath and the discharge from the mouth.

TREATMENT.—For shivering, lassitude, hurried breathing, quick and weak pulse, cold nose, ears and legs, and rough coat, give ammonium causticum every half-hour until the coldness disappears.

In the *first stage (capillary irritation)*, and in congestion marked by quick, full pulse, dry, hot mouth, reddened mucous membrane of the nose and eyes, and disturbed breathing, give aconite every half-hour or hour. As soon as the inflammatory stage has set in, marked by crackling sounds in the chest, heaving at the flanks, oppressed pulse, cold extremities, and discharge of reddish or yellowish matter from the nose and mouth, phosphorus should be given alternately with aconite every two hours. Bromine is highly beneficial when inflammation runs so high in the lungs and adjacent parts as to threaten suppuration or gangrene. Prepare it as follows:—In a six-ounce bottle put twelve drops of bromine, at once fill it up with water; of this mixture one ounce is the dose, but it must be given in four ounces of water, as it is very strong. Bromine is very volatile, and the bottle containing it should not be opened or exposed to the light more frequently than is necessary. In ordinary cases of pneumonia, bromine does not act so well as phosphorus, but there have been cases in which the latter failed and the former succeeded, and *vice versa*. Bryonia should be alternated with phosphorus every hour in the *third stage (hepatization)*, marked by absence of sound in some parts, or bronchial breathing in others; also, when the breathing has become quickened and not so deep; sometimes catching, with painful, short, suppressed cough; or loose cough with discharge of frothy phlegm; pain from striking or pressing between the ribs. Tartar emetic is useful when the *fourth stage* has set in, and is called for by loose, rattling cough and free discharge of mucus from both nostrils. After the active inflammatory symptoms have subsided, and the pulse, though quick, is small and weak, especially where the breath becomes offensive and symptoms of a typhoid character occur, and when effusion has taken place in the chest, no time should be lost in giving arsenicum every two or three hours. In extreme cases a mustard-lotion should be applied to the sides with rubbing, and repeated the next day if necessary. Avoid blisters and like irri-

tants. Put the horse in a well-ventilated stall, *without draughts*. Rub the legs well with the hand and bandage them with flannel. Use an extra blanket if the horse be chilly. Give green food if possible, otherwise a little bran and oats (previously soaked in boiling water), and hay. If the horse refuses other food, sustain him with oatmeal gruel carefully prepared. Keep constantly in the stall pure, cold, soft water for the horse to drink as he will. If the disorder terminates in simple "hepatization," the horse may be moderately worked, if the diet be carefully regulated, the stomach being nearly or quite empty when work is required. One of the most common, and yet one of the most fatal expedients in the treatment of pneumonia is blood-letting, not merely in small quantities, but in repeated and exhausting amounts. The result is an increase in the action of the heart as a consequence of weakness, and this is taken as the signal for further bleeding, and the animal succumbs and dies, not simply from the blood that is lost, but because he is not strong enough to bleed sufficiently. It is a practice that is based upon ignorance, without a single recorded result in its favor.

### CONSUMPTION.

Consumption, which is rare in horses, is a formation of tubercles in the lungs, which increase and ulcerate. It results from a constitutional tendency, aggravated by exposure to damp and cold; pasturage on marshy ground; over-exertion.

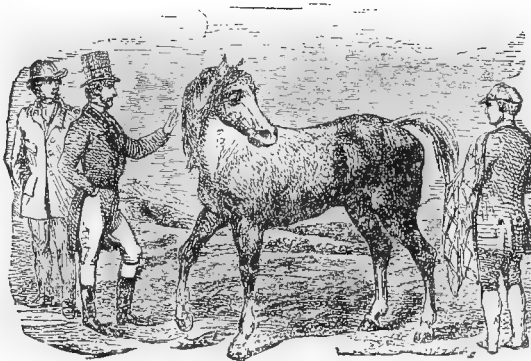
*Symptoms.*—Much coughing, dry or moist, with pus discharged from the nostrils, sometimes in great quantities; loss of flesh in spite of a good appetite; short breath; weakness; mane falls off; small sores on the withers; diarrhœa and death.

*TREATMENT.*—The disease is usually not noticed until it is settled. Then it is incurable, but much can be done to give relief by general care. Keep the horse well stabled, avoiding north and east winds, free from excitement and alarm, warmly clothed and well-rubbed. When the weather is warm and the sun shining, allow him to be in the open air, stabling him as soon as the evening draws nigh. Give nourishing, easily digested articles of food, as fats, consisting of linseed, corn, beans, peas and potatoes. Cod-liver oil, the hypophosphites, or the wheat phosphates may be used with advantage. Inhalations of carbolic acid, sulphur, and pine tar may assist in giving relief. These may be used by steaming with hot water, or by burning the articles and allowing the animal to inhale the vapor. The steaming-bag represented on page 105 will be found of service in such inhalations. At best one can only hope to prolong the life of a suffering animal which can be of little service.

## PLEURISY.

Pleurisy is an inflammation of the serous membrane which lines the chest and forms a cavity for the viscera contained therein. Its causes are exposure to cold, wet, or any sudden chill; atmospheric influence, pleurisy being a frequent accompaniment of influenza; extension of inflammation from the substance of the lungs. It may also be a local result of some internal fevers.

*Symptoms.*—These so nearly resemble those of pneumonia that they need careful study. The horse first shows signs of fever, with coughing and much restlessness, after which he remains standing still, and is unwilling to move; the flanks are very tender, and are peculiarly tucked up; the legs are more nearly erect than in pneumonia, though the head is outstretched; pulse from sixty to eighty in extreme cases, and yet very



A HORSE SUFFERING FROM PLEURISY.

small and quick; breathing uneven, and from twenty to forty; the breath is drawn in quickly and with interruptions, but expelled slowly; the countenance indicates pain; the animal looks at the sides frequently in a dejected manner; pressure between the ribs is followed by a grunt and an attempt to bite the attendant; upon turning around the horse gives a grunt, and the cough which usually occurs is checked, or cut short; partial sweats and twitching of the muscles are not uncommon; extremities variable in temperature, usually cold as in pneumonia. In unfavorable cases the breathing is quickened; the pulse grows more frequent and small; the tongue is coated and offensive in odor; a long breath is suddenly checked and a grunt occurs; inflammation continuing, breathing is more limited; pulse less dis-



tinct; the horse is restless, paws, rises and lies down frequently, wanders unconsciously around the stall, becomes worn out, falls and dies.

The symptoms of this disease which distinguish it from others with similar indications, especially *pleurodynia*, are these:—The sound as of the palms of the hands rubbed together, heard upon placing the ear to the sides of the chest; the variation in pulse and breathing; the animal appearing alternately better or worse at uncertain hours; the attempt to check the painful cough; the pain and grunt incident to pressure or striking on the diseased part (pain being caused by manipulation, *without pressure*, in *pleurodynia*); the short, catching breath, and the difference in time between taking in and expelling the breath.

**TREATMENT.**—Aconite and bryonia are the best remedies for the primary or inflammatory stage, and should be given alternately every hour until a perceptible change occurs in the pulse and respiration, and then at intervals of three or four hours. After the inflammatory symptoms have disappeared give a few drops of arsenic or digitalis to promote the action of the kidneys and prevent effusion. Observe the same general care as to stabling, diet and other particulars as was laid down for Pneumonia. If there be evidences of water in the chest, consult the remarks on Hydrothorax.

#### BROKEN WIND.—HEAVES.

This disorder is most common in low-bred and cart horses, and is a difficulty in breathing, marked by a double expulsion of the breath, with fits like those of asthma. It originates in disorder of the nerves of the lungs and stomach, or rupture of some air-cells, and is excited by irregular work, improper feeding, such as clover-hay, or any dusty hay. It may follow chronic cough, or inflammation of the lungs and bronchial tubes.

*Symptoms.*—Short, suppressed, and very feeble cough, often attended with expulsion of wind from the anus; breathing consists of one effort at drawing in air and two at expelling it; indigestion, with oats and hay in the dung; when the animal draws a heavy load or trots rapidly, the flanks heave violently, with a wheeze in the breathing in many cases, *not all*, which does not cease at once when the animal is brought to rest; when the horse is in the stable, if the ear is applied to the chest, especially at night, a wheeze and rattle are heard, which are sometimes sonorous; suppressed natural murmur of breathing, with increased resounding from a stroke, and difficulty of breathing.

**TREATMENT.**—Broken wind, in early stages, is curable; after it has run a considerable time without treatment, it can only be relieved. Give

arsenicum when there exist a wheezing cough and sound when breathing; short, hurried, difficult breathing when going up a hill. Give *nux vomica* when the symptoms are aggravated, especially those showing indigestion, such as passage of hay and oats, windy stomach and intestines, and thin, seedy appearance of the animal. One of the best remedies for this disorder, and one which rarely fails to give relief, is *lobelia*. It should be given in doses of a half-teaspoonful to a teaspoonful of the tincture two or three times a day. The following formula will also be found useful:

Tincture of lobelia,	4 ounces.
Fowler's Solution,	½ ounce.
Iodide of potassa.	1 ounce.
Water,	4 ounces.

Mix.

Give a teaspoonful three times a day. Give the best and most nourishing food frequently, but in small quantities, *avoiding chaff and dusty hay*. Do not give more than five pounds of hay in a day, but increase the allowance of carrots, barley, oats, and *boiled* corn, observing a rational alternation in their use. Impose slow work or three or four hours daily of walking, but give no exercise soon after eating a meal.

### THICK WIND.

Thick wind often results from pneumonia or bronchitis, and is most frequently found in low-bred horses with badly-shaped chests, which eat ravenously. It is a thickening of the membranes lining the bronchial tubes, so that the horse, when violently worked after feeding, or when the stomach is full, has defective breathing, *with blowing but not noise*.

*Symptoms.*—Short, quick, difficult breathing during any exertion, especially while ascending a hill.

*TREATMENT.*—This is incurable, but is relieved by the use of arsenicum, *nux vomica*, ammonium causticum and bryonia, and by the general care to be observed in Broken Wind (previous section).

### WHISTLING.—ROARING.—BLOWING.

An obstruction of the air-passages produces sounds of differing character, and from these the horse is called a *whistler*, *roarer*, *blower*, *grunter*, and the like. These difficulties are often taken from the sire or dam, and are promoted by laryngitis, bronchitis, and other respiratory diseases; also by the inflammation which often results from tight reins, and from always driving a horse on the same side, by which the muscles of the larynx on the

side next to the other horse are not exerted as much as the others and thus become weak (the horse then becomes a roarer, even without inflammation). Tumors and other swellings, mechanical injuries, indeed anything that obstructs breathing, may cause the disorder.

*Symptoms.*—Generally a harsh or sawing noise in the drawing in of the breath when the horse is put on a canter or gallop; in some cases it is sonorous, in some, whistling; in extreme cases, the noise is heard both in taking in and in expelling the breath. The disorder is best determined by galloping the horse to produce the sound. Another method is to hold the bridle and alarm the horse by a threatened blow with a stick, when the breath will be sudden, and accompanied with a grunt or roar if this trouble exists. In acute cases the larynx is inflamed.

*TREATMENT.*—Give belladonna for *recent inflammation* of the membrane of the larynx, and kali bichromicum for *ulceration* of this membrane. Chronic roaring can not be cured, though the cutting out of some of the funnel-shaped cartilage on the larynx, the use of a tube in the windpipe, and a strap passed around the nose so as to limit the ingress of air, are said to have been applied with advantage by an expert.

#### SPASM OF THE DIAPHRAGM.—HICCOUGH.

This is a spasmodic contraction of the diaphragm, or the muscular wall which separates the chest from the abdomen. It is caused by irregular nervous influence which results from long work upon an empty stomach, or quick work without preparatory training.

*Symptoms.*—The heart-beats may be heard on either side, and are unnaturally loud and quick, though their force is not increased as much as the sound; almost imperceptible pulse; heaving of the sides; flanks move little or not at all, but are unusually full; hiccough is always present, being a sudden contraction of the breathing muscles, *especially of the diaphragm*, followed by an equally sudden relaxation, causing a rapid taking of breath, whose suddenness and force will be observed. Carefully distinguish this from Palpitation of the Heart, and compare the symptoms of the latter.

*TREATMENT.*—The disorder generally yields to treatment in a very short time. Give nux vomica every half-hour, or stannum once in one, two, or four hours. The horse should not be driven rapidly or a long distance.

#### NASAL GLEET.

We apply this term to any chronic discharge from one or both nostrils, whether it originates in the nasal chambers, in the nasal cavities, in

the pouches of the throat, in disease of the bones of the face, in caries of the teeth, or in loss of nervous power. The symptoms of the disease arising from these respective causes are sufficiently distinct to warrant a division into the five classes given below, under which the special treatment needed for a particular form will be given as it is demanded, with the remedies and their applications for all placed last. It is important to study this disease carefully; it is serious, but undue concern has been sometimes felt at its appearance, because it has been mistaken for glanders.

(1). SIMPLE NASAL GLEET.

This results from simple catarrh that has been neglected.

*Symptoms.*—Its symptoms are a whitish, yellowish, or greenish discharge of varying quantity from one or both nostrils, sometimes partially lumpy and clotted, and adhering to the sides of the nostrils; nasal membrane of a dull, leaden color and unhealthy look; in horses of low condition ulcers may appear close to the exterior of the nostrils, though this symptom indicates a transition to glanders; the gland under one or both jaws is slightly swollen, but not adhering to the jaw-bone, though perhaps tender; appetite poor; strength reduced; coat staring; work done languidly; nasal discharge exceedingly offensive, especially in poorly-ventilated stables.

(2). PUS IN THE SINUSES.

After severe catarrh dense pus sometimes fills the cavities of the nose and face and escapes from the nostrils.

*Symptoms.*—The symptoms are a swelling of the glands under the jaw; swelling of the face on the affected side; the escape of the pus is impeded. The presence of pus in the cavities may be determined by tapping with the hand on the side supposed to contain it; its presence will be marked by a dull sound. If but one side be affected, the dull sound of the diseased side will be in contrast with the hollow sound of the healthy one.

Beside the treatment hereafter noted, a circular piece of bone must be removed by a veterinary surgeon, half-way between the margin of the orbit of the eye and the middle line of the head, and a similar opening be made into the jaw-bone above the cheek-bone. Then remove the matter thoroughly with tepid water and a syringe, following this up three times a day with an injection of hydrastis-lotion.

(3). PUS IN THE POUCHES OF THE THROAT.

The inflammation and formation of pus attending nasal catarrh may extend to the throat, where the pouches collect pus as in strangles. The

pus may escape into the nose or the throat, or pass through the skin by an opening at the angle of the jaw. If it escape by the nose, the discharge is usually from one nostril, and the glands under the jaw are enlarged. There may be no pus on the other side, or it may be there shut up and solidified. The nasal discharge comes and goes at regular or irregular intervals. When the matter passes into the throat, it threatens suffocation. Occasionally an opening occurs both in the throat and at the angle of the jaw, when the pouch is enormous, the amount of pus very great, and the ulceration very considerable. If both sides are affected, the breathing may be difficult, and suffocation threatened. Should the horse in addition rear up, and have a thick, gummy coat, glanders may be reasonably suspected.

In addition to the remedies hereafter named, it is very useful to turn the horse loose and let him feed from the ground or floor. Indeed, in some mild cases cures have been effected by allowing the horse to go into the yard or field where his head is nearly always hanging down. In this way the pus naturally falls through the nostrils, while the nose very often remains dry if the same horse is tied to the rack. An injection of iodine twice a day should be given by a skillful practitioner, and the same medicine administered internally. It may be necessary to perform an operation for the removal of the pus and the washing out of the pouch with a lotion of hydrastis or iodine; the operation can be done only by a practitioner.

#### (4). ABSCESS OF A DISEASED BONE.

After severe catarrh, especially in colts, an abscess may occur on the bone in one side of the head.

*Symptoms.*—The symptoms are swelling and inflammation of the nasal membrane; difficult breathing, often causing a suspicion of polypus; the nasal discharge is variable, occurs *when the head is raised*, and may be preceded by a strangling cough. An operation by a surgeon may be needed.

#### (5). CARIES OF THE BONES OF THE FACE.

A nasal discharge sometimes follows an organic disease of the nasal or upper maxillary bones, or of those on the side of the head; or it may be caused by the presence of foreign matter in the nasal chamber, or by a projecting tooth, perhaps carous.

*Symptoms.*—The symptoms of this disorder are a flow of matter only from the affected side, very offensive, often tinged with blood and mingled with particles of dead bone; the lymphatic glands are swollen but do not adhere to the bone. The foreign substance, the tooth causing the trouble, or the diseased bone, must be removed.

**TREATMENT FOR ALL FORMS.**—Give hydrastis for copious discharge of adherent glue-like matter; enlarged glands under the jaws; inflamed nasal membrane; staring coat; constipation; scanty and high-colored urine. Potassa bichromate is demanded by a discharge of thick, yellow or greenish pus, very offensive; swollen glands; quickened breath and pulse. Mercurius is valuable for all offensive discharge of mucus mingled with pus; glands enlarged and tender; nasal membrane appearing red, as if full of blood-vessels; sneezing; sore throat; also when the bone is diseased. Give iodide of arsenic for a free discharge of a thin, irritating fluid which induces rawness of the edges of the nose; relapses of the disease, and attacks resulting from exposure to cold and wet; loss of flesh, appetite and strength. Fowler's Solution has also been beneficially used for the conditions named for iodide of arsenic, and five to ten drops may be taken two or three times a day. Though internal remedies will suffice for cases that have not continued long, about a half-pint of either of the following injections may aid such internal remedies, and it may be necessary in some instances, especially in advanced stages, for a surgeon to administer them: (1). Tincture of iodine, two drachms in a pint of water. (2). Bichromate of potash, one drachm in a pint of water. (3). Hydrastia, a half-ounce in a pint of water. (4). Sugar of lead, one drachm in a pint of water. (5). Sulphate of zinc, one drachm in a pint of water. The first is the best.

#### BLEEDING AT THE NOSE.

This is caused by weakness of the blood-vessels, or by an increase of the volume of blood in the nasal membrane as a result of excessive exertion. It is often only a symptom of glanders, polypos, or other ailment. It may also result from a blow or wound.

*Symptoms.*—The form which is symptomatic of another disorder will be easily recognized, as also that which results from a blow or wound. We need then to give a description of that which comes from weakness of the blood-vessels. It may be either active or passive. The *active* is most common in horses that are fat or have an excess of blood, and unless it results from quick work, may be regarded as an inflammatory disease of the membrane, the blood flooding the membrane and extending from the capillaries, which are weakened by pressure of blood and lack of cool air. There is a full, bounding pulse, with other feverish symptoms of derangement. In the *passive*, the fever-disturbance is not present. This form gives little occasion for fear of fatal results, but it should be carefully regarded, as it may be only the beginning of glanders.

This disease may be confounded with bleeding from the lungs, though

its flow of blood is found only in one nostril in the great majority of cases, while in bleeding from the lungs it comes from both, is accompanied with coughing and is more or less frothy, escaping also from the mouth.

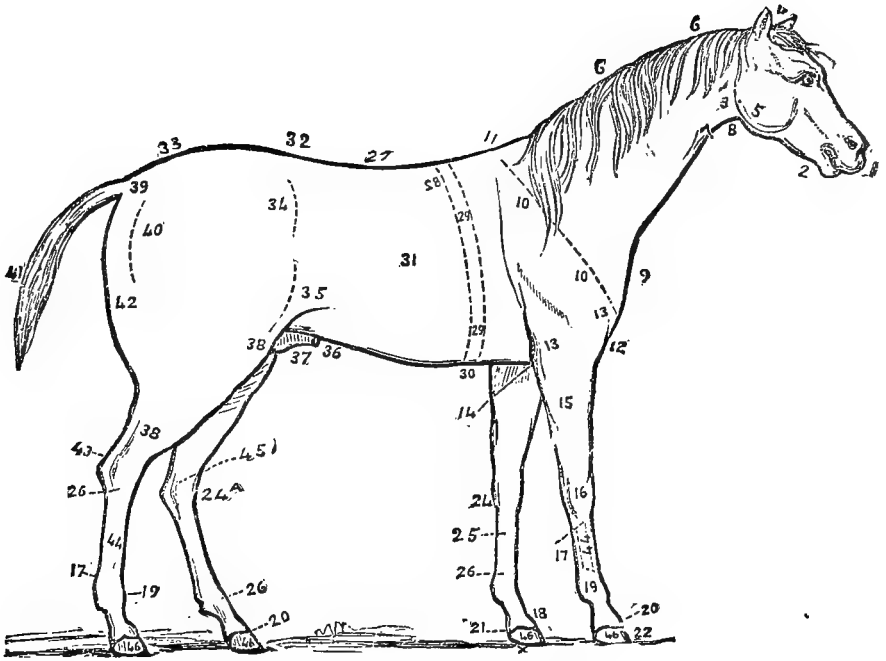
**TREATMENT.**—When the bleeding results from disease, that disease must be treated. Aconite should be given for acute bleeding not resulting from another disease—ten drops every ten minutes until the bleeding stops, and then every four hours for a day or two. Arnica is better, given internally and applied locally as an injection, when a local injury causes the bleeding. It is also good for the passive cases, given once in ten minutes while the flow continues. Extract of hamamelis may be used internally and locally, and is an efficient remedy. Cold water dashed on the face is a valuable aid. It may be applied by saturated cloths often changed, or poured on from a considerable height. It may be well to tie the head up above its normal height. In persistent cases, throw into the nostril a spray of dilute alum-water, or salt-water, and even plugging of one nostril (both must never be closed at the same time) with pieces of lint or soft cotton, fastened by a cord with which to withdraw them, may be required. Give a diet of bran-mashes during the treatment. Avoid tight collars.

### POLYPUS IN THE NOSE.

This is a soft tumor hanging on a stem on the mucous membrane or cartilages of the nose. It is streaked with blood-vessels, is so spongy as to take in and retain air and dampness, which makes it grow larger in damp weather than in dry. There may be one or more.

*Symptoms.*—At first, obstructed breathing in the affected nostril, in which the passage of air will finally be wholly stopped; deformity of the bones of the face; nasal gleet or roaring may first call attention to the trouble in the nostril; by looking up the nostril one may see a pear-shaped, inelastic, movable polypus, which seldom bleeds; striking on the affected part produces a dull sound; sometimes a mattery discharge, and occasionally bleeding. These tumors may form in the closed cavities and pharynx.

**TREATMENT.**—A practitioner may remove the tumor by cutting, torsion or ligatures. Torsion is the snatching away of the tumor with forceps, and may injure the nasal membrane and the bone to which the tumor is attached, and may also cause considerable bleeding, though it is not dangerous. If the tumor be low down, any one may firmly tie a strong, fine string around the stem, leaving it there until it causes the tumor to drop off. If it be high up, it may be necessary for a surgeon to slit the false nostril before the polypus can be removed. After removal a solution of nitric acid should be injected into the nostril to prevent a reappearance.



SKETCH OF THE HORSE.

Principal Points and Parts to be Examined for Defects, Injuries and Disease,


- |   |   |   |
|---|---|---|
| 1. Muzzle.  | 16. Knee, or Wrist; sometimes swelled, having a fungous growth; or the skin may have been broken. | 29, 29. Girth, or Circumference in Measurement. |
| 2. Place of Fistula from Teeth.   | 17, 17. Back Sinew: place of Curb.  | 30. Place of Injury from Pressure of Girth.     |
| 3. Place of Mumps.  | 18. Place of Disease of Skin above the Coronet—Crown scab.  | 31. Barrel, or Middle-piece.                    |
| 4. Place of Poll-evil.  | 19, 19. Fetlock, or Pastern-joint.  | 32. Loins.                                      |
| 5. Angle of Jaw.  | 20. Coronet.  | 33. Croup.                                      |
| 6, 6. Crest.  | 21, 21. Heel.   | 34. Haunch.                                     |
| 7. Place of Fistula from Vein.  | 22. Contracted Hoof.  | 35. Flank.                                      |
| 8. Throttle, Thropple, or Wind-pipe.  | 24. Mallenders; 24A, Sallenders.  | 36. Seat of Warts.                              |
| 9. Shoulder-point: place of Sores from Harness.   | 25. Seat of Splint, or Exostosis, on side of Cannon-bone.   | 37. Sheath, or Prepuce.                         |
| 10, 10. Shoulder-blade.   | 26, 26, 26. Seats of Bursal Enlargements.   | 38, 38. Gas-skin, or Lower Thigh.               |
| 11. Withers; sometimes the seat of Fistula: height of horses reckoned from the ground to the Withers. | 27. Back, or spine.   | 39. Root of the Dock, or Tail.                  |
| 12. Front of Chest or Breast.   | 28. Place of Saddle-galls.  | 40. Hip-joint—Round or Whirl-bone.              |
| 13, 13. The True Arm.   |   | 41. Rat tail.                                   |
| 14. Elbow; sometimes the seat of Tumors.  |   | 42. The Quarters.                               |
| 15. Arm, or Fore-arm.   |   | 43. Point of the Hock: seat of Capped-hock.     |
|   |   | 44, 44. Cannon-bone.                            |
|   |   | 45. Place of Spavin.                            |
|   |   | 46, 46. Hoof.                                   |



## CHAPTER VI.

### THE SKIN.

#### ERUPTIONS.

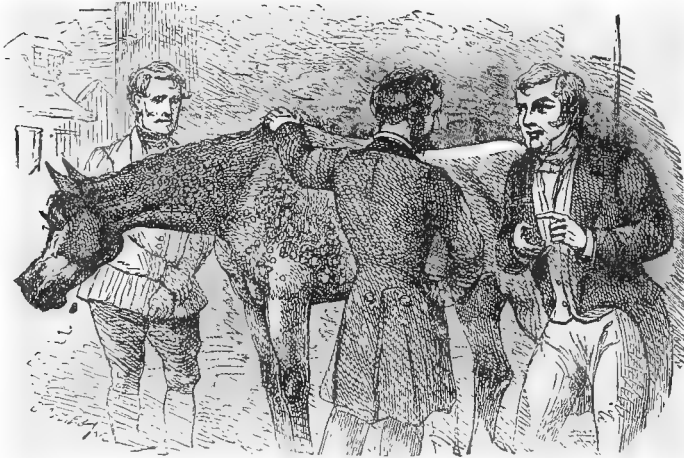
F these the *first* kind are very small elevations, some of which contain a dry, chalk-like substance, while others discharge a sticky fluid that mats the adjacent hair, and then dry up; the *second* are most frequent in horses with a great supply of blood, especially in hot weather, and they come and go suddenly, some being irregular lumps, from the size of a pea to that of a walnut, others flat, covering a space several inches in circumference. They are found in groups over the body, occasionally becoming soft and discharging a gluey fluid, but generally leaving suddenly without this manifestation. In some cases of the second kind fever-symptoms are marked, in others they are obscure if they exist at all. Among the causes are a change of food, shedding, sudden stoppage of sweat from drinking cold water when the animal is heated, indigestion, overfeeding and insufficient work.

TREATMENT.—Nux vomica is the most approved remedy for the first kind of eruptions named, given in ten-drop doses three times a day for four days; the same has proved beneficial for the second kind. If nux vomica fails to reduce the symptoms, give five to ten drops of Fowler's Solution two or three times a day. Give bran-mashes and green food for a few days. The reader must not expect that all eruptions and "pimples" can be cured by this treatment, or by any other single one. The functions of the skin are more complicated and important than most people suppose, and their derangement or interruption will induce grave disorders. They are very similar to those of the skin in man, and the reader should carefully note the remarks made in Ruddock's Family Doctor, pages 344-382. He will infer therefrom that eruptions on the skin are very often symptoms of some serious disease, and that attempts to remove them or drive them back are liable to produce great injury. When they are symptomatic of some disease, treat the disease before attempting to effect their cure.

## SURFEIT.—PRURIGO.

Surfeit is an excessive itching with no visible cause, most common in colts during breaking, and in horses put to work in warm weather fresh from the pasture. It is caused by sudden change from green to dry food, too much or too stimulating food, want of work, bad food, and low condition. Prurigo is here considered a form of surfeit.

*Symptoms.*—Itching and rubbing, the hair being thus removed from the affected parts; rough, scaly patches, especially at the roots of the tail



A HORSE WITH SURFEIT.

and mane; possibly raw places. The microscope can detect no parasites, as it can in mange.

*TREATMENT.*—Remove the cause, if it be insufficient work, heating food, poor or deficient feeding, and make the requisite change. Give the horse a good grooming, without brush or comb. Give an occasional sweat. For fever, heated skin, great itching in well-fed horses with much blood, give belladonna. Arnica is preferable for poor condition and deranged digestion. Relieve the parts which itch most by applying a liniment composed of one drachm of carbolic acid and two ounces of glycerine.

## GREASE AND SCRATCHES.

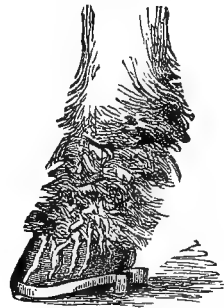
Grease is an inflammation and ulceration of the skin on the lower parts of the legs, with a greasy discharge. Its causes are hereditary weakness of the skin, mainly in low-bred horses; cold and moisture; sudden

changes from cold to heat; deranged action of the skin; chapped heels. Scratches are closely allied to grease, though caused by exposure to mud, wet, and neglect in cleaning the legs.

*Symptoms.*—In the *first* stage, sometimes fever-symptoms; the legs, especially the hind ones, swollen about the hock; red and inflamed skin at the heel; pain from handling the leg, causing the horse to snatch it up and thrust it out awkwardly; straddling gait, with hind legs apart. In the *second* stage, sloughy and unhealthy cracks or ulcers in the skin, extending around the leg, give out an oily-looking discharge, which wets the skin and may drip from the hair; the cracks are found on the back part of and



EXUDATION IN THE FIRST STAGE OF GREASE.



CRACKS IN THE SECOND STAGE OF GREASE.

above the fetlock, and their discharge increases the inflammation and ulceration of the limb. In the *third* stage, irregular fungous growth, from the size of a pea to that of a walnut, at the bottoms of the cracks, full of blood-vessels which bleed upon handling; the discharge becomes very offensive and pus-like, destroying most of the hair and leaving the balance bristling; the excrescences are red (called "grapes" from their appearance), and finally become cartilaginous. To avoid confusing Grease with Farcy, consult the table of symptoms given in the section devoted to the latter.

Scratches consist in little scaly sores, which become covered with thin scabs, and are likely to be tender and annoying until dry weather has come on in spring, unless treated promptly.

*TREATMENT.*—For Grease, put on a turnip or linseed poultice. Give exercise morning and evening, bandaging the legs after removing the poultice. Smear glycerine over the parts three times daily. Give bran-mashes for food. Give ten drops of Fowler's Solution of arsenic three times a day, and it will often effect a cure, if promptly given. In the *second* stage, with ulceration, cut off the long hair from the affected part and foment twice a day; dry the leg, and lightly smear over the cracks a lini-

ment of one drachm of Fowler's Solution of arsenic and one ounce of glycerine. This failing, foment the leg, gently dry, and apply four times a day a lotion of one drachm of ruta and one ounce of water. Give arsenicum internally three times a day. In the *third* stage, with "grapes," if the growths be large or hard, they may be removed by caustics, as sulphuric acid, chloride or sulphate of zinc, applied every second or third day; or they may be removed with a sharp knife, the bleeding surface being then touched with caustic. If they be small, with very offensive discharge, add to six parts of carbolic acid one part glycerine, and apply with a very soft brush. After this a speedy cure may generally be effected by a lotion composed of one drachm of carbolic acid and two ounces of glycerine. Liquor arsenicalis and sulphuric acid lotions have proved beneficial, with arsenicum three times daily internally. The diet should be soft and nutritious, such as bran-mashes and good, clean clover.

For Scratches, the above internal remedies are recommended. Apply externally a mixture of aloes and glycerine, or camphorated alcohol and chloral. Corn and other heating food should be restricted or avoided. When the horse has been in the mud in the spring, the legs should be thoroughly washed and rubbed dry upon being taken to the stable, and it is well also to rub on some kind of pure grease or oil after such cleansing. Indeed, the dressing of oil and grease has often been of much benefit in treating cases of scratches, and it is excellent as a preventive, well rubbed in before the horse is taken out for travel in the mud.

### CHAPPED OR CRACKED HEELS.

This disorder is caused by washing the heels and not drying at once, over-feeding, want of work, the coating process and heredity.

*Symptoms.*—Sometimes the first symptom is swelling of the lower part of the legs, with cracks and watery discharges at the back part of the pastern. At other times, there will be red and tender skin in the hollow of the pastern; drying up of the secretion and consequent cracking; lameness. The cracks bleed upon motion and become ulcerated, giving out a thin, burning discharge which increases the swelling and heat; bottoms of the cracks sloughing and unhealthy; sometimes fever and impaired appetite.

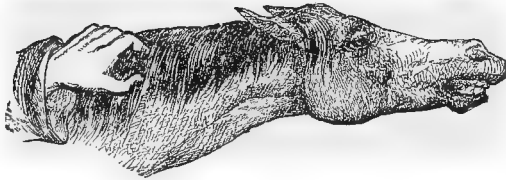
*TREATMENT.*—Clip the hair from the edges of the crack and apply to the heel a warm turnip or linseed poultice if much fever be present, and give bran-mashes and green food for diet. When the inflammation begins to subside, discontinue poultices and apply morning and evening, with a soft sponge, a lotion of one drachm of liquor arsenicalis and two ounces of

water; before using the lotion, wash the cracks with soap and water and gently dry the heel. In the absence of much inflammation, the disorder not being an outgrowth of constitutional disease, apply morning and evening a liniment of one drachm of liquor arsenicalis to one ounce of glycerine. When the inflammation is not very active, good results may be secured by a dry flannel bandage applied moderately tight around the leg. Give arsenicum three times a day. Put on high-heeled shoes, and give two hours in walking exercise daily. Exercise care during coating.

### MANGE.—ITCH.

This is an itching and scaling of the skin from the presence of parasites under the surface. It is caused by a poor and weak condition, with want of cleanliness. It is contagious, though it is seldom transmitted to strong, well-kept horses, and then does not spread among them.

*Symptoms.*—Itching, soon followed by falling of hair and scaling of skin; small vesicles form on the skin, burst, and discharge a fluid which forms into a scab; this being removed, the microscope detects very small



TEST FOR MANGE.

insects. Later, the skin lies in hard folds, especially about the neck, and becomes raw and ulcerated by repeated rubbing; in advanced stages fever appears, with loss of flesh and sometimes dropsical indications. The neck, shoulders, back, quarters and abdomen are the parts most affected. *The attendant may take the itch by contagion.*

*TREATMENT.*—Give arsenicum night and morning in cases with scabby sores and red, burning ulcers, with hard-crustrated edges. It is valuable when the horse is in low condition. Mercurius is needed if there be raw sores or pustular formations. To destroy the parasites, use the above internal remedies and in addition put on the affected parts and thoroughly rub in a liniment composed of three ounces of oil of tar and one pint of train oil, first carefully washing the parts with soft soap and warm water, and drying with care. Repeat the process in three or four days. Three ounces of sulphur and a pint of oil make a good ointment. Carbolic acid, one part

to thirty-two of water, is highly recommended; one dressing may be sufficient, and may be washed off in two days. Should these applications fail to destroy the parasites, saturate the parts daily with a lotion of two ounces of liquor arsenicalis and one pint of water. A very desirable remedy is made of one ounce of pure carbolic acid and one pint of glycerine, a little being daily rubbed upon the bare patches, or lightly put on the sores. In extreme cases, the following lotion may be applied, *not less than a week apart*: One half-drachm of corrosive sublimate mixed with two ounces of spirits of wine, then adding one pint of glycerine. Because of its cheapness and efficacy, the tar-liniment first named should be tried before other remedies, unless it be the diluted carbolic acid. Give soft, nutritious food, including green diet.

Use one of these applications in cleansing all harness, brushes and combs used about the horse, as well as all posts, trees, boards or other objects against which the animal has been rubbing, both in the stable and out of doors; boil, for a long time, all blankets that have been used.

### LICE.

Lice may be found on horses, especially those of long, shaggy coats and lean condition. They may come from dirt, old straw, fowls roosting about the stall, and other sources, or from contact with another horse.

*Symptoms.*—The horse bites his quarters and sides, rubs against any object in reach, tearing the skin in patches; lice on the bare patches are seen.

*TREATMENT.*—Boil one ounce of tobacco in a pint and a half of water down to a pint, strain, add forty grains of white arsenic, and then boil a little again. Wash the parts with the preparation. Another excellent expedient is to rub into the roots of the hair powdered white precipitate, removing it the third day by good brushing, *and keeping the horse dry* while this is on him. Keep the stable thoroughly clean; burn all infected litter and clothing; wash the harness with hot water.

### ITCHING OF THE MANE AND TAIL.

This is usually caused by neglecting to keep the roots of these parts clean. It is in many cases cured by washing with strong salt-water. Another method is to wash the parts with soap and water and apply lard and blue ointment in equal parts, meanwhile keeping the horse dry. Though such itching often points to mange or lice, it does not always do so. Its chief injury is in a disfigurement of the mane and tail from the rubbing.

## HIDE-BOUND.

Hide-bound is a sticking of the skin to the ribs, either as a symptom of some disease internally, or as a result of absorption of the adipose matter and fat under the skin. Sometimes the abdomen is distended with wind, or is contracted and tucked up.

**TREATMENT.**—If it results from another disease, that must be removed by the proper treatment. In cases of indigestion, a very common cause, give ten drops of nux vomica three times a day. Steep a pint of linseed in boiling water and add it to a bran-mash, giving this every night. If the horse be poor, give soft, nutritious diet, as clover and other green food.

## MALLENDERS AND SALLENDERS.

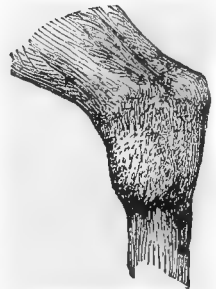
These are unsightly scurfy eruptions on the back of the knee and front of the hock respectively. They are caused by washing the legs and not properly drying, and by bad grooming.

**Symptoms.**—Cracks or scurf on the back of the knee or bend of the hock; itching; sometimes lameness. Previous to this there might have been an eruption with a fluid oozing out and forming a scab with mingled dirt and pieces of cuticle, sometimes ending in ulcerations, like cracks at the heels.



MALLENDERS—BACK OF KNEE.

**TREATMENT.**—Soften the scurf night and morning with warm water, and dress with a preparation of one drachm of carbolic acid and two ounces of glycerine. Or give arsenicum internally and apply externally a preparation of one drachm of liquor arsenicalis and two ounces of glycerine. Thuja is a valuable internal



SALLENDERS—IN FRONT OF HOCK.

and external remedy; for external use add one part of the tincture to two of glycerine. A wash made by steeping the leaves of the arbor vitæ is also useful and convenient.

## RING-WORM.—TETTER.

This is an eruption of the skin which results from low condition; bad food; sudden change of food, even if from bad to good; contagion, the groom himself being thus liable to it.

**Symptoms.**—White scaly scurf, more often on the neck, shoulders or

quarters, spreading out in a circular form one or two inches in diameter, composed of pimples with raised edges; itching; scales and hair fall; pimples disappear, leaving nothing but scurf and loss of hair. Sometimes however it takes the form of pustules in limited patches, giving out a discharge which mats the hair; a crust then forms that is easily removed; small cavities are underneath, some containing pus.

**TREATMENT.**—Give bran-mashes at night, and arsenicum night and morning. In the *dry* form, apply daily a preparation of one half-drachm of carbolic acid to one ounce of glycerine. In the *humid* form, remove the scabs and dress the sores daily with a mixture of one drachm of liquor arsenicalis to one ounce of water, giving rhus or arsenicum in a wine glassful of water three times daily. Promote the general health.

### WARTS.

Warts are excrescences of varying size, spongy and readily bled, or hard and dry, occurring singly on the belly, sheath, and inside of the thigh, or in clusters on the face, nose, ears, and eyelids. They may have a broad base, or stand or hang on a stem. They are probably caused by deranged secretion of the skin.

**TREATMENT.**—Remove any that are on a stem or small base by tying ligatures firmly around the base and leaving them until the warts fall off; the application of caustics is still better. If the wart be broad and moist, or if large and very “seedy,” and bleeds easily, scrape the surface raw with the thumb nail (if not already raw), moisten the finger, dip it in powdered arsenic, and put a slight layer on the raw surface, leaving it thus. The wart will usually drop off, after one application, in ten to twenty days, never growing again. If clusters of small warts appear on the face and about the eyes, wet the warts three times a day with thuja; if this does not succeed, use rhus in the same way. Sometimes the wart has no attachment to the skin other than a sac which incloses it. In such cases, cut the sac, squeeze out the wart, and the cut will heal at once.

### ERYSIPELAS.

This is a spreading painful inflammation which frequently affects the underlying parts, or even the internal organs. It may be communicated by one animal to another. Among its predisposing causes are foul air or food, debility from diseases, as those of the liver and kidneys, absorption of poisonous matters through a sore, as cracked heel in the horse, green buckwheat as food, sudden suppression of the secretions of the skin, unhealthy



lodgings, proximity to decaying animal and vegetable matter. The exciting causes are local irritations, as from chafing in work, rubbing of harness, corroding medicines on the skin, bites and stings of insects, burns, scalds, dropsy, wounds, open sores exposed to accumulations of rotting manure or other matter.

*Symptoms.*—The first symptom is usually a fever, followed by loss of appetite; dullness; quickened pulse and breath; hot skin; constipation; scanty, high-colored urine; elevated temperature at the rectum; then spreading, hot, tender, slimy, itching swelling, very often starting from some sore, though not always; the inflammation may extend to the underlying tissues, or may be dropsical in its character; the border of the swelling is abrupt; the skin is tense, pits on pressure, perhaps shows pimples and is more or less red, the shade being deeper on a clear, white skin. After some days either the swelling and redness subside, and the sores dry into scales which drop off and leave a dark-red and tender surface; or cracks appear with sores which have little tendency to heal. In the horse, the head, chest, belly and hind limbs are especially subject to a dropsical swelling.

*TREATMENT.*—Rhus is one of the best remedies in the treatment of this disorder, especially when blisters form, accompanied by fever and a hot, rapidly-spreading swelling. Arsenicum should be given when cracked heel is the cause, and will be found to be a good general remedy, especially if pus has formed. Apply to the parts warm fomentations of a weak solution of tincture of muriate of ammonia, or of sulphate of zinc, protecting the sore then from cold air. A dry application of zinc and starch is also recommended. Iodized adhesive plaster may also be of service, especially in checking the spread of the swelling. If matter has formed, let it out.

## GALLS.

Galls are caused by a badly-fitting saddle or collar; by the harness or girth; by bad riding; by removing a saddle too soon after a ride, before the horse becomes cool.

*TREATMENT.*—For saddle-galls, with deep bruising of the tissues, apply one part of arnica to nine of water once in four hours, with a soft rag or sponge, keeping the injured surface covered from exposure to the air and insects. If there be soft tumors arising from inflammation, open the swellings, squeeze out the contents, and put in a few drops of arnica tincture, if the cause be friction of the saddle. When the swelling, from neglect or frequent recurrence, becomes hard and the skin thickened and half dead, the sore perhaps being partially separated all around from the healthy skin, the tumor may be cut out and the sore dressed with tincture of calen-

dula, at the same time giving internally six drops of the same, thoroughly mixed with a little water. Equal parts of Venetian turpentine and lard make a good application; and equal parts of mercurial ointment and lard are beneficial. Of the three remedies the first is the best. Should the muscles of the back as well as the skin be injured, causing serous sacs in the skin, foment and apply arnica-lotion. This failing, lay open the sac and dress with calendula-lotion. Use care with the harness and saddle.

### WORMS IN THE SKIN.

Worms in the skin are sometimes found in tumors, resulting from the gad-fly depositing its eggs. The tumor may be as large as a pigeon's egg, and more than one may be found. They occur mainly in the back and loins. To remove this trouble, put a few drops of carbolic-acid lotion where the eggs have been deposited, either before or after the hatching.

### BITES AND STINGS OF INSECTS.

The irritation resulting from these may be relieved by applying externally arnica-lotion. As a preventive of the biting, rub on the body, especially the flanks, a strong infusion or tea of green elder-leaves.



## CHAPTER VII.

### THE URINARY AND GENERATIVE ORGANS.

#### INFLAMMATION OF THE KIDNEYS.

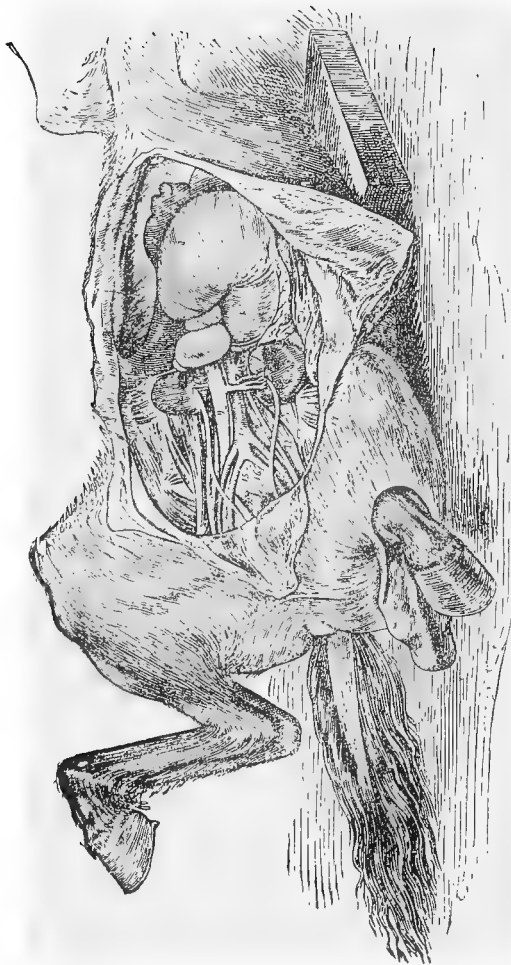
**I**NFLAMMATION of the kidneys is not frequent, and is caused by bad food; kiln-dried oats; mow-burnt hay; exposure to cold and wet; injuries from blows, weights and other sprains; frequent doses of strong medicines to promote the flow of urine, as cantharides, turpentine and nitre; gravel and other diseases.

*Symptoms.*—Considerable fever; pain, indicated by looking at the loins, and by groans; loins tender; back arched; hind limbs stiff and far apart; horse stands still or moves stiffly and perhaps with lameness; fre-



POSITION IN URINARY DISORDERS IN GENERAL.

quent attempts to pass urine, the discharges being dark and scanty, sometimes pussy and bloody. In advanced stages the pulse, at first full, hard and rapid, becomes weak and wiry; breathing quick and short; intense



POSITION OF THE URINARY ORGANS RELATIVELY TO OTHER PARTS.

1. Right Lobe of the Liver. 2. Middle Lobe of the Liver. 3. Right Extremity of the Stomach. 4. Left Extremity of the Stomach. 5. Ureter, a canal which conducts the urine from the Kidneys to the Bladder. 6. Left Kidney. 8. Left Extremity of the Stomach.

thirst; dry, hot mouth; skin dry; strong-smelling sweat; constipation; still later, exhaustion, indifference, sleepiness, and death.

This may be distinguished from inflammation of the neck of the bladder by the brown or nearly black urine, which is of about the natural color in the latter disease. If the hand be oiled and passed up the rectum, the bladder will be found considerably enlarged if it be inflamed, while it is empty and contracted in the disorder which we are now treating.

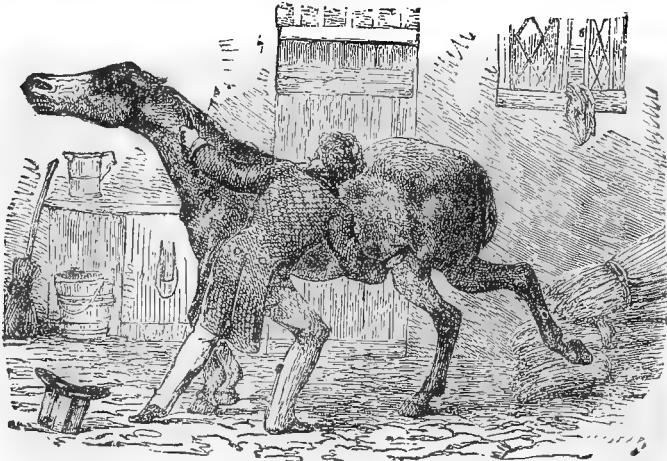
TREATMENT.—In the first stages of fever, indicated by full, rapid pulse, hot, dry mouth and skin, rapid breathing, thirst, scanty urine, and pain in the loins, give aconite. This may be alternated with belladonna if relief be not given, or if there be hot loins, pain about the kidneys, indicated by the horse frequently looking anxiously at them, or if there be a wild, frightened look. Cantharis, *if it has not previously been given*, is beneficial for frequent passages of scanty urine, with difficult straining, and when the urine is tinged with blood. Rhus is demanded when sprains are the cause. This and arnica should also be applied externally. Camphor is useful when cantharis, given as Spanish-fly or otherwise, is the cause. If bad food be the cause, give nux vomica, the symptoms demanding it being unsuccessful efforts to pass urine, colicky pains, looking at the flanks, and constipation. Mercurius corrosivus is one of the best remedies in both acute and chronic cases, and its use is called for when the urine is scanty and passed with frequent urgings and great pain; it may be alternated with aconite or belladonna. A very common but pernicious course is a resort to diuretics, that is, stimulants to the action of the kidneys. These should not be used, for the scantiness of the urine which it is desired to correct is due to engorgement of the kidneys, and the diuretics will aggravate the engorgement. Free perspiration is the best means for freeing the blood of the poisonous matters retained in consequence of the obstruction to the kidneys. Apply warm fomentations to the loins. Give bran-mashes and scalded linseed for food. Mix the drinking-water with linseed-tea, enough to make it glutinous without being distasteful to the animal.

### INFLAMMATION OF THE BLADDER.

Inflammation of the bladder sometimes attends or follows inflammation of the kidneys, or it may occur independently, caused by exposure to damp and cold; by injuries; by stone (see page 139); by giving nitre, Spanish-fly, or other strong medicines for the urinary organs.

*Symptoms.*—Restlessness; mouth, throat and alimentary canal irritated and inflamed; difficult swallowing; hind legs tremble; testes drawn up; sexual excitement; mucous and bloody dung; rapid pulse; frequent

attempts to pass urine are unfruitful, or only a few drops pass with pain and difficulty, followed by a temporary cessation of pain; urine sometimes clear, at other times mixed with mucous or bloody matter, burning and irritating; the parts around the bladder are hot and tender, and this organ is found very painful when examined through the rectum. If the disease is not arrested, the bladder fills and swells, its neck opens and urine dribbles away; prostration follows, with sweats, paralysis of the hind quarters, and finally death.



TEST FOR INFLAMMATION OF THE BLADDER.

**TREATMENT.**—Give aconite for symptoms of fever; frequent, fruitless, painful attempts to pass urine; pain on pressure of the parts near the bladder; urine scanty, muddy, or mixed with blood. Cantharis is demanded by distended bladder and tenderness of adjacent parts; matter and mucous urine passed in drops, the pain increasing during such passages. Should cantharis fail, give *nux vomica*. Injections of anodynes into the bladder, by skillful hands, are very useful for relieving the inflammation, and the following will be especially valuable: To one pint of gum-arabic water add one drachm of fluid hydrastia and one drachm of tincture of opium; inject this into the bladder luke-warm. In the general care, give freely of linseed or slippery-elm tea, or a strong solution of gum-arabic. Scalded linseed in bran-mashes is the best diet. Guard against the exciting causes.

#### SPASM OF THE NECK OF THE BLADDER.

This occurs as the result of prolonged retention of urine in horses that are worked or driven to excess, and as a consequence of chill when the

animal is heated, or as an attendant of colic and irritation of the neck of the bladder. It is most common in males.

*Symptoms.*—Frequent efforts to urinate, the urine passing in a few drops or dribbling away with some pain and straining; tenderness of the back; the hand passed up the rectum feels the distended bladder, the neck being tense and firm, not distended as in stone or gravel. If the bladder is not relieved of the urine, it is liable to burst and be followed by inflammation of the peritoneum (peritonitis), an issue which is however less common in the horse than in the ox and sheep.

*TREATMENT.*—The treatment consists in the use of antispasmodics, either in the rectum or mouth, chloral hydrate, belladonna, hyoscyamus and tobacco being the best. These may be injected into the rectum or given internally, or both. If these measures fail to relieve, a suitable catheter should be used by skillful hands to draw off the urine. Sometimes the spreading of fresh bedding under the horse will promote the flow of urine.

#### EVERSION OR FALLING OF THE BLADDER.

This can occur only in the female, and is the result of severe straining during irritation of the bladder. It is most liable to ensue from over-distension, difficult parturition, or paralysis.

*Symptoms.*—The animal strains violently; between the lips of the vulva is seen a red, rounded mass, upon whose surface, near the neck, may be seen the mouths of two canals which convey the urine from the bladder, and from these mouths the urine escapes in drops.

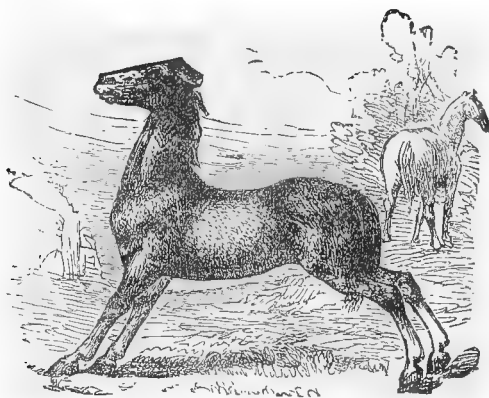
*TREATMENT.*—Return the bladder to its place as follows: Wash the protruding mass in warm water, and oil it well; then oil the hands, press in the center of the mass, gently pushing it upward. If the neck of the bladder is swollen and inflamed, the greater care should be taken to avoid injury or rupture in its coats. If great straining continues after this operation and threatens a recurrence, a surgeon should apply a truss or other mechanical appliance to retain the bladder firmly in its place.

#### ALBUMINURIA.—BRIGHT'S DISEASE.

This consists in an inflammation of the kidneys, attended with shedding of the coat and finally structural change of the kidneys. It may be either acute or chronic. The urine may contain albumen as a result of inflammatory disorders, and yet Bright's Disease not be present. The latter is always attended with albumen, but all cases of the presence of albumen are not Bright's Disease.

*Symptoms.*—The urine is thick, ropy, and contains parts of the lining of the urinary tubes which the microscope will detect; when it is boiled, or subjected to the action of dilute nitric acid, it coagulates into whitish flakes which settle at the bottom of a test-tube (see page 216). The animal is awkward behind in gait, with indisposition to lie down, and with more or less tenderness over the loins. The disease is usually fatal, the animal dying with dropsy or uræmic poisoning, though prompt and efficient treatment has cured some cases.

*TREATMENT.*—Diuretics, that is, means of promoting increased secretion and passage of urine, should not be used, but rather such expedients, both medicinal and general, as will relieve the kidneys of the performance



A HORSE WITH ALLUMINOUS URINE.

of their usual functions, and reduce the inflammation. Among internal remedies belladonna and mercurius corrosivus are the best; they should be used in alternation and persisted in until the kidneys are relieved and the flow of urine becomes free, they being particularly demanded if the urine is bloody. Warm fomentations and mustard should be applied about the loins. Keep the pores of the skin open by studious cleanliness and free perspiration, but guard against draughts and other influences likely to induce colds. Restrict the diet to oatmeal gruels and the like, giving bran-mashes to keep the bowels open. See "Urinary System," page 45.

#### DIABETES.—EXCESSIVE URINE.

This causes great prostration, and may lead to glanders. If the urine be clear, containing no sugar, the disorder is known as *diabetes insipidus*. If the urine is sugary, as is rarely the case, the disease is called *diabetes*



*mellitus*. The chief causes are musty or mow-burnt hay, kiln-dried oats, bran, and other dry or bad food; impure water; indigestion; chronic disease of the kidneys; strangles; the use of "condition balls," turpentine, nitre, and the much-advertised specifics for horses; excessive drinking; certain plants in the pasture; cold and wet. Increased urine may result from nervous disorders, from change of food, and other causes, but should this be only temporary, no attention need be paid to it.

*Symptoms*.—Excessive thirst; impaired, capricious or depraved appetite; dry and clammy mouth; white and furred tongue; offensive breath; dry skin and rough, staring coat; deranged digestion; constipation; urine clear, or somewhat milky, and passed in very great quantities; the horse is dull, weak, out of condition, and sweats easily; glanders may ensue and prove fatal, or the horse may die from the diabetes any time within a year.

*TREATMENT*.—Phosphoric acid should be given for profuse colorless or milky urine; great thirst; sweats and loss of flesh ensuing from light exercise. Give arsenicum for weakness and emaciation; dry mouth; excessive thirst; sugary urine. *Nux vomica* is demanded for depraved appetite; poor digestion; profuse, frequent, limpid urine; dung covered with mucus. If the urine be frequent and copious, with red, sand-like sediment, give *lycopodium*. If the urine be copious, more so at night, muddy and offensive, or if it be brown-red, or if blood comes from the bladder, give *mercurius*. Stop at once the use of any food that may have caused the disorder, especially avoiding musty or very dry articles.

#### SCANTY URINE.—RETENTION OF URINE.

These disorders may result from inflammation of some urinary organ; from some obstruction forming in an organ; from excessive dung accumulated in the rectum; from falling of the womb; from diminished secretion, owing to the perspiration incident to hot weather or hard work.

*TREATMENT*.—If the cause be some other disease, that must be treated. Should the horse be otherwise in apparently good health aside from decreased urination, give *bryonia* or *arsenicum* three times a day. Should the urine be retained in the bladder, which may be known by passing the hand up the rectum to the bladder, it should be drawn off with a catheter in skillful hands, not by one who lacks experience.

#### STONE.—GRAVEL.

This is a deposit of solid earthy matter in the urinary organs, sometimes only sandy and gritty, sometimes in the form of a stone, which may

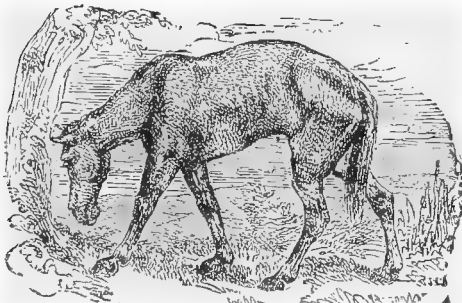
be small, or, if in the bladder, may weigh several pounds. Among its most probable causes are earthy particles in the food and water, as grass grown on limy soils or those supplied with phosphates as fertilizers; water charged with salts of lime and magnesia; dry feeding; scanty urine from any cause; perhaps hard water.

*Symptoms.*—Stone in the *kidneys* may be suspected, but not positively known, from tenderness of the loins, colicky pains, discharge of sand and blood with the urine. Stone in the *bladder* will be indicated by an awkward, straggling gait, with hind legs apart; frequent efforts at urination resulting in scanty and difficult discharges; the urine sometimes comes out suddenly, or may be as suddenly stopped, and sometimes it dribbles out and makes the legs and thighs sore; colicky pains; occasional discharges of blood and thick sediment. The stone, if large, may be felt by passing the hand up the rectum to the bladder. Stones in the canal leading from the bladder to the pelvis will cause colicky pains and stoppage of urine, with the general symptoms of inflammation of the kidneys. The foreskin may be affected, causing distress in urination or actual stoppage of urine.

*TREATMENT.*—The remedies laid down for Inflammation of the Bladder should be adopted to relieve the disorder, though it can be cured only by a surgeon who will break or cut the stones, when of sufficient size. Give soft water for drinking, with linseed-tea or decoctions of mucilage freely administered. Keep the organs clean, and if sores are found, wash with a lotion of calendula, one part to eight of water.

### BLOODY URINE.

Bloody urine is not uncommon. It may be caused by some of the urinary diseases before named; blows; strains from heavy loads, jumping and other causes; the use of Spanish-fly; foaling; the eating of poisonous plants, or the twigs of young trees; very rank herbage; swampy pasture; damp weather; occasionally hot days and cold, damp nights; anthrax and other diseases.



A HORSE SUFFERING FROM BLOODY URINE.

*Symptoms.*—Urine red with blood, or has clots of blood, the latter part of a discharge being more noticeably bloody than the

first. If the kidneys be affected, the horse stands in a singular posture; if the bladder be involved, the gait is stiff, and more blood passes than in

kidney-complications. If injuries be the cause, the loins are painful, and clots of blood pass, with or without urine. If vegetable poison be the cause, the feverish symptoms of inflammation of the kidneys are present, with scanty, reddish urine, followed by painful, bloody, burning urine.

**TREATMENT.**—If the cause be some other disorder, treat that disorder as directed under the proper section. If a blow about the loins or a strain be the cause, and blood is mixed with the urine, give arnica internally and apply externally. Throw cold water over the loins and inject it up the rectum. Rest should be given. Give aconite for feverish symptoms and strong urine. Cantharis is needed for forcible, painful efforts to urinate, with blood or bloody urine passed. Turpentine is desirable for clotted blood passing from the bladder, and is useful if cantharis fails. Give soft food; also linseed-tea freely. If hurtful plants be the cause, remove the horse to another locality.

### FOUL.

Foul is a term applied to horses that experience great trouble in urinating, chiefly in dry, hot, dusty weather. It is caused by a clogging of the sheath of the penis with dirt and urine.

*Symptoms.*—The horse evinces much uneasiness; shifts the weight from one side to the other; stands with the hind legs apart; makes frequent efforts to urinate, but stops suddenly as if suffering from acute and darting pains. The urine dribbles away, and is more or less foul-looking and offensive; the sheath is swollen; the region of the bladder is distended from the retention of urine, and is sensitive to the touch.

**TREATMENT.**—The only cure is in a thorough cleansing of the sheath with the hand, warm water and a syringe.

### GONORRHŒA.

This sometimes occurs in stallions and mares after sexual intercourse, and sometimes is infectious.

*Symptoms.*—In stallions, swelling and ulcers about the penis; swelling of the testicles and glands in the loins. In mares, swelling and itching in the vulva and vagina, where vesicles form, followed by ulcers. Either sex shows a stiff walk; loss of flesh and vivacity; death from putrid fever or possibly apoplexy.

**TREATMENT.**—For acute and violent inflammation give five or six drops of aconite once in three or four hours. After the violence of the inflammation has been reduced with aconite, give cantharis in its stead.

After the action of these two remedies mercurius will usually complete the cure. After pus has begun to discharge, a wash of permanganate of potassa may be injected into the urethra. Mix a half-drachm of permanganate of potassa in a pint of rain or distilled water, and use once or twice a day. Keep the parts clean and free from any obstruction.

### ABORTION.

Abortion is not common among mares. It is caused by over-exertion of any kind; strains; blows; falls; very poor and insufficient or very stimulating food; inflammation of the bowels. It occasionally appears to be communicated by sympathy, similarly to an epidemic.

*Symptoms.*—The approach is marked by loss of vivacity and appetite; hollow flanks; sinking of the abdominal enlargement; gradual lessening or entire loss of the foal's movements; the breathing grows obstructed; yellowish matter passes from the vagina; straining; expulsion of the foal.

*TREATMENT.*—When abortion is threatened from fright, strain or other cause, opium should be given, and the animal be kept at complete rest. This may be followed by viburnum, prunifolium, caulophyllum, or cimicifuga, in teaspoonful doses of the tincture every half-hour, hour, or two hours, until all danger is passed. When abortion has taken place and there is great feebleness, with a copious flow of blood and violent straining, ergot should be given. Cinchona is good for restoring the strength after an abortion. Sabina is needed in case of a discharge of bright-colored or coagulated blood before or during the abortion. Tincture of camphor has been successful in preventing abortion when the sexual instinct has been morbidly susceptible, and when the spasmodic action of the womb has appeared to be the direct cause. A due regard to suitable diet and pasturage, proper housing, bedding, ventilation, cleanliness and exercise will go far in preventing the misfortune. If an animal has aborted, she should not be put to the male until after several seasons of heat. Keep mares that are with foal away from slaughter-houses and decomposing animal matter in general. Shut away from the smell of the abortion-discharge all animals that are pregnant, whether mares or not, as it renders them liable to abortion.

### DIFFICULT FOALING OR PARTURITION.

The symptoms preceding parturition are quick breathing, swelling of the udder, with a sudden gush of milk, dropping of the belly, external swelling of the bearing and adjacent parts, with a shiny, glossy-red or yellowish discharge from the bearing. If these be slow in progress to labor-

pains, and the pains and throes be long and violent, or the throes continue after the expulsion of the after-birth, with great discharge of blood, medicinal treatment is needed. So too, if the labor has been assisted, and if any laceration of the parts has taken place, that must be treated.

TREATMENT.—When the pains are too light or subside too much by spells, give ten drops of pulsatilla every two or three hours. If they are attended with convulsive movements, give ergot, especially if they cease altogether before delivery. Nature has made the best provision for this function, and the least interference the better, either in medicine or otherwise.

### FLOODING AFTER DELIVERY.

After parturition flooding may ensue, either from lack of a sufficiently rapid contraction of the womb, or from injuries incurred during a delivery, especially if it has been difficult, prolonged, or has been assisted by an attendant.

TREATMENT.—Put a bandage tightly around the belly; pour cold water on the loins and inject it into the vagina and rectum. Use arnica externally; also internally in alternation with ergot or sabina. Quinine will assist in recovering strength after the bleeding. Keep the mare quiet, in a cool, well-ventilated stable, free from draughts.

### REMOVAL OF THE AFTER-BIRTH.

If this does not come away immediately after delivery, give a few doses of ergot. The introduction of the hand or injection of warm water is not advisable, except in extraordinary cases. If the mare continues to strain when the after-birth has been removed, give a dose of opium. As a preventive of the retention of the after-birth, animals in poor condition should be fed warm, sloppy food for ten days previous to parturition.

### INVERSION OF THE WOMB OR VAGINA.

If the womb should protrude immediately after the expulsion of the foal, gently place it back, temporarily bind the parts, and give five drops of arnica every three hours. Keep the animal perfectly quiet and give only light and nourishing food for two or three days. The vagina may protrude in a similar way, in old mares or in fillies. It may be caused by general weakness, or by standing in a stall that is too low behind. Treat as for inversion of the womb, keeping the animal's hind feet higher than usual, and building up the system with the best of food.

## INFLAMMATION OF THE UDDER.

This disorder may result in hardening, ulceration or mortification of the udder, and arises from blows on the organ, lying on cold, hard or sharp objects, cold air, contracting of colds in any way, too hearty food, indigestion, milk remaining in the bag too long, some articles of food.

*Symptoms.*—General fever; udder hot, swollen, hard and tender in some part. Then the symptoms may subside and the natural state ensue; or the swelling may soften and blood and matter be mixed with the milk; the udder, if the trouble continues, may all be hard, permanently useless, or be full of ulcers; or mortification may set in and part of the organ be lost. During the progress of the disorder there may be shivering; strong, quick pulse; rapid breath; constipation; scanty or suppressed urine.

*TREATMENT.*—Give aconite for fever, in the earlier stages. Belladonna is needed if the teat or udder be hot, red, swollen and tender, and the milk stopped. Phytolacca is very beneficial, especially if used in the early stages; it will often check the disease, avert ulceration, and restore the milk. Give five drops in a little meal every three hours, and bathe the udder with a lotion made of one ounce of the tincture to a pint of warm soft water. Mercurius removes the hardness which follows the formation of pus, and also acts well in the beginning as a preventive of suppuration. Silicea is desirable if the healing process is slow and ulcers remain. Prevention is the best treatment and may be effected by relieving the gland of the milk. To do this, apply to the udder camphorated spirits, weak iodine, or phytolacca-ointment, rubbing long and thoroughly, and draw out the milk three times a day. A hungry calf may be used to draw the milk.

## INFLAMMATION OF THE VAGINA.

This may arise during "heat," or from blows, copulation, or parturition.

*Symptoms.*—If this occurs during heat, there is a discharge from the opening, of a grayish-white, then yellowish-white color. In other forms, the discharge is thin, burning, and often causes much straining. In severe cases, general fever-symptoms ensue.

*TREATMENT.*—Keep the parts clean and inject warm water several times a day. If the discharge continues after inflammation has subsided, inject hydrastis-lotion, or a lotion of permanganate of potassa, as in gonorrhœa. For fever-symptoms give aconite; for straining, cantharis; for abscesses or ulcers, mercurius. Injections should be blood-warm, for cold ones are liable to aggravate the trouble.

## INFLAMMATION OF THE URETHRA.

Inflammation of the urethra may result from a catarrhal condition of the urinary canal; from the administration of cantharides or croton, or (in stallions) from frequent copulation. Its symptoms are mattery discharge from the canal; frequent, painful and difficult urination; perhaps swelling and ulceration. Treat as for gonorrhœa, which was noticed above.

## CONFINED PENIS.

Inability to protrude this organ may result from internal warts or abscesses; from swelling of the sheath; from kicks or blows. The urine may collect in the folds of the skin and cause swelling and distress, known as foul.

**TREATMENT.**—Remove warts by tying ligatures around them and leaving them until they fall off. Abscesses should be fomented with warm water. If blows or kicks be the cause, give arnica internally and externally. In other cases, inject two or three times a day between the penis and sheath warm water or hydrastis-lotion. If foul is the cause, treat as directed under that head in one of the preceding articles.

## PROTRUSION OF THE PENIS.

Protrusion of the penis, with inability to draw it within the sheath, may be due to swelling of the penis after castration, to debility or paralysis of the organ, the latter being the more usual cause in old geldings, though it may attend any general debility of the system.

**TREATMENT.**—If injuries be the cause, give arnica externally and internally. For feverish symptoms and inflammation aconite and mercurius are needed. For debilitated organ give quinine and nux vomica. Cold water injected into the sheath may give relief.

## CASTRATION.

This is not the place to give the different methods of performing castration, as that is left to the operator, as well as the question as to the age at which it should take place. But it may be generally remarked that if the animal's head, neck and shoulders are well developed, it may take place earlier than under different conditions. Delicate colts should have nourishing food and outdoor exercise for several days previous to the operation, though no preparation is necessary for the healthy sucking colt. If he has been weaned, he should not have his usual bulk of food and water for

several days previous, but should not be starved. Horses that have been in training or have been high-fed should rest several weeks previously, their food being gradually reduced. The disorders arising from castration should be treated by the veterinary surgeon, though the following directions can be profitably followed by the general reader:

TREATMENT.—Should the bleeding be considerable, bathe the part freely in extract of hamamelis every half-hour until the bleeding stops, then three times a day until the parts are wholly healed. If the sheath be swollen, it will usually resume its normal condition without treatment; but if it should not, and the parts become inflamed and tender, with signs of general fever, give aconite every few hours. If much laceration has taken place, bathe the parts three times daily with a lotion of a tablespoonful of tincture of arnica to a pint of water. If lock-jaw, fistula or peritonitis result from castration, use the treatment for these as given before.





## CHAPTER VIII.

### THE EYE AND EAR.

#### SIMPLE INFLAMMATION OF THE EYE.

**T**HIS is the most common disease of the eye to which the horse is subject, and may affect merely the outer lining, or may involve the whole structure. Its causes are catarrh, bad food, damp or poorly-ventilated stables, injuries from a stick or whip, the bite of another horse, hay-seed, dust, in-growing eyelash, or other mechanical agencies.

*Symptoms.*—The horse, in apparent health before, has slight symptoms of fever; the lids of one eye or both swollen or half-closed; scalding tears run down the face and irritate the skin; great pain caused by the light, and consequent reluctance to open the eyes. Later, a gummy, thickish, mucous secretion at the corners glues the lids together; the membrane covering the balls becomes red and covered with a network of fine blood-vessels; about the third day the transparent front part of the ball grows dim and muddy, sometimes in spots, sometimes the whole surface, seemingly covered with a bluish-white film; the disease continuing, the transparent front of the eye is seriously affected, and the whole eye suffers. In acute cases considerable fever-symptoms appear.

*TREATMENT.*—One of the best remedies is aconite, which should be given at the beginning when the membrane attached to the eyeball is blood-shot, the eyes are watery, the lids nearly closed, and particularly if feverishness be present. When the inflammation has been reduced by aconite and the case is yet marked by copious and scalding tears, sensitiveness to the light, swollen and closed eyelids, red membrane of the eye, and quickened pulse, belladonna should be given, alone, or in alternation with aconite. Mercurius corrosivus is needed when the secretion in the corners glues the lids, and when the transparent front of the ball becomes dim or cloudy. Euphrasia is often useful for symptoms which seem to call for belladonna and yet have not been removed by its use, or if after the use of the same for several days the transparent front is still dim and cloudy. The euphrasia may also be used as a wash.

In the various inflammations and catarrhal affections of the eyes local applications are of great value, though caution is needed in their use, especially



METHOD OF PROTECT-  
ING THE EYES AND AP-  
PLYING LOTIONS.

in that of nitrate of silver or sugar of lead. Some cases may require these medicines, but simpler articles will usually answer all necessities, and are attended with less danger. When the eye is inflamed and gives out a mucous discharge, pulverized sugar or salt, blown into it through a quill once or twice a day, will often give prompt relief. A wash made of one part of fluid hydrastia and four of water is excellent. In the general care, examine the eye to discover hay, dirt, seeds, and other foreign matter which adheres to the upper eyelid, and is detected by turning the lid back over the little finger. If a portion of the front part or of the membrane of the eye has been removed by a blow, a drop or two of castor-oil or glycerine may be put upon the wound. Keep the light subdued so as not to pain the eye, guarding against cold and impure air. Many good horses are reduced in value by neglect of seeds or grit in the eye, however trivial it may seem.

#### PERIODIC INFLAMMATION.—MOON-BLINDNESS.

The latter of these names is used because the periodic attacks are by some supposed to occur with the changes of the moon. This disease is an inflammation of the entire ball of the eye, without any apparent cause externally, and if neglected is often incurable and ends in total blindness. It abates, recurs, and may shift back and forth from one eye to the other. It is often inherited, though it may be undeveloped in one generation and reappear in the next. In these cases it may be promoted, in others it is caused, by the impure air of close, dirty, dark stables; poor food; cold or wet; violent exertion, as in running; frequent sudden transitions from a dark stable to glaring sunlight; undue supply of blood in the system; congestion affecting the head, caused perhaps by pressure of a collar which prevents a flow of the blood from the head; changes from cold to warm stables; also from pasture to high feeding and heavy work; foul litter, which is even worse than a glaring light; teething; simple inflammation of the eye may cause it. Damp soils, marshy pasture, and excessive moisture in the atmosphere are predisposing causes, especially in horses that are subject to the disease by heredity. Horses that have soft, lax, flabby muscles, thin skin, flat feet, and that lack energy in work, are predisposed to it; likewise those

that have small sunken eyes ("pig-eyes"). Harness-horses are more liable to it than saddle-horses, and young ones more than the older.

*Symptoms.*—Flow of tears; lining attached to the ball is red; in the morning the eye is almost closed and full of tears; eyelids swollen; pain from the light; great reluctance to allow the eye to be opened; corner of the eye red; the transparent part in front grows muddy and opaque; pupil very small; iris dim, speckled with white, covered with lymph, pus or blood; hot, dry mouth and quick pulse; constipation; scanty urine; on the third to the sixth day congested blood-vessels run into the edges of the transparent portion; later still this naturally transparent portion passes from a yellowish-white to a greenish or brownish; sometimes the crystalline lens becomes opaque and cataracts form; the iris may be affected with inflammation in frequent attacks and great irritability, though blindness may not soon intervene; occasionally the interior of the eye becomes yellow and muddy, the eye then shrinking away. In favorable cases the symptoms begin to disappear from the fourth to the tenth day, the eye becoming healthy. An attack may last from four days to six weeks, each one being shorter than the preceding. Apparent recovery is often interrupted by a relapse or change of the attack to the other eye. Between attacks the eye may appear well, but it is not; the eyelids may form nearly or quite a right angle; the iris may remain contracted and lose its luster. An attack will recur upon a return to the usual food, upon exposure to wind, cold and rain, or upon a return to a dirty or badly-ventilated stable. Traces will almost invariably remain after a so-called cure; hence the importance of critically examining the eye before purchasing.

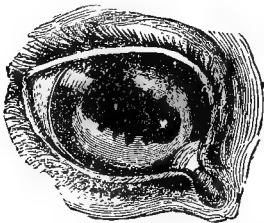
*TREATMENT.*—Aconite should be given in alternation with belladonna every three or four hours at the beginning of the disease if fever is present, tears abundant, eyelids swollen, and the eye blood-shot. Continue the belladonna after the subsidence of the fever-symptoms which demand aconite, if the membrane of the eye remains red, tears abundant, and local inflammation stubborn. Throughout the whole attack, until a cure is effected, apply to the eye a lotion of belladonna, two grains of the extract to one ounce of water; or bind on the eye a cloth soaked in the same. Euphrasia has effected speedy cures, used in the same manner as a wash, and given internally. Mercurius corrosivus should be alternated with belladonna when the eye is brownish or whitish, and as long as the humors are dim or the naturally transparent part is opaque. When there is a low state of the system, with a weakened constitution, and when recurrence is suspected, give arsenicum. Some cases require a general tonic treatment, and nux vomica, iron, ginger or Peruvian bark will be found useful. Surgical measures are sometimes necessary, especially for inflammation and hardening

of the iris. In the way of general care, keep the stable clean, well drained and ventilated, and exclude the light. Give good but not stimulating food. Since recovery is often effected within a very short time after the removal of the wolf-teeth it has been supposed that that operation is the cause of the cure, but it has no such virtue or connection. Owing to the hereditary tendency of this form of inflammation care should be taken in the breeding to avoid all animals that are afflicted with the disorder.

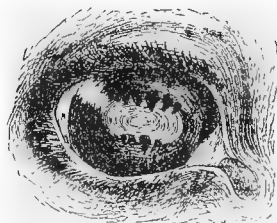
### CATARACT.

An opaque body, white, gray or yellow, fills the pupil, shutting out the whole or a part of the vision. The lens alone is usually affected, though sometimes the enveloping sac is also involved. One eye or both may be affected, generally both, in old horses, in which blindness is usually caused, growing more confirmed as age advances. If the disorder is caused by an injury to one eye, the other usually continues sound. The cataract can be detected by bringing the horse to the light and looking into the eye. The causes are repeated attacks of inflammation; blows or wounds; imperfect nutrition, especially in old horses.

*Symptoms.*—In a good light, in place of a clear, transparent pupil, may be seen a few white, gray or yellow specks, nearly round, with irregular edges; or there may be a mass of dull-white matter, half-transparent and mottled. The cataract may be in the center of the lens and scarcely



PARTIAL CATARACT.



COMPLETE CATARACT.

visible. White streaks may diverge from the center, especially in old horses. The lens becomes more convex than before, sometimes hidden by a yellowish substance which fills the pupil (being then called false cataract). In confirmed cases the cataract may be seen at a distance; in recent cases it may be very obscure, when its discovery may be facilitated by enlarging the pupil by applying atropin to it (a solution of one grain to half an ounce of water). Besides the appearance of the cataract, its presence may be suspected from the horse showing an impaired sight, being timid, alarmed

at objects familiar before, shying at strange vehicles, looking suspiciously at whatever he meets; and if he sees better in the evening or in a mild light than in the sunshine.

A whitish-gray speck, or more than one, may form upon the lens of the eye or its enveloping sac, without any apparent previous inflammation, or after an injury from the removal of a piece of the front part of the eye. These are known as "false cataracts." They may disappear without treatment, though cannabis is a valuable aid.

**TREATMENT.**—When cataract is suspected, sulphur and cannabis may be given to ward it off. When it is confirmed, it can not be cured in the horse, though the use of phosphorated oil has been followed by good results. Mix two grains of phosphorus in one ounce of almond oil and put a drop into the eye once a day for several months. In man it has been cured by removing the lens and using glasses instead, but this does not wholly restore the sight, and imperfect vision from removal of the natural lens will cause more alarm and nervousness in the horse than an inability to see an object at all. Cataract that is threatened by Moon-Blindness may be prevented by a proper use of the expedients named for that disorder.

#### OBSCURED VISION.—AMAUROSIS.

This is a disease of the optic nerve, or the adjacent part of the brain, causing partial or total blindness. Its causes are excess of light; a blow on the head; injury to the eyeball; tumor pressing against the brain or optic nerve; apoplexy; bleeding from castration; stomach staggers; pregnancy.

*Symptoms.*—These are usually obscure, and generally appear suddenly; the horse is cautious in his movements; steps high; stumbles or runs against any object in his way; throws up his head; moves his ears backward and forward, as if to catch any sound to guide him. On careful examination the eye stares; sometimes has a glassy appearance; pupil unnaturally large, and round instead of oblong, contracting slowly, and not at all in later stages; the iris shrinks to a small band around the pupil. An unnaturally large, round pupil should create suspicion, and the horse should be taken to the light and the lids drawn shut for some minutes, then suddenly opened. If the pupil does not readily contract from the glaring light, the presence of the disease is at once known.

**TREATMENT.**—Treatment is usually unavailing. If stomach staggers or other disease be the cause, that disease should be treated. Since the disorder is due to nervous affection, remedies which act on the nerves will be useful in some cases. Strychnia, nitrate of silver, or a blister on the cheek or behind the ears may be used with benefit.

## PTERYGIUM.

Pterygium is a thickening of the tissue forming the membrane that joins the eyeballs and lids, and usually extends from the inner corner toward the transparent front part. It is not uncommon among horses that are exposed to the weather and dusty roads during long journeys. It is caused by heat, dust and wind, as a rule.

**TREATMENT.**—For inflammation with formation of pus or pus-like tears, give conium or euphrasia. One-tenth of a grain of nitrate of silver ground with sugar may be attended with the best results, but it should be continued for some time. Nitrate of silver is not to be applied as a caustic. To prevent the occurrence of pterygium, gently wash the eyes with cold water after a long journey on dusty roads, first letting the horse cool.

## WORM IN THE EYE.

Small worms, nearly an inch long, cylindrical, half-transparent, in size and color corresponding to white sewing-thread, are sometimes found in the horse's eye. The cause is not certainly known.

*Symptoms.*—Deep-seated inflammation, usually in one eye only; the membrane joining the ball and lids is very much inflamed and tinged with blood; the transparent front of the eye becomes cloudy and obscured; closed eyelids; pain from the light. The worm, on careful examination, may be seen floating in the aqueous humor, and though it may not occasion acute pain, it will destroy the eye if allowed to remain many days.

**TREATMENT.**—A veterinary surgeon should puncture the cornea just below the center with a lancet or trocar. The aqueous humor escapes, and usually the worm with it. The humor will collect by the next day, when the operation should be repeated if the first attempt has not been successful.

## POLYPUS IN THE EYE.

Occasionally small polypous excrescences grow on the ball or lids, sometimes resulting from a slight accidental breaking of the membrane, sometimes spontaneously. Similar growths may appear on the transparent front portion of the eye from like causes.

**TREATMENT.**—The growths should be removed with a delicate pair of scissors and the parts from which they are cut be then touched with some caustic. Any resulting fever may be treated for a short time with aconite and belladonna in alternation. Use mild washes, as in Simple Inflammation of the Eyes, which was previously considered.

## ULCERATION AND THICKENING OF THE EYELIDS.

Ulceration of the margins of the eyelids should be treated externally with causticum, putting five drops of the tincture in an ounce of water and applying from time to time until the ulcers disappear. An ointment made of two grains of red oxide of mercury and one drachm of vaseline is excellent.

Thickening of the Eyelids may be treated by giving internally *calcareo carbonica* or *silicea*. If it is due to granulations on the inside of the lid, apply with a camel's-hair brush a lotion made of one-half drachm of tannic acid and one ounce of glycerine, using it once a day until a cure is effected.

## WARTS AND CALLOUS FORMATIONS.

When such formations appear on the eyelids they should be treated with nitric acid, mixing ten drops in an ounce of water and applying night and morning. The mercury-ointment mentioned for Ulceration of the Eyelids is also good. It may be necessary to remove them with a knife or caustic.

## PREVENTION OF BLINDNESS.

Young horses are specially subject to blindness as a result of hard driving or work, and one eye or both may be afflicted. Old horses are similarly affected, but not so frequently. When blindness is feared from such causes, danger may be averted by putting six drops of Fowler's Solution of arsenic on a little sugar or meal, and giving two or three times a day. Give easily digested food and perfect rest. If the over-exertion has been continued some time, it may be too late to prevent the blindness; but in such cases the above remedy may be given in the morning, and a like dose of *nux vomica* in the evening for a considerable time.

## THE EAR.

The ear of the horse is subject to but few diseases so far as we know. The external ear may become inflamed as the result of a blow, and be attended with an abscess which causes pain, and which it may be necessary to open. When the ear has become so injured, give *arnica* internally and apply it externally.

Deafness is not very common, and little can be said of its specific causes, symptoms or location. Hence remedies can not be named here.

## CHAPTER IX.

### THE EXTREMITIES.

#### FORMATION OF JOINTS.

**J**OINTS are formed of bones which fit each other on uneven surfaces, the cavities and elevations mutually corresponding, with an intervening smooth, elastic substance, called *cartilage*, which prevents friction of the surfaces, and relieves the jar that would otherwise occur from walking on hard roads. This cartilage is covered with a fine "synovial" membrane which secretes an albuminous and oily fluid that acts as oil to prevent friction. Strong flexible substances, fibrous in texture, called ligaments, are the chief bonds to hold the parts of the joints together. Some joints are further strengthened with tendons and muscles. Small closed sacs, called "bursæ mucosæ," situated between the surfaces of the joints, secrete a fluid similar to that furnished by the synovial membrane named above, to which membrane they are similar in structure.

#### SYNOVITIS.

Synovitis is an inflammation of the synovial membranes. The inflamed membranes do not exceed a certain size, do not burst, and do not become well without treatment, but may remain in the same condition for years. It affects the knee, fetlock (then called "wind galls," which see), but generally the hock (then called "bog spavin" and "thorough-pin," which see). Among its causes are exposure to cold and heat; sprains; friction of joints from quick work on hard roads; rheumatic fever.

*Symptoms.*—Lameness immediately followed by swelling of some joints (not of the surrounding fibrous texture, as in rheumatism); a fluid exudes from the joint, at first usually serous, without the marked fever which attends the beginning of muscular rheumatism; later, lymph escapes and the joint is permanently enlarged, or less frequently the joint becomes stiff and immobile, baffling all treatment.

*TREATMENT.*—Aconite is the most effectual remedy, both internally



and externally, to reduce inflammation and prevent effusions from the joint, or any structural damage to the joint. Continue it as long as fever-symptoms or local pains remain. After the second or third day the aconite will probably have reduced the active symptoms, leaving the swelling of the joints and slight lameness; in this case give bryonia. Bathe the affected joints three times a day, a half-hour each time, with warm water; then apply to them, when they are dry, one-half ounce of arnica in six ounces of water, well rubbed in. It is said by good authority that *veratrum viride* is superior to this, applied with a brush five or six times a day to the joints.

### BOG SPAVIN AND THOROUGH-PIN.

*Bog Spavin* is a soft, elastic swelling on the *front of the interior part* of the upper hock-joint, where the ligaments lie far apart. It is not attended with the acute inflammation which marks synovitis. It may be constitutional, but is usually caused by over-work in traveling or in the harness, especially in young horses, which causes friction of the joints and the effort of nature to supply relief from an increase of the joint-oil.

*Symptoms.*—Enlargement on the front and inside of the hock, where there is naturally a depression, sometimes with stiffness, but seldom lameness; this is generally soft and elastic, but may be hard and inelastic in old and severe cases, in this case producing lameness. The vein passing over the hock may be pressed by the swelling and thus distended with blood, in which case the disease is sometimes distinguished as blood spavin, and destruction of the vein has been very unwisely recommended.



BOG SPAVIN.



THOROUGH-PIN.

*Thorough-Pin* is an enlargement of the *back upper part* of the hock, and results from long-continued or excessive exertion, especially on hard roads, and may be caused by a sprain. It generally co-exists with bog spavin, with similar symptoms, except that in thorough-pin the swelling may extend to both sides of the joint, and the inclosed fluid may be easily forced from one side to the other.

**TREATMENT.**—In ordinary cases it is scarcely necessary or wise to attempt a treatment of what nature has done to obviate the ills of the friction, as it may cause no marked inconvenience; but should it interfere with the proper action of the joint by growing large, and produce lameness or inflammation of the synovial membrane, foment the joint three times a day with warm water; then arnica-lotion (one ounce of arnica in a pint of water) should be rubbed into the swelling three times a day. In about a week

apply a similar lotion of rhus in like manner. In long-standing cases *pressure* is the best treatment by far. This is best applied by a truss made specially for the purpose; but in the absence of one, a wet chamois-skin bandage may be bound firmly to the swelling, and a piece of lint put under it, the latter being wet with glycerine twice a day. Blisters are of no avail, but lameness has been removed by firing the affected parts.

### BONE SPAVIN.

This is a bony deposit on the inner and lower parts of the hock-joint. It may be hereditary, a malformation of the joint existing at birth, though in this case the natural defect often does not cause lameness. The more common causes are galloping in heavy ground; slipping on smooth surfaces; long draughts; sudden throwing of the horse on the haunches; calks on the outside of the heel, without corresponding ones inside.

*Symptoms.*—In the early stages the enlargement may not be detected, but the horse does not bend the hock, and shows pain if the joint be pressed; hops on the toe of the affected limb when turned around or put



BONE SPAVIN.

in motion; snatches the toe up, as in stringhalt; drags the limb; after a while, if not at first, a small bony tumor may be felt on the inner and lower front part of the joint by rubbing the hand over the joint and comparing it with the joint of the sound leg examined in a similar way. Lameness may disappear with rest, though subsequent trotting will renew it; but this gradually leaves upon work. The inside of the hock is unnaturally heated. In later stages

inflammation of the ligaments, depositions of cartilage or bone, and perhaps disease of the interior part of the joint, are added, when the lameness increases, and is worse when first brought from the stable, diminishing with motion. If the tarsal bones become stiff, the horse loses condition and seldom lies down.

*TREATMENT.*—Turn the horse loose in a stall for about a month. Give rhus internally three times a day, and rub into the affected part a lotion of one part of strong tincture of rhus to eight of water. If a deposition of bone has formed, use the following:

Iodine,	1 drachm.
Iodide potassæ,	2 drachms.
Sulphuric acid.	2 drachms.
Palm oil,	4 drachms.

Mix.

First shave off the hair, and then smear this preparation thickly over the swelling with a thin, broad knife, or a flat piece of wood. While using this preparation, keep the head tied up for twenty-four hours. Do not clean the hock or remove the scurf which will appear in two or three days after the application is made. In from two to three weeks the same dressing may be made, a third usually not being required.

### CURB.

Curb is an enlargement at the back part of the hock, three or four inches below the point, resulting from a sprain of the ligaments connecting the bone which forms the point of the joint with the larger bones below. A fluid is effused into the tissue, and depositions of bone are sometimes formed. Horses are called "cow-hocked" when the ligament is kept constantly stretched, thus making curb more liable to occur. It is rare in old horses, usually occurring between breaking and the eighth year. The main causes are galloping in heavy ground; leaping; ordinary work-horses predisposed to it from birth; running over hills.

*Symptoms.*—Soft, hot, tender swelling on the back and upper part of the shank-bone, which soon becomes hard and difficult of treatment; lameness. The head of the smaller bone of the shank is in some horses normally large, but the enlargement is hard and bony all the time, being thus easily distinguished from curb, in which the swelling is more or less elastic.

*TREATMENT.*—Raise the heel of the shoe to rest the ligaments. Give rhus internally three times a day, and apply rhus-lotion externally by pressure. To secure pressure on the hock, make a case of strong cloth to fit the joint,

cutting a hole to fit the top of the bone forming the point of the hock which will sustain the case, lacing the front part together by tapes on each side; about two inches from the edge of the opening made for the point of the hock make a slit of proper length to admit the full width of the bandage with which the pressure is to be secured. This case is only to prevent the bandage from slipping down from the joint.



A CURB.



INDIA-RUBBER DRESSING FOR CURB.

Take the bandage (chamois-skin is the best, as it retains moisture longer than flannel) and the case, slip one end of the bandage through one of the slits, passing it from the *inside* of the case *outward*, then from the outside *inward* through the opening at the hock-point, and finally *outward* through the second side slip. Draw the bandage through so as to bring the other end inside, near the first side-opening, make the end fast there, put on the

case and fasten the tapes in front. Now wrap the long loose end of the bandage upon the parts requiring pressure, having under it a pad of chamois-skin, saturated with a half-ounce of arnica mixed with a half-pint of water. Keep the bandage wet with cold water. When the inflammation has subsided, rub in a lotion of one ounce of rhus to a half-pint of water.

The following are other methods of treatment, either of which may be used, though obviously two can not be used at the same time: (1). Moisten the hair with a tincture of acetum cantharidum, applied with a brush, then rub the part dry. Do not repeat this for several days, and use no fomentations after it. (2). A favorite remedy is one drachm of mercurius corrosivus and one ounce of spirits of wine, applied with a soft sponge, but not rubbed in. It may be repeated in ten days, if necessary. (3). One drachm of bin-iodide of mercury with one drachm of axunge may be rubbed in for a few minutes every day for ten days. Firing is usually cruel and unnecessary, but it not only removes lameness, but also prevents a return. It may be used when all remedies fail to give a permanent cure.

### WIND GALLS OR PUFFS.

Around or near the joints are little sacs supplying the tendons, which are composed of membrane much like the synovial, which secretes small quantities of an oily fluid. If the tendons be sprained or their action be much increased, nature increases the secretion and thus produces a soft, elastic tumor known as wind gall or puff. The cause is usually a sprain of the tendons, or excessive or long-continued friction of the joints from quick work on hard roads. Low, marshy pastures seem to produce a tendency to an enlargement much like that resulting from over-exertion.

*Symptoms.*—Soft, elastic swellings near some joint, as the fetlock, hock or knee, generally the first, at the start as large as a small nut, but finally becoming much larger, and growing harder; absence of inflammation and lameness. The swellings may occur among the tendons and ligaments on the interior part of the leg below the knee, a little below the front of the joint, or on the upper back part of the joint. These swellings do not contain wind, as once was believed, but an oily fluid, and generally cause no harm. Occasionally, however, the increase of the fluid may cause inflammation, which extends to the lining membranes of the sheath of the tendons, very tender, puffy swellings appearing above the usual seat of wind galls; the inflammation thickens the membrane, and the fluid in the sacs changes from a straw-color and becomes suffused with blood; lymph may collect; the tumors become



WIND-GALLS.

firm and hard to the touch, and in old horses like bone, interfering with the action of the tendons and causing lameness.

**TREATMENT.**—Wind galls seldom cause lameness; hence it is usually not wise to treat them. If lameness ensues, however, it generally results from a sprain of the tendon or a joint, and will be removed by a chamois-skin pressure as directed under Bog Spavin. Should this fail to remove the lameness and swelling, foment the part a half-hour morning and evening with warm water, dry well, and then rub in a lotion of one ounce of rhus to one pint of water. Should the wind gall be very large, *and not connected with the joint*, it may be punctured with a small trocar on its *upper* surface, and the fluid be pressed up and out. A compress and bandage must then be applied to close the sac and exclude the air, and not be removed for two days. After that time, place over the wind gall a piece of lint soaked in glycerine, with oil-silk and a bandage over it. Renew this dressing night and morning. Keep the horse in a loose box, not taking him out for ten days or two weeks, and omitting all work for a month.

#### ULCERATION OF THE JOINT CARTILAGE.

Inflammation of the synovial membrane sometimes extends to the cartilage covering the ends of the two main bones of the joint, diminishing the secretion, causing ulceration, wearing away of the cartilage, and polishing of the surface of the bones, thus giving rise to what has been erroneously called porcelain deposit.

**TREATMENT.**—Remove the hair and apply, with a thin, broad knife (not rubbed in), a preparation made on the following formula:

Iodine,	2 drachms.
Iodide of potassa,	1 drachm.
Sulphuric acid,	2 drachms.
Palm oil,	½ ounce.

Mix.

Repeat the application in about three weeks, if the cure is not complete.

#### CAPPED HOCK.

This is usually caused by a kick, but may arise from an injury to the tendons at the point of the hock, as when horses injure themselves in lying down or getting up.

**Symptoms.**—An elastic, generally movable, swelling at the hock suddenly appears. It is of two kinds: (1). A mere bruise of the skin may

cause an effusion of serum into the tissue. (2). The synovial sac may be enlarged from an injury to the tendons. In the first kind, the enlargement may be easily moved about and is limited to the point of the hock; in the second, the enlargement remains fixed and is more deeply seated, the enlarged sheath being felt either above or below the point of the hock, with more tenderness and inflammation than in the first kind.

TREATMENT.—In new cases, foment the swelling three or four times a day with warm water, dry thoroughly, and rub in about a tablespoonful of a lotion made of one-half ounce of tincture of arnica in six ounces of water. As soon as the inflammation subsides, use in place of this lotion one made of a half-ounce of rhus in five ounces of water. When the swelling is not deep and is very large, without involving the true joint, the *upper* surface may be punctured by a surgeon with a small trocar, the fluid be pressed up and out, and diluted calendula be injected and pressed out in two minutes. Then apply a bandage as directed under Bog Spavin. If the pressure be omitted, the fluid will collect again and again.



CAPPED HOCK.

### SPRAIN OF THE HOCK.

The tendons and ligaments of the hock are all subject to sprains from leaping, or galloping in heavy ground. The ligaments connecting the bones of the joints are specially subject to implication in sprains, and the disease will readily submit to proper treatment if taken in time; but the trouble is often not detected until inflammation has destroyed the elasticity of the ligaments, the latter becoming cartilaginous or bony. The symptoms are heat and swelling in the joint, some stiffness and lameness. The treatment is local, such as is applicable to general Sprains.

### CAPPED KNEE.

This is caused by striking the knee against some hard body; by heavy falls; by thorns or other foreign bodies in the knee.

ENLARGEMENT  
IN CAPPED KNEE.

*Symptoms.*—The symptoms are a soft, elastic swelling on the front of the knee, with an absence of pain on pressure, except in case of a foreign substance being the cause.

TREATMENT.—If a thorn be the cause, remove it. In all recent cases, with inflammation, give frequent warm-water fomentations. Arnica-lotion, one part of the tinc-

ture to twelve of water, should be rubbed in twice a day. In chronic cases, use a liniment made on the following formula:

Liniment of soap,	8 ounces.
Camphor,	1 drachm.
Liquor ammoniæ,	1 ounce.

Mix.

Apply daily with friction until a scurf appears on the parts.

### SPRAIN OF THE KNEE TENDONS.

When a sprain of any of the back tendons of the knee occurs, the fibers being lacerated, a swelling appears on the back part of the leg, which is tender on pressure, and at first hot and inflamed, becoming afterward hard, and sometimes ossified. The unsteady gait, wavering of the knees, inclination to lie down, and other symptoms will be easily recognized. Such sprain obviously makes the horse unfit for substantial service.

**TREATMENT.**—Immediately after the accident which causes the trouble has occurred, apply a chamois-skin bandage to the swelling and keep it wet with cold water. Should effusion of fluid have set in, with inflammation, put on a flannel bandage and bathe over it frequently with hot water during the day; at night placing on six or eight folds of lint saturated with arnica-lotion (one tablespoonful of tincture to a half-pint of water), covering the whole with oil-silk and a bandage. When inflammation subsides under this treatment, foment for a half-hour night and morning, dry the leg, and rub in a mixture of a half-ounce of rhus and a half-pint of water. Give rest and a loose box. At the beginning, put on a high-heeled shoe to relieve pressure on the tendons. Further treatment is indicated under general Sprains. The sinews may be contracted, rendering a division of the tendons necessary by a surgeon.

### BROKEN KNEE.

Broken knee is a term applied to an injury imposed by a fall or striking the knee against some hard and sharp body, resulting in a bruise, a break of the skin, or a division of the tendons or membranous sacs of the joint.

*Symptoms.*—The skin may be simply bruised and not broken through, when the knee will be hot, swollen and painful. Or there may be a rubbing off of the skin, or it may be cut, torn and jagged, the lower tissues being injured, the sheath of the tendon also being exposed. Sometimes a fluid issues from the wound.

TREATMENT.—Should there be simply a bruise, apply warm fomentations until the inflammation subsides. If the swelling then continues, rub on daily a liniment made as follows:—

Soap liniment,	4 ounces.
Camphor,	½ ounce.
Liquor ammoniæ,	1 ounce.

Mix.

If the skin be lacerated and bleeding, remove all grit by forcibly dashing water on the wound, or forcing it on with a large syringe. Then if the joint is not open, or the tendon not cut through, gently dry the wound by dabbing it with a soft rag or sponge, and *pour* on (not apply with a sponge) a little lotion six times a day composed of one part of the tincture of arnica to twelve of water. If the skin lies in a flap on the leg, the wound must be sewed up, but loosely enough to allow the swelling which will take place. In such cases only should a bandage be used for broken knee. Though it may be made of linen or flannel, it is better if made of chamois-skin, kept wet constantly with warm water after it is applied. Put the bandage on evenly, with light pressure, and leave it for a week, except as it gets loose and requires readjustment. A splint eighteen inches long and three wide should be fastened against the back of the joint to prevent the tearing out of the stitches. If the formation of pus is inevitable, foment the wound and put on a poultice of carrot or turnip, *never of bran*. This is best applied by drawing a woolen stocking over the knee, fastening it around the leg below the joint with tape, then filling in the poultice and fastening the stocking above. Repeating the poultice twice daily for two or three days will usually be sufficient, unless the granulation is excessive, when it should be sprinkled with finely powdered sulphate of zinc, *if it rises above the level of the skin*. In a few days the skin falls off, and, if the “skinning over” has not taken place, wash the part three times daily with a lotion composed of two drachms of sulphate of zinc, two drachms of acetate of lead, and one pint of water, thoroughly mixed.

### CAPPED ELBOW.

This is caused by mechanical injuries from insufficient bedding; lying on rough, hard surfaces, as paving-stones; a shoe pressing on the elbow while the horse is lying down.

*Symptoms.*—A swelling, similar to that in capped hock, on the point of the elbow, which is at first elastic and movable, full of fluid, but later growing hard, or of a fibrous or cartilaginous character.



**TREATMENT.**—Foment and apply arnica-lotion, following up with rhus-lotion night and morning. If the swelling is not thus removed, a surgeon should pass a seton through it; or make an opening with a small trocar, remove the fluid, and then inject a lotion of calendula and water, one part of the tincture of calendula to four of water. Keep the horse tied up. In a day or two, should the fluid again collect, the surgeon may probe the swelling and apply a lotion of calendula to ward off fistulous results. If there be considerable inflammation, foment often with warm water.

### SPRAIN OF THE STIFLE-JOINT.

Such sprain is uncommon, but its symptoms are plain, being a swelling at the joint, so near the surface that it is easily felt; pain on pressure; heat; unwillingness to move the hind leg, which is dragged along in trotting.

**TREATMENT.**—Apply fomentations of warm water often and rub in arnica-lotion night and morning. After the subsidence of inflammation leave off the fomentations and rub in camphorated ammoniacal soap liniment until a mild blistering occurs, and a cure will result after a few days of rest. The formula for the liniment is given under general Sprains.

### SPRAIN OF THE FETLOCK-JOINTS.

Sprain of the fetlock-joints is sometimes located in the ligaments of the joints, but more commonly in the tendons behind and in front of the joint. The symptoms are swelling; lameness; heat; tenderness on pressure.

**TREATMENT.**—Bandage the swelling and keep up warm-water fomentations, followed by cold water. After inflammation subsides put on a chamois-skin bandage saturated twice a day with one part of rhus to eight of water. For other expedients, see general Sprains.

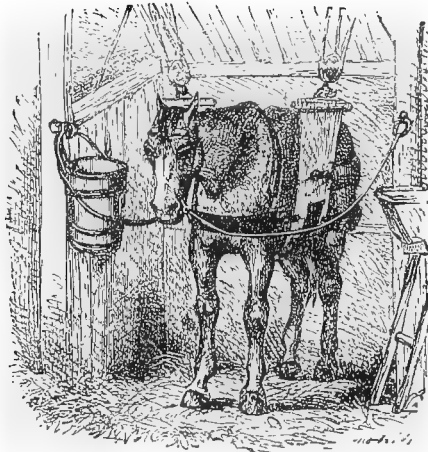
### BREAKING-DOWN.

Breaking down is an actual rupture of the ligaments in the back part of the leg, above or below the fetlock. Any sprain of the back tendons receives the same name. While running the horse suddenly stops, bends the leg and rests it either on the fetlock (in real rupture) or on the toe (in sprains).

*Symptoms.*—In ordinary sprain, as stated above, the toe rests on the ground after the horse has suddenly stopped on a run, or the leg is held off the ground. In rupture of the ligament, the fetlock yields, and in extreme cases the leg rests on the heel and fetlock, the toe turned upward off the

ground. The horse may lie down, and sometimes hops on three legs. At first there will be much pain, quick breath and pulse, and other signs of fever and excitement.

**TREATMENT.**—Put on a high-heeled shoe for use when the foot is down. Put the horse in slings, and bind on firmly a chamois-skin bandage with a flannel bandage over it. Constantly apply warm-water fomentations for several days, not removing the bandages oftener than is necessary. In about ten days cold salt-water may be applied often to remove inflammation; then use other remedies as named under general Sprains. Give aconite



SLING FOR USE IN BREAKING-DOWN.

three times a day. Bran-mashes and grass are the best diet. The part will always be deformed and the horse will never be fit for any but slow and light work. The above treatment is designed especially for cases of actual rupture of the ligaments. That for sprains of the tendons should be the same as that given for Sprain of the Knee Tendons (which see).

### SPLINT.

In this disorder the cartilaginous ligaments joining the large and small bones of the shank are converted into bone, and the process may extend to other parts if inflammation continues. It generally appears on the inside of the fore leg, but may affect any part of the shank-bones. Its causes are sudden or long-continued strain, causing inflammation of the ligaments; blows; putting *young horses* to work for which their partial develop-

ment is not suited; sometimes marks of splint are hereditary. It may result from inflammation of the sheath of the bone.

*Symptoms.*—Before the bony deposit there will be pain on pressure of the part affected; perhaps lameness, diminishing with exercise; later, a bony tumor, usually on the inside of the leg close to the knee, or half-way between the knee and fetlock; in case of lameness, there will be increased heat and tenderness in the tumor.

*TREATMENT.*—Give rhus internally night and morning in the early stages when there is inflammation of the cartilaginous tissue previous to the conversion into bone; in this case lameness is generally present. Iodide of potassa may follow rhus with good results, five to ten grains being given twice a day in water. In connection with the above remedies apply a lint-compress, wet in cold water and covered with oil-silk and a bandage; or foment twice a day, and as often rub in a lotion of one ounce of rhus in one half-pint of water.



VARIETIES OF SPLINT.  
1, High Splint. 2, Low Splint. 3, Bony Growth on the Skin, also called Splint.

Only in the early stages, when the tumor is forming, will internal remedies be of any avail. When the splint is confirmed and the remedies already named have failed, shave the hair from the tumor and with a thin, broad knife, or a flat piece of wood, lay on a thick coating, *without rubbing it in*, of the following preparation:

Iodine,	2 drachms.
Caustic potash,	2 drachms.
Sulphuric acid,	2 drachms.
Palm oil,	½ ounce.

Mix.

Apply as directed, keeping the horse's head tied up for twenty-four hours, and further treatment will be unnecessary, except that in some cases a repetition of this application will be needed in ten days or two weeks. In place of other remedies, sixty grains of corrosive sublimate may be put in one pint of water and rubbed in night and morning until the skin gets scurfy and tender. After discontinuing it for a day or two, rub the part with oil and thoroughly wash it with soap and water; then apply again. In rare cases the surgeon may be compelled to open the skin just below the splint, introduce a knife with a convex edge, turn the edge downward when the knife reaches the splint, and make two or three cuts in the sheath of the bone. Then further treatment is unnecessary, except the care needed for cuts in general.

## BRUSHING.

Horses with defective formation of the legs and those which are badly fed are subject to brushing, which consists in a foot striking the opposite fetlock, or the part above this, usually on the hind leg.

TREATMENT.—If there be swelling and soreness, apply cloths saturated in arnica-solution to remove the enlargement and inflammation. Then carefully strap around the joint a leather or India-rubber boot (a woolen boot turned down over the joint will answer, though not so well). If the horse has been poorly fed, strengthen the constitution by nutritious food. Give perfect rest until the bruise is healed. A repetition of the injury may sometimes be prevented by putting feather-edged shoes on the hind feet, though they are useless on the fore feet. This throws the joints farther apart. In *cutting* of the fore feet, make the shoeing perfectly level, carefully rasping off the part which strikes. It may, however, be necessary to use a boot all the time.

## SPEEDY CUT.

Speedy cut occurs during rapid action, usually in horses with poorly-shaped legs, and is caused by one or both feet striking the opposite fetlock or the part above it. The pain is so much greater, and the shock to the system so much more severe, that it is a more dangerous trouble than brushing. It causes the horse to suddenly fall, with the rider, at high speed. A small bare place, partially covered with hair, will be found on the inside of the shank-bone; perhaps a cut, scab, or break in the skin. In bad cases the sheath of the bone and the bone itself may be swollen.

TREATMENT.—The treatment is the same as in Brushing. Usually, however, a boot must be made with a pad on the inside, reaching down to the fetlock from the knee and held in place by buckles.

## OVER-REACH AND TREAD.

A wound made on the back part of the crown of the front foot by the hind foot is called an *over-reach*. One made on the corresponding part of the hind foot by a horse traveling behind is called a *tread*.

TREATMENT.—Owing to the peculiar organism of this part of the horse a cure is rarely effected, yet the possible serious nature of such wounds calls for strict attention. Any portion of the skin or horn that may be detached should be removed with scissors and the wound be cleansed and dressed with compound tincture of aloes and myrrh put on soft tow,

and bound on the wound. Leave this on two days; then it may be changed every day until the cure is effected. Avoid poultices and fomentations, except in cases of neglect, after pus has formed, when fomentation is advisable, with calendula-lotion applied. Long neglect may lead to quittor.

### QUITTOR.

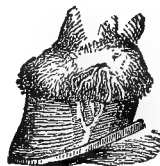
Quittor is an ulcer in the foot, usually on the inside, with an opening on the crown between the hoof and hair. It is caused by neglected or badly-treated over-reach or tread; by a prick in shoeing, nail, or other sharp substance, which sets up inflammation, with matter pushing itself up to the crown; by pus from corns; injuries of the feet in general. It requires prompt and good treatment to prevent ulceration of the adjoining cartilages.

*Symptoms.*—Lameness; heat; pain in a swelling found in the bulb of the heel or some part of the crown just above the hoof, where a little matter oozes out; by removing the horn some parts are found changed in color, with matter that is black and offensive.

*TREATMENT.*—Let out the matter when possible and inject calendula-lotion, one part of the tincture to four of water, into the tumor night and morning; then wrap the foot in a warm turnip or meal poultice. Rasp the wall of the foot under the conical swelling or crown until it springs on



QUITTOR BEFORE PUS BREAKS THROUGH THE CROWN.



QUITTOR AFTER PUS BREAKS OUT.

pressure of the finger. After inflammation is reduced, discontinue the poultice and merely dress the sore on the crown with the calendula-lotion. Either remove the shoe or use the bar-pattern, cutting away the lower portion of the hoof of the affected quarter so it can not rest on the bar. In long-standing cases, the discharge having become thin and greenish, the best injection is made of five grains of corrosive sublimate and an ounce of water, repeated daily until a cure is made. Before pus forms the injury may be removed by bathing the affected part in arnica-lotion, one part of the tincture to four of water, at first every three hours, then twice daily until all traces of the disorder have disappeared.

## NAVICULAR DISEASE.

The navicular bone is behind and below the lower bone of the pastern and above the coffin bone of the hoof. Diseases of this bone lead to many forms of obscure lameness. The bone may become contracted as a result, and this contraction has been erroneously considered by some the cause of the disease. The main causes are strain of the tendon that passes over the bone downward to the coffin, over-exertion, or long-continued work on hard roads, by which the sac between the tendon and the bone becomes inflamed and its oily fluid is stopped, leading to ulceration of the bone and membrane.

*Symptoms.*—The horse stands with legs extended, putting the weight on the toe, the heel being lifted; perhaps the fetlock is bent, the toe thrown forward and stuck into the ground; lameness; heat; tenderness of the foot;



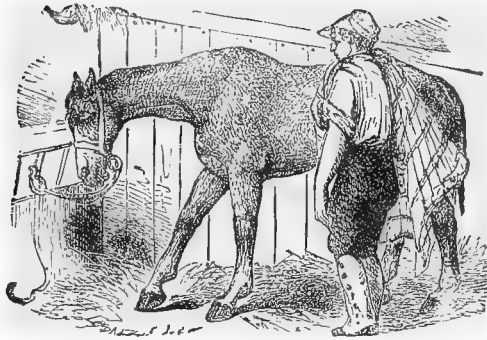
SECTION OF THE FOOT AND PASTERNS.

A, Coffin Bone. B, Navicular Bone, the seat of Navicular Disease. C, Coronary or Lower Pastern Bone. D, Cannon or Shank Bone. E, Horny Frog. F, Sensitive Frog. G, Sensitive Sole. H, Horny or Sensitive Sole. I, Outer Wall or Crust. J, Laminated Leaves or Horny Plates. K, Sensitive Laminae or Plates, the Chief Seat of Founder.

lameness diminishes with exercise; pressure in the hollow of the pastern gives pain; tendon usually a little larger than is natural. After the disease has run some time, pressure of the thumb on the hollow of the heel causes pain; the inside quarter of the foot becomes straighter, and ridges

form on that part of the hoof; the foot and the sole grow more concave; the horn increases in quantity; thrush may form; tenderness at the point of the frog; perhaps fungoid granulations.

**TREATMENT.**—First remove the shoe and pare the sole until it yields under the thumb; then put the foot in a poultice kept wet with warm water. In a few days leave off the poultice and keep the animal standing in wet yellow clay in the day, putting wet swabs and pads on the feet at



POSITION OFTEN ASSUMED IN NAVICULAR DISEASE.

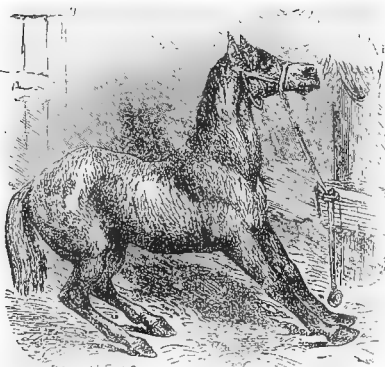
night. *Fine* sand is good to cover the floor of the stable with. After inflammation has subsided, and in old, confirmed attacks, blistering is good, but a seton passed through the frog by a surgeon is better, leaving it in four weeks and bathing night and morning with warm water. If granulations form, touch them with caustic. Give five drops of aconite every four hours to aid in reducing inflammation. A similar dose of rhus is desirable when a sprain of the tendon is suspected. When inflammation of the cartilages is supposed to exist, ten drops of phosphoric acid in a little water three times a day is advisable. Should all the foregoing fail, it may be necessary for the surgeon to separate the nerve to deaden the sense of feeling.

#### FOUNDER.—FEVER IN THE FEET.—LAMINITIS.

These terms are applied to inflammation of the tendons, ligaments, muscles, bone-extremities and tissues of the feet (see cut 168). It is caused by traveling on hard roads when the horse is fat or otherwise unprepared for quick work; standing in the water when the animal is much heated, followed by a chill; standing a considerable time tied up; fever; inflammation of the womb; inflammation of the lungs, or other constitutional trouble; excessive food.

*Symptoms.*—Shivering, followed by sweats; quick, full pulse; heaving flanks; short, quick breathing; lifting the feet in alternation, or frequently lying down and rising; animal fixed to one place, with back arched and hind legs under the body; if one attempts to lift the well foot, the animal crouches low or falls, and when down lies at full length; groans; looks toward the affected feet; crown hot and pained by slight blows.

*TREATMENT.*—Remove the shoes; cover the floor of the box with sawdust, put straw on it, and encourage the horse to lie down; thin the sole and apply a poultice made of turnip, or, still better, yellow clay, first taking out all small stones or grit, keeping the clay wet by pouring cold water upon it. In a few days the shoes may be tacked on (as may be done from the beginning in mild cases), and wet felt pads and swabs be put on. If the horse be allowed to stand, these poultices and cloths may be omitted, and the feet be put in some vessels containing warm water, the temperature being raised gradually as high as the hand can well bear. Arnica tincture, in five times its quantity of water, may be used as a lotion to bathe the ankles and legs every three hours; or the feet may be put into vessels containing the lotion; or cloths may be saturated in it and wrapped around the pastern of the affected legs, tow similarly soaked being put into the soles.



FREQUENT POSITION IN ACUTE  
LAMINITIS.

As an internal remedy, give five to ten drops of aconite every hour or two in a little water for very hot feet, especially at the crown; great lameness; horse unwilling to move, lies down, groans, standing with the hind feet drawn under the body; fever; quick, full pulse; frequent breathing; hot mouth. Give arnica, as directed for aconite, for founder from wounding the feet in fast or long drives on hard roads, and for stiff legs and inflamed feet. Give arsenicum for founder from excessive food; feet very tender and painful; and when aconite has reduced the primary violent symptoms. Phosphoric acid is very important for lameness, hot and tender feet, and softening of the horn. Nux vomica is good for loss of appetite; abdomen drawn up; paralysis of muscles. When fever or inflammation arises in the feet without any assignable cause, wash them thoroughly with tepid water to remove dirt and other foreign matters, and apply tincture of arnica in the earliest stages, before ulceration ensues, or when some other affection is threatened. Give mild, easily digested food and cooling drinks.



## CHRONIC FOUNDER OR LAMINITIS.

The acute form of founder, or laminitis, which has been described above, may lead to a chronic type, and this is to be dreaded.

*Symptoms.*—Feeling of lameness, though not actual lameness, in both fore legs, which are unnaturally warm; tapping the front legs causes pain; the animal lifts his feet but little in walking, and puts his heels upon the ground; the sole becomes flat or convex; the crust breaks easily; more lameness with a weight on the back than when the animal is led on a trot.

*TREATMENT.*—If no inflammation be perceptible, internal remedies are useless; but if it be noticed before the tissues lose elasticity, or the foot becomes changed in appearance, give rhus three times a day. Keep felt pads on the feet; apply to the crowns of the feet cloths soaked in rhus-lotion. Feed mashes and green food. Favorable results will be experienced by removing the shoes and turning the animal into a large stall, the floor being well covered with sawdust or fine tan-bark. If the foot becomes again elastic, work on soft ground may be done, but a very short walk on hard ground will produce inflammation. A thin layer of rubber or leather between the shoe and hoof will do much to prevent a return.

## PUMICED FOOT.

This is a flatness or convexity of the sole, with a soft, spongy horn-growth, the middle of the front part of the hoof being depressed. It is a result of founder.

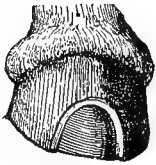
*TREATMENT.*—It is incurable. Relief may be given by putting on a broad-webbed shoe, with gutta-percha or leather under it. Where the crust is much lower than the sole, a thick shoe with a narrow web is better, a piece of gutta-percha the breadth of the heel of the shoe being put next to the crust to raise the sole from the ground. Require only slow work, and that with very much rest. Dress the sole daily with hot tar.

## SEEDY TOE.

Seedy toe arises often without an assignable cause, though it may follow founder, or result from dirt or gravel working in at the edge of the sole, or from the clip of a shoe pressing on a hoof that is deficient in cohesive power, from blows, as from too hard hammering, and other means of violence.

*Symptoms.*—The horn at the toe crumbles off like sawdust or rotten wood; an opening leads up between the outer and inner crusts of the wall

of the hoof, sometimes going as high as the crown; tapping on the wall with a hammer determines the extent of the separation. Difficulty may be found in getting a piece of horn sufficient to hold a nail, and side clips may be necessary.



A HOOF AFTER  
REMOVAL OF A  
SEEDY TOE.

**TREATMENT.**—Cut away the crust so far as it is separated from the underlying layers of horn, and wrap the foot in tow and tar, bound on with tapes; a mild blister at the crown will hasten the growth of the wall. Another successful plan is to keep the horse standing in clay after covering the foot with adhesive dressing, not blistering at all.

### THRUSH IN THE FEET.

This is an offensive discharge from the frog, resulting from an inflammation of its sensitive parts. The discharge may be scanty or free, and if the disease be neglected, it may result in injury to the soles, frog and heel, causing canker (see under Canker). It is caused by contraction of the hoof; keeping the foot wet with urine; frequent use of cow-dung for stopping up the frog; dirt or moisture in the frog; bruises.

**TREATMENT.**—Remove all portions of the bone that are detached or run under; in case of much lameness or inflammation, apply warm poultices to the feet for two or three days, afterward putting into the cleft of the frog tow steeped in a lotion of one part of tincture of calendula to three of water. If the heels be contracted and high on the front feet, tips are the best expedient for producing a healthy condition. It may be necessary to get leather soles for horses that are in the habit of standing in their dung. If there be no lameness or contraction of the hoof, an application of calomel, in the powder, to the affected parts, will usually effect a cure. If, however, it be considered dangerous to stop quickly the discharge, do not use calomel, but put eight ounces of tar or treacle and one ounce of pulverized sulphate of copper in a ladle and let them simmer until a reddish-brown color appears, and apply a small amount every second day on tow to the cleft of the frog. A lotion of one part of carbolic acid to twenty of water is deemed the best of all remedies by good authorities, the inflamed part being bathed with it. Creosote, ten drops internally four times a day, is useful for healing the part and correcting the bad state of the constitution. Given internally, with an external use of carbolic-lotion, it is excellent. Phosphoric acid, given as directed for creosote, is desirable when inflammation of the deep tissues of the foot is threatened. Give light and nutritious food, not stimulating, with rest and a perfectly clean stable.

## CANKER IN THE FEET.

Canker in the feet often results from neglected thrush, the inflammation extending from the horny frog to the horny sole, when a fungus-secretion forms. The coffin bone may be affected. Its causes are the same as in thrush—long-continued moisture, especially with decomposition and heat. In some cases it may be constitutional, or it may follow grease.

*Symptoms.*—Where horn is removed from the sole, fungous growths appear, covered with a whitish, offensive matter. In other parts the horn is discolored, with a dark-colored fluid underneath. When the disease has run some time, the whole frog and sole may be ulcerated.

*TREATMENT.*—Freely expose the diseased parts by removing all dead or detached pieces of horn. Put on a shoe with a plate to cover the frog, attaching this plate to the toe by a hinge, and to the heel by a bar or two screws; this shoe furnishes pressure to the frog, *which is all-important*, and makes dressing possible without removing the shoe. A substitute is gutta-purca heated in boiling water and slipped under the shoe. This can be taken out and put in without removal of the shoe. In most cases the morbid growth will be stopped and healthy horn grow by giving Fowler's Solution of arsenic three times a day internally, with an external use of carbolic acid applied with pressure. The most certain remedy is a caustic (nitric acid, sulphate of copper, carbolic acid or tar) applied under the shoes made as above described, putting tow under the iron or gutta-percha sole to secure pressure. The caustic-dressing may be repeated every two or three days until the horn becomes healthy. When only a thin, watery discharge is seen, chloride of zinc, two grains to one ounce of water, or calomel in powder, applied daily, will usually suffice.

## CORNS.

A corn is a very sensitive, fungus-like growth of horny matter and granulations of a reddish color between the horny sole and sensitive part of the foot, generally at the inside of the sole of the fore feet. In some cases a pus-like matter forms under the sole, or breaks out at the crown as in quittor. It is caused by contraction of the hoof or pressure from bad shoeing.

*Symptoms.*—The angle between the bars and crust is of a dark-red color, soft, fungus-like, painful, and perhaps attended with lameness.

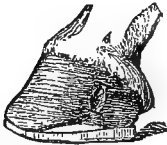
*TREATMENT.*—For much inflammation and formation of pus, remove the bars and other means of pressure, and apply at least twice a day arnica-tion, one part of the tincture to four of water. In most cases it is suffi-

cient to lower the heel so as to remove the pressure of the shoe, then to cut away the corn as far as possible and dress it with muriate of antimony, putting on a bar-shoe. If the horse has strong feet, it may suffice to cut away the bars, put on tips without cutting down the heels, and dress with muriate of ammonia. For riding-horses do not use bar-shoes, but thicken the shoe a little, or spring it at the heel. A three-quarter shoe has been used in such cases with great benefit and comfort to the horse.

### SANDCRACK.

Sandcrack is a fissure or partition in the hoof, usually at the inside quarter of a fore foot, or in front of a hind one. Its chief causes are dryness and brittleness of the hoof from an injury to the crown-surface, or from a lack of the gluey matter which binds the fibers, the latter cause being common in warm, sandy countries.

**TREATMENT.**—Remove all pressure of the shoe beneath the crack, a bar-shoe being the best in most cases. Arnica-lotion will relieve pain and lameness, and an application of powdered blood-root will check the appearance of proud flesh. Should the sensitive layers of the hoof be squeezed by the crack, resulting in lameness, thin down the edges of the horn at the crack and foment the foot frequently until all inflammation subsides. The



SANDCRACK DRESSED AND SHOD.



CURVED OR ANGULAR FISSURES FOR CURE OF SANDCRACK.



A FOOT WITH TOE-SANDCRACK, BANDAGED WHEN WORK IS REQUIRED.

crack should be closed as soon as possible, and prevented from extending up to the crown. To this end, clean out the crack, rasp its edges thin, take a sharp, red-hot firing-iron, and if the sensitive layers be not exposed, run it slightly down into the crack until it causes a gluey discharge, which will hold the sides together. Then make short horizontal fissures nearly through the horn, one above and one below the crack, and cover them and the whole wall of the hoof with shoemaker's wax, bound on with broad tape, to keep the edges of the crack together, to exclude moisture and dirt, and to protect the new horn as it grows from the top downward. The treatment may necessarily be long, but if carefully observed will effect a

cure. Another method is to draw the crack together and put over it a cap made of thin steel, secured by small screws introduced into the hard horn of the hoof. This and the use of a bar-shoe will be effectual.

### FALSE QUARTER.

This consists in a separation of the horny fibers of the foot, similar to that in sandcrack, which produces lameness and weakness in the affected heel. Its causes are injury to the crown in quittor; treading of the horse on his inside quarter; treading on the outside by another horse; other external causes.

*Symptoms.*—Deficiency of horn in the side of the hoof, or a fissure, generally with a horny bottom; in some cases, exposure of the sensitive layers, which become inflamed, attended with oozing of matter or blood, and lameness.

*TREATMENT.*—In the absence of inflammation, rasp the quarter until it springs under the thumb; put on a bar-shoe *that does not press on the affected quarter*. Take the horse from work and apply a blister to the crown; or fill up the fissure with an adhesive dressing, as tar, pitch, or heated shoemaker's wax, putting broad tape over the whole. When the fissure is open at the bottom and blood or matter oozes out,



FALSE QUARTER.



SHOEING SUITABLE FOR FALSE QUARTER.

rasp the quarter thin, put on a bar-shoe, and bathe the foot with hot water and a lotion of calendula during the day, a tablespoonful of the tincture of calendula to a tumblerful of water; at night, apply dirt wet in the same lotion, and upon it a linseed or turnip poultice. If work be required when the crack is open, fasten on lint and calendula-ointment with tapes.

### SORE SHINS.

By this term is meant a disease which is primarily an inflammation of the covering of the front part of the bones from the knee to the fetlock. It occurs most often in young horses, and results from concussion incident to fast work.

*Symptoms.*—Inflammation of the sheath of the bones below the knee, followed by bony matter in small knobs, sometimes in layers, on the knee.

*TREATMENT.*—Rhus-lotion, one ounce of the tincture to fifteen ounces of water, should be applied several times daily, and ten drops be given internally every four or five hours. This will arrest if not cure the trouble.

## RINGBONE AND SIDEBONE.

*Ringbone* is a bony enlargement on the pastern-bone just above the crown, finally surrounding the bone. *Sidebone* is a like enlargement at the back part of the crown of the foot, either inside or outside; the name is also applied to ossification of the elastic wings of the bone of the foot, which causes a change in the structure, reducing or destroying the elasticity, and producing lameness. Sometimes both disorders exist at once in the same leg, especially in heavy draught-horses, destroying all action save in the fetlock. The hind legs are less often affected than the fore ones, though all four may be attacked at the same time. The chief causes are a false step; a dislocation; a blow; great strain on the ligaments of the joints; perhaps hereditary weakness of the fibers and ligaments.

*Symptoms.*—In *ringbone*, a hard, unyielding enlargement of bone above the crown of the foot; in *sidebone*, a similar growth a little lower; pain from motion; affected parts in first stages hot, tender, perhaps swollen; occasionally great throbbing of the arteries.

*TREATMENT.*—In the first stages, for pain on motion, hot, tender, swollen parts, or for throbbing arteries, give aconite internally, and apply it externally by saturating a linen rag in dilute tincture—one part to six of water—binding it on and keeping it moist until inflammation wholly disappears. A lotion of rhus, one ounce of tincture in fifteen ounces of water applied several times a day externally, a teaspoonful of the same dilution being given internally every four hours, is beneficial. In the early stages this will cure ringbone. A lotion of corrosive sublimate, sixty grains dissolved in one pint of hot water, is highly recommended. Rub it in until the skin gets thin and scurfy, that is, for a few days; then discontinue a day or two and rub the parts with oil and wash well with soap and water. After this rub it on again. Put on a bar-shoe, the bar resting on the balls of the frog, and pare the hoof so as not to rest on the shoe. Continue the use of this shoe when work is resumed. Considerable time is required.

## HOOF-BOUND.—CONTRACTION OF THE HOOF.

These terms are applied to a contraction of the foot, which may be natural, and which may be aggravated if not independently caused by defects of shoeing; leaving the shoes on too long; too much paring; neglect in providing moisture by pads for the soles; excessive litter lying all the time in the stall; slow inflammation of the fleshy parts and bone-coating near the horny surface; irregular and insufficient exercise, with rich or excessive feeding.

*Symptoms.*—If it comes on suddenly, lameness occurs at once; if gradually, lameness comes on slowly; shuffling of the feet, or very slight lifting of them; repeated stumbling; narrow heels (especially the inner one) of the fore feet; the affected foot while the horse stands is placed forward; both feet being affected, this position is taken by them alternately; occasionally the foot is pinched up so as to offer little surface to the ground; sometimes marked hollowness of the foot, obscurity of the sole, and the clefts of the frog nearly invisible; retraction and indentation externally between the crown and crust, generally midway between them.

*TREATMENT.*—Regular exercise, plenty of moisture properly applied with pads to the foot, careful fastening of the shoes, with frequent changes of the same, will prevent further development, and correct the trouble.

### OPEN JOINTS.

The pastern, hock, knee, and stifle joints are liable to be opened by blows, falls, sharp-pointed instruments and other mechanical agencies.



SLING FOR OPEN JOINTS.

*Symptoms.*—Joint-oil, like the white of an egg, is discharged; in a day or so swelling and fever; pain; perhaps lock-jaw, or permanent stiffness of the joint.

*TREATMENT.*—Keep the horse quiet so the joint is not in action. If the opening be large, or when it is in a large joint, as the stifle, put the horse in slings. Ten drops of aconite every three hours should be given if there be much pain and fever. The greatest difficulty, aside from

keeping the horse quiet, is to close the opening and stop the discharge. Various expedients are resorted to. In slight cases the white of an egg, beaten well and applied to the opening, may stop the oil. When the opening is large, one part of calendula tincture to three of water is better, and may suffice. Perhaps the best, as well as the simplest, method is to apply to the opening with the handle of a spoon fresh finely-powdered, slaked lime, putting it on every time the oil appears, both day and night, never removing one coat, but putting every new application upon the old. In some cases the only effective means is the sewing of the wound, leaving a chance for it to swell without tearing out the stitches.

In open knee-joint, cleanse the wound thoroughly, cut off with scissors the cut parts which will eventually slough off, and stitch up the wound, after which it may be well to apply the white of egg, spread on a cloth and bound with broad tape. Keep the horse's head tied up so he can not lie down. In about a week remove the bandage and cleanse the wound, *not removing the coagulum in the opening, and keeping water out of it.* After the discharge stops apply one part of calendula to eight parts of water four times a day or oftener. The knee may be kept at rest by a gutta-percha splint, twelve inches long and four wide, first softened in hot water, then fitted snugly to the irregularities of the back part of the leg, and secured by bandages around the leg above and below the knee. A small opening may be made in the front to admit applications for the wound. Though for all large openings the slaked lime is the best application, powdered sulphate of zinc, corrosive sublimate, collodion, and cotton-wool have been used with marked effects. A strong decoction of butternut bark is very effectual. The diet should consist of green food and bran-mashes.

### PRICK IN THE FOOT.

Prick in the foot arises from the smith driving a nail so as to injure the sensitive parts of the foot; from the animal picking up a sharp stone, thorn, piece of glass, nail, or other sharp body, which in some cases enters the toe, wounds a joint, and lets out joint-oil.

*Symptoms.*—If the cause is a nail in shoeing, the horse may flinch at the time, or may go lame the next day, being pained if the hoof be tapped with a hammer; lameness; hot and tender foot; sometimes a black, pus-like discharge issues from the wound when opened; the sole probably "under-run."

*TREATMENT.*—Make a free opening for the matter to escape; bathe the foot for a half-hour in warm water; pour in a solution of calendula, one



part to six of water, and put on a poultice of turnip or linseed-meal, continuing it as long as matter forms. When the pus stops, tack on the shoe and keep on the foot a felt pad wet with water, applying the calendulation twice a day. If work be required before horn has covered the wound, use a leather sole and tar. Clean out the hole by cutting away the horn, put in tar, and burn with a hot iron. This will both keep out the dirt and cure wounds that result from pricks of nails, thorns, and the like.



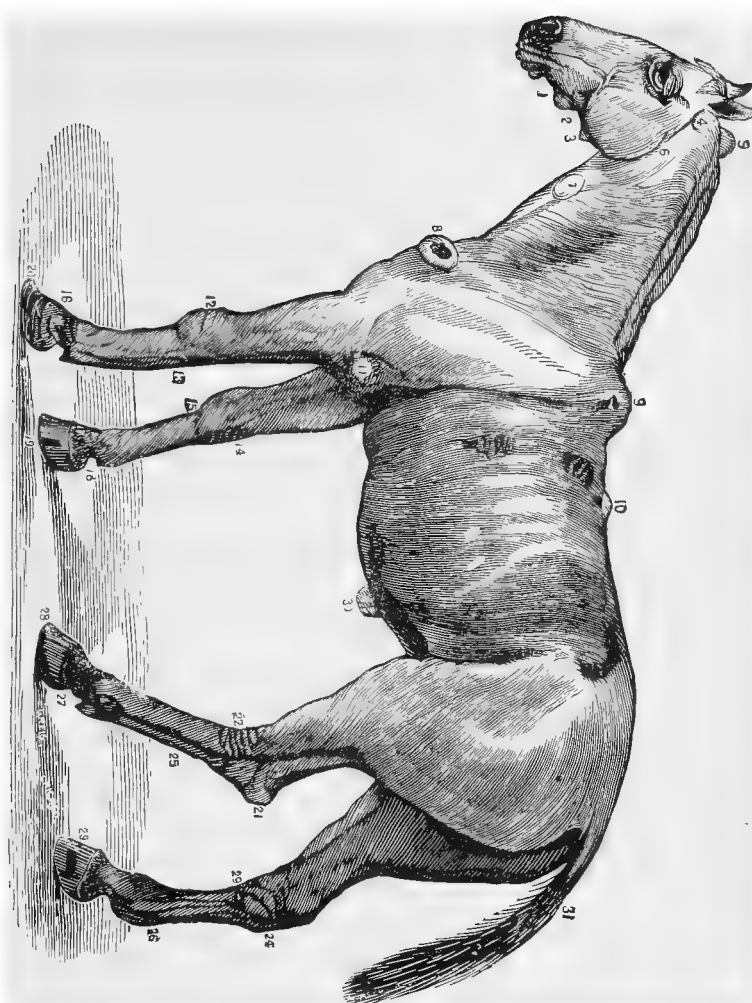
## CHAPTER X.

### GENERAL DISEASES AND INJURIES.

#### SIMPLE FEVER.

**S**IMPLE fever has various causes: Sudden changes from heat to cold, especially when the system is reduced by too much exercise; bad food and air; great changes in the weather; shedding the coat, which is a very common cause; indigestion, constipation, and various other constitutional derangements.

*Symptoms.*—A very common symptom is a staring coat, with cold legs, perhaps with a shivering fit and trembling of the muscles on the shoulder-quarters and flanks; the animal yawns, hangs his head, and seems unwilling to move; the pulse weak, variable, and not much increased in frequency, and the appetite lost. In the second stage, the coat is smooth and the shivering fit is succeeded by a higher temperature throughout the body, sometimes increasing to sweating; but generally the skin is hot and dry, as well as the mouth and all of the internal organs, especially the membrane lining the alimentary canal, causing costiveness; urine scanty, high-colored, and difficult of passage; pulse and breathing hurried; the animal is restless, frequently lying down for a short time, shifting his legs often, dropping his ears, and being generally listless and indifferent, though he will plunge his nose into cold water and hold in his mouth water to cool his tongue, which may seem to be red at the edges and point, the center being white and perhaps creased. Should the pulse continue small and quick, and the breath and dung offensive, typhoid fever has set in, and to the article on that the reader is referred. If the symptoms remain strong and not relieved for some length of time, any organ inherently susceptible to weakness will suffer functional and organic derangement, and the disorder is called “symptomatic fever.” This is usually due to excess of riding, driving, heat or feeding, though it is also caused by injuries about the joints and feet, and frequently attends rheumatic troubles. Free feeding in a warm



EXTERNAL MARKS OF DISEASE.

- |  |   |   |
|--|---|---|
| 1. Caries of the lower jaw.                          | 10. Saddle-gall.                                  | 21. Capped hock.                                    |
| 2. Fistula of the parotid duct.                      | 11. Tumor of the elbow.                           | 22. Mallenders.                                     |
| 3. Bony excrescence or Exostosis of the lower jaw.   | 12. Induration of the knee.                       | 23. Spavin.   |
| 4. Swelling by pressure of the bridle.               | 13. Clap of the back sinews.                      | 24. Curb.   |
| 5. Poil-evil.  | 14. Mallenders.                                   | 25. Swelled sinews.                                 |
| 6. Inflamed gland.                                   | 15. Splint.                                       | 26. Thick leg.                                      |
| 7. Inflamed jugular vein.                            | 16. Ring-bone.                                    | 27. Grease.   |
| 8. Fungus tumor, produced by pressure of the collar. | 17. A Tread upon the coronet.                     | 28. A crack in front of the foot, called cow-crack. |
| 9. Fistula in the withers.                           | 18. Quittor.                                      | 29. Quarter-crack.                                  |
|  | 19. Sandcrack.                                    | 30. Ventral hernia.                                 |
|  | 20. Contracted or Ring foot of a foundered horse. | 31. Rat-Tail.                                       |

stable immediately after the horse has come off of pasture may cause disorders of the digestive organs which will terminate in this fever, and inflammation from local injuries, if not immediately reduced, may affect the whole animal, giving rise to a form of fever which is alarming and should be carefully treated, while the simple form need cause no uneasiness unless the affection take a local seating.

**TREATMENT.**—When the coat stares, or the animal shivers, yawns, hangs his head, and is unwilling to move, and the pulse is small, if these symptoms are not the result of over-fatigue, aconite should be given every twenty minutes, until the shivering fit is succeeded by the hot stage, when, if the pulse is full and quick, and the body hot or sweating, it may be continued every fourth hour. Symptoms for aconite are also restlessness, short, painful, anxious breathing, much trembling, burning, dry mouth, red eyes and nose, great thirst, dry, hot skin. Belladonna is often useful when aconite does not wholly relieve the symptoms for which it was designed. After the shivering fit, if the pulse should remain weak and not much increased, the dung hard, and the urine yellow, or white and turbid, nux vomica should be given every four hours. Ammonium causticum is needed when, in addition to the symptoms calling for aconite, we also find extreme exhaustion; listlessness; short and difficult breathing; restlessness even when lying down; very cold ears, nose and legs; sweats; heaving flanks, at which the animal occasionally looks in a despondent manner; pulse ninety to one hundred, yet small, feeble, and quite indistinct; no passage of dung. Give bryonia if there be great weakness and unwillingness to move; hard and quick pulse; short and painful breathing, attended with catching at the sides and a grunt; pain on pressure of the ribs; frequent shaking and shivering; great thirst; sweats at night; scanty urine; constipation. Arsenicum may especially be used when the animal is recovering. In the way of general care, instead of corn frequently give warm bran-mashes in small quantities. Sustain the strength, when declining, with a drench of a quart of gruel. If diarrhœa sets in, treat it with cold water and flour as a drink. When drinking-water is given, make it tepid. Clover and timothy are desirable when there is no purging. Arrowroot in a little wine is good for the weakness in the later stages of fever. Use additional clothing and wrap the legs in flannel if they are cold. Keep the stall cool. If it be very cool weather, the temperature should be about 55° F. Provide plenty of clean bedding. After the fever the animal may have a short walk, and gradually take his accustomed food and work. For constipation an occasional injection of warm water will be advantageous. Remember that a feverish condition often attends a specific disorder whose treatment is requisite to the cure of the fever.

## TYPHOID FEVER.

This form of fever is quite common among horses. It is indicated by offensive breath and evacuations, quick, small pulse, black tongue, and loss of strength from the first. Among its causes are atmospheric influences, as improper ventilation, with lack of regard to general hygiene. In cold weather it is usually traced to the closing of all inlets for fresh air, by which the blood is deprived of the requisite oxygen. Thus the organs which supply and purify the blood and conduct the circulation are deranged and their fluid has undergone those damaging changes which are familiarly known as "poisoning of the blood." It seldom continues a great time without being complicated with other disorders connected with some part that is specially involved, as the throat or stomach. It may also arise from contagion in unhealthy stables, or even in apartments that are wholesome and well ventilated.

*Symptoms.*—A shivering fit, followed by a coldness of the skin and extremities; small and quick pulse; scanty and high-colored urine; the bowels, at first constipated and the discharges covered with slime, become relaxed, the discharges being offensive; the nasal membrane is of a dark-red color or leaden, and sometimes a red serum may be seen trickling from it; the tongue is red at the edges, but the middle is a dirty-white, with a brownish streak down the center; offensive breath. Should the disease prove fatal, cold clammy sweats will cover the body, violent diarrhœa or dysentery ensue, and then death will soon take place.

*TREATMENT.*—Ammonium causticum may be given every third hour if extreme debility be present and the surface of the body be cold; it is also an excellent remedy when the fever is of a putrid type and the breath is very offensive; in some cases it is best to alternate it with mercurius corrosivus. Nux vomica is needed for sudden decline of strength, abdominal pains, quick and feeble pulse, fluttering of the heart, cold extremities, and spasm of the muscles of the pharynx and gullet; it is especially useful when the body is warm, the pulse quick and feeble, the urine scanty and high-colored, and the bowels constipated, a dose every two hours being suitable. If diarrhœa sets in, with swelling in the sheath and legs, arsenicum should be given; the same is particularly useful for such a condition in the later stages when there is great prostration, and when abscesses of a malignant character form about the head and other parts of the body. When dysentery comes on, with bloody discharges from the bowels, mercurius corrosivus should be used instead of arsenicum, every two hours until the blood disappears from the discharges, the arsenicum being then resumed. The best diet consists of arrowroot and gruel, in drenches of a quart at a time if the horse will

not voluntarily take them. Soft bran-mashes, boiled oats or barley, oil-cake, and the like, may be given in small quantities. Insure pure air and water, perfect cleanliness and warm clothing, until health is restored.

### SCARLET FEVER.

Scarlet fever is marked by scarlet spots on the mucous membrane of the nose and lips, varying in size from a pin-head to a pea. In this disorder patches of hair stand up on different parts of the body. It is both simple and malignant.

*Symptoms.*—The symptoms of the *simple* form, which usually sets in from the third to the sixth day of epidemic catarrh, are elevated patches of hair on the neck and legs, in some cases confined to the hind legs, which exist without any elevations on the skin below; swollen limbs; pulse sometimes considerably increased, sometimes but little; scarlet spots on the mucous membrane of the nose, occasionally in only one nostril; any soreness of the throat previously existing in catarrh may or may not be greatly increased. At this stage the horse may be cured by judicious treatment in a dry, comfortable stall; but if left in unfavorable circumstances, a malignant form of this fever or other disease will probably set in, endangering the animal's life. The *malignant* form may appear with violence at once, or may succeed the simple type. The horse for some days has apparently been affected with influenza or catarrh, with severe sore throat, cough, poor or no appetite, general weakness, and watery discharges from the nostrils; then the condition suddenly changes, the limbs become swollen throughout, or in lumps which are many and large, hard, painful and hot; and portions not swollen have elevated patches of hair; the nostrils discharge a mixture of blood, serum and watery or foul matter; the throat becomes intensely sore; the spots on the membrane of the nose become large, and of a deep-scarlet color; the cough grows worse and suffocating; the pulse is weak and feeble, often running up to 90 or 100 per minute; the swollen limbs are very sensitive, and the animal, if not disturbed, will stand perfectly still for hours. As the disease grows worse, large blisters will appear on the limbs, mainly around the joints, which burst and give out a bright, transparent fluid that is very irritating to the surrounding surface. Sometimes the extremities, the ears for example, will appear white, the skin of the part shrinks and is dry and hard, the whitened parts breaking off in a day or two, and leaving a raw surface which gives off a watery discharge. The appetite is gone, constipation ensues, and the urine is scanty and of a brown or yellow color. Within a day from the beginning the membrane of the nose has large spots of a purple color which present

a raw and watery surface—like changes taking place in the blisters around the joints.

Under favorable circumstances the simple type will abate about the fourth or fifth day, but the malignant form generally runs seven or eight days before a change takes place. In extreme cases the purple spots may be seen under the skin and in the mucous membranes, and this condition be followed by an emaciated and loathsome appearance of the animal. When the scarlet blotches or elevated patches of hair appear early, and the pulse has a firmness and regularity in its beats, the result will probably be favorable; but slight hopes of recovery can be entertained if there be much weakness, a feeble and irregular pulse, a change of the scarlet blotches to purple, a swelling of the head, and a typhoid type in the fever.

**TREATMENT.**—When the throat is the chief part affected, when the swelling of the limbs comes on suddenly and is hot and painful, and when the blotches on the nasal membrane are of a bright-scarlet color, belladonna should be given. If the throat is relieved by belladonna, and the legs are still swollen, hot and tender, rhus will be found useful. Should the soreness of the throat not be relieved by belladonna, or should spreading sores of an unhealthy character appear on the skin, administer mercurius. When marked weakness and emaciation ensue, and the pulse is quick and yet hardly perceptible, the legs, sheath and breast becoming dropsical, the appetite lost, the animal showing a great indisposition to move, arsenicum will prove efficacious. Should the soreness of the throat persist in spite of the remedies named, apis and arsenicum in alternation will probably afford the desired relief. In the *malignant* type, when there is a marked tendency to a breaking down of the organic structure, and a bleeding of the mucous membrane, with a bloody and purulent discharge from the nose and swelling of the lips, arnica and arsenicum should be given in alternation, the doses being four hours apart.

### SMALL-POX.

This is an eruptive disease which attacks the lips and face of the horse, but mainly the heels, in the latter case being distinguished with difficulty from grease. It is of an epidemic nature, and any constitutional derangement may promote it during its prevalence.

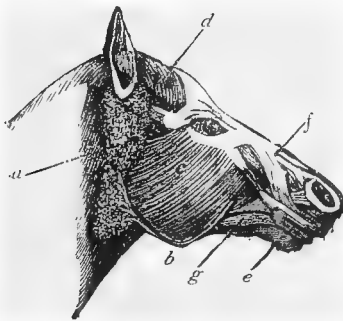
*Symptoms.*—Irritative fever, growing worse as the disease advances; irregular red spots, singly or in clusters, more or less elevated, on the reddened parts of the skin, chiefly on the inner side of the fore legs, on the belly and between the thighs, becoming day by day more numerous and more elevated, and forming minute tumors which grow pale and discolored.

about the fifth day, with lymph on the surface which thickens and is first white, then yellowish, when the top becomes flat or depressed. In from a week to ten days the tumors begin to dry, but the process will be retarded by the presence of sores if the skin has been severely rubbed. During the whole time previous to the drying process, new tumors will be forming, but these gradually disappear as the drying sets in, leaving brown spots which finally pass away. A few bare spots remain at last (occasioned by severe rubbing), upon which the hair does not grow. If great offensiveness of breath, sweat and dung be noticed afterward, sudden indications of inflammation of the lungs may be suspected, such as hissing and rattling breathing; copious, yellowish, thick matter in the nostrils; violent cough; discharge of thick, yellow, sticky phlegm from the mouth, and the like.

**TREATMENT.**—Though this may not require special treatment, it is advisable to give aconite every three hours at the outset if there be much fever. Antimonium tartaricum is beneficial for all stages, including the lung-difficulties so often attendant—four drops once in three hours. Give arsenicum, six drops every three hours, for prostration, purging, tendency to sloughing, and inclination of the system to sink to a low state.

### MUMPS.

This disorder is occasionally found among horses, and is an inflammation of the large salivary glands behind the margin of the lower jaw, and behind the ears. The large glands within the lower part of these salivary glands are often affected too, when strangles occur. They are caused by exposure to wet and cold, or result from some disease of the air-passages.



SEAT OF MUMPS.

*a*, Large Salivary Gland; *b*, the Duct of the same; *c*, *d*, *e*, *f*, *g*, Muscles of Mastication.

**Symptoms.**—Fever, thirst, sore throat, cough, loss of appetite, difficult breathing, pain in swallowing, and at times flow of saliva. The glands swell, are hard and painful, and impede breathing.

**TREATMENT.**—Mercurius is the main remedy, and is usually sufficient; put the powder upon the tongue dry, after having sponged any undue saliva from the mouth. Belladonna should be given alternately with mercurius if local inflammation is severe, or the brain is affected. If there be much fever, use aconite. Foment the glands with hot water three times a day, and apply hot bran poultices, always wiping the part dry after fomen-



tation or poulticing. If suffocation is threatened, ice should be used freely externally, and small pieces be put into the mouth. In extreme cases of suffocation it may be necessary for a surgeon to open the windpipe.

### SORE THROAT.

By this is meant an inflammation of the back part of the mouth, usually coming on from a like affection of the larynx. It is of common occurrence in horses which are put upon work with unusually good food, and in those which are taken from outdoor life and put into warm and poorly-ventilated stables, this change reducing the system and so making the animal liable to cold when exposed in severe weather.

*Symptoms.*—A cold comes on with fever, thirst and loss of appetite, followed by quick breathing; external swelling of the throat; dry, hard cough; salivary glands swollen, hot and tender; difficulty in swallowing, drinking-water perhaps escaping from the nostrils during attempts to swallow it; the mouth afterward gives out a frothy fluid; the cough becomes loose and discharges come from the nose.

*TREATMENT.*—Good general care is often all that is needed; but if it be a severe case, active measures should be taken, because there is a danger that the inflammation will extend to the bronchi and so produce bronchitis. Aconite given in ten-drop doses *at first* will often effect an immediate cure. The advanced stages, marked by more settled inflammation, swollen and tender glands, stringy saliva, discharges at the nose, and difficult and painful swallowing, require belladonna, ten drops every four or six hours being suitable. Mercurius may be given in doses of ten grains of the powder every three or four hours, alternated with belladonna, when both remedies seem to be indicated. The following has often been beneficial:

Extract of belladonna,	4 drachms.
Tannic acid,	1 drachm.
Bi-sulphite of soda,	4 drachms.
Syrup,	5 ounces.

Mix.

Rub on the back teeth a piece as large as a hickory-nut two or three times a day. In case of external swelling and tenderness, use hot fomentations on the throat three times a day, with hot-bran poultices following. Steam the nose as in Catarrh. Keep the stall well ventilated and give oil-cake or oatmeal gruel and cold water. Remember that foul air in the stable, as from poor ventilation, putrid and urine-soaked dung and litter, is a prolific source of sore throat.

## INFLUENZA.—EPIZOOTIC.

Under these names we shall treat influenza in general, so interpreted as to include the epizootic scourge which raged so widely and so fatally in this country in 1872, and has appeared in less violent forms at different times since then. By treating the latter we cover the field of the former. That this influenza is borne from one place to another by diseased animals can scarcely be questioned; but that it is also communicated by the atmosphere admits of scarcely more doubt. During its prevalence the human family has been afflicted with a disorder so similar to it that many have thought that man can take it from the horse.

*Symptoms.*—The symptoms are numerous: First, loss of appetite; then the horse becomes indifferent in manner; fever, with rapid weakening; quick, soft, weak pulse; short, dry, catarrhal cough; breathing sometimes



A CASE OF CONFIRMED INFLUENZA.

hurried, sometimes difficult and painful; signs of pain during a fit of coughing; the nose and mouth show a yellowish-red mucous membrane; mouth dry and hot, with drooping lips; the eyes have drooping lids, and are sunken, with inner membrane of lids yellowish-red; swelling and dryness of the eyes and nose; swollen throat; skin dry and hot; coat staring in severe cases; heaving flanks; scanty, high-colored urine; costiveness; dry dung; sometimes cold extremities. Soon the pulse is more rapid and weak; the cough becomes looser but more pronounced; the membranes of the eyes, nose and mouth discharge an irritating fluid, afterward becoming thick, stringy and mattery; the eyelids swell and tears flow; the mouth fills with frothy, very offensive mucus; even swallowing water is sometimes painful; loud, frequent and painful cough; increasing weakness; slimy evacuations; external swelling at the angle of the jaws and between the jaw-bones,

causing pain in swallowing. Though these symptoms may not all be observed, all cases will show more or less dullness and lack of energy, with staggering gait and dragging legs. The nasal discharge, at first thin and scanty, becomes thick, yellowish or greenish, and blood-stained, perhaps coming away at irregular intervals in chunky masses, even in enormous quantities, sometimes filling up the nostril and occasionally giving off an offensive odor, the sense of smell in the animal being impaired or wholly lost. Should pneumonia or bronchitis ensue, the horse braces the fore feet, trembles, and breathes with increased difficulty. Some of these symptoms may be more prominent at some times and places than at others. At any rate, the animal is rendered unfit for service for a considerable time, even after the symptoms have subsided. Any chronic complaint will be aggravated by this disorder; temporary blindness may result; there is a liability to serious inflammation of the bronchial tubes and other vital parts; hence the urgent importance of careful attention from the beginning.

TREATMENT.—*Mild* cases require rest, a warm, light, dry stable, thoroughly clean, blankets being used if necessary to keep the animal warm, wet feed, exercise, not faster than a walk; but medicine is unnecessary. In *aggravated* cases, select from the following remedies according to the symptoms. *The first day or two*, for short, dry cough, quick, strong pulse, quick, short breathing, shivering, thirst, loss of appetite, uneasiness, thin, transparent mucous discharge from the nostrils, give aconite in ten-drop doses every two hours. As the disease progresses, belladonna will be found valuable for drooping head; languor; dull eyes; short, dry cough, *made worse by pressure on the windpipe*; thick, white discharge from the nose. It should give place to another remedy when the cough becomes loose and the nasal discharge yellowish. Ammonia carbonate is needed for inflammation of the nasal membrane, either dry or with a discharge, which may be bloody; stoppage of the nose; sore throat; languor; dry cough, especially at night; swollen throat. The remedy is especially good for over-worked horses. Arsenicum is an invaluable remedy if there be great debility; burning, corroding nasal discharge; dry cough, *made worse by cold air, and more pronounced after midnight*; dry mouth; thirst, with little water taken at a time; profuse watering of the eyes; fever *worse after midnight*. It is indicated too in case of languor, restlessness, short breath, with panting, much weakness, and in the later stages is de-



APPLYING FUMES TO THE NOSE.

manded by cold extremities, with dropsical tendency. Tonics are often necessary, and nux vomica will give relief if there be profuse nasal discharge; drooping head; languor; repeated dry, hard cough, worse from trotting, and often attended with passing of wind from the bowels; weakness; trembling; cold legs; lying down much. It is usually better to give this in alternation with arsenicum, at intervals of three or four hours, or with quinine in five-grain doses. Phosphorus is especially suited to cases, after the primary symptoms, in which the nasal discharge is profuse, thick, greenish, and perhaps offensive; the cough dry, hollow, hoarse and painful, made worse by dust, cold air, strong-smelling urine, or pressure on the windpipe; rapid loss of flesh; lung-complications. If very stringy, thick, white or yellow mucus be discharged from the nose, or expelled by coughing, give kali bichromicum every one or two hours, one grain ground into sugar until thoroughly mixed being a suitable dose. The bowels should be kept free with bran-mashes, linseed or olive oil, and in case of great weakness stimulants and tonics should be used, among which we may mention carbonate of ammonia, colombo, gentian and cinchona. *Rest is imperative.* Even strong horses recover much more readily and completely if relieved of work, though in good weather the animal should be gently exercised. Keep the stable thoroughly clean and well ventilated, and provide clothing and warm bedding in cold weather. If the legs be cold, thoroughly rub them three times a day and wrap them comfortably when the weather is cold. The burning of tar in the stable may be of benefit, especially if some of the above remedies are administered. The fumes of burning tar or leather so used as to surely enter the nostrils will excite the membrane to action and thus facilitate the clearing of the nose. They may be applied by the use of a steaming-bag. The rubbing of liniment on the throat is of doubtful value, though this may serve a purpose in the absence of specific medicines. The best of such liniments is hartshorn. Give hay sparingly in mild cases, but avoid it in bad ones. Warm bran-mashes with *tepid* drinking-water are the best in severe cases. Boiled potatoes and turnips and raw apples are good. Corn meal soaked in hot water, in small quantities every few hours, is strengthening, and suited to late stages.

#### PINK-EYE.

Pink-eye is epidemic in its character, much the same as the epizootic considered just above, though not so fatal. It is a fever and not a cold, as many suppose, though it is sometimes attended with influenza.

*Symptoms.*—The symptoms are easily detected: The horse becomes dull and moody, with hanging head; the eyes become red and swollen, the

whites taking on a pinkish hue; the entire head is more or less swollen; the swelling extends to the legs as the disease progresses; there is a slight watery discharge from the nose; the mouth is feverish, and the irritation extends to the lungs in many cases.

**TREATMENT.**—Insure rest, taking the horse completely from his work and giving only moderate exercise on fair days. Provide soft, clean bedding, and blankets in damp, cold or stormy weather, or if the animal is chilly. Give a regular diet of bran-mashes and good hay. This course will often, if not generally, be sufficient, but the internal remedies mentioned for Influenza may be selected and used with profit in many cases.

### WEED.

This consists in inflammation of the glands of the legs. The lymphatic glands, which carry the dead matter of the body to the excreting organs, become weakened or overtaxed, and hence become clogged and swollen, and then they impart their trouble to other glands. It is frequent in cart-horses, especially when they have rested a day. It is caused by unwise feeding, especially changing from poor to good food, by over-work after continued rest, by exposure to cold and wet, by standing in water, and it is usually of a hereditary tendency.

*Symptoms.*—The symptoms are at first the usual ones of fever. Occasionally the fore legs are attacked, but usually the hind ones, and of these most often the left. The horse raises his leg often as if in pain, and it will be swollen inside down to the hock or even the fetlock. The part is hot, extremely tender and painful. On the inner side of the leg and thigh is a hard enlargement of the glands, with lumps at intervals. The breathing is more rapid and the pulse rises to sixty or ninety. In extreme cases a fluid oozes from the skin and stands in drops on the hair. One attack predisposes to another and these are apt to permanently enlarge the leg.

**TREATMENT.**—Aconite should be given for feverishness, tenderness, swelling and heat, ten drops every three hours. Give iodide of mercury in one-grain doses when the glands are swollen and the secretions are sour and offensive; also when the disorder is brought on by cold, damp, draughts of air, or unfavorable changes in the weather. If the disease continues and there is a tendency to a chronic state or to sloughing and abscesses, iodide of potassa will be found useful, ten grains three times a day, well diluted with water, being a proper dose. A paste of iodine may be rubbed on the swollen glands, or the tincture of the same may be applied after the inflammation has somewhat subsided. Rhus both internally and externally has been found efficacious if weed is the result of getting wet or cold when sweating.

and the glands are hard and tender. When the acute symptoms have abated, and the dropsical swellings, poor appetite, emaciation, prostration and suppression of urine continue as the principal symptoms, give arsenicum. Use hot fomentations for an hour, four to six times a day. Except during the acute stages, in which the horse should be at rest, only light work or exercise should be imposed, dry bandages being applied with pressure to the limb after such work or exercise. Guard against the causes named above.

### STRANGLES.—DISTEMPER.

This disorder is more common in colts and young horses, but is occasionally found in mature and old animals. Among the more probable causes is teething or some disorder of the teeth, changeable weather being a favorable condition to its occurrence, as is also a change from the field to the stable, or from idleness to activity. The disease attacks the same animal but once. The colt may be on pasture and require no treatment, but it is always best to give it care at once, since suffocation is liable to occur.

*Symptoms.*—Among the first evidences of its presence one will often notice a general unthriftiness, loss of condition, dullness and langour, though these will not always be noticeable. Then a cough ensues, with an offensive yellow discharge from the nose; saliva sometimes profuse and stringy; swelling of the glands between the jaws and at the throat, rendering chewing and swallowing painful; this swelling gradually increases, and sometimes pus forms under the throat, finally bursting and discharging; when drinking, water may flow out of the nostrils; the horse becomes feverish and loses his appetite; great thirst, with inability to drink because of pain in swallowing; spasmodic coughing attends an attempt to drink. The swelling at the jaws may be hard and keep up the disease for a long time. Or it may disappear and be followed by formations of pus in the shoulders, groin, lungs, intestines, brain, or other part, producing serious or fatal effects.

*TREATMENT.*—Give ten drops of aconite every four hours when there is an appearance of common cold, the horse being feverish, restless, dull and uncomfortable, with a dull, staring coat, dry, hot mouth, occasional cough, swollen glands about the jaw, quickened pulse, and loss of appetite. Six drops of belladonna may be given in water or on sugar once in three hours when the back part of the mouth is dry, red, and inflamed. If there be constipation, give nux vomica every third hour until the appetite is restored.

Great relief may be afforded by putting into a pail equal parts of vinegar and water, placing a hot brick in the dilution, and holding the pail in such a way that the steam will be inhaled. It will often prove so grateful that the horse will put his nostrils within reach of the steam of his own

accord. The steaming-bag is also useful (see cut 186). It may be best to aid the formation of matter between the jaws if the swelling has advanced considerably. To do this, bind on a poultice. When the swelling has fully pointed or "gathered," open it and let the matter escape. It is of the utmost importance that the strength be sustained by tonics and an abundant supply of soft, nourishing food and pure air. If hot mashes are fed from a close nose-basket hung on the head, the steam will afford much relief, while the food does as much good as if otherwise taken. Other disorders are liable to set in along with strangles, and they should be treated as directed.

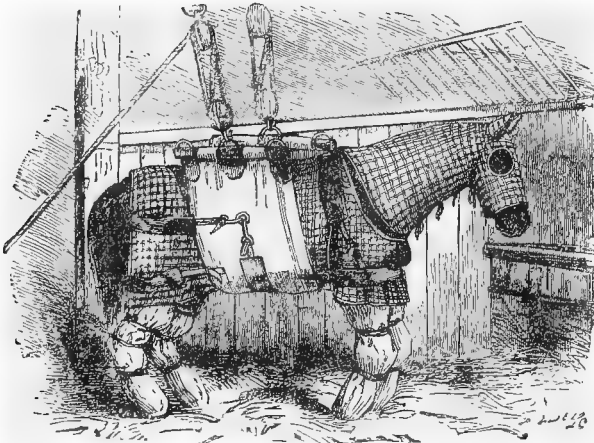
### RHEUMATISM.

This is an inflammation which shifts from one part to another, with sudden, painful attacks, and usually affects the limbs, chest, and loins. When the sides and heart become affected, recovery is more doubtful. It usually results from neglect, the animal being exposed to cold and wet, or standing in water when warm. Bad food or whatever lowers the vitality will produce it. It becomes chronic after repeated attacks, and then the swelling of the parts becomes permanent.

*Symptoms.*—Shivering at first; then the mouth and skin are hot, followed by marked stiffness and pain. If the shoulder be affected, the horse rests the toe frequently on the ground; if the loins, the back is raised and the belly drawn up. Swelling and heat of the joints and tendons of the limbs ensue, especially about the fetlock; usually fever; furred tongue; pulse seventy to eighty, but variable; sour saliva; active bowels; heaving in the flanks; short, rapid breathing; free, acid sweats; warm skin and legs. In a disease of the foot, with which rheumatism of the shoulders is often confused, there is a difficulty in *putting the foot to the ground*, while in the latter there is difficulty in *lifting the foot*. When the trouble shifts rapidly from part to part, it is called "flying lameness."

*TREATMENT.*—Aconite is needed for shivering; fever; local inflammation, tenderness and swelling; hot mouth and skin; sweats on parts of the body; full, rapid pulse; high-colored urine; impaired appetite. This remedy is especially efficacious if there is danger that the rheumatism will shift to the heart, in which case ten drops should be given every hour for several doses. The following conditions call for bryonia: acute attacks, especially in the legs, shoulders and side; reluctance to move; pain aggravated by motion; full, frequent pulse; short respiration; loss of appetite; thirst; costiveness, with dry passage; high-colored urine. It is particularly useful for attacks induced by changes in the weather, by wind or dry, cold air, and it is one of the best general remedies for rheumatism. It may

often be beneficially alternated with aconite. Rhus should be given if there be stiffness and pain on *first moving* after rest, but relieved by motion. It is especially valuable for rheumatism of the back; loss of muscular power of the legs; chronic rheumatism; cases that are induced by over-exertion and exposure to wet when tired; and this is also valuable when the tendons are chiefly involved. Cimicifuga is needed for swollen, heated joints; pain from motion; "flying lameness;" heart-complication; rheumatism which attacks the sides. Gelseminum is valuable for *loss of muscular power*; acute pain after long exertion; coldness and weakness of



SLING AND DRESSING FOR RHEUMATISM.

the legs; excessive action of the heart; cases that are worse at night. Phytolacca is efficacious in chronic rheumatism, with enlargement of the glands. Colchicum, muriate of ammonia and nitrate of potassa will be helpful in many cases.

In the way of general care, protect the animal from cold and inclement weather; keep the stable warm and dry, putting on warm, dry clothing in damp, stormy, cold, or windy weather. Put hot fomentations and liniments on the affected parts, especially on swollen joints. Among the liniments we may mention, as being useful in general, soap-liniment and lotions of rhus and belladonna. Cornmeal and bran will make good poultices for enlarged glands and inflammations. Perhaps the best local application for the affected parts is flowers of sulphur, rubbed on and then covered with a thick layer of cotton-batting. Indeed, dry cotton-batting alone is one of the most grateful and useful of all applications and great relief will be afforded by keeping the affected members wrapped in it.



Keep the horse quiet, but allow him to move when so inclined. In severe or long-standing cases, when the animal is unable to stand or lie down without much pain, it will be best to devise a sling and pulley to relieve the limbs of their burden. Give bran-mashes, carrots, clover, and milk-gruels. Care for the general health is the best of known expedients, especially in chronic rheumatism, and is the best preventive.

### CRAMP.

*Symptoms.*—In this disorder, which is a pain and knotting of the muscles after severe or long-continued exertion, the horse is sore and stiff; shows tenderness on pressure of the muscles, with difficulty and pain in moving the legs; hesitates to lie down, then drops suddenly, with a similar difficulty in rising; evinces but little change in appetite, pulse or respiration.

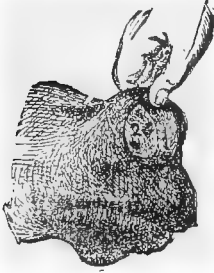
*TREATMENT.*—Arnica should be given immediately after any lengthened or severe exertion which demands great muscular efforts, a dose every four hours; it will act both as a preventive and as a cure. Rhus is preferable after the specific symptoms have appeared and the horse is stiff and sore. Brisk rubbing followed by the application of bandages on the limbs is often all that is necessary to give the required relief.

### GLANDERS AND FARCY.

Farcy consists in sores incident to glanders, and is not a separate disease. The two constitute one of the most loathsome and fatal diseases of the horse, which is very highly contagious, being imparted to some other domestic animals and to man. It is some form of blood-poison, and may be taken from contact of the virus with some broken or irritated part of the skin, or by absorption from the air, and the poison is lasting, the virus retaining its potency after lying in a stall for months. Occasionally a sound horse is found which will not take the disease. The virus is more dangerous when in food than in water. One horse often gets the disease by being with an affected one, or in his stall, or contracts it from a man who has been handling a horse so diseased. If the animal has been in any way reduced in his system, he is made more liable to the disease, and catarrh, strangles, and other disorders may terminate in glanders.

*Symptoms of Glanders.*—The *first* symptoms of glanders are these: Quick pulse and breathing; feverish excitement; a thin, inodorous, transparent discharge, generally from one nostril, usually the left, the right being less affected; light leaden or purplish hue in the mucous membrane of the nose. This set of symptoms may last weeks or even months, with the

horse in apparently good health and at his usual work. In the *second* stage, the remaining nostril becomes much affected, the discharge is greater and is mucous and sticky, adhering to the edge of the nostrils; the lymphatic glands beneath the jaw are enlarged, first on the side first affected, then on both sides, are tender and hard, and stick close to the jaw. In the



PROOF OF GLANDERS.  
1, Normal Nasal Membrane. 2, Membrane with Ulcers.

*third* stage, the discharge from the nostrils increases, is hard, yellow, perhaps blood-streaked, of offensive odor and mingled with pus; blood sometimes comes from the nostril; the mucous membrane of the nose has ulcers with ragged edges and low centers, which are marked by swollen veins running from them in all directions; the sores spread back to the throat; the lower eyelid becomes diseased, slightly swollen, a small discharge of matter coming from the corner of the eye; after a time, loss of appetite, strength, flesh and spirits; the swollen glands under the jaw become more tender and adhere closely to the bone; skin "hide-bound;" legs, sheath and testicles swell

during the day, becoming reduced at night; lameness; the hair turns the wrong way; ulcers in various parts of the body. These stages will be quite well marked in most cases.

Strangles, pneumonia, distemper, and other disorders are also marked by the sticky discharge, nasal ulcers and swelling of the glands beneath the jaw, but usually show these symptoms about the same time, thus differing from glanders. In the last also these are slow and eventually fatal, while in the other cases they are acute, rapid, and then subside. In catarrh the discharge from the nose, which in glanders is more marked in one nostril, is free in both nostrils, with prominent fever-symptoms. In lung-troubles some of the symptoms of glanders appear, but in the latter there is rarely any cough, while in the former a cough is nearly or quite always present.

*Symptoms of Farcy.*—On the inside of one of the legs or thighs, on the thin skin of the neck or lips, or on the glands, may be a sore which will afterward grow into a hot, painful "farcy bud," at first hard, then soft and containing pus. This sore will burst and present a depressed center, a hard, ragged edge, with discharges of pus; the connecting lymphatics become inflamed, hard and corded, with tumors of varying size along them. Though at first confined to one leg, the tumors spread to other parts, reaching the head and throat. Then the skin becomes dropsical, as also the leg, especially near the breast. After a time the joints give forth a sound as if the bones were slipping in the sockets. One is apt to confuse farcy with

grease, surfeit and weed. The subjoined tables of symptoms will enable one to distinguish it from the first of the three.

## FARCY.

1. Skin moderately inflamed, not very red, nor glossy, nor subject to discharge.
2. Swelling somewhat sudden, but not great, largest above the hock.
3. Along the course of the inflamed lymphatics ulcers are formed, having an irregular circular shape and hard edges.

## GREASE.

1. Skin hot, very red, glossy, with clear and very acrid discharge.
2. Swelling very great, especially at the lowest part, spreading in all directions, but chiefly downward.
3. On the heels clusters of small vesicles arise, which become pustular and exude an acrid discharge, which causes the skin to crack in deep fissures.

In surfeit the sores come out *suddenly* on different parts, while in farcy they appear one by one. In weed the large *vein* on the inside of the thigh is affected, whereas in farcy the *lymphatics* on either side of this vein are swollen, hard and corded. In general, the "farcy buds" are the decisive marks of farcy, whether on the legs or body; and when they affect the nose, they constitute true glanders.

TREATMENT.—"The acute disease is fatal. The chronic form occasionally appears to recover, though more commonly the symptoms are covered up to reappear whenever the animal is put to hard work. The treatment of glanders in all its forms, and of acute farcy with open sores, should be legally prohibited because of the danger to man as well as animals." (LAW.) The writer's first and urgent advice is to shoot the affected horse as soon as he is known to have the glanders or farcy. Where legal restrictions against treatment of the disease exist, the course of the attendant is clear. If the horse is so valuable that the owner, in the absence of such restrictions, prefers to attempt the treatment at the risk of communicating such a dreadful disease to members of his household, to his neighbors, and to domestic animals, he will be assisted by the following notes.

Carbolic acid is useful for both its internal and local effects. Mix ten drops of the strong acid in a pint of pure water and administer this internally in four doses six hours apart. Put twenty drops of the same strong acid in two pints of pure water, and frequently wipe out the nostrils with this dilution, using a syringe if the affected parts are otherwise beyond reach. Cleanse the ulcers and "buds" with the same, and bathe with it the disordered lymphatics, keeping cloths on the farcied parts moistened with this dilution, if this be practicable. When moistening the sponge and cloths with which the nostrils or other parts are to be treated, *pour* the liquid on them, so that what is in the vessel will be pure. Kali bichromicum may

have a good effect when the discharge from the nostril is grayish and sticky, or like the white of egg; the nasal membrane of a slate-color, with elevations which contain pus; the gland under the jaw adhering to the jaw, or enlarged. Dissolve one grain of the drug in twelve ounces of water and give a wineglassful of this three times a day. If the farcy buds be washed night and morning with a lotion of one drachm of the salt of the same drug in sixteen ounces of water, good results may be expected. Doses of five grains of arseniate of strychnia are highly recommended. Iodide of arsenic will have a good effect if given three times a day as soon as the "buds" have become full of pus, or when ulcers appear, or when there are no inflammatory symptoms. If this remedy and kali bichromicum appear to be indicated at the same time, they should be given in alternation, and such alternation will be especially valuable when farcy and true glanders exist at the same time, the horse becoming poor and weak. Bisulphite of soda in two-drachm doses is a good general remedy for glanders.



FARCY ON THE INSIDE OF THE THIGH.

When the farcy buds become soft, they should be opened with a sharp knife and a lotion be injected into them composed of five grains of chloride of zinc and one ounce of water. If the wound is not inclined to heal in a day or two, repeat this injection in two or three days. Ulcers may also be washed once or twice with this lotion, and be subsequently cleansed with strong salt-water four to six times a day if a cure is not effected. After washing the sores with salt-water, apply equal parts of flour and pounded charcoal three times a day, if the former treatment has not succeeded. A thick layer of calomel is also efficacious when the sores are slow about healing. Keep the horse clean and give moderate exercise or light work. The best of hay and a moderate allowance of oats, with carrots and other green food, will be a

suitable diet. Keep the stable clean, airy but not cold, change the bedding often, and use carbolic acid freely in washing the floor. Pure air, rich food, and an absence of exhausting labor are essentials in the treatment and prevention.

To prevent the spread of this dreadful disease, which is usually fatal however well treated, the best plan is to shoot the horse and bury him deep in the ground—it is still better to burn him—and no other course is free from danger to man or beast. Remember that a heavy penalty is incurred in some States by exposing glandered horses in a public place. All suspected animals should be carefully secluded until they are safe from infection, or have been cured or destroyed. All rags, sponges, brushes, pails,

and like articles which have been used in treating a glandered horse should be burned, as that is absolutely safe, though a thorough washing with carbolic acid may counteract the virus. The stable, manure, and whatever the infected animal has touched, should be thoroughly treated with carbolic acid, the bedding being burned. Let the attendants be as few as can do the necessary work. *Never handle a glandered or farcied horse if the skin of the hands is sore or broken*, for man may readily take the disease and suffer distressingly if not fatally. Always wash the hands in dilute carbolic acid after treating an infected animal, and before going near other people or beasts. If the clothes have the virus on them, or if doubt exists as to this, they should be washed in the same way. Keep well animals of all kinds completely away from an infected one. Every one who is to go near the suffering horse should be fully advised upon the virulent nature of the disease, and take the necessary precaution against contracting it.

### DROPSY.

The cause of dropsy is some obstruction of the circulation, or a diseased state of the blood, with general reduction of the system. It is called *general dropsy* when it causes a collection of watery fluid under the tissues of the skin generally, *hydrothorax* when it affects the lungs merely, and *ascites* when the belly or intestines are involved. *General dropsy* is caused by exposure to wet and cold, as when a horse is turned out of a warm stable to a marsh, or to pasture in cold weather; the coating processes of spring and autumn are causes, as well as derangement of the heart. *Hydrothorax* is occasioned by general weakness, by fever-epidemics, as influenza; and also results from the unwise operation of bleeding. *Ascites* has the same causes as general dropsy, and is also a result of diseases of the belly, chest and membranes about the small intestines, indigestion, obstruction of the veins, and general debility; it frequently results from peritonitis.

*Symptoms.*—The universal symptom of dropsy is swelling of the skin, which retains for some time indentations of the fingers, and is attended with great weakness, with absence of inflammation and pain; fever-symptoms, at first slight, become marked. If *hydrothorax* results from pleurisy, when acute symptoms subside the motion of the water in the chest may be clearly detected by striking with the hand; the animal loses appetite, grows languid, depressed, weak, and has an anxious look; the back is rigid, flanks drawn in, hair rough and easily pulled from the tail and mane; pulse rapid, feeble, and finally imperceptible at the jaw; nostrils spread; eyes, mouth and nose of a leaden color; breathing short and very labored; fore legs stand apart; urine scanty, bowels bound; swellings over the limbs,

belly and sheath. In *ascites* the belly gradually swells so that alternate and rapid pressure by the hand on the sides will produce fluctuations of water and a dull sound; breathing becomes difficult as the water increases; usually external swellings of the belly and sheath follow; coat dry and loose; urine thick and sedimentous; skin hide-bound; griping pains; the usual costiveness is followed by diarrhœa, with offensive dung.

TREATMENT.—Give aconite for inflammatory general dropsy, when the swelling comes on suddenly and rapidly spreads, with hastened breathing and pulse, thirst, reddening of the eyes and nostrils; and also if this condition results from a sudden check of the secretions of the skin from exposure to wet or cold. Arsenicum is of the highest value in all forms of dropsy that are marked, in addition to the swelling, by weakness, emaciation, loss of spirits, great thirst, loss of appetite, dry tongue, difficult breathing, small, weak and irregular pulse, cold legs, scanty and turbid urine, and diarrhœa. Digitalis may be given when the heart is implicated and the pulse is small, feeble, intermittent and irregular, breathing difficult, and urine scanty. It is useful in almost every kind of dropsy, even in desperate cases, and may often be beneficially alternated with arsenicum. Apis is highly useful, especially when fever-difficulties are present, such as hurried breathing, small and quick pulse; for passages of urine which forms a reddish sediment and for rapid swellings. It is particularly valuable for ascites in the first stages, and is also useful for hydrothorax. In the general care measures should be taken to avoid cold, dampness, and vigorous exercise, though a little walking for an hour may be given, if no fever-symptoms exist. Let the horse take exercise in a loose box during inflammatory dropsy, and give mashes of green food; but barley, boiled oats and the best of hay are needed if there be much weakness. Tapping should not be resorted to until a fair trial of medicines has been given. This operation is performed in ascites by cutting the navel with a lancet, the fluid being drawn with the trocar and canula, the skin drawn over the cut, and pressure applied with bandages. In other forms the swellings may be pricked in the parts hanging down the most, the discharges being subsequently promoted by fomentations and pressure applied to the parts.

#### SPLENIC FEVER.—ANTHRAX.

This fever is acute and contagious, is marked by a great enlargement of the spleen, and is rapid in its progress. It is caused by the contact of an infected animal with one that is healthy. It is more common among cattle than among horses. For fuller notes upon its different forms, see this disease in the Ox.

*Symptoms.*—Loss of appetite; thirst; cold and shivering; coldness of the surface, followed by heat; convulsive movements and peculiar spasms about the extremities; pulse and respiration quickened; temperature from 105° to 110°; bloody dung; whitish discharge from the nose; high-colored, odorous urine. Though the symptoms are usually regular, they may be intermittent, the horse being seemingly almost well during their intermissions. Recovery or death comes on rapidly. In fatal cases the breathing is exceedingly difficult, the convulsions in the back, loins and muscles of the eyes are violent; the temperature falls; loss of power ensues, and death is precipitated by a suspension of circulation. Carbuncles attend this fever, and are at first hot, tender, and easily indented, but soon become hard, painless and cool, terminating in ulcers. Yellow serum or blood may exude from some parts of the skin; the mucous membranes become puffy, stopped up, or streaked, with a bloody and offensive discharge finally coming from the nose. Sight, locomotion, eating, drinking and urination become impaired or impeded. Death may ensue in a few hours, or the animal may linger weeks, or even months. During the progress of the disease the animal hangs on the halter, leans against any object within reach, lies down, but soon rises again, turns the head toward the flank, and shows signs of pain in the belly.

*TREATMENT.*—If symptoms of fever are chiefly noticeable, give ten drops of aconite every half-hour. For the general fever give one part of strong liquor ammonium causticum to ten of water every half-hour. For apoplectic symptoms belladonna and aconite may be used, fifteen or twenty minutes apart. For local swellings and carbuncles give arsenicum or phytolacca. If the dung becomes bloody, with straining during the discharges, and if the urine be bloody, give mercurius corrosivus. In the way of general care give a change of air, a comfortable stable and nutritious food. Remove an animal dying from this trouble, and cleanse the stall and all its furniture before admitting another horse. Carbolic acid has proved serviceable as a preventive. Further directions as to general care may be found under the treatment of this disease in the Ox.

#### PURPURA HÆMORRHAGICA.—ACUTE ANASARCA.

This depends upon some unknown change in the blood or its vessels, perhaps both, by which the blood oozes into the skin and its tissues, and into the internal cavities and organs. It is supposed to be caused by ill-ventilated stables, over-work, bad or scanty food, damp stables; indeed, whatever checks proper blood-making; it often follows some catarrhal trouble.

*Symptoms.*—The symptoms are full pulse, about sixty; breathing about twenty; irregular swellings of various size, consisting of blood, under or in the skin, especially in the legs, becoming enormous at the hocks, ending short at the elbow-joints and stifle; the nostrils and lips are swollen,



HEAD DEFORMED  
BY PURPURA HÆMOR-  
RHAGICA.

hard and shiny; the chambers of the nose so far closed as to cause difficulty in breathing; nasal membrane very red and marked with purple spots of varying size, similar spots being on the inside of the lips, which, when pricked, give out blood. Soon the pulse becomes weaker and the urine high-colored; swellings enlarge and extend to the belly, flanks and other parts; eyes blood-shot; the nasal membrane blackens; the spots become ulcerous, with shreds of tissue hanging out; a dark bloody fluid, perhaps mixed with water, flows from the nose; the swellings on some parts become

cold, very hard and insensible, break off, and leave raw sores; a fluid stands on the hair, principally under the belly; blood passes with the urine, or in clots; the horse is weak, is unable to move the swollen legs, and eats little, perhaps nothing.

It should be observed that in Weed the femoral vein is enlarged and tender, but not in purpura hæmorrhagica, and that in the former the swelling on the inside of the thigh is hard and not elastic. Again, in Glanders and Farcy there are swollen lips and nose, with a brown, pussy discharge from the nostrils, and ulceration of the dividing wall of the nose; but they are not attended by the sudden swelling of both thighs, without cording, and of the muscles of the chest; nor by the purple blotches inside the lips and gums; nor by the dark purple shade of the nasal membrane after the small red spots. These distinctive features should be carefully noted, for purpura hæmorrhagica is for some strange reason not unfrequently mistaken for farcy and glanders.

*TREATMENT.*—Kali bichromicum has proved to be a most valuable remedy, especially when sloughing of the mucous membrane of the nose or parts of the skin takes place, and when pimples appear on the skin. It may be given every three hours at first, the intervals being lengthened as the animal improves. Among the best remedies for this disorder we may mention ergot and arsenic, the latter being suitably given in the form of Fowler's Solution. As soon as the inflammatory symptoms subside, or even in the start, when the malignant symptoms are very marked, these two should be given, the former in doses of ten to fifteen drops alternated with five-drop doses of the latter every two hours. Wash the sores with a solution of carbolic acid or chloride of zinc, so far diluted as to avoid irri-



tation. Provide a dry stable, with good ventilation. Give nourishing food. Require but little work, but insure a reasonable amount of light exercise.

### ABSCESSSES.

Abscesses are collections of pus in some parts or organs of the body. They may result from some of the diseases or injuries elsewhere mentioned in this work, as fever, for instance, or they may be caused by a disorder in the blood without any apparent previous disease. Some part is inflamed and pus forms, which will either float about in the tissues or be collected in one place, the enveloping sac becoming full and yielding to the touch, and generally rising to a point or "head," finally bursting and letting out its contents. They may and generally do form under the skin, but may occur within the animal, as in the lungs. When they are deep in the flesh the pus cannot readily come out, and a narrow canal is formed which leads to the surface.

TREATMENT.—If the abscess be in the inner organs, an improvement of the horse's general condition is all that one can do, and regard should be had to the feeding, grooming, ventilation and the like. If the abscess can be reached, cut it open at the most prominent point *when it pulsates, is soft and nearly ready to burst*. In such cases it would soon burst spontaneously, but cutting averts the rough, irregular and large opening which the natural process causes. Should it not come to a point, but spread, open at once. If the disorder is owing to the presence of irritating fluids, open immediately and let the fluids escape. If the formation of pus be unduly slow, apply a poultice or mild blister, *but not until the abscess shows signs of coming to a head*. If the sore be deep in the flesh, and a canal has been formed leading to the surface, it will often be necessary to cut the walls of the canal completely open to the bottom, thus making an incised wound, and treating as directed under Incised Wounds. It is seldom, if ever, advisable to check or disperse matter when once forming. When an opening has been cut, gently squeeze out the matter and inject warm water into the sore with a syringe twice daily for two or three days, and keep the edges of the sore clean. If bloody matter is discharged, add some diluted ammonia to the warm water.

For high fever, local inflammation, swelling or tumor threatening an abscess, give ten drops of aconite every two or three hours. If suppuration is slow, give hepar every three hours. For an abscess which discharges a thin, discolored, offensive matter or pus of a bad odor, give five grains of asafœtida three times daily, and apply a wash of either one grain of chloride of zinc to an ounce of water, or ten drops of carbolic acid to an

ounce of water. *Baryta carbonica* is valuable for hard tumors in the head, enlarged glands which threaten to form pus, or tubercles in the jaw; it aids in softening hard abscesses, and also removes scrofulous tumors without suppuration. Abscesses are very debilitating and need good treatment.

### ULCERS.

Ulcers often follow bruises and other extended injuries, and take place especially when the system is unhealthy, but may result from inflammation. They are a separation of dead tissue from surrounding parts, and are attended with a secretion of pus. If the ulcers appear on a mucous membrane, there will at first be seen a red point or two, with a few small vesicles on the surface of the part affected, a watery fluid exuding from beneath, and sometimes a thick, gray, slimy lymph. The ulcer grows larger as parts of the tissue come away, its edges becoming ragged and swollen. It may be deep, extending in different directions; round and shallow, with ragged edges, and spreading out; or sloughing, parts of the tissue flaking off.

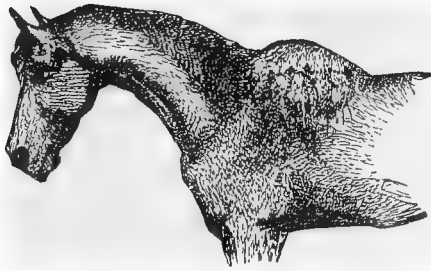
**TREATMENT.**—Have regard to the general health by insuring nourishing food, fresh air, good grooming and rest. Nearly always avoid the use of ointments. Plain cold water is the best external treatment. If the formation of pus is too long delayed, press around the sore lightly, and should this not avail, use a mild blister somewhat frequently. Should the granulations be excessive in the healing, apply lunar caustic or powdered burnt alum. If the injury results from chafing of the saddle or harness, follow the treatment given under Galls. For fever, give ten drops of aconite every three hours for a day or two. *Mercurius* is needed for spreading ulcers, corroding discharge, and rawness. *Arsenicum* is demanded for ulcers which result from a debilitated constitution, hard work, and poor fare; for deep, readily bleeding, inflamed, putrid, gangrenous, corroding, mortifying and spreading ulcers; for those with thin pus of bad odor. Give five to ten drops three times daily. *Asafœtida* is desirable for bluish ulcers, turning black, with hard edges, and painful to the touch, the dose being three to five grains three times a day. Ten drops of sulphuric acid every four hours will be beneficial for ulcers with dark spots and discolored skin when the cause is some mechanical injury, bruise or pressure.

### FISTULA.—FISTULOUS WITHERS.

In this disease matter forms from an inflammation caused by a badly-fitting collar or saddle, usually a side-saddle, or other injury. The matter

is confined in the muscles and ligaments, forms canals, and passes down to the muscles connecting the shoulders with the trunk. Sometimes, however, the abscess takes the form of a sac with serum in it, when the case is easily cured. In the worst form, the muscles connected with the neck, back and legs being involved, the inflammation rapidly extends, the ligaments, muscles and cartilages are affected, the shoulder is lowered, and much damage occurs.

*Symptoms.*—Swelling and tenderness on the withers or at the side of the upper end of the spine, soon attended with softness. If the skin be much bruised, a piece comes off, leaving an unhealthy sore, through which



ADVANCED STAGE OF FISTULOUS WITHERS.

a discharge runs out from a sac that may be detected with a probe; or fistulous ducts may run in various directions. In some cases there is a hard tumor on the withers which stubbornly remains, but will not suppurate.

*TREATMENT.*—First alter the saddle, or keep the horse from work a few days. If the swelling be recent and soft, apply a lotion of arnica and glycerine with lint and oil-silk until the inflammation subsides. If the tumor bursts or is cut open, bathe it with a lotion of one part of arnica to two of water. If a serous sac or fistulous canal exists in the swelling, it must be opened for the escape of the matter. Generally it is best to make the opening low down on the right side, since the horse usually lies on that side and the matter will more completely be discharged in this way. After the opening has been made, dress with a lotion of calendula, one part to four of water, four times daily and inject some of the same into the canals, if such exist. If the walls of the canals thicken, become hard and indisposed to heal, zinc, copper, or mercurius corrosivus, in weak solution, should be injected until renewed action is set up; then the calendula-lotion will complete the cure. If the bone is involved and decays, it should be removed by a surgeon. Of course only a skillful surgeon can make the opening in the canals if they be deep down in the fleshy tissues.

## FISTULOUS NOSE.

Wounds sometimes produce ulcers in the back part of the nose, perhaps inducing ulceration of the bones which discharges a thin, unhealthy, pus-like fluid, such ulcers being of a fistulous character.

TREATMENT.—Apply to the fistula a solution of carbolic acid, ten drops to an ounce of glycerine. Wash well with soap and water. The following formula will be useful if the fistula does not heal but remains unhealthy:

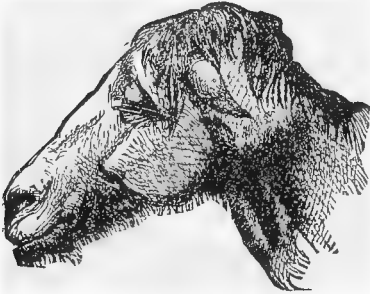
Hydrastia,	20 grains.
Iodoform,	10 grains.
Sugar,	½ ounce.

Pulverize together in a mortar until they are thoroughly mixed; then apply to the fistula once a day, blowing it from a quill.

## POLL EVIL.

Poll evil results from some blow on the top of the head, or from a coarse, heavy head-collar chafing the part.

*Symptoms.*—Hanging head, the horse being unwilling to be handled about the ears; painful swelling just back of the ears on the top of the head, at first hard, then growing soft, of the nature of an abscess, gradually coming to a head, bursting, and discharging matter, which is sometimes healthy, in other cases, when the ligaments and bones are involved, unhealthy and offensive. The probe will detect a single cavity, without canals, or canals passing in different directions, perhaps extending to the bone.



POLL EVIL IN AN EARLY STAGE.

TREATMENT.—This disease is very difficult of treatment except in the earliest stages, when it may be checked by removing the cause and applying arnica to the part. The formation of

matter should be prevented if possible. When this can not be done, cut open the hard, painful swelling (*if you are a skillful operator*), and apply lint saturated in equal parts of glycerine, calendula and water, oil-silk being put on then, and a linen hood with openings for the ear being fastened on with tapes around the jaw and neck. Moisten the linen three times daily with the lotion. Should the tumor become soft and mobile, a surgeon should at once open it, in such a way, if possible, as to allow the matter to

run out. If matter still remains, it may be removed with a sponge. When canals exist where the surgeon deems it unsafe to make an opening, and a thin, bloody discharge comes off, indicating diseased bones and tendons, a weak solution of corrosive sublimate or of chloride or sulphate of zinc should be injected daily. When the matter becomes thick and white, calendulation may be injected instead of the corrosive sublimate or zinc. When there is a low state of the system, tonics should be given, as iron and cinchona. When such a state is accompanied by a thin, foul, bad-smelling and corroding discharge, give arsenicum. Aconite is needed for primary inflammation, ten drops of dilute tincture being put in a pint of water and given two or three times daily until the inflammation subsides.

## WOUNDS.

The whole subject of wounds may be treated under this general head. We divide the matter into four groups, namely, *contused* wounds, *incised* wounds, *punctured* wounds, and *lacerated* wounds.

### CONTUSED WOUNDS.

By this term we mean those in which the skin is bruised, but not cut through or broken. They are caused by some mechanical violence, such as a halter accidentally caught around the leg, a fall, a kick, or a blow. The symptoms are redness, heat, swelling and pain of the affected part.

**TREATMENT.**—In mild cases wet two or three folds of linen in a lotion made of one ounce of calendula, two ounces of glycerine and a half-pint of water, and place them on the parts with a wet bandage, repeating this every two hours. If the skin and under-lying parts are much affected, foment the part with warm water constantly during the day, and apply a bran-poultice at night. When the sore grows soft, let the matter out with a lance, or sharp knife, the fomentation only being then continued. If lymph forms instead of pus, and the swelling still remains, rub the part with the calendula-lotion twice a day. Should this fail, rub in daily a small quantity of a preparation composed of four ounces of soap-liniment and one-half ounce of camphor. Apply carbolic-acid lotion if flies lay eggs in the wound.

One of the best applications for open wounds, mentioned here but applicable as well to clean cuts and lacerated wounds, is a decoction of but-

ternut bark. Fill a kettle with this bark, chopped fine, cover with water, and let it simmer slowly, adding water as it evaporates, until a strong tea is made. Apply with a swab. This will both keep the wound clean and prevent the flies from infesting it, two very important points.

#### INCISED WOUNDS, OR CLEAN CUTS.

Incised wounds are those in which a clean cut is made, without laceration, by some sharp-edged instrument.

TREATMENT.—In many cases the lips of the wound close and heal without treatment. In other cases calendula-lotion will be found an excellent external application. If the wound fails to yield to this treatment, the surgeon must join the lips by some process, and it is advised to call him at first in case of severe cuts. If the loss of blood be considerable, give tonics to restore the strength, such as cinchona.

*Bleeding* is generally of little consequence unless a large artery be cut, which is indicated by *spurts of bright-scarlet blood*; then the mouth of the artery should be seized at once with forceps, and a ligature be put around it. If this be impracticable, put tow in the wound and hold it with a bandage. Pieces of lint soaked in a lotion of millefolium, one part of the strong tincture to nine of water, may be put in the wound, to the bottom, and be left until the healing of the wound pushes them out; this will be better than the tow. Cold water dashed on the part will often stop bleeding; as also will strong alcohol. If bleeding will not stop after the lips of the wound have been held together, and the attendant has no ready means for tying the artery, he should apply pressure firmly on the blood-vessel *above* the wound (toward the heart) by passing a bandage around the affected member, with a stone or walnut resting on the artery, then putting a stick underneath and twisting the bandage until the flow stops. Severe bleeding from a vein (indicated by a *constant*, not spurting stream) may be checked by like pressure applied *below* the wound. If flies lay eggs in the wound, wash with a lotion of carbolic acid. Read the note under Contused Wounds upon the use of the decoction of butternut bark.

#### PUNCTURED WOUNDS OR PRICKS.

Punctured wounds have small openings, but are usually deeper and more serious than others. They are made with pitchforks, nails, thorns, splinters, crockery, and the like.

TREATMENT.—Remove thorns, splinters, or other foreign body from the wound. If the injury is not near a joint, or has not penetrated a tendon, it is best to lay open the wound and make an ordinary incised wound,

treating it then as directed under the last subject above. If a tendon be punctured and fluid is discharged around it, or if a joint be punctured, adopt the treatment laid down under Open Joints. If lock-jaw ensues, as is likely to be the case from this kind of wound, especially if the foot be pricked, consult the section on that subject. Should flies' eggs be seen in the sore, apply carbolic-acid lotion for their destruction.

#### LACERATED WOUNDS.

These are injuries in which the skin and parts under it are torn, jagged, irregular, and often bruised. They are caused by nails or hooks in the walls of the stable, poles or sticks running into the flesh, and the like.

**TREATMENT.**—Bring the parts of the wound as nearly as possible into the natural position of the skin, and cut off those portions of lacerated skin which you know would surely slough off eventually. Grit or sand should be previously removed, by bathing in warm water if the bleeding be slight, or by dashing on cold water if the bleeding be profuse. If the wound be large, a surgeon may sew the parts, bringing the lips closely together. For the inflammation, which is usually severe, use warm fomentations every one, two or three hours, keeping a bandage on to exclude the air and to prevent the washing away of the lymph which is essential to healing. In about a week, when inflammation has subsided, remove the bandage and discontinue fomentations, allowing a little water to run over the wound to remove superfluous matter. The use of a sponge must be avoided, as it will remove the lymph. Indeed, unless the matter is very plentiful and has a bad smell, even water should not run over the wound. When healing commences, oil-silk or collodion, applied with a very soft brush, may be put on the sore to exclude the air. Liniments are usually harmful; nature should take her course, with such assistance as has been mentioned, until granulations appear in the wound, when calendula-lotion will aid the skinning-over of the injury. Should the granulations rise above the skin, or "proud flesh" form, apply finely-powdered sulphate of zinc. For flies' eggs in the wound, apply a lotion of carbolic acid. Read the remark under Contused Wounds upon the use of butternut bark.

#### OPEN JOINT OF THE LOWER JAW.

This needs some special mention, and may be considered here, laceration of the tongue being another specific kind of wound that will be noticed. Such open joint may be caused by a blow, the joint-oil escaping, the parts becoming painful and swollen, and the joint possibly becoming so inflamed as to cause disease in the bone and prevent eating.

**TREATMENT.**—Keep the jaws fixed by a head-collar, with a strap fastened around the face and lower jaw above the nostrils. Feed only thick gruels and other fluids until the jaw is completely healed.

#### LACERATION OF THE TONGUE.

Laceration of the tongue may result from a high port-bit; the forcible administration of food; irregular or long, rough teeth; a blow when the tongue hangs out; thorns, sharp bones, and the like. The symptoms are slobbering and inability to eat, which will lead to an examination that will discover the laceration.

**TREATMENT.**—Remove foreign bodies. Apply a lotion of equal parts of calendula and water. If ulcers appear, apply alum or hydrastis. Keep the bit out of the mouth for some time. Give soft green food.

#### GENERAL CARE IN WOUNDS.

Keep the wounded parts at rest. Remove any foreign body or matter that may be in the wound. If the jaw be injured, give only sloppy diet, such as does not require mastication. If the legs are affected, the horse should be tied up in many cases, and occasionally should be so placed that he cannot gnaw the wound. If “proud flesh” forms, which is an excessive and unhealthy granulation, apply sulphate of zinc or copper, nitrate of silver, or alum. If the healing process be too slow or stopped, the wound may be roused again to action by gently removing the edges with a knife if it be in the skin, or by other mechanical irritation if another part be thus dormant. Poisoned wounds, as from snake-bites, should be promptly cauterized, as directed under Hydrophobia. All indications of lock-jaw should be promptly regarded. It is also desirable, often very urgent, that oil-silk be put over the dressing to exclude the air.

#### STAKING.

Staking is an injury sustained by leaping a fence or gate, the skin and tissues of the abdomen being punctured or torn.

**TREATMENT.**—If the skin is not broken, but the muscles are torn, and the bowel falls into the torn part underneath, a well-fitting pad must be bandaged on and kept wet with arnica-lotion. Should the skin be broken and the bowel hang out, keep the horse where he is, gently wash blood and grit from the bowel with warm water, and replace it with gentle pressure and manipulation. The surgeon will then draw the lips of the wound together and bind them with pins and tow. With a bandage around



the body fasten on the part a pad kept wet in calendula-lotion. If the bowel has been torn, the surgeon will sew it up before replacing it. Give aconite and arnica alternately, ten drops every two hours. Keep the horse quiet. Give soft food, and that sparingly.

### SPRAINS.

A sprain is an over-stretching of muscles, ligaments or tendons, and may arise from either of various causes. It affects any part that is subject to such undue tension.

*Symptoms.*—Pain on pressure, or motion; redness; swelling; heat; fever of the affected member, and sometimes of the general system. Since a sprain will impair or destroy the use of the parts, the muscles about such parts will waste more or less, such a condition being known by the general term “sweeny,” though it is popularly applied quite exclusively to such a condition about the shoulders. This specific form of sweeny will be considered further on.

**GENERAL TREATMENT OF SPRAINS.**—For fever, when it exists, give aconite several times a day. Arnica is needed when the sprain is in the muscles; and rhus if it is in the tendons or ligaments. Apply fomentations, or bandages kept wet in water (hot in winter and cold in summer), or in a lotion of arnica or rhus. Lint wet in equal parts of glycerine, alcohol and water, and covered with oil-silk and a bandage, is an excellent dressing. Poultices will be found beneficial in some cases. Simple rest may be sufficient in some sprains, and is always essential. When the inflammation has been reduced by any of the means which have been mentioned, a lotion of one part of rhus to eight of water may be well rubbed in night and morning, and a moderately tight bandage be applied. An excellent liniment is made on the following formula:

Soap liniment,	4 ounces.
Camphor,	½ ounce.
Liquor ammoniæ,	1 ounce.

Mix.

Rub on a spoonful once a day, for two or three days perhaps, but discontinue it as soon as a mild blister is produced. Keep the horse's head tied up forty-eight hours, and repeat the application in ten days if necessary.

### SWEENY.

We apply this term, in its popular sense, to a sprain of the muscles which fill the back cavity on the outer side of the shoulder-blade. and

which pass over the outer side of the shoulder-joint. It chiefly affects colts and young horses that are put to the plow, but occurs in any horses that travel on uneven ground where they are liable to step into holes.

*Symptoms.*—Heat, swelling, tenderness on the outside of the shoulder-joint, and a gait which is peculiar to this disorder; the walk or trot may be attended with little or no lameness; looking at the animal from in front, one sees that the affected shoulder rolls outward much more than the other; the muscles soon begin to waste rapidly, and in extreme cases the shoulder-blade will seem to be covered only by the skin. Like symptoms, even including the characteristic waste of the muscles, may attend sprains in other parts, more notably the haunch, and such cases require substantially the same treatment as shoulder-sweeny.

*TREATMENT.*—It may take treatment for months to effect a complete filling of the cavity, but this can be done if the case is taken before it has stood long; in those which are fully confirmed only a partial restoration can be effected. In the first stages, marked by heat and other acute symptoms, treat as directed for Sprains. After such symptoms have been subdued, impose exercise on smooth ground and rub the parts with a rough rag, a bunch of hay or a stick to stimulate circulation—the liniment made on the formula given under Sprains being a most useful adjunct to this end. Another superior local application is here given:

Oil of spike,	2 ounces.
Origanum,	2 “
Aqua ammonia,	2 “
Turpentine,	2 “
Sweet oil,	2 “
Alcohol,	2 “

Mix.

Apply every morning for three days, and on the fourth day wash thoroughly with Castile soap and water. On the fifth apply as before, continuing three days, then washing as on the fourth day. So continue until a cure is effected, rubbing well with the hand at each application.

#### SHOULDER-LAMENESS.

Many mistakes are made in locating lameness in the shoulders. Hence, the symptoms should be the more carefully named and observed.

*Symptoms.*—The horse is unwilling to raise or advance the leg, and moves it by dragging it with the toe on the ground, turning it around when he does advance it; pain is caused by lifting and drawing the leg

forward or outward, and by pressure on the affected muscles; sometimes a swelling at the point of the large bone near the breast, which is pained by pressing the fingers along the muscles.

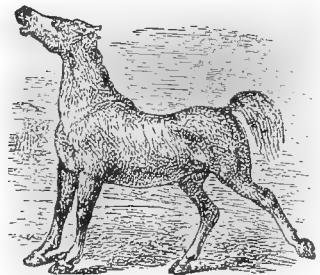
**TREATMENT.**—Frequently foment the part with warm water. When active inflammation ceases, rub in the camphorated ammoniacal liniment of which the formula is given under Sprains.

## DISLOCATIONS.

These almost always need the services of a surgeon. They are generally characterized by a protuberance over the displaced joint, which is caused by the end of the bone pressing against the skin which covers it. The use of the joint is, of course, lost while the displacement continues. The accompanying illustration of a dislocation of the whirl-bone, with the protuberance at the joint, will be a guide in detecting the disorder in other joints. We here give the special symptoms and treatment of a dislocation of the *stifle-joint*.

**Symptoms.**—Should the stifle-bone be displaced, the leg protrudes backward during motion, with inability to draw it under the body; the pastern trails along the ground; swelling appears on the outside of the joint. In a sprain of the stifle-joint there will be the heat, swelling and tenderness incident to sprains, and in action the horse will carry his leg around instead of raising it naturally.

**TREATMENT.**—We mention the treatment of this form of dislocation because it may be attempted by any intelligent person; but displacements in other joints should always be treated by a surgeon. A line should be passed around the pastern and an assistant draw the leg forward and upward toward the belly, while the operator puts his arms around the haunches, places his hand on the outer angle of the stifle-bone, presses it forward and upward, and thus manipulates until the bone slips back to its place, as indicated by a snap. Keep the head tied up for a few days to keep the horse from lying down, and apply a strong pitch-plaster to the joint to prevent a recurrence of the dislocation. The strained tendons will need to be treated as directed for Sprains. To keep the horse from lying down the requisite time slings may be necessary to relieve the limbs of a part of their weight, and a suitable one is shown in cut 169.



DISLOCATION OF THE WHIRL-BONE.

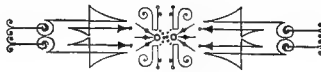
## FRACTURES OF BONES.

Fractures are caused by various forms of violence. In some cases it may be difficult for one who is not conversant with such matters to detect their existence, but generally little trouble will be found in deciding the matter, especially in the legs. In nearly every case when a fracture is discovered or suspected, a veterinary surgeon should be called at once, though in bad fractures in the legs of horses which are of an excitable disposition, treatment is quite useless, and it is better to shoot the horse, *as always in broken back*. After the surgeon has operated on the fracture and left, swelling and inflammation may be so great, especially if splints have been used, that he must be recalled. Should "proud flesh" form when laceration of the tissues has been caused, apply to it nitrate of silver or powdered sulphate of zinc. If the skull be broken, as may occur from the horse rearing and falling backward, immediate care should be taken to prevent poll evil; if the latter ensues, follow the treatment elsewhere laid down for it. If the ribs be fractured, and it is certain that a sharp end does not protrude inward, but the ends of the ribs are joined and protrude outward, pass around the body a compress and bandage, giving absolute rest and quiet. Some weeks are required for a cure of a fracture.

## OVER-EXERTION.

Over-exertion gives rise to symptoms which call for treatment, prominent among which are loss of appetite; failure to lie down; sleep while the animal stands; hanging head; pulse slow and weak, or quick and hard, the animal being much excited.

TREATMENT.—If there be loss of appetite, and failure to lie down when the animal is very tired, give *nux vomica*. If the horse moans at each movement, *rhus* will be useful. When the pulse is hard, quick, and attended with great excitement, give *aconite*. *Arnica* is efficacious if the legs be paralyzed; *arsenicum*, if they be stiff; *rhus*, if they be swollen. If the animal is distressed during fatigue, give easily digested food, not in too great quantities, as bran-mashes, steamed carrots and turnips, sweet hay shaken up and sprinkled with water, oats (about two quarts) soaked and well mixed together. As a drink, give water, not cold, and boiled oatmeal.



## CHAPTER XII.

### GENERAL CARE.

#### AILMENTS OF DOMESTICATION.

**T**HE horse seldom suffers from disease when he enjoys his natural freedom and untrammelled activity out of doors, but in domestication he soon becomes liable to more or less of the many ailments incident thereto. The subject of health is a broad one as applied to any animal organism, too broad indeed for any detailed consideration that will at once be full enough for its demands, and yet brief enough to be read and heeded. As in the human being one seldom studies with patience and precision the requirements of health until sickness has come on, so the master of a horse is too prone to pass the laws of hygiene of his faithful servant until disease has rendered him unfit for the duties required of him. As was remarked on a preceding page, it is scarcely less than cruelty for one to withhold a due study of the needs of the dumb and helpless brutes which are taken from their state of nature and compelled to do the drudgery and bear the burdens of mankind. It is too often the case that one pays only such heed to his animals as will enable him to draw from them the service he wishes, without being humane enough to make due provision for the comfort and convenience of the animals, which is *his* "reasonable service." It is the purpose here to make notes upon the ordinary particulars in the care of the horse, omitting the technical and scientific data which both deter one from reading what is essential, and are of little popular use. In so doing, we shall allude to some of the common causes of disease and discomfort and indicate the means of removing them.

#### AIR AND VENTILATION.

Though able to bear severe changes in the weather when running all the time in the open fields, the horse suffers greatly from the same influences after being comfortably stabled for any considerable length of time. While the cause of colds and like diseases is often traceable to atmospheric changes, a very frequent source of the same will be found in the anxiety to exclude the air

## EXPLANATIONS OF FIGURE

The figure on the opposite page exhibits a complete outline of a perfect horse and indicates the measurements of the same. The whole is taken, by permission, from the *Horse-Shoer and Hardware Journal*:

### SKELETON AND OTHER PARTS.

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Vertebrae of the Neck.</li> <li>2. Breast-Bone.</li> <li>3. Shoulder-Blade.</li> <li>4. Bone of the Arm.</li> <li>5. Radius.</li> <li>6. Ulna.</li> <li>7. Elbow.</li> <li>8. Ribs.</li> <li>9. Carpal Bones.</li> <li>10. Metacarpal Bones.</li> <li>11. Great Pastern.</li> <li>12. Little Pastern.</li> </ol> | <ol style="list-style-type: none"> <li>13. Coffin Bone and Hoof.</li> <li>14. Vertebrae of the Back.</li> <li>15. Vertebrae of the Loins.</li> <li>16. Basin Bone.</li> <li>17. Thigh Bone.</li> <li>18. Patella.</li> <li>19. Tibia.</li> <li>20. Fibula.</li> <li>21. Bones in the Hock.</li> <li>22. Metatarsal Bones.</li> <li>23. Pastern Bones.</li> <li>24. The Coffin Bone and Hoof.</li> </ol> |
|--|---|

### FAMILIAR TERMS.

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>a. Crest.</li> <li>b. Withers.</li> <li>c. Throat.</li> <li>d. Shoulder Points.</li> <li>e. Arm.</li> <li>f. Knee.</li> <li>g. Fetlock (fore).</li> <li>h. Pastern (fore).</li> <li>i. Foot.</li> <li>i i. Coronet.</li> </ol> | <ol style="list-style-type: none"> <li>k. Body.</li> <li>l. Quarter.</li> <li>m. Dock.</li> <li>n. Sheath.</li> <li>o. Hock.</li> <li>p. Shank.</li> <li>q. Fetlock (hind).</li> <li>r. Pastern (hind).</li> <li>s. Foot.</li> <li>t. Thigh.</li> </ol> |
|---|---|

### THE FOOT.

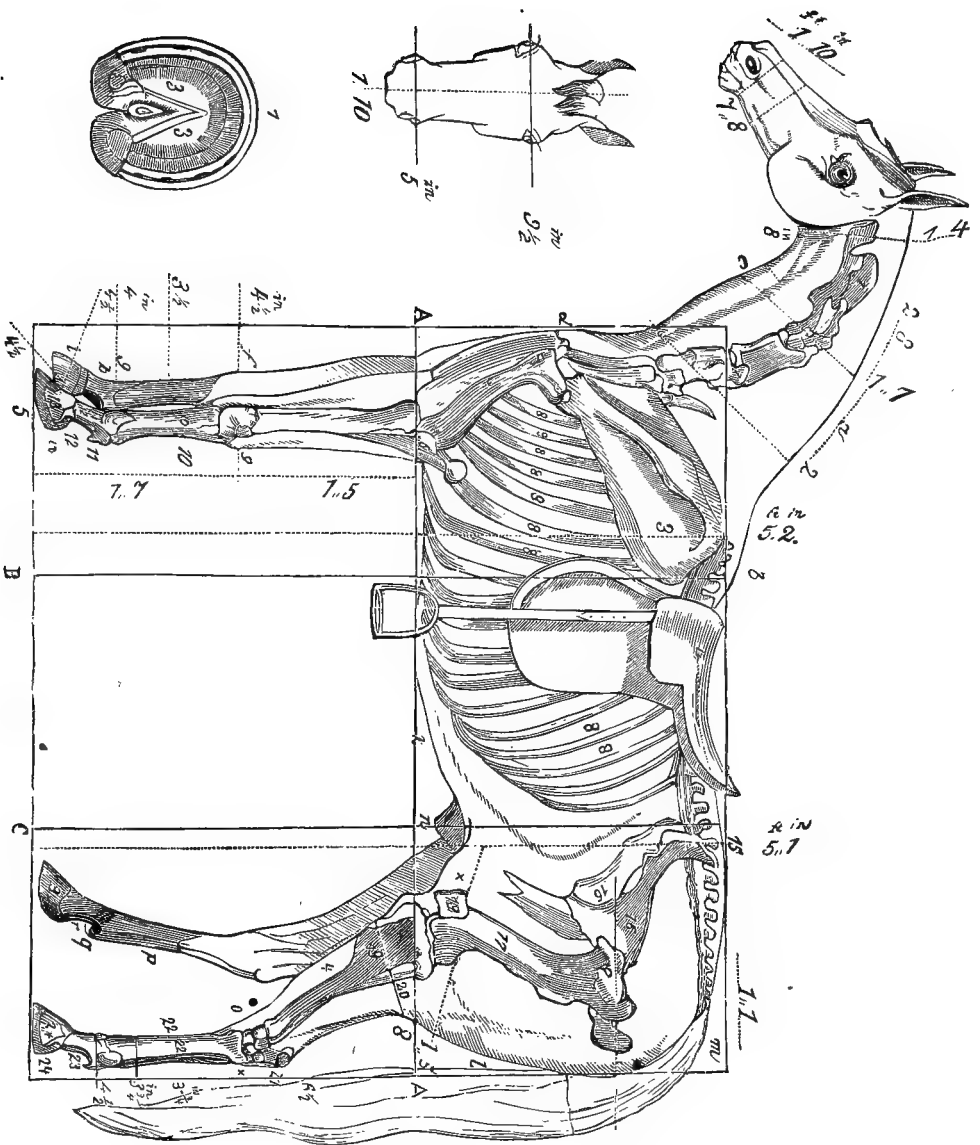
- |          |          |          |          |          |
|----------|----------|----------|----------|----------|
| 1. Toes. | 2. Horn. | 3. Sole. | 4. Frog. | 5. Heel. |
|----------|----------|----------|----------|----------|

### PROPORTIONS OF THE PERFECT HORSE.

A A, line separating two rectangles which show the Depth of the Body as proportioned to the Length of the Legs.

B and C, lines dividing off the fore and hind Quarters and the Body, and indicating their respective and comparative proportions.

	Ft.	In.		Ft.	In.
Length of Head, generally.....	1	10	Across Arm.....	0	6
Across Eyes.....	0	9½	Across Knee.....	0	4½
Across Nose.....	0	7	Across Shank under Knee.....	0	3¼
From Eye to Cheek Bone.....	0	8	Across Fetlock-Joint.....	0	4
Neck across Gullet.....	1	4	Across Pastern.....	0	3
Middle of Neck.....	1	7	Across Coronary Bone.....	0	4½
Across Neck at Body.....	2	0	Highest Part of Hoof.....	0	4½
From Withers to Ground.....	5	2	Length of Hoof from Toe to Heel.	0	5¼
From Crest of Loins to Ground..	5	1	From Rump to Tail.....	1	1
From Elbow to Stifle.....	2	4	From Hip to End of Quarters....	1	9
From Elbow to Knee.....	1	5	Across Hock.....	0	6½
From Knee to Ground.....	1	7	Across Shank below Hock.....	0	3¼
From Withers to Chest.....	2	2	Across Fetlock.....	0	4½



I.A PORTE'S STRUCTURE AND PROPORTIONS.

by closing doors, windows, and ventilators, thus keeping the animal in a temperature warmer than that to which he has been accustomed, and in an atmosphere made impure by noxious gases and a deficiency of oxygen. Such treatment will sooner give a horse a cold than an opposite one, for he may be turned out of a warm stable to grass with little or no injury, since the loss of heat by extreme cold will be repaired by internal combustion, the oxygen from the cold air acting on the carbon given off from the lungs, and thus producing carbonic acid, the chief source of animal heat. *Cool* air stimulates and invigorates the body, rendering it less liable to disease; *hot* air is weakening, for the external temperature being so little below the internal, heat is not required, and a sufficient quantity of oxygen is not breathed to properly assimilate the large amount of nutritious food still given, which now tends to render the blood impure by excess of carbon, and the body more liable to disease. Cool air increases the appetite by bracing the muscular fibers, especially those of the stomach. Hot air deranges the liver and organs of digestion. When the temperature is moderate and oxygen is in excess, the carbon is mainly carried off by the lungs; but if the external heat approaches that of the internal, the carbon, instead of being removed by the lungs and passed off as carbonic gas, is left to be borne off by the liver; and thus the liver and digestive organs become deranged. We therefore see how important it is to keep our stables cool, and at the same time to avoid cold currents of air. The most appropriate temperature is sixty degrees, and this we should endeavor to maintain during both summer and winter, even if the surface of the body must be kept warm by a moderate amount of clothing.

Impure air is a much more fruitful source of disease than hot air; hence the importance of keeping the stable thoroughly clean. The air which has been breathed, the moisture from sweats, the urine and dung, are all very poisonous to the horse. The first two can be easily removed by ventilation. The dung should be frequently cleared away, before the horse has trodden it or the bedding is befouled. Diseased feet as well as poisonous air often result from rotted dung. The urine should be carefully taken away by drains before time is afforded for the rising of the odors of ammonia, which are very hurtful to the health of the animal.

From what has been said above it is clear that a special regard should be had to ventilation. Pure air consists of eighty parts of oxygen and twenty parts of nitrogen. Any influence which considerably disturbs this proportion proves injurious to the health of the horse. Pure blood and good health depend upon a liberal supply of oxygen. If we open an artery and immediately examine the blood, we will find it to be a bright-scarlet color, coming just from the lungs where it has been in contact with air



taken into these organs. The blood in the veins, on the other hand, is of a dark-red color, bearing the impurities taken from all parts of the system. By experiment it has been shown that pure oxygen gives this scarlet color to the blood, while no other gas does. Hence, it can only be that it is oxygen which purifies the blood. Again, it is found that, if a horse takes in one hundred cubic inches of pure air at one breath, he takes about eighty cubic inches of oxygen and twenty of nitrogen, these being usually very slightly reduced by traces of carbonic gas. But the one hundred cubic inches of air thrown from the lungs contains about fifteen of oxygen, eighty of nitrogen, four of carbonic gas, and one of water-vapor. Thus the air by breathing loses what is best for life, and takes what is harmful. If the same air be breathed over time and again, it is clear that it must soon utterly fail to sustain life, being indeed very poisonous.

When it is known that a horse will breathe about fifty thousand cubic inches of air in an hour, generating about five thousand cubic inches of carbonic gas, some idea may be gained of the demand for provisions for changing the air often in an occupied stable. Many experiments have been made on horses stabled in large numbers, and it has been always shown that sickness and death are much less frequent when proper room and ventilation are afforded. Suitable ventilation consists, first, in the introduction of a sufficient quantity of pure air without draught; second, in the removal of foul air by other outlets than doors or windows. The first part leads to two important questions, namely, what is a sufficient quantity of air for each horse, and how is it to be supplied? Each horse requires a space of not less than two thousand cubic feet, and the air should be changed at least three times an hour. The windows and inlets for fresh air should be placed well above the animal, the former so arranged that the wind will not blow directly on him.

As the space necessary for each horse is too large to be practicable for most private establishments, we must next consider how we may have healthy stables with less space. It is quite possible by attending to the following rules of ventilation: First, breathed air being lighter than atmospheric, it ascends toward the roof, passes out if no obstruction is in its way, and is replaced by pure air admitted from doors, windows, and other inlets. Second, if carbonic or other gases be confined by ceiled roofs or otherwise, they become condensed and diffused, mingling with the pure atmosphere and rendering it injurious to health. These rules have no reference to cubic space, but simply require a free outlet above for the impure air, and free inlet through windows or other openings by which the vacuum can be instantly filled. The simplest way of carrying out these rules is to do away with ceilings and lofts overhead, and merely have the sides boarded

within, which will make the stable neither too hot in summer nor too cold in winter; but where this cannot be done, air-chambers should be carried up from the stable roof, and be so guarded by revolving caps as to prevent any current of air from passing down into the horse's apartments.

## FOOD AND DRINK.

**FOOD.**—*Green Fodder.*—Grass is the natural food for the horse. Of its many varieties some possess little nutriment and are of limited value as food; others are not adapted to the constitution, and lead to diseases often attributed to other causes, if given as regular food. When the amount of nourishment is small, the animal must take a large bulk to support life, rendering the belly large, loading the flesh with fat and making it soft and flabby, a condition unfavorable to quick work. Young horses and those from which work is not required may be profitably put upon grass that has a mixture of clover. Putting horses designed for immediate service upon grass is seldom advisable, as it produces loss in the nervous system, and the limbs are injured by the extra strain required to get the animal again in condition for work.

A great variety of opinions exists as to the relative amount of nourishment in the different green foods, as clover, timothy, blue grass, lucerne, green oats, and the like. At first these should be given in small quantities, mixed with half the usual allowance of hay; but after the first week or ten days the hay may be discontinued and the quantity of oats be increased, but not wholly withheld from horses designed for quick work. Clover is the most fattening, but it is apt to produce colic when given too plentifully at first.

**Roots.**—Of roots given to horses the most common are potatoes, turnips, carrots and parsnips. The first two should be boiled and mixed with hay and bran; they are good only for farm-horses, and of indifferent value for them, being merely productive of fat and lacking flesh-forming principles. Carrots given raw are supposed to be good for the wind, but, excepting in very small quantities, are unfit for horses doing quick work. The remarks about carrots apply equally to parsnips; they are generally chopped and mixed with corn, and when given for a time make the horse inclined to refuse oats, unless the latter be added to the parsnips. A horse in good condition is not benefited by them, but if he be hide-bound, or his skin be unhealthy, they are profitable. They should be given whole, to prevent choking. Beets are considered good feeding in late spring. All roots should be mixed with other food to secure their best results.

**Hay.**—Hay may be composed of clover, mixed clover and timothy, blue grass, or prairie or upland grass. For heavy work and when weight and

bulk are desired, pure timothy, or timothy mixed with clover, is the best; but for road-horses, driving, racing, or any quick work, blue grass or upland prairie should be used. Hay should be well cured, and if possible be put up and dried without wetting. It should not be allowed to get over-ripe, as in that case the seed will be lost and the stalk lose much of its nourishing properties. Good hay has a bright-green appearance and sweet odor, and is pleasant to the taste. As a rule, clover is better adapted to cattle and sheep than to horses. *The quantity of hay* necessary for a horse depends upon his size, constitution, kind of work, and the amount of other food given. Eight pounds of hay and twelve of oats form a good allowance for a fairly-worked horse. Clover, hay and straw, cut into chaff, a double-handful being added to each feed, will be very beneficial.

*Straw.*—Straw is now often substituted for hay, and by attention to the following directions will be found quite as good. The nutritive property in either hay or straw consists in the amount of its nitrogenous principle. Now, taking the whole of the straw, not including the head, we find by chemical investigation that it contains one-third as much nitrogenous principle as hay; consequently we should give about thirty pounds of straw daily as an equivalent for ten pounds of hay. The upper third, that is, the end with the chaff, is found to be almost as suitable for forming flesh as the best meadow hay, and seven pounds of this will answer for six pounds of hay, and keep the horse in equally good condition for work.

In this connection may be given the results of experiments made on sixty thousand horses by a special commission appointed in France. This successfully overthrows the erroneous opinions entertained regarding the value of straw. It was shown that straw is *better* for the constitution and working condition of horses than hay, although it does not produce in them an equal bulk when given *whole* in the same proportion as hay.

During a period of five weeks two sets of horses, each numbering about seven thousand, were experimented upon. To one class were given eighteen pounds of straw and nine and one-fifth pounds of oats; to the other class, eighteen pounds of hay and nine and one-fifth pounds of oats, the combined weights being the same for each class, the only difference being an interchange of hay and straw. The horses fed on straw were vigorous at their work, and did not sweat much. Of those fed on hay the weight of the body increased, the dung was copious but hard, dry, and black; they were covered with sweat when at work, and were much softer than usual, a fact which is perhaps accounted for by the quantity of hay being larger than was usually given. In the stable the skin was warm and dry, the horse yawned often, respiration was impeded, and thirst was greater than in those fed on oats and straw. There was no change in

the size of the body of those fed on straw, but those fed on hay increased in bulk. The results of other experiments may be thus summed up: Oats and straw are the foods which agree best with the horse, and hay that which agrees least. Barley comes after oats and straw, then rye. A mixture of straw with one of these grains would be the best combination. Horses fed exclusively on oats drink and sweat less than those fed on hay or straw, and their vigor is superior. Oats and straw, even in less quantities than hay, would put the horse in better condition and make him more vigorous.

There is a strong objection to *new* hay, but it has no sufficient grounds. The French commission named above investigated this subject and the result was that the horses fed on the usual allowance of new hay for two months were found as hard and vigorous as when fed on old hay. But to make certain whether new hay had an injurious effect, the daily allowance was increased one-half, and in all cases, though for fifteen days the horses were a little soft, they regained their whole energy and became hardier and in better condition. New hay therefore is not detrimental but highly beneficial, if well cured.

*Oats.*—In feeding oats care should be taken that they be full and hard, with thin husks, free from dust and pebbles, sweet to the taste, and agreeable to the smell. One is liable to give his horse too short an allowance when feeding oats, if he is not observant of the weight, per bushel by measure, since they vary a great deal. It is found that a horse will consume a given *bulk* in oats, and hence the heavier the grain the more nourishment will the horse get, and it should be determined that he is getting an adequate amount for the service required. The opinion that new oats are indigestible and injurious to the kidneys and bowels seems to lack a full support. That they are not good for horses put to speed is probably true, but they are not unwholesome for other classes, as has been shown by horses in the British and French military, where they have been found equal in fattening properties to the old grain, and do not make the animal sick. Oats dried in a kiln, especially if they are soft, are nearly or quite as good as the old. Crushed oats are more readily digested and are hence more desirable for animals with defective digestion; but if three parts of these are mixed with one of beans, the result will be improved. Oats that are musty or have been heated are very injurious, more often causing disorders than those that are dirty; but injuries attributed to them are quite often due to mow-heated or musty hay.

*Beans and Peas.*—These have about the same nutriment and the same effect on the animal; but they have about twice as much of flesh-forming principle as oats. In large quantities they are too heavy for food and apt

to derange digestion. A handful, however, mixed with a feed of oats, is very beneficial, though this remark applies only to horses doing hard work. Beans are cheaper and more easily digested, and hence are preferable. A given measure of either is much more than equal to the same measure of oats.

*Barley.*—Barley is fattening, and improves the coating. It is not so digestible as oats, unless it be well soaked in water or, still better, kiln-dried. For horses on the road barley so prepared is superior. If it has been water-soaked until it has sprouted and then dried, it is good for horses that are delicate and refuse other food.

*Indian Corn.*—It is best to crack this, or give it in meal, and mix it with chopped hay and straw. While it is good for horses doing slow work, it is not good for those requiring quick action. If the meal be mixed with twice its weight of cut hay, it makes perhaps the best article for ordinary feeding; but it is better to combine or alternate this with some mixture of oats.

*Bran.*—Bran is good both for healthy and sick horses. It should not be given if fine, as it forms too much of a paste and closes the passages in the membrane. Coarse bran, with hot water poured upon it and covered awhile before using, is very good, especially when the horse is temporarily relieved from labor. Improved milling has, however, so reduced bran that the nutriment is very small, and care should be taken that the animal be not compelled to depend too largely upon it. Dry bran mixed with corn will often improve the mastication.

*Quantity and Quality of Food.*—Though these differ much according to the work, age and constitution of the horse, it may be remarked in general that the growing colt or very active horse requires more food than others; that more is necessary in cold weather than in warm; that horses doing fast work require substantial food in condensed form at regular intervals, given two hours before fast service is required; that those doing fast and laborious work should have as much as they will eat with a good appetite, the hay being limited; that those doing slow and not laborious work, as well as idle ones, should have less grain and more hay or straw, bran and green food being given at times; that those which purge on rapid work should not have much water until after the work, and should be fed not less than two hours before work, a small quantity of beans being added to each feed of oats, and an ounce and a half of flour in the form of paste being added to the water when given before work; and, finally, that horses in ill-health should have soft or cooked food and, when possible, some that is green.

*Young horses* just put up from grass should have walking exercise. If a mixture of bran and oats in equal parts be fed, it should be well soaked in warm water to insure perfect digestion. The following is, perhaps, the

best plan: First week, bran-mashes morning and evening, with oats at noon; second and third week, oats morning and noon, with bran-mashes at night; thereafter, bran-mashes every second night, with oats at other times.

*Comparative Values of Foods.*—Animals doing quick work expend much muscular fiber, and hence require food containing *fibrine* to restore the loss. Corn and beans furnish this; but hay contains some salt-properties not in corn, so that it should be added. The brain, too, requires fatty matter, albumen, and gelatinous elements, and carbon is requisite for animal heat. The value of foods for the blood depends upon the amount they contain of the component parts of the blood, as chlorides (including common salt), phosphates and alkalis. While, as before stated, fibrine and albumen are highly nutritive for horses doing fast or laborious work, food containing sugar and starch are especially adapted to the production of fat, and also of carbon, the generator of heat. The woody part of food is not nutritive, but supplies the necessary bulk, and gives the moderate distension of the stomach required for proper digestion. Keeping in mind the foregoing remarks, one may with tolerable accuracy determine the relative values of foods for different conditions by an examination of the subjoined table of "Stonehenge," which exhibits the proportion of the different constituents in 100 parts of the various foods named:

	Woody Fiber.	Starch and Sugar.	Fibrine and Albumen.	Fatty Matter.	Saline Matter.	Water.
Hay.....	30	40	7	2	7	14
Clover Hay.....	25	40	9	3	9	14
Oat Straw.....	50	31	* 1	a trace	5.5	12.5
Oats.....	20	53	11.4	.6	2.5	12.5
Beans.....	14.5	40	26	2.5	3	14
Peas.....	9	48	24	2	3	14
Barley.....	14	52	13.5	2.5	3	15
Indian Corn.....	6	62	12	5	1	14
Bran.....	54	2	20	4	7	13
Carrots.....	3	10	1.5	0	1.5	84

\* The upper third, with the head, has about 7.

*General Remarks on Feeding.*—The frequency of feeding should be varied according to the length of time the horse works. The feeds should be at regular intervals. Harnessing is a matter of such short time that the horse should be unharnessed while feeding and receive grooming when stabled for feed. *Extra quantities of food should not be given in anticipation of special work*, as it will be attended with a waste in undigested food, or derange the appetite. Brood-mares and colts should be allowed good pasturage, which may also be accorded with profit to other horses not in con-

stant use, horses engaged in frequent racing always excepted during their engagements. Where great fleetness is required, grain should be given, with enough chopped straw or chaff to insure perfect mastication. Grains of all kinds are best crushed, and when mixed with chaff should be so thoroughly mingled that they cannot be picked out and the chaff left. Twelve pounds of oats per day, divided into three feeds, make an average allowance for a horse in regular work during winter when green food is wanting. An equivalent for this may be easily chosen from the above table of "Stonehenge." Damaged food of any kind should be avoided, the feeding of it being mistaken and foolish economy. The most successful breeders persist in feeding a little hay at night in the rack, despite the prejudice against this method. It is better to slightly moisten the hay with salt-water, to prevent dust and impart a relish. The hay should be of the best quality, and be given in small quantities, for the practice of putting large amounts in a rack proves very wasteful.

**DRINK.**—By noting the amount of moisture thrown out by the lungs, mouth and skin, one gains an idea of the absolute necessity of caring for proper drinking to keep up the normal condition of the body. But usual care should be exercised that the amount may not be so great as to keep the animal weakened. The quantity which a horse will consume varies greatly—from about four gallons per day to four or five times this amount; in special instances even the last amount has been surpassed very much. The horse should be watered, as a rule, three times a day; in cold weather, and in absence of work, twice is sometimes sufficient, while in hot weather, during work, three times are not enough. In the latter case a small allowance may be given just before the feed and as much, if it is taken, before the meal is finished. In other cases, water should usually not be given within an hour before feeding, nor when the animal is warm. The horse at work should not be allowed an unlimited supply, but a small amount should be given at each time, and at frequent intervals. Though hard water may not injure the horse that is accustomed to it, soft, *clean* water is always decidedly better. Very cold water is never good, and often injures, if it does not kill the horse. Pure, cool water is the best.

### GROOMING, BATHING, EXERCISE AND CLIPPING.

**GROOMING.**—Grooming is positively essential for both the appearance and the health of the horse. The watery portions of the body and worn-out material pass out through the pores of the skin, and if these be clogged by scurf, this refuse material must pass away through the lungs, liver, kidneys and bowels, causing derangement of these parts. Not only are the

pores kept open by grooming, but the vessels and pores as well are stimulated to increased action, and thus the oil at the roots of the hair passes through the skin, giving a fine glossy appearance to the animal. The horse should be groomed in the open air, unless the weather is bad. Even the apparent injury from cold air is more than balanced by the increased warmth secured by the friction. The curry-comb should be used sparingly, and a stiff, hard brush be briskly applied. Rubbing the legs downward with the hand is very beneficial. Horses that are not housed and those which are turned out just after work should merely have the mud, dust, dried sweat and the like removed when they are turned out or taken up, the skin to be left undisturbed. The use of a soft brush, or of a dry cloth passed lightly over the hair, will generally suffice.

**WASHING AFTER WORK.**—If properly done, this is to be highly recommended. We all know from experience how refreshed we feel after a warm bath, and it is but reasonable to suppose that it will have a like effect upon the horse, and render him less liable to inflammation and congestion of any internal organ, as well as give him the quiet which he needs. The proper mode of washing is to apply quite warm water and soap quickly and freely to the whole surface and scrape it as dry as possible, then rub with wash-leathers for ten minutes, not longer. The usual clothing should then be put on and be covered with an extra blanket, the legs being bandaged with flannels. The animal should now have some grain-gruel and afterward some bran-mashes. After two hours in this condition the body becomes warm, and the outside blanket, which will be wet, should be removed and the horse be well bedded.

*Dry* bandages should be used for drying the legs or warming them. *Wet, warm* bandages tone up the vessels and relieve them by removing heat. *Wet, cold* bandages produce sweating and carry off some of the contents of the vessels; but if the cold bandage be not kept cool in some way, it will soon act as if it were originally warm. Wet bandages are desirable in cases of sprains, blows, and long exertion on hard roads, but should not be continued longer than is actually necessary, or they may have an effect the opposite of the one desired, which is to excite evaporation and to remove deposits from the interstices of the flesh. If applied too long, they inflame the skin, and cause the hair to fall.

**CLOTHING.**—Horses doing slow work and having their natural coat are better without any clothing. But clothing is far preferable to a hot stable, and as a glossy coat is very desirable, the horse should be warmly clothed, and the stable be kept cool and well ventilated.

**EXERCISE.**—This is absolutely necessary to promote digestion and otherwise preserve health. Quick work is injurious directly after feeding,



or when the horse has just been taken from pasture. Young horses should be given walking exercise two hours daily for the first month of training; during the second, be *slowly* trotted, the speed being but gradually increased thereafter. One of the most prolific causes of disorders in the feet and breathing organs is the lack of regular exercise properly given. Horses in steady and easy work are presumed to receive the best exercise. If only occasional extreme work is required, there is all the more demand for systematic training or exercise, as it hardens the muscles, and fits the horse for the severe strain put upon him.

The horse should not be taken out immediately after feeding, nor should he be put beyond a moderate foot-pace for at least a half-hour thereafter. Then he may be quickened according to the demands upon him. Heating in exercise should be avoided, but if it be induced, the animal should be walked before returning to the stable, until he is cool.

Feeding should always precede the exercise by at least a half-hour. The horse may then be taken out for an hour and a half in the forenoon and afternoon each, the hours to be chosen, according to the season, when it will not be excessively warm or cold. One of the commonest mistakes in the care of horses is blanketing immediately after the animal has entered the stable after hard driving or working. At such times vapor will rapidly rise for a few minutes and wet the blanket. As soon as it becomes cold the horse will be covered with a cold, wet coat, with no chance for an escape of the moisture, and thus almost surely be subjected to a chill. The proper course is to allow the steaming horse to stand for about ten minutes before putting on the blanket, thus giving an opportunity for a great part of the vapor to pass off.

CLIPPING.—This is both an injury to the horse and a folly of fashion. It is purely artificial and utterly unnecessary. Still more, it does not secure greater beauty, a better looking animal being secured by a reasonable care of the coat which nature has given. Indeed, a well-groomed coat produces a gloss for an unshorn horse that is superior to any artificial appearance, while the exposure incident to clipping is apt to create disorders of the hair and skin that will make a revival of the natural beauty impossible. This practice should be studiously avoided, because it attains no advantage, and is highly injurious, if not cruel, especially in extreme weather.

## THE STABLE.

It has been said that about 60° is the proper temperature of the stable as a rule. In summer, however, the stable should be kept as cool as possible, especially during the day. It is a mistaken idea that the temperature

should be kept on a level with the outdoor air. Indeed, in keen, frosty weather the temperature within should be much above that outside. It is not only not advantageous to expose a horse to cold when he is inactive in a stable, with a view to inuring him to severity when he is taken out, but it is very injurious. The exercise when out of doors will compensate for a great change in temperature. But more caution is necessary, on the whole, to prevent too high a temperature in the stable, since it will greatly increase the poisonous gases arising from the excrements and other refuse of the stable, which are more injurious to health than a much lower temperature.

*Bedding.*—This should have constant attention, and be kept thoroughly clean. Many of the coughs in horses which are closely stabled are undoubtedly traceable to a neglect of this important part of their care. Even among a few horses the foul matter in any part of the stable, and the notoriously poisonous exhalations of the same, prove highly deleterious. In cold weather, when the closeness of the stable prevents a free circulation of the air, special care should be taken. It is not enough that the manure and wet litter be removed from the stall; they should be carried *entirely out of the stable*, the stall itself being kept as dry as possible. When standing in the stable the horse should always have a liberal supply of bedding, of which the best are wheat and oatstraw, though peastraw is good. Sawdust is reasonably good, but when it is wet it is more liable than straw to impart dampness to the stall. The floor should be swept before the bedding is put down for the night; then the litter should be carefully arranged, being higher at the sides than in the middle.

#### CARE OF THE FEET.

The feet are liable to so many mishaps and disorders that they need scrupulous care. They should be examined frequently—the careful man will do this daily—to see if any untoward condition exists. The shoes should receive special attention to detect any misfit, looseness, irregular pressure, and the like, and to discover any injuries to the feet and joints from the rims or nails on other feet. They should be drawn and re-set or replaced with new ones at intervals of from four to six weeks. When the horse is turned out, they should be taken entirely away, or should give place to the grazing-shoe.

Heels with little hair should be sponged and carefully dried after a journey, and those with long or thick hair should be cleansed from dirt by hand-rubbing or otherwise. Horses that stand much in the stable should have a dirt floor, and in dry weather their feet may be washed occasionally, but such washing should be done quickly, particularly if the horse

has first been in active exercise, and the feet should be thoroughly dried. Excessive washing and soaking is very injurious. To be sure, it is important that the feet and legs be kept clean, but this can be so well done by thorough brushing and rubbing that frequent washing is unnecessary.

*Shoeing.*—Few things in the care of the horse are so intimately associated with his comfort and suffering as shoeing. Disorders arising from it are numerous and often impair or destroy his usefulness, as will be shown by a reference to the ailments treated in the preceding pages, particularly those of the extremities. For two reasons no detailed directions will be here given upon this important subject: First, the writer has noticed that such attempts in works similar to this have signally failed in imparting an



SECTION OF THE FOOT (see cut 173),

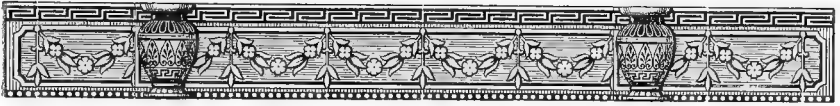


The Foot dissected to exhibit Tendons, Blood-Vessels, and other Sensitive Parts. This, with cut 195, shows that the Foot is very susceptible to Injuries.

intelligible idea of even what is needed, this doubtless being due to the fact that shoeing is a matter of practice, not to be learned in the first instance from books; second, even if it were possible to present an adequate treatise for the general reader, he would still be dependent upon the smith. If such smiths were to pay for the horses which they ruin by improper shoeing, it is doubtful whether they would have any profits whatever from this department of their handiwork. It is, however, urged that one do not intrust a service of such great moment to an inexperienced man, but that he repair to one of known intelligence and skill, even if that involves the

taking of his horse a long distance. If one's horse suffers from some acute disease, he will go almost any distance to secure competent counsel, but with strange inconsistency, or thoughtlessness, he will lead him into the shed of any blacksmith who can boast of enough muscle to "hold up any horse," notwithstanding the risk he runs of having the animal permanently injured, or wholly unfitted for use. The foot is a very sensitive member, copiously supplied with delicate layers, blood-vessels and exquisitely fitting bones and tendons, and he is a wise master who most jealously regards this part of his horse's organism. The accompanying cuts will serve to show how complicated and sensitive the foot is, and the writer hopes they will serve to make the reader particularly careful in the choice of a man who shall pare, hammer and nail it.



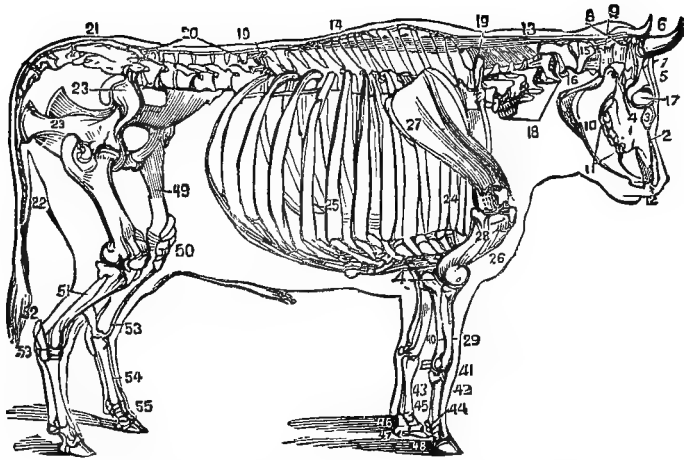


PART II.

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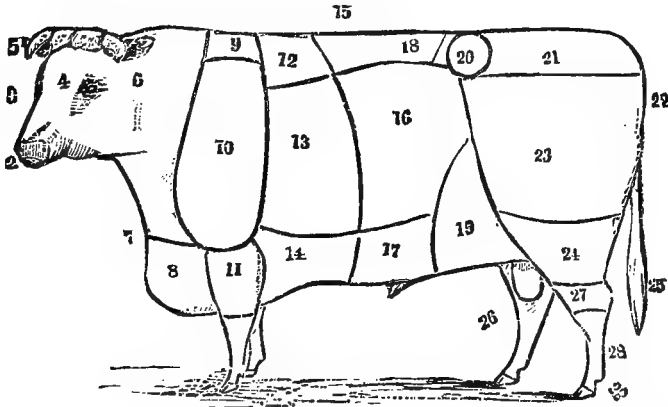
THE OX AND HIS DISEASES.





THE BONES OF THE OX.

1, Upper Jaw-Bone. 2, Nasal Bone. 3, Lachrymal Bone. 4, Cheek-Bone. 5, Forehead. 6, Horns. 7, Temporal. 8, Parietal. 9, Occipital. 10, Lower Jaw-Bone. 11, Grinders. 12, Nippers. 13, Ligament of the Neck. 14, Joints of the Back. 15, Atlas. 16, Dentata. 17, Eye-Socket. 18, Vertebrae of the Neck. 19, Vertebrae of the Back. 20, Vertebrae of the Loins. 21, Sacrum. 22, Bones of the Tail. 23, Haunch and Pelvis. 24, Eight True Ribs. 25, False Ribs. 26, Breast-Bone. 27, Shoulder-Blade. 28, Humerus. 29, Radius. 40, Ulna. 41, Bones of the Knee. 42, Shank. 43, Splint. 44, Sesamoid. 45, Large Pasterns. 46, Small Pasterns. 47, Coffin. 48, Navicular. 49, Thigh. 50, Knee-Pan. 51, Tibia. 52, Point of Hock. 53, Small Bones of the Hock. 54, Metatarsal. 55, Pasterns and Feet.



SKETCH OF THE OX.

1, Muzzle. 2, Nostrils. 3, Forehead and Face. 4, Eye. 5, Horn and Ear. 6, Neck and Throat. 7, Breast. 8, Brisket. 9, Shoulder-Point. 10, Shoulder. 11, Fore-Arm. 12, Crops. 13, Fore-Ribs. 14, Fore-Flank. 15, Back. 16, Back-Ribs. 17, Belly. 18, Loins. 19, Flank. 20, Hip. 21, Rump. 22, Tail and Seton. 23, Quarters. 24, Thigh. 25, Twist (between the Thighs). 26, Testes. 27, Knee and Gambrel. 28, Leg. 29, Hoof.

## PART II.

# THE OX AND HIS DISEASES.\*

## CHAPTER I.

### THE NERVOUS SYSTEM.

#### MAD STAGGERS AND BRAIN FEVER.

**M**AD staggers and brain fever are quite frequent among cattle, and come on rapidly from exposure to a hot sun or sudden change of temperature; or may follow ill-usage, high feeding, excess of blood, over-driving, or a blow on the head.

*Symptoms.*—*Mad Staggers* are marked by heaving flanks; wild, red, staring eyes; nostrils enlarged; furious delirium and frenzy; (the animal is unconscious, while in rabies it is not so—a distinction that should be carefully noted); animal exhausted, and finally motionless. *In Brain Fever*, the general symptoms of mad staggers are present, and in addition a marked aversion to red bodies during the frenzy; frightful bellowing; incessant and furious galloping; arched tail; the skin adheres closely to the flesh; spine and adjacent parts very tender; the animal falls headlong, and lies in a stupor; from the first, vivid redness and prominence of the eyes; dullness and drowsiness; thick, heavy, difficult breathing.

*TREATMENT.*—Give aconite for fever; delirium; red eyes; dry, hot skin. For great heat and swelling of the head, blood-shot eyes, delirium and frenzy, thirst, sensitiveness to light and noise, wild expression, give belladonna, which is also usually serviceable in the beginning, in alternation with aconite at intervals of from one to three hours according to the severity. For stupor, sudden starts, and involuntary passages of dung, give hyoscyamus. Bryonia is needed for stupor with delirium. Opium is demanded

\* See "Signs of Health and Disease," Chapter I, Part I.

by stupor with giddiness, half-closed, glassy eyes, constipation, and slow, feeble pulse. Give arnica externally and internally once in an hour, or oftener in extreme cases, if the cause is some external injury.

Gelsemium, a wine-glassful of a mixture of twenty drops of tincture in a pint of water, given every two hours, is valuable in cases resulting from exposure to the sun, with weakness of the muscles and enlarged pupils of the eyes.

For further information, consult this disorder in the Horse. Keep the animal perfectly quiet. When the violence of the symptoms subsides, give soft food that is easily digested and readily taken.

### APOPLEXY.

Apoplexy has causes similar to those of Brain Fever, but is much more rapid in its attack. For symptoms, treatment, and general care, consult the article on Brain Fever above, and on Apoplexy in the Horse.

### PARALYSIS.

This is a loss of nervous power in the muscles, and may affect one muscle or many. It occurs mainly in old cattle in bleak countries, cold, unhealthy stables, or those exposed to cold after warm stabling.

*Symptoms.*—Legs, generally the hind ones, cold and weak, then stiff, dragging and resting on the pasterns; then the animal becomes unable to stand and sits on its haunches.

*TREATMENT.*—Keep the animal warm and well supplied with litter; change to nourishing food; turn the animal over two or three times a day. For further information, consult Paralysis in the Horse.

### HYDROPHOBIA.

Hydrophobia occurs more frequently in the cow than in the horse, and results from the bite of a rabid animal.

*Symptoms.*—Loud and frequent hollow bellowing; stamping and butting; sometimes return of the food into the mouth about the third day; the secretion of milk diminishes; foaming at the mouth; paralysis; death in from four to seven days; *consciousness throughout.*

*TREATMENT.*—Wash the wound well with warm water and some disinfectant; then burn it with an iron, or apply strong nitric acid. Dress then with a strong carbolic acid lotion, or lime-water and oil. Belladonna and stramonium may afterward be used. When the case is *fully developed* medicine will generally be of little avail.



Tie the animal securely in a close stall, shutting out most of the light and much of the air. Give light, nutritious, condensed food. When a rabid animal has been in a herd, belladonna should be given daily for ten or twelve days to each animal as a protection against possible infection. For further information, see the article on Hydrophobia in the Horse.

### LOCK-JAW.

This may result from some general disorder of the stomach, or from injuries (see Lock-jaw in the Horse for detailed causes, noting those to which cattle are subject).

*Symptoms.*—At first, only some stiffness in the gait, jaws and neck, which afterward grows more marked; fixed, inflamed eyes; hind legs stiff; walking difficult and awkward; quick and labored breathing, the breath being hot; neck and ears very stiff; finally, the whole body is stiff; copious sweats; the general spasm may increase every twelve or twenty-four hours for some time, and then slowly abate, become less regular, and finally disappear; or may grow more violent until a very severe one results in death.

*TREATMENT.*—For cases occasioned by cold or wet, or depressed general condition, give ten drops of camphor every twenty minutes *in the first stages* until warmth returns to the system. Belladonna is invaluable after camphor, given every hour until the jaws become less rigid, when the interval between doses should be increased. If constipation be present, give nux vomica every four or six hours, or in alternation with belladonna. Constipation is further relieved by injections of warm water and soap. If inflammation occurs, give a few doses of aconite, following with the remedy next demanded by the symptoms mentioned above. If injuries be the cause, give arnica, alone or in alternation with belladonna, aconite or nux vomica, every one, two, three or four hours, according to urgency. Between the paroxysms, the jaws being relaxed, offer food that is easily digested, such as gruel, boiled turnips and oats, mashes of boiled grain and bran. Should the animal be unable to eat for some time, clear out the bowels by an injection of tepid water, and inject oatmeal-gruel. For further equally important information, select such as is obviously applicable to the ox from that given on Lock-jaw in the Horse.

### CONVULSIONS.—FITS.

This disorder, not common in the ox, may occur in young, well-fed cattle, especially when excited by over-exertion or heat. When it has once occurred, a recurrence is more liable to ensue.

**TREATMENT.**—Give belladonna every two or three hours. Opium may be serviceable if there be stupor and hard, heavy breathing. Keep the animal in a large stable where there is little chance for it to injure itself. For full directions, consult all that is said on Convulsions in the Horse.

#### GIDDINESS.—DIZZINESS.

This occurs more frequently in draught-oxen, and is caused by hard labor in a hot sun, or a tight, ill-fitting or squeezing yoke.

*Symptoms.*—Tottering and falling, the animal lying outstretched and motionless. It may be easily distinguished from Convulsions, for in the latter there are violent convulsive movements. For full particulars, consult the appropriate article on the Horse as given in Part I.

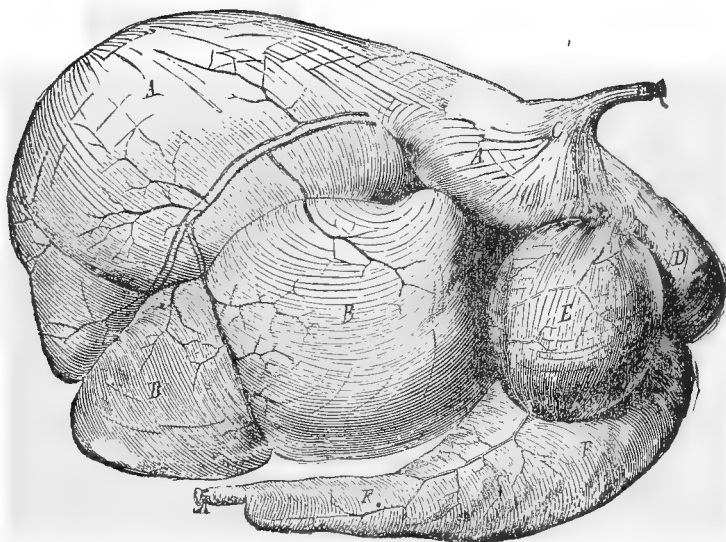


## CHAPTER II.

### THE DIGESTIVE ORGANS.

#### ANATOMY AND PHYSIOLOGY.

**T**HE stomach of the ox, sheep and other ruminants is so peculiar as to call for special mention. It consists of four so-called stomachs. The first, known as the *rumen*, or paunch, is much the largest; its mucous membrane is rough, with elevations or papillæ, and is protected by a dense, scaly membrane. The second stomach, called the *reticulum*, or honey-comb, is the smallest of the four, and is connected with the



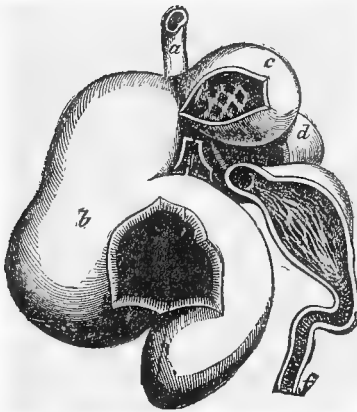
STOMACH OF THE OX.

A, Rumen (left half). B, Rumen (right half). C, Lower end of the Œsophagus. D, Reticulum. E, Omasum. F, Abomasum.

front part of the paunch, with which it freely communicates. The third stomach is named the *omasum*, or maniplies, the latter term being derived from the many folds of the membranes; its numerous membranes are of

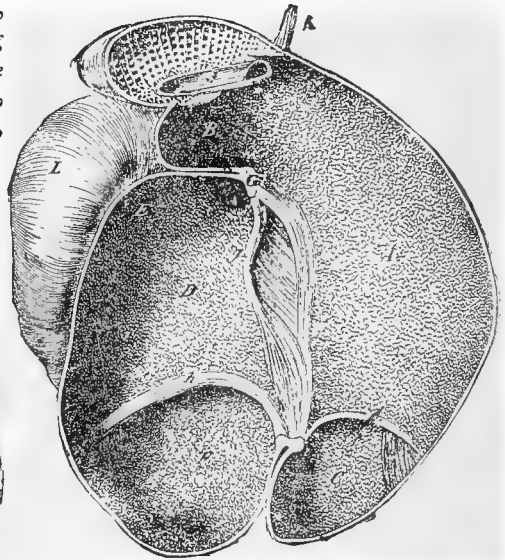
different sizes, and their surfaces are copiously supplied with papillæ; its contents are dry. The fourth stomach, called the *abomasum*, or rennet, performs substantially the same functions as that of man, is larger than the second and third but smaller than the first, is covered with a thick, velvety coat that has ridges similar to those of the omasum, and secretes an acid that is necessary to digestion.

The first three stomachs are involved in the process of rumination. Crushed food passes first into the rumen, or paunch, and is there heated in saliva, mucus and other secretions, its toughness determining the time it is to be so retained. The food next enters the reticulum, where the softening and dissolving are continued, being aided by a slow churning movement. *Fluids that are swallowed pass directly into this organ without going to*



STOMACH OF THE OX, exposing parts of the interior.

a, Œsophagus. b, Rumen. c, Reticulum. d, Omasum. e, Abomasum. f, Duodenum.



SECTION OF THE STOMACH OF THE OX.

A, Left Sac of the Rumen. B, Front extremity of the same turned back on the Right Sac, its rear extremity being C. G, Section of the front Pillar of the Rumen. gg, Its two upper branches. H, Rear Pillar of the same. hhh, Its three lower branches. I, Cells of the Reticulum. J, Furrow of the Œsophagus. K, Œsophagus. L, Abomasum.

*the paunch.* In this stomach secretions ferment the food or produce other chemical changes, reducing the contents to a pulpy mass. In the next place the food passes back to the teeth and is thoroughly masticated, this process being known as *rumination*, or "chewing the cud." The return of the food is easily detected, for one may see large masses pass up the gullet which is distended as in swallowing, though the movement is in the opposite direction. When the food passes into the mouth its liquid parts are immediately swallowed into the first three stomachs; and the solid food

is slowly ground by the teeth a longer or shorter time according to its toughness. When sufficiently ground the food is again swallowed, some into the first two stomachs, but the greater part into the third, thence into the fourth where the digestion is completed. Because of the tendency of liquids to pass directly into the second or third stomach there is some danger that in administering medicine by drenches or other mechanical means the desired results may be defeated, and even damage be incurred. Hence, in giving medicine to the ox or sheep it is always best when possible to induce the animal to swallow it voluntarily.

### HOOVE.—GRAIN OR CLOVER SICKNESS.

This is a distension of the stomach caused by decomposition or fermentation of food, or by eating unusual articles of food. Rich grazing after poor or scanty food, wet grass in warm weather, fodder heated by being heaped up when wet, drinking cold water excessively, eating too much grain, bran, chaff, raw potatoes and oats, or boiled turnips, may cause the disorder.

*Symptoms.*—These appear soon and suddenly; loss of appetite and cud; whole body swollen, especially at the flanks, which give forth a drum-like sound when struck; sour and noisy belchings; moans and distress; animal stands still; short, difficult breathing; nostrils spread; threatened suffocation; the pulse grows harder, fuller and quicker; mouth hot and full of frothy slobber; eyes glazed, fixed, and blood-shot; the tongue hangs; veins of the neck and chest swollen; back arched; legs drawn under the body; tail curved; protruding anus; cold sweat; the animal finally totters, falls, struggles, discharges sour fluid and solid food from the nose and mouth; suffocation or rupture of the stomach, leading to death.

The distension of the stomach by gas may be distinguished from that arising from impacted food by a study of the table here used, which is taken from the excellent work of Lord and Rush.

#### DISTENSION FROM GAS.

The left flank, on pressure, feels soft, elastic, and yielding to the fingers. On percussion, sounds hollow and drum-like.

Frequent belching; the wind which escapes has an offensive smell.

Respiration quick, short and puffing.

Position: Standing; head stretched forward; unable to move; moans, and appears in great distress; eyes red and staring.

#### DISTENSION FROM IMPACTED FOOD.

The left flank, on pressure, feels solid; does not yield readily to the fingers on percussion; on being struck, sounds dull.

No belching or eructation of wind.

Respiration not much interfered with.

Position: Lying down, and is with difficulty induced to move; looking dull and listless.

**TREATMENT.**—At first give ammonium causticum, ten drops every ten or fifteen minutes. Colchicum rarely fails, particularly in cases resulting from vegetable food. Repeat it several times if necessary. It is valuable, in alternation with arsenicum, in chronic hoove. Colocynth is beneficial, given every twenty minutes. If the lungs are much implicated, give bryonia in alternation with aconite. For founder from wet clover, a mouthful or two of corn on the cob is a popular and valuable remedy, often sufficient without other expedients. When matters have become improved, allow no food or water for several hours, and these should be sparing for some time afterward. Give nux vomica two or three times daily until the animal is fully cured.

Stabbing or puncturing in very urgent cases may be required, but should be resorted to only then. It is best to use a trocar, sufficiently long to prevent the paunch from slipping away from it. In the absence of this a long, sharp-pointed penknife may be used. At a point midway between the ribs and the hips insert the knife, pointing it inward and downward, where the rumen is most prominent, insert a quill or other tube into the opening at once; or in the absence of such, hold the wound open with a smooth stick until the gas has escaped. With this gas solid food may come out; and here is the danger, and not in the wound itself. Should this food escape into the abdomen instead of passing out freely, it will cause inflammation of the abdominal organs; or, as another difficulty, the kidneys or spleen may be pierced. After such relief, chloride of lime is valuable, two drachms being mixed in a quart of water and thus administered.

#### GRASS STAGGERS.—DRY MURRAIN.

This results from a retention of food in the third stomach, instead of its passage into the fourth stomach. Fine, dry, hard matters become tightly compressed in some cases, and so closely adhere to the mucous membranes of the folds that their removal causes the loss of the thick membrane which lines the organ; in other cases, soft, souring masses are inclosed in the folds. In either case, nutrient food is not passed into the fourth stomach. Sometimes the folds are gangrenous, and the fourth stomach highly inflamed. It is occasionally epidemic, and its causes are supposed to be bad or coarse food, and sudden changes of diet.

*Symptoms.*—Excitement, perhaps delirium, followed by dullness and quietness; hanging head; indifference; dry muzzle; hanging tongue; prominent red eyes; constipation; red nasal membrane; high-colored urine; rapid, hard pulse; stoppage of milk, or it becomes poor; later, trembling; loss of consciousness; swollen belly; cold limbs; death.

**TREATMENT.**—For high fever, quick pulse, dry, hot muzzle, very hot horns and ears, and varying temperature of limbs, ears and muzzle, give aconite. Give *nux vomica* in alternation with aconite, every three or four hours until the fever subsides, then alone three or four times a day. Arsenicum and sulphur will be needed in some cases, particularly when the dung is thin, watery and offensive. If the case has been neglected, or is symptomatic of another disorder, or has become chronic, it will take a good while for the stomach to return to its normal condition. Make a complete change in diet and allow only such food as is easily digested.

### ULCERATED MOUTH.

This is contagious and often attacks a whole herd.

*Symptoms.*—Red, hot mouth; diminished appetite and milk, the latter being watery; in a few days a small red eruption in the mouth, which enlarges to various sizes, becoming white, bursting, and leaving a scab; eating stopped; drinking with dribbles. If the tongue, in mild cases, does not gradually cleanse, the sores join and become of a leaden color, leaving corroding ulcers which carry off small pieces of the membrane; inflamed throat; cough; offensive breath; loss of flesh.

**TREATMENT.**—Give *mercurius* three times daily. If the disease does not yield, give one grain of *antimonium tartaricum* two or three times daily. Sulphur may be required if there be dry, hot mouth; offensive breath; ulcerations with scabs. Rinse the mouth with *Condy's Fluid*.

### THRUSH.

Thrush is an inflammatory fungoid disorder, consisting in minute vesicles which end in white sloughs in the mouth and discharge a fluid, after which they become ulcers that run together; the lining peels off, leaving a tender surface that prevents eating. There is a profuse flow of stringy saliva from the mouth and loss of flesh. It is caused by poor food, irritating plants, or constitutional disease; in calves, by the mother's milk. These symptoms should be observed carefully, that thrush may not be mistaken for Rinderpest. From Foot and Mouth Disease it is known by its not being epidemic or contagious, or associated with disease of the feet and teats. Thrush usually attacks calves.

**TREATMENT.**—If the tongue or mouth is covered with blisters, and stringy saliva flows from the mouth, give *mercurius* every four hours until the case is improved. In the first stages, the vesicles may be removed by washing the mouth three times daily with a solution of chlorate of potassa,

ten grains to an ounce of water, and as often giving a tablespoonful of a mixture of ten drops of kali bichromicum to one pint of water. When the worst symptoms have yielded to mercurius or other remedies, and the animal remains poor, dull, and with loss of appetite, give three grains of arsenicum three times daily. Muriatic acid, phosphoric acid, and borax may be found of service. In case of calves, give the mother a clean, comfortable stable, and administer sulphur to her; give the same to the calf, night and morning, for a few days after the disease has subsided.

### INFLAMMATION OF THE TONGUE.

This is caused by some wound, and is indicated by a great swelling of the tongue, the latter hanging out of the mouth; feeding is stopped; the tongue sometimes becomes hard; perhaps swelling of the throat.

**TREATMENT.**—Give mercurius if there is great swelling of the tongue and throat, and aconite if there is much fever. If the inflammation be dry, give nitric acid. For hardness of the tongue give carbo vegetabilis. If the tongue is injured, give arnica, and wash the mouth with a weak lotion of the same; in these cases arsenicum and lachesis are also serviceable.

### GLOSS ANTHRAX.—BLACK TONGUE.—BLAIN.

This is connected with some peculiar state of the atmosphere, and is highly contagious and usually fatal, being communicable even to man.

**Symptoms.**—It is sudden in its attacks. There are profuse saliva, swollen tongue, general distress and fever; on the tongue are small vesicles full of matter, or tubercles surrounded with a bluish circle; the vesicles burst and give out offensive matter; on the tubercles are yellowish-white pustules, sometimes the size of a nut, which turn brown; these are filled with a thin, corroding fluid, which inflames and destroys the surrounding parts; the head and throat swell enormously; breathing obstructed; threatened or actual suffocation; large ulcers may form on and near the tongue, so that it is wholly gangrenous and insensible, gives out no blood when cut, and falls away piece by piece. Occasionally ulcers form in the feet, discharging offensive matter. A low typhus-condition ensues in severe cases, and death occurs with great suffering, shivering, and swelling of the belly.

**TREATMENT.**—*Take the case in its first stages*, or it will probably be too late, especially if the vesicles have broken and some of their contents have been swallowed. Mercurius is desirable for whitish pustules; canker; ulcerated mouth and tongue; red, offensive discharge, and *profuse*



*saliva.* Give arsenicum, ten drops every three hours, for bleeding from the nostrils; threatened gangrene; small, rapid pulse; offensiveness in the mouth; weakness; diarrhœa; cold extremities; drowsiness. Midway between the doses give the mouth a thorough washing with carbolic-acid lotion. This may be given in alternation with mercurius. Should the remedies named fail, put two grains of carbolic acid in a little water, and give the dilution once every two hours. If there be a full, hard pulse, dry, hot skin, much thirst, red, swollen eyes, head and mouth, give aconite every two hours. If three or four doses effect an improvement, but drowsiness, wildness of look, and swelling of the head, tongue and throat remain, alternate aconite and belladonna. If no such improvement occurs, give bryonia every three or four hours, alone or alternated with rhus. For drowsiness, exhaustion, and involuntary or bloody diarrhœa, give phosphoric acid. Opium is needed if there be hot, dry skin, small, rapid pulse, drowsiness, and involuntary diarrhœa. Give good gruel in small quantities, or other simple, nutritious food, pouring it gently down the throat if it is refused (to do which a horn will seldom be required); and leave some at hand for the animal to take if it will. *Keep the animal away from others.*

*Caution.*—Attendants have been infected with the virus with fatal results. Before handling the animal or the objects which it touches, cover the hands with gloves or oil, or both, and take special pains to prevent any sore on the hands or other parts from touching the animal. These cautions suggest the necessity of keeping other domestic animals at a safe distance from the stall, drinking-trough, dishes, or other articles, and from the pasture in which the infected one has been.

#### LOSS OF APPETITE.—LOSS OF CUD.

If this occurs without other marks of sickness, examine the food to see if it is perfectly good, and the mouth to discover disordered teeth, ulcers, injuries, thrush, inflammation, or foreign substances. These are causes, as well as an overloaded stomach, poor digestion, and over-exertion.

*TREATMENT.*—If poor food be the cause, and the animal be weak and dull, or if there be diarrhœa, give arsenicum a half-hour before feeding night and morning, for a week or two. If there be poor digestion, dry, and hard dung and constipation, give nux vomica instead of arsenicum. If there be added to loss of appetite, diarrhœa, cold feet and loss of thirst, give pulsatilla. If some disease be the cause, that must be treated first. Do not compel a sick animal to eat. Be sure that the food is perfectly good. A change of diet will often be sufficient.

## EXCESSIVE OR DEPRAVED APPETITE.

Either of these conditions indicates a bad state of the system. The animal may eat greedily, and even take uncommon food, but still grows lean.

**TREATMENT.**—Give *pulsatilla* every few hours for four or five days; *sepia* and *nux vomica* will also be of service. *Cina* is needed if worms are the cause. Give cold water and good fresh food, not in excessive quantities.

## INDIGESTION.

Indigestion results from greedy eating after a long fast; poor or irregular food; abrupt transitions from dry to green feed, or from green to dry; insufficient feeding; impure water; pasturing in fields wet with dew; in calves, excess of improper food, such as bran and water, when weaned too soon.

*Symptoms.*—Loss of appetite, cud, and (in cows) of the milk; aversion to food; belching; foul, coated tongue; colic; hard and infrequent passages of dung; sometimes diarrhœa.

**TREATMENT.**—*Aconite* and *nux vomica* are needed for quick pulse, hot horns and ears, and variable temperature of the limbs, given alternately every three or four hours. For distended paunch give *ammonium causticum*. For much debility and diarrhœa use *arsenicum*; in some cases it is better to alternate it with *china*, especially if diarrhœa has stopped. If the cud is lost, the dung soft and offensive, and the animal coughs and moans, give *pulsatilla*. Feed bran and boiled oats, and if hay is given, it is better to soften it in hot water, allowing the animal to drink the remaining fluid. Give calves rye bran, or boiled wheat, not leaving any to sour.

## INFLAMMATION OF THE STOMACH.—GASTRITIS.

Inflammation of the stomach is a disorder of the lining membrane of the fourth stomach (see page 736), generally involving the duodenum, and usually accompanying inflammation of the bowels. It is frequently fatal. For its causes, read those given under Inflammation of the Bowels.

*Symptoms.*—Dejection; scraping the ground with the fore feet; striking the belly with the hind feet; groans; lowings; grinding teeth; red eyes; looking at the flanks; cold feet, ears and horns; dry muzzle; belly swollen and tender; vomiting; diarrhœa; milk thin, yellowish, stringy and irritating, or wholly stopped, sometimes reddish and offensive; spasm and colic, sometimes creating frenzy; loss of appetite and cud; tongue contracted, straighter and rounder than usual, occasionally yellow or green.

**TREATMENT.**—In the first place give aconite every thirty or sixty minutes if the pain is severe; the extremities very hot and cold alternately; the pulse full and quick; the body tender. It should be continued at longer intervals if the animal improves under it. Next give bryonia; it may be alternated with aconite if there be intense pain in the belly and costiveness. For heavy breathing, grunting, constipation, dejection and pains, give *nux vomica*. *Antimonium crudum* is desirable for white or yellowish tongue. For much vomiting *ipæcac* is needed. Give belladonna and *hyoscyamus* in alternation every two or three hours for delirium and loss of consciousness. Opium is needed for great stupor, and when other medicines fail. For cold extremities and rapid decline of strength give arsenicum and *veratrum* in alternation every two or three hours. No solid food should be allowed until improvement has commenced. Before that, give small quantities of fluid food, as oatmeal or flour gruel and water.

#### WOOD-EVIL.—RED-WATER.—MOOR-ILL.

Moor-ill is an inflammation of the fourth stomach (see page 736), frequently involving the lungs, and attended with fullness of the maniplies. It is caused by marshy pasturage, frozen roots and herbs, bad winter food, and buds of trees eaten in spring after long feeding on dry winter fodder.

*Symptoms.*—Dejection; fever; stumbling with hind feet; hot surface and breath; quick, hard pulse; staring coat; dry nose and mouth; constant thirst; eyes and nostrils red; hide-bound; chewing of cud rare and slow; scanty, bloody, dry and black dung; scanty, high-colored, bloody and strong-smelling urine; offensive milk; depraved appetite, sticks, bones, and the like being taken into the mouth; loss of flesh; weak, trembling loins; heaving flanks; moans; internal pains; the animal remains still; chest and shoulders stiff; marks of congestion of the brain; sometimes diarrhœa, the dung being offensive, bloody and blackish; inability to rise; general coldness; gangrene; death.

**TREATMENT.**—Give aconite at the commencement, every two, three, or four hours, according to the urgency of the fever-symptoms. Give mercurius for offensive, bloody dung. If the discharges are made with violent straining, give *mercurius corrosivus*. When improvement sets in, give sulphur to complete the cure. For other remedies with their symptoms, and for the diet, consult the treatment of Indigestion and Grass Staggers. With a view to prevention, improve the drainage of the field, avoid damp pastures in the spring until a good growth is afforded, and discard hay which has hurtful plants in it.

## INFLAMMATION OF THE BOWELS.—ENTERITIS.

Inflammation of the bowels is an inflamed condition of some or all of the parts of the intestines, which sometimes appears to be epidemic, and is most prevalent in hot weather. Among its causes are too stimulating or rich diet, especially after poor food; unwholesome plants; spoiled food; colds; drinking cold water when the animal is heated; injuries to the belly; worms in the bowels; badly-treated colic; injuries from the rolling incident to colic.

*Symptoms.*—Dullness; shivering; pulse quickened, hard, and small, growing more feeble; staring coat; belly swollen on the left side; dry muzzle; hot mouth; great thirst; tenderness about the flanks and stomach; red, prominent eyes; painful moaning; cud suspended; intense pain, with indisposition to move; obstinate constipation; dung disgusting, passed with straining, and covered with mucus or blood, but usually in small, watery quantities; urine very scanty, with frequent attempts to discharge it; heaving flanks; pawing and kicking; head stretched forward; ears and roots of the horns hot; dry, hot mouth, in later stages filled with frothy saliva; rapid decline of strength; trembling, tottering hind quarters; loss of motion; convulsions; grinding teeth; tongue covered with thick, yellowish mucus; sometimes putrid, bloody discharges from the mouth and nose; death, often in violent convulsions. If in a few days the pain suddenly ceases, mortification has commenced and death soon ensues.

It is important to distinguish Enteritis from Colic, and in doing this the reader will be materially aided by an examination of the appended parallel tables of symptoms.

ENTERITIS.	COLIC.
The disorder generally comes on gradually.	The attack is sudden.
The pain is incessant and increases.	The pain is intermittent.
The pain is aggravated by friction and movement.	The pain is relieved by friction and motion.
Weakness is very characteristic.	Weakness is not a characteristic till near the end of the disorder.

**TREATMENT.**—The first and chief remedy is aconite, three or four times an hour for a short time, and once every three or four hours after improvement begins until the cure is completed. For intense suffering, nearly imperceptible pulse, cold mouth, and decline of the constitution, give arsenicum every half-hour for a few doses; or alternate it with aconite as often. In cases

resulting from a heated animal drinking cold water, arsenicum is called for by weakness, low pulse, restlessness, cold mouth, diarrhœa, and cold legs. Should the use of aconite at the beginning give only partial relief, and the symptoms calling for arsenicum are not present, except that of intense pain, give bryonia. For constipation, or dung passed only with much effort, and but a few drops of urine resulting from frequent attempts to pass it, give nux vomica every half-hour for a few times, then less often when relieved. For disorders of the urine cantharis may sometimes be given; and ipecac, pulsatilla, or veratrum album for diarrhœa.

*General Care.*—Cloths soaked in hot water and bound closely with belts on the body, but not too tightly, accompanied with hot-water drenches or injections, will prove valuable aids; but the water must not be scalding hot. The local application, with aconite given as directed above, is the best treatment in the early stages. After the local applications, rub the animal and cover it with dry cloths. Linseed-tea or oatmeal-gruel is the best diet. For other suggestions of value, refer to Inflammation of the Bowels in the Horse.

### COLIC.

Colic is very frequent among cattle. It consists in severe pains in the bowels, which are liable to lead to inflammation of the digestive organs. Its main causes are sudden changes from grass to dry food, or from dry to green food; sudden exposure to draughts, or drinking cold water when the animal is heated; too much green food, especially if the animal be heated; poor grain; frosty grass; grass fermented after being cut; excessive eating by greedy animals; worms in the bowels. Sometimes the cause can not be determined.

*Symptoms.*—The animal refuses food, paws, kicks itself, looks at its side, lies down and rises frequently; sometimes falls instantaneously and heavily, rolls over, lies on the back with the legs stretched upward; feet, ears and horns alternately hot and cold; constipation; thirst; swollen paunch; acute pain. If the disease grows worse, inflammation of the bowels sets in. (Compare the parallel tables of symptoms given under Inflammation of the Bowels.)

*TREATMENT.*—Ammonium causticum, given every half-hour, may be the only remedy required, especially if it be given at the beginning. Aconite should be given for extreme fever and restlessness, with frequent but fruitless attempts to urinate. If a dose be given as soon as the attack comes on, and repeated four times an hour until the symptoms subside, then less often, it will usually be sufficient. Should the case be no better after a few doses

of aconite, and there be purging, great prostration, and other violent indications, give arsenicum three times an hour. *Nux vomica* is valuable, especially when a change of diet is the cause, for colic with constipation; discharges of small, brownish balls of dung, with mucus; attempts to urinate ineffectual, or only producing slight results. Give a dose two or three times an hour. *Colocynth* is desirable for severe pain from green food, and belly puffed out with gas. Injections of tepid water, renewed as often as they are expelled from the rectum, are valuable aids. Keep the animal from falling heavily, to prevent rupture of internal organs. Lead him about and, if he threatens to so fall, whip him or otherwise forcibly drive him. When at rest, keep a large supply of straw under him. After the disorder has subsided, give sparingly of easily-digested food until the system is fully restored. Other suggestions will be found by referring to the subject of Colic in the Horse.

### DYSENTERY.

Dysentery, or inflammation of the membrane of the large intestine, results from a variety of causes, such as damp, rank grass; marshy pastures; sudden changes of weather; impure water, especially when a heated animal drinks it; other diseases.

*Symptoms.*—Sometimes diarrhœa or colic first appears; sometimes purging is sudden, severe and constant, with straining; griping; bloody dung; protrusion of the intestine, which appears hot and swollen; fever; tenderness of the belly and loins; violent straining; loss of appetite and flesh; skin and hair rough, dry and harsh; milk stopped; sometimes constipation first appears, the dung being dry, hard, scanty and knotty. When inflammation sets in, the dung is discharged more suddenly and violently in spurts, becoming stringy and sticky and forming crusts on the hind parts, and this form sometimes assumes a chronic character, with more or less appearance of occasional recovery. Still later, blood is mixed with the dung, the latter soon becoming exceedingly offensive; glandular swellings form at the jaws; cold sweats ensue, the anus is ulcerated, the teeth are loose, and the eyes are glassy and filmy.

*TREATMENT.*—*Mercurius corrosivus* is needed for violent straining and discharges of blood, or of blood and mucus. When there are pains and a swollen belly, *colocynth* may be given. Mild cases resemble diarrhœa so much that they should receive the same treatment. (See *Diarrhœa*.) Severe cases resemble Typhus Fever (which consult). For other information, see *Dysentery in the Horse*. A little mutton-broth mixed in mashes will be found of much service.

## DIARRHŒA.

This is caused by improper food; foul water; drinking cold, strange water; damp and cold weather; drinking just after eating; weakened constitution; other diseases; in sucking calves, the milk of the mother when she has been improperly fed or overheated.

*Symptoms.*—Dung loose, becoming liquid, and spurted some distance; pain; loss of appetite, flesh and spirits; offensive dung.

*TREATMENT.*—Should the case be mild and not attended with pain, the spirits, flesh and appetite little affected, and the dung not offensive, it need cause no alarm, as nature is probably removing an unhealthy condition. When the case is violent or long-continued, remedies are necessary. When cold is the cause, or in recent cases with shivering, give fifteen to twenty drops of camphor three or four times a day in a little cold flour-gruel. Before putting it into the gruel, mix it in just enough spirits of wine and water (not pure water) to hold it in solution, without “settlings.” If the dung be mixed with mucus and passed without griping pains, or when it is frothy, dark and slimy, or when the rectum protrudes, mercurius is needed. If the purging arises from drinking cold water, from exposure to sudden changes of temperature, or from impure water, and is attended with chills, bryonia will be found efficacious. Arsenicum is demanded by great pain in the bowels; watery, slimy, greenish or brownish dung; weakness; loss of flesh and appetite; especially in cases caused by unsuitable food or cold drinks. It may be given in alternation with mercurius for symptoms indicating that remedy. Phosphorus, in doses of four or five drops, is excellent. Sulphuric acid is good for chronic forms, two or three drops of the concentrated acid being given in a half-pint of water two or three times daily. Veratrum is good for both ordinary and chronic forms. Pulsatilla is invaluable for calves affected by the milk. Sulphur in one-grain doses should be given occasionally after recovery occurs. Give only soft, boiled food, as gruels of flour or oatmeal, and other like articles.

## CONSTIPATION.—COSTIVENESS.

Constipation generally results from some other disorder, but may exist alone, and be caused by cold or irregular feeding. The bowels are bound, and what dung passes is dry and hard; the appetite is impaired; the animal is uneasy, showing signs of belly-ache.

*TREATMENT.*—Give sulphur, alone, or in alternation with aconite. Allow only soft, boiled food. For other suggestions consult the section on Indigestion; also that on Constipation in the Horse.

## MARASMUS.

Marasmus is a tuberculous growth in the intestines which destroys their structure. It occasionally occurs in calves. It is usually caused by some chronic disease.

*Symptoms.*—Weakness; wasting away, though the animal may ruminate and may eat heartily, even voraciously; the skin sticks to the ribs; the hair loses its luster; diarrhœa, with foul dung.

*TREATMENT.*—Give arsenicum and china, separately or in alternation. Silicea, calcarea carbonica, phosphorus and hydrastis are all good. Sulphur should be given to complete a cure when it has commenced.

## INFLAMMATION OF THE LIVER.

Though this disorder is not very common, it is found in animals that are stall-fed on high food and deprived of adequate exercise, and occurs mainly in winter.

*Symptoms.*—In the acute form there will be considerable fever; quick pulse; increased heat of the body; eyes, tongue, mouth, nose and teats yellow; dry muzzle; hot mouth; ears and horns alternately cold and hot; belly swollen and tender, particularly on the right side; constipation or violent purging; urine deep yellow; milk bitter and yellowish, or lessened, ropy and salty; general functions feeble. This form lasts about two weeks. In the *chronic* form the fever is weak or absent; the dung is scanty, hard and clay-like; the milk separates into watery and cheesy elements; there is a very marked and general yellowish hue in the skin; there is a loss of flesh, strength and spirits; the animal is hide-bound; great distress comes on, and may be followed by death. This form may last several months. Compare the symptoms of Jaundice below.

*TREATMENT.*—Mercurius is needed for yellow tint; dung offensive, hard, whitish or yellowish; or fluid dung. For costiveness with severe pain, fever, and thickly-coated tongue, give bryonia and mercurius in alternation. Nux vomica may be given with bryonia for constipation and high-colored urine. In chronic cases lycopodium is serviceable. Give juicy, nutritious food.

## JAUNDICE.

Jaundice arises from a morbid state of the liver, as hardening or inflammation, from gall-stones, or other obstruction to the passage of the gall to the gall-bladder. It is liable to confusion with Inflammation of the Liver, which is mentioned above.



*Symptoms.*—These vary according to the severity of the case, and the successive stages, but some or all of the following will occur:—Poor appetite; thinness; quick breath; tender side; cud chewed imperfectly; membranes of the mouth, nose and eyes yellow; tongue lined with sticky mucus; diminished milk, which is bitter and yellowish; yellow skin, urine and dung; hot skin and other fever-symptoms; scaly, mangy eruptions (*not seen in inflammation of the liver.*)

*TREATMENT.*—Give mercurius every three or four hours, especially for yellowness of the eyes, skin, urine and milk, and for excessive purging; or if the dung be whitish. Podophyllin should be substituted for mercurius if that remedy fails or has been given in undue quantities for any purpose. Arsenicum is to be administered for loss of appetite and cud, scanty urine, and great prostration. For marked constipation give bryonia and nux vomica in alternation every three hours. To complete the cure and restore the system, sulphur will be invaluable. The food should be juicy and nutritious, consisting of cut carrots, potatoes, turnips, and the like. Pastures which contain dandelion are efficacious, and the young and tender grass of spring-time will sometimes be sufficient at that season of the year. Keep the bowels in a moderately lax condition. Further directions will be found in the treatment of Jaundice in the Horse.

### INFLAMMATION OF THE SPLEEN.

This occasionally affects oxen, bringing on death in three or four days from the onset. It is generally a complication of some other disease, but may be caused by over-work after feeding, the cud not being sufficiently chewed. It is especially common in damp, cold weather, though sometimes in very dry conditions.

*Symptoms.*—Pain in the belly; tender flanks; swelling on the side and flank (less however than that in Hoove, coming on less rapidly, and giving a deep, heavy sound when struck, instead of a clear, hollow one, as in Hoove); loss of appetite and cud; dry, rough muzzle; fixed look; low moans; extended head; difficult gait; pulse at first full and hard, then soft and very small.

*TREATMENT.*—Give bryonia for fever, thirst, constipation, and brown tongue, either alone or, if there be nervousness and deep, shaking breathing, in alternation with aconite. China is good for hardness and swelling in the parts about the liver. If the region of the spleen is tender and the animal often looks toward it, give nux vomica. If the disease becomes chronic, give one or two doses daily of ferrum or sulphur. Mild, nutritious food is necessary.

## PERITONITIS.

Peritonitis is an inflammation of the membrane which envelops the abdominal vitals, and generally ends fatally in about a week. It is similar to Inflammation of the Bowels, and the reader is referred to that disease for important suggestions. It is caused by injuries to the walls of the abdomen, castration, surgical operations, sudden cold, and stimulating food after calving.

*Symptoms.*—Inflammatory fever; tender abdomen; swelling of the belly; tightness of the flanks; the animal looks at the sides, seldom lies down, and stands with the back bent down and the feet drawn under the body; when down, it rolls on the back; hot abdomen; cold hoofs and ears; pulse rapid and short; cessation of pain, rapid decline and intermittent pulse indicate mortification and imminent death. Dropsy of the belly may be the result.

**TREATMENT.**—Adopt the treatment of Peritonitis in the Horse.

## PROTRUSION OR FALL OF THE RECTUM.

The bowel sometimes protrudes after diarrhœa, dysentery or constipation, or may do so independently.

**TREATMENT.**—After gently pushing back the rectum it may be necessary to secure it by an operation of the surgeon. If a mechanical injury be the cause, give arnica, alone or in alternation with aconite. When diarrhœa is the origin of the trouble, give arsenicum. For further information when diarrhœa or dysentery is the cause, consult the sections devoted to those.

## WORMS.

Worms of various kinds are found in cattle, and are caused by weakness of the digestive organs, morbid secretion of mucus, and disordered lungs and liver.

*Symptoms.*—Colicky pains; poor condition; appetite good, perhaps voracious; restlessness, particularly when the stomach is empty; fits; coughs; worms in the dung, *the only certain symptom*. Many symptoms of other diseases are supposed to be caused by worms, while the worms may increase merely by the existence of such symptoms.

**TREATMENT.**—Give sound, nutritious food, administer cina night and morning for a few days, an hour before feeding, for varying appetite; tight or purging bowels; rough coat; fits; foul breath. If improvement appears, continue this remedy. If it fails or only partially relieves, give two-

grain doses of the trituration of arsenicum as directed for cina. For *tape-worm*, felix mas is the most effectual, a half-ounce of a decoction being given early in the morning and late at night. Rock-salt, a lump being placed where the animals can lick it, is recommended as a preventive of worms. Consult the section on Worms in the Horse.

### FLUKES.—WORMS IN THE LIVER.

Worms in the liver or bile-ducts sometimes cause great swelling of the liver, and usually prove fatal. They occur mainly in low countries and after damp seasons, and may be taken in with the food and developed in the liver.

*Symptoms.*—Depression; inactivity; red, watery, or yellowish eyes; yellowish skin; standing hair; loss of appetite; offensive smell from the mouth and nose; white, watery, offensive dung passes irregularly.

*TREATMENT.*—Give mercurius for the symptoms just named. Arsenicum is good for chronic cases, with diarrhœa, prostration and cold limbs. Sulphur is needed to complete a cure, when once it begins.

### PILES, DUST-BALLS, ETC.

For Piles, Dust-Balls, Hair-Balls, and other disorders of the digestive organs which are not treated in this chapter, consult the respective sections devoted to these disorders in the Horse.



## CHAPTER III.

### THE RESPIRATORY ORGANS.

#### COUGH.

**C**OUGH is usually a symptom of some disease, but it may exist independently. In the former case it is remedied by the removal of the disease; in the latter, the treatment below will generally cure it. In a healthy condition, cattle often have a cough which is not constrained and causes no inconvenience. The independent cough which demands treatment is caused by dust; indigestion; some substance in the wind-pipe; cold. If it be dull, hollow, worse after drinking, and easily excited, the cause is probably lung-disorder, or, if it be severe, it may result from dropsy of the chest.

**TREATMENT.**—Give belladonna in most cases, especially for dry, hacking or barking cough. Dulcamara is needed for loose cough from a cold. For cough attended with diarrhœa, give chamomilla. Ipecac is good for difficult breathing, phlegm, and rattling of the chest. Give arsenicum for oppressed breathing, worse on exposure to cold; loss of strength and flesh. For long-standing cases, for dry, rough cough, and for that caused by frost, give bryonia. Sulphur is suitable for long-continued, obstinate cough. It may be alternated with one of the above remedies which has not effected the desired result. Of these remedies give a dose three or four-times a day until improvement begins; then once or twice a day. Keep the animal in a place that is comfortable, well ventilated, and free from draughts of air and north or east winds. Give only good food, as carrots and linseed-tea.

#### COLD.—CATARRH.—CORYZA.

Common cold or catarrh is caused by exposure to draughts of air, or drinking cold water, when the animal is heated; sudden changes of weather; cold water applied to the skin of a heated animal, without subsequently drying; cold, wet weather; hot, close, impure and overcrowded

stables; causes generally which bring on bronchitis (which see). It is often epidemic.

*Symptoms.*—Fever; loss of appetite; dry, husky, wheezing cough and breathing; dry nose, with thin, watery discharge from the nostrils and eyes; sneezing; red, swollen eyes; sometimes thick nasal discharge; low spirits. If neglected, cold may end in diseases of the larynx and lungs.

*TREATMENT.*—Camphor is by far the best if used promptly at first, being given once a day. For sore throat and thick, offensive nasal discharge, give mercurius, alone or alternated with belladonna. For constipation and impaired appetite nux vomica will be invaluable. For short, painful breathing, violent coughs, and unwillingness to move, bryonia is needed. Arsenicum is to be chosen for cold resulting from a heated animal drinking cold water; difficult breathing; swollen legs; loss of appetite; much weakness; purging. When improvement takes place and has advanced a considerable time, give sulphur twice daily for a few days. Of these remedies, speaking generally, the one selected should be given three or four times daily until the symptoms indicating it have abated, then less often. If an animal has been subjected to any of the causes of cold, or if a cold has just appeared, give three or four doses of camphor, twenty or thirty minutes apart, *in the first stages, not after inflammation appears*. This, with proper care, will usually suffice. See Cold in the Horse.

### SORE THROAT.

Sore throat is an inflammation of the membranes of the back part of the mouth, involving the other organs of respiration. It is often epidemic in swampy, foggy districts, having causes similar to those of catarrh, though it may result from external injuries or irritating food.

*Symptoms.*—If the organs involved in swallowing are mainly affected, food is wholly refused or it is not well masticated, and is thrown out of the mouth; fluids in drinking freely flow from the nose; painful and difficult swallowing; saliva first flows from the mouth, then mucus; swollen tongue; the cud is suspended; painful and swollen throat; fever. When the larynx, glottis and upper part of the windpipe are affected, breathing is difficult; frequent dry, hoarse, painful cough, with threatened suffocation; painful, hot and swollen throat; full, rapid, hard pulse; great thirst; fluids returning through the nose during drinking; head stiffly stretched out; hard, dry dung.

*TREATMENT.*—For full pulse, hot breath, dull, heavy eyes, skin once hot, then cold, give aconite in the first stages, ten drops to the dose. Belladonna is needed for swollen throat; quick, full pulse; hot skin; flow-

ing tears; difficult and painful swallowing; stringy saliva; dry cough. It will often be of especially good service if alternated with aconite. Mercurius is valuable for sore throat with thick nasal discharge. Arsenicum is especially useful for malignant sore throat with offensive breath, prostration, and tendency to gangrene, ten drops every two hours until better.

### INFLAMMATION OF THE LUNGS.—PNEUMONIA.

This is an inflamed condition of the lung-tissues. (See Bronchitis and Pleurisy.) It is caused by exposure to cold or to damp, cold weather; drinking cold water when heated; hard or long driving. It may attend bronchitis or pleurisy, and may end in consumption, dropsy of the chest, or other serious disorders. It is sometimes epidemic.

*Symptoms.*—Shivering; horns, muzzle and ears alternately hot and cold; cold limbs; heaving, panting flanks; hanging head; dullness; muzzle once dry, again moist; costiveness; hard, black, offensive dung; dry, frequent cough; mouth and breath hot; loss of appetite and cud; great thirst; quickened pulse occasionally, perhaps above sixty to the minute; grinding of teeth; groans. Later on, discharges of watery phlegm from the mouth, which grows thick and sticky; loss of milk; sweats; sometimes hard, swollen teats; tears profuse; tenderness of the back and crupper; the animal seldom lies down. Later still, very difficult breathing; great weakness; belly tucked up and legs drawn under it; dung more and more liquid and offensive; ulcers on the body come and go; offensive discharge from the eyes; unconsciousness; pupils of the eyes enlarged and filmy; membranes of the mouth, nose and throat grow cold; imminent death.

*TREATMENT.*—Aconite given every three hours *at the beginning* will be effective and often sufficient; if marked improvement should not appear, give this in alternation with bryonia as often. Arsenicum is needed for great prostration. Sulphur will complete a cure once begun and restore the system. If the weather be cold, clothe the animal against damp and cold. Give sparingly of such food as bran and boiled oats. Should other diseases follow, adopt the treatment given under them. Also consult the section on Pneumonia or Inflammation of the Lungs in the Horse.

### CONSUMPTION.

Consumption is a serious, usually chronic, disorder that is marked by tubercles in the lungs, which grow, run together, and form abscesses. It is caused by neglect or bad treatment of pneumonia or pleurisy, by cold, chill, over-exertion, or a hereditary tendency to the diseases.

*Symptoms.*—Feeble, hoarse, gurgling, painful cough; impaired digestion; loss of appetite; irregular cud; loss of flesh, also of hair, mainly on the eyebrows.

*TREATMENT.*—Give nitrum and sulphur alternately at the beginning. In later stages relief will be given by phosphorus and stannum. Put the animal in a comfortable, airy stable, free from north and east winds, apart from other animals. Do not hurry, alarm or excite it. Change the litter often and keep it dry. Rub and curry the skin frequently. The disease may be relieved and the animal's life be prolonged, but it will be unfit for milk, beef or breeding.

### BRONCHITIS.

Bronchitis, or inflammation of the air-tubes leading to the lungs, rare in cattle, is caused by neglected or badly-treated cold, by the influences which induce a cold (see Cold), and by disordered digestion.

*Symptoms.*—Indications of a cold; thick, wheezing breath; exposure to cold causes quickened pulse and breathing, with cough and a rattle in the windpipe; dull eyes; hot mouth; very rapid loss of flesh; great dread of motion; belly tucked up; heaving flanks; the cough is frequent and painful; staring coat.

*TREATMENT.*—Give aconite *at the beginning* for quickened pulse and breath, hot mouth, short, frequent cough, and fever-symptoms. Bryonia is needed for quick, difficult breathing, rattle in the windpipe, and frequent cough. For rapid loss of flesh and strength, feeble pulse, and restlessness, give arsenicum. Belladonna is especially good for violent, short, dry coughing, red eyes, and wild look. Consult the section on Bronchitis in the Horse.

### WORMS IN THE AIR-TUBES.

Cattle a year old or less are affected with a disorder which may be called a form of bronchitis, since it is an irritation and inflammation of the air-tubes, resulting from the presence of silver-colored worms, two or three inches in length. It chiefly invades cattle that are kept on low, marshy or woody pastures, with little or no water.

*Symptoms.*—Cough, at first dry, short and husky; quickened breathing; distress in the chest; sometimes grunting; nasal discharge; quick pulse; dullness; loss of flesh. Later, there will be restlessness; hanging ears; distended nostrils; hollow eyes; weakness; death. Sometimes apparently moderate health is attended by complete loss of flesh.

*TREATMENT.*—Let the animal inhale chloroform at intervals to be

regulated by the urgency of the case. If there be doubt as to the existence of worms, use the treatment already recommended for Bronchitis.

### PLEURO-PNEUMONIA.—LUNG-MURRAIN.

By these terms is meant a very serious malarial or contagious disease caused by sudden and great changes from heat to cold, or the opposite; crowding animals together in dark, damp, poorly-ventilated stables; contagion; high or artificial feeding. It is very fatal.

*Symptoms.*—In the *first* stage the attack may be slow, without indications of serious results; it may be rapid and quickly fatal; or it may begin with violent diarrhœa, weakness and loss of flesh. Then there will be an occasional short, dry, husky cough; harsh, dry murmur, or confused humming in the lungs, instead of the natural moist, silky sound (detected by placing the ear to the sides of the chest); milk diminished and yellowish; impaired appetite; quick and labored breathing on motion; pulse sometimes a little quickened and weaker; dullness; heat or coldness of the body; either constipation, purging, or irregular bowels. In the *second* stage the cough is more frequent and painful; thick phlegm in the mouth; grating teeth; grunting; loss of appetite, cud and milk; pain on pressure between the ribs; pulse quick and feeble; skin hard and tight; dung hard and dry. In the *third* stage, the breathing is much quickened and labored, the breath being offensive; pulse quicker, feebler and irregular; horns, legs, and ears cold; cold sweats; the legs stand in various unusual positions; great loss of flesh and strength; weak cough; urine high-colored; violent purging of watery, offensive, blackish, often bloody, dung; death.

*TREATMENT.*—Give aconite at first, ten drops every hour or two, according to the urgency, for quick, hard pulse, short, painful breathing, dry, hot mouth, scanty milk, cold base of the horns, hard dung, and other fever-symptoms. Bryonia is often needed after aconite, especially if the latter has afforded only partial relief, in which case it should be alternated with it, each once in two hours. The symptoms for bryonia are frequent, painful cough, and avoidance of motion. Phosphorus is valuable for enfeebled or obscure murmur of the lungs; obstructed breathing; slimy or bloody phlegm in the mouth. Prepare it fresh every day. Ammonium causticum is indicated by quick, difficult breathing; rough, staring coat; languor; weak pulse; frequent cough; shivering or trembling; skin hot and dry, but growing moist; great weakness and listlessness. Arsenicum is invaluable for extreme weakness; grinding of the teeth; loss of appetite; short, wheezing and difficult breathing; clammy sweats; small, quick pulse; offensive nasal discharge; much purging, and for epidemic cases. Sulphur is valuable for



aiding a recovery when once begun, and to prevent a relapse, especially when bronchitis is present, with a pus-like mucus coming from the nose. Begin treatment as soon as the first symptoms appear. Separate the animal from others at once. Give mash, oatmeal-gruel, linseed-tea, a small quantity of good hay being added after a few days, but feed sparingly, gradually increasing as recovery progresses, remembering that a return of the disease usually results from too soon overloading the stomach, and is generally fatal. Forcing down food, even in drenches, will almost invariably cause death.

This is one of the most fearful and destructive diseases of cattle, and too much pains can not be taken to prevent its invasion, and to completely isolate all infected animals, so that it may not spread. Its restriction or suppression is engaging the attention of many able men, and has commanded the attention of our state legislatures and national Congress.

### PLEURISY.

Pleurisy is an inflammation of the membrane which envelops the lungs. It is caused by exposure to draughts of wind or frost; a wet bed; blows on the side; over-exertion; neglected catarrh; calving followed by exposure.

*Symptoms.*—The taking in of the breath is fitful or interrupted, its expulsion being full and long; heaving flanks; full, quick pulse; slight cough; dullness; lowered head; animal indisposed to move; mouth, ears and nose hot; muzzle dry; feet and horns alternately cold and hot; much thirst; loss of appetite and cud; urine red; dung dry, blackish and slimy; constipation; milk much decreased; shivering; twitching and wave-like motions of the skin; very tender sides, chest and spine. In later stages, there will be profuse tears; nasal discharge clear and watery, becoming red and bloody; pulse feebler and quicker; breathing more troubled; sweats; nostrils wide open; finally death. In this disorder the breathing is effected by a peculiar movement of the abdomen, while in *pneumonia* it is still done by the ribs; there is more pain on pressing between the ribs than in pneumonia. Pleurisy is liable to end in dropsy of the chest.

*TREATMENT.*—Give aconite for quick, full, hard pulse, dry, hot mouth, and quickened breathing. If in addition to the symptoms just named there be a bloody nasal discharge, short, catching breath, with rattling in the windpipe, gruntings, pain on pressing the side, and constipation, give bryonia in alternation with aconite every two or three hours. Arsenicum is required in advanced stages for rapid prostration and feeble pulse. When improvement has begun sulphur will complete the cure. For other information consult the section on Pleurisy in the Horse.

## CHAPTER IV.

### THE SKIN.

#### ERUPTIONS.

**G**ENERAL eruptions in the form of spots, pustules, scabs, or scales may appear on different parts of the body, resulting from insufficient, excessive, or poor food; from constitutional disease; from unhealthy conditions generally. The sudden suppression of eruptions is often the cause of serious or fatal derangements of internal organs.

**TREATMENT.**—If disease be the cause, remove it. For independent cases, give two grains of sulphur in the morning and as much arsenicum at night. Other valuable remedies are graphites, silicea, rhus and mercurius.

#### CHAPS AND CRACKS.

Chaps and cracks in the skin are due to walking on marshes, to the applications of strong medicines, and to internal disease. In the last case, the disease should itself be treated.

**TREATMENT.**—In independent cases, that is, without internal disease, give arsenicum internally. Sepia will be valuable if the skin is hard, dry and peeling off. Phosphoric acid is needed when the hardened edges of the cracks form wrinkles and ridges. If the pasture is marshy, change it.

#### WARTS.

Warts are tumors of varying size on different parts of the body, which need no description.

**TREATMENT.**—Moist, encrusted, chapped warts, of large size and disgusting appearance, should be painted twice daily with strong tincture of thuja, a dilution of the same being given internally night and morning. Ulcerated warts are best treated with arsenicum. Small warts on the lips call for calcarea carbonica; and those which are painful and bleeding, for causticum. After a few doses of either of the above remedies, give sulphur, and if it fail resume the former medicine. See Warts in the Horse.

## TUBERCLES.

Tubercles are small, inactive swellings, caused by rubbing, colds, stings, bruises, internal disorder, and the like.

TREATMENT.—If external violence be the cause, give arnica internally and apply externally. For hard, small swellings, give calcarea carbonica, followed by sulphur. If an internal disorder be the cause, treat that.

## CYSTS.

These are inactive tumors of varying size on different parts of the body which contain morbid matters of varying color, quality and consistence.

TREATMENT.—Continue calcarea carbonica once or twice daily; if it fails, give graphites. For tumor under the jaw and above the throat, give mercurius. If pus forms in the cyst, hepar and silicea will be efficacious. Sulphur is useful for almost all forms, and may be given occasionally. It will also complete a cure once begun. Mercurius-corrosivus lotion may be used in old or chronic cases, one part by weight to sixteen of *hot* water.

## FUNGOUS GROWTHS.

A fungus is an excrescence due to the rubbing of a rope at the base of the horns, or to the yoke, and also may appear on the hoof. Pus sometimes forms, and the part affected may become very red.

TREATMENT.—If the fungus is very tender upon pressure, apply arnica, one part to fifteen of water. If it becomes hard and is not tender, apply a lotion of mercurius corrosivus, one part by weight to sixteen of *hot* water. Thuja is needed for a fungus at the base of the horns; sepia for one on the hoof; and phosphorus for those that are very red. If a fungus collects pus, treat it as directed under Abscess on another page.

## SPONGE.

Sponge is a name given to a spongy growth on the knee, usually caused by an injury. It is at first a hot and painful swelling, then a cold, hard, inactive tumor, sometimes itching and discharging pus.

TREATMENT.—If an external injury be the cause, apply arnica-lotion, rubbing it in well three times a day. Should the swelling become hard, rub in a lotion of mercurius corrosivus, one part by weight to sixteen of *hot* water, until the part becomes tender and scurfy, repeating the application in about ten days. Mercurius corrosivus internally may be of use.

## MILK SCAB.—CRUSTA LACTÆA.

Crusta lactæa consist in white pustules on the head, chiefly about the mouth, nose, eyes and ears, discharging a sticky fluid, becoming dry, and leaving bluish-white scabs. Other parts of the body may be somewhat affected. It is very contagious but causes no itching; has thicker scabs than exist in itch; and is not dangerous, though it produces loss of strength and flesh, and diarrhœa.

TREATMENT.—Persevere some time, once or twice a day, with either calcarea carbonica, rhus, arsenicum, thuja, or sulphur, applying a lotion of arsenicum externally; and if the lotion is a failure, rub on thuja occasionally.

## ITCH.—MANGE.

This is similar to itch in the human being, and is caused by the presence of numerous minute parasites. The predisposing causes are bad food, wet weather, filth, close, damp, unclean stables, bad winter care, indeed, whatever puts the animal in poor condition. It is more commonly taken by contagion from an infected animal, and may thus be communicated to the human system.

*Symptoms.*—In *dry* itch, restlessness; scratching; naked or scaled and bleeding spots; perhaps ulcers and scabs later, giving out a fluid which soon thickens and forms crusts. In *moist* itch, larger, deeper ulcers, with a thin, reddish, irritating fluid and thicker scabs than in dry itch. Marasmus or dropsy may ensue (which see). Itch is liable to be attended with lice (see Lice). The only absolute proof of itch is the presence of the insect, which may be detected if one will scrape off some of the scurf and examine it carefully—with a magnifying glass if his sight is not sharp.

TREATMENT.—Make an ointment of one ounce of sulphur and two ounces of lard, thoroughly mixed. Rub this on with a clean, large paintbrush, being sure to reach every part and wrinkle where the parasites may be. If a few remain they defeat a cure. Use this morning and night for a day or two. Give internally two grains of sulphur in the morning, and as much arsenicum at night. Wash the scaly parts thoroughly with soap and tepid water, and then carefully dry with a cloth. Ointments containing mercury and arsenic are to be avoided. Pastures in which infected animals have run should be vacated eight to ten weeks before they are used again, the cloths, brushes and other articles used in the treatment being burned or thoroughly boiled, and the stable, gates and posts against which they have rubbed being studiously washed with strong carbolic acid to prevent a spread of the disorder in the herd.

## GOITRE.

Goitre is a tumor with enlarged gland on the neck, usually the left side, and is sometimes chronic. The animal carries the head outward and upward, at times bellows in distress, and has a painful cough.

**TREATMENT.**—Spongia, continued some time, is useful; iodine is also. Mercurius and drosera may be required. An occasional lotion of mercurius-corrosivus may be used. As the disorder is due to the properties of the drinking-water and the soil—chiefly lime and phosphates—a change of water and pasture will afford the surest grounds of hope of a cure. At best, protracted treatment will be necessary.

## WORMS IN THE BACK.

Worms in the back are caused by the gad-fly piercing the skin and laying eggs, which hatch, leaving maggots that remain until the next summer, before escaping as gad-flies, unless removed by treatment. These maggots live on the pus resulting from a tumor which becomes as large as a small filbert. They cause pain, irritation, pus-formations, loss of strength, and damage to the hide by perforating it. They attack only healthy cattle.

**TREATMENT.**—Through the small opening which will be found in the tumor, thrust a small instrument or red-hot needle and thus destroy the maggots, carefully searching the whole back for them. The same advantage may be gained by squeezing the tumor and thus crushing or forcing out the worm; or by frequently washing the tumors with camphorated brandy. Give sulphur internally after the above treatment.

## LICE.

Lice afflict calves and young cattle especially, and are found chiefly behind the horns and ears, on the membrane passing down from the throat, on the withers, and back of the neck.

**TREATMENT.**—Dress well with olive oil, or with equal parts of water (or glycerine) and sulphurous acid. A lotion of carbolic acid is also good. If eruptions caused by the lice do not disappear when the insects are removed, give a few doses of arsenicum. Observe perfect cleanliness and destroy the bedding of an infected animal. It will be well to rub all objects which the infected animal has touched with carbolic acid. Keep the animal in good health and flesh, to ward off lice. Fowls roosting about the stable very often impart lice to cattle, and their removal is often necessary.

## STINGS AND BITES OF INSECTS.

Stings or bites may cause inflammation and pain. Remove the stings if they remain in the skin, and foment with diluted arnica or ledum. If many insects, as a swarm of bees, have settled on the animal, give arnica internally and apply externally. Apis is an excellent general remedy.

## HIDE-BOUND.

Hide-bound is a condition resulting from disordered digestion, deficient or poor food, rough weather, intestinal worms, or chronic disorders of the lungs. The skin is hard and adheres to the ribs, the hair being rough.

TREATMENT.—Treat the disease which causes the condition. As a rule, arsenicum is best for loss of flesh and strength, poor appetite, and cold skin, three doses being given daily for a few days, then twice a day.

## SURFEIT, ERYSIPELAS, ETC.

For all requisite information upon Surfeit, Erysipelas, Ringworm and other disease of the skin not treated in this chapter, refer to the corresponding ailments of the Horse.



## CHAPTER V.

### THE URINARY AND GENERATIVE ORGANS.

#### INFLAMMATION OF THE KIDNEYS.

**I**NFLAMMATION of the kidneys is often combined with inflammation of the intestines or bladder. It is caused by changes of temperature, eating unsuitable food or plants, strong medicines, as cantharides in too large doses, and external injuries to the loins. A careful study of its symptoms is requisite to distinguish it from other urinary disorders.

*Symptoms.*—Scanty urine, passed with pain and difficulty (by which this disorder is distinguished from Inflammation of the Bladder, in which the urine is passed readily and copiously); urine thin at first, then thick and red; parts near the kidneys very hot and tender on pressure; back arched; legs brought together under the body; hot rectum; dung scanty, its passage giving pain; appetite and cud lost; considerable thirst; quick, weak pulse.

*TREATMENT.*—When there are much fever and pain, give aconite at once in doses of five to ten drops every one or two hours. When such a condition is accompanied with frequent painful urgings to urinate, followed by a discharge of small quantities of bloody urine, cantharis should be given in alternation with aconite. After the inflammatory symptoms have subsided and frequent but almost ineffectual efforts to pass urine continue, with obstinate constipation, nux vomica will be quite sufficient. Give small quantities of light, nutritious food, and clothe the animal comfortably in cold weather. For further directions, see this disorder in the Horse.

#### INFLAMMATION OF THE BLADDER.

Inflammation of the bladder is so similar to that of the kidneys, that the reader should here note the symptoms mentioned in the preceding article, together with this distinction, that in this disorder of the bladder the animal leans first on one side and then on the other, with the back almost constantly arched.

**TREATMENT.**—Adopt the treatment laid down for Inflammation of the Kidneys, adding hyoscyamus to the remedies there named.

### SPASM OF THE BLADDER.

A spasm of the neck of the bladder is caused by stoppage of sweat; too watery food; cold feet; too long retention of urine. It is indicated by great restlessness; unsuccessful efforts to urinate; much suffering; scraping with the feet; violent falls. The retention of urine distinguishes the disorder from colic.

**TREATMENT.**—For fever, and scanty, bloody urine, give aconite from one to four times an hour, according to the urgency of the case. Similar doses of cantharis will afford much relief. See this disorder in the Horse.

### BLOODY URINE.

Bloody urine more often attacks males than females, and is caused by improper or poisonous food, catarrh, injuries from jumping, blows, and the like (especially in cows at the time of calving).

*Symptoms.*—Loss of appetite; much thirst; cold feet, ears and horns; rapid pulse; pain on pressure about the loins; chills; mouth and tongue hot; pulse feeble; passage of dung painful; the urine gradually becomes red, its passage in later stages being very distressing and made up of drops only; if the bladder and kidneys become much inflamed, the case is hopeless.

**TREATMENT.**—Give cantharis two or three times daily; if it fails, give camphor twice a day, ten grains or more with pounded loaf sugar, placed dry on the tongue or put in a little water and well shaken. Consult the article on the same disease in the Horse.

### BLACK WATER.

Black water, also called “red water,” is caused by neglect, harmful vegetation in swampy lands, buds, decayed leaves, insufficient grass and water in summer, sudden changes in temperature, diseases of the stomach and liver, injuries, and exposure to wet and cold soon after calving.

*Symptoms.*—At first, dullness, poor appetite, tender loins, unthrifty-looking skin; then red urine, or even black, entire loss of appetite, all parts of the skin and whites of the eyes yellowish-brown; quick, full pulse; the bowels, perhaps very loose at first, become greatly constipated; sunken eyes; rapid loss of strength and flesh; violent purging; death, unless treated properly.



**TREATMENT.**—Fever and diminished milk demand aconite every three hours until the fever abates. Give cantharis for scanty, red urine passed with pain and straining. For sudden attacks, with shivering, cold extremities, and great difficulty in urinating, give eight drops of camphor every half-hour for three or four times. Ipecac is needed if the whites of the eyes are tinged with yellow, and if the breathing is difficult. If injuries be the cause, give arnica every half-hour. Pulsatilla is specially valuable for the general symptoms. Give such food as mashes, gruels, fresh meadow-grass, and linseed-tea, in small quantities. Avoid turnips. Keep the animal from winds, allowing exercise in a suitable shed or yard, but avoiding the hot sun for several days after an apparent recovery.

### RETENTION OF THE URINE.

Retention of urine, different from its suppression in Inflammation of the Kidneys, has symptoms similar to those of Inflammation of the Bladder (which see); the urine is wholly stopped, or passes only in small quantities and with much difficulty.

**TREATMENT.**—If the symptoms be severe, give ten drops of nux vomica every half-hour or oftener. Cantharis and bryonia are very valuable for the general symptoms. For other remedies see this disorder in the Horse.

### DIABETES.

Diabetes is a large discharge of sugary urine, at first clear, then greenish. It is caused by cold, or by juicy, frozen or frosted food.

*Symptoms.*—Excessive urine and thirst; growing weakness; difficult passage of urine; continued fever.

**TREATMENT.**—Phosphoric acid is the best remedy, but nux vomica and sulphur are useful for the general symptoms. Give water sparingly, a little flour-gruel mixed with water being also advisable. Avoid much juicy food. See “tests” and full treatment of Diabetes in the Horse.

### STONE IN THE BLADDER.

*Symptoms.*—Very scanty urine; stamping; looking at the flanks; switching of the tail; later, bursting of the bladder; appearance of dropsy sets in, followed by returning appetite, though death is near.

**TREATMENT.**—Treat the same as Stone or Gravel in the Horse. The stones, when once formed, can be successfully removed only by one of professional skill, and are often incurable.

## CALVING AND FLOODING.

Though calving is purely physiological, it may lead to more or less serious consequences if the cow is not properly treated. She should be dry for about a month before calving, which will be in about nine months after impregnation. This will allow an adequate nourishment for the calf and lessen any tendency to milk-fever or inflammation of the udder. If she is poor, she should be dry for more than a month. During such a period food should be given oftener, but in less quantities. For a few days before calving one will notice quick breath, groans, uneasiness, rapid enlargement of the udder and dropping of the belly, and a discharge of mucus from the vagina. Restlessness increases, the cow often lying down, when pains will come on, with the expulsion of the calf. The after-birth generally comes away at once, but may remain several hours and threaten serious results. As a preparation for delivery, feed sparingly of mashes and hay for a few days, and frequently strip the udder if it is swollen and hard. Afford a roomy, well-ventilated place, without superfluous litter, but with comfortable bedding. If any serious consequences are feared, put adequate covering on the animal immediately after delivery. If fever ensues after calving, give aconite. Pulsatilla should be administered two or three times a day if the after-birth does not come away soon after delivery. If it remains in spite of the pulsatilla, call a veterinary surgeon to remove it.

“Flooding” is a term applied to an unusually full discharge of blood after delivery. It is caused by a lack of proper contraction of the womb, or by injuries sustained in assisting a difficult parturition. If at this time there be a violent straining and great flow of blood, give *secale* every three or four hours, and *pulsatilla* may be alternated with it. If an injury has been the cause, give *arnica* three or four times daily. Keep the cow quiet, with the hind quarters elevated a little. Inject cold water into the rectum, and for a short time apply at intervals to the loins some cloths soaked in cold water. This will contract the blood-vessels.

## INFLAMMATION OF THE WOMB.

Inflammation of the womb is caused by difficult labor in calving, and by cold.

*Symptoms.*—Discharge of mucus and blood; fruitless efforts to pass urine; swollen bearings; loss of appetite; cold feet and ears.

*TREATMENT.*—At first *bryonia* alternated with *aconite* every two to four hours will be beneficial. After the fever, if swelling of the bearings and straining remain, give *sabina*. For difficult urination and pain in

the belly, give belladonna, alone or alternated with bryonia. Insure quietness and a mild diet and protect the animal against colds.

### FALL OF THE WOMB.

This is caused by very difficult calving, or the work of an assistant during the same. The womb protrudes from the vagina more or less, being of a deep-red appearance.

**TREATMENT.**—Treatment should be given at once. Place the hind feet a little higher than the fore ones. If the womb has become dry, cold or dirty, gently and thoroughly wash it with tepid milk. Wrap the hand with a soft cloth soaked in tepid milk and carefully turn the womb back to its place, as in turning a glove-finger that has been turned inside out. This operation is more safely done by a surgeon, and he may find it necessary to use some appliance to prevent further protrusion. If the trouble is caused by the cow's efforts to expel the afterbirth, give pulsatilla and sepia. For much straining, secale should be given every three or four hours.

### MISCARRIAGE.—ABORTION.

This occurs between the fifth and eighth months of pregnancy, chiefly in over-fed cows. In a given district abortion in one cow may be followed by the same in others, and one occurrence is likely to lead to another in the same cow in about a year. Its chief causes are bad or frozen food, impure water and air, confinement in dark, unhealthy stables, violent exertion, injuries to the belly, and sexual intercourse during pregnancy; the smell from a cow that has recently suffered a miscarriage is liable to induce it in others that are pregnant.

*Symptoms.*—Threatening symptoms are aversion to food, restlessness and anxiety, low spirits, lowing, sudden stoppage of milk, offensive mucous discharge from the vagina, collapse of the belly and stoppage of the motions of the calf in the womb.

**TREATMENT.**—Arnica, repeated according to the urgency of the case, will often avert a miscarriage if used immediately when an injury has been sustained during pregnancy. After the symptoms have begun, secale is an admirable remedy, as it aids the labor. For chills, give arnica every hour until they disappear. If strains or over-exertion threaten miscarriage, give rhus instead of arnica. Guard against recurrences. After a miscarriage has begun it is useless to try to check it. To prevent it, avoid the causes mentioned above, and the cautions given upon Abortion in mares on a preceding page.

## INFLAMMATION OF THE UDDER.

Inflammation of the udder after calving is caused by exposure to bad weather, injuries from lying on the udder, or failure to empty the udder. It occurs chiefly after the first calving.

*Symptoms.*—Hot, painful, swollen udder, with hard, internal lumps; fever; full, rapid pulse; mouth and horns hot; quickened breath; constipation. The symptoms afterward become worse, there being loss of cud and appetite; abscesses in the lumps, perhaps bursting and discharging blood and pus; deep, malignant ulcers; poor and diminished milk; perhaps hardening of the udder.

*TREATMENT.*—Give aconite for fever, a few doses at the beginning. At the first, bryonia and belladonna in alternation will often effect an improvement. Hepar should be given if the swellings are suppurating. Phosphorus and silicea are also valuable, in alternation, for the same symptom. For chronic enlargement of the udder, rub once or twice daily with one drachm of iodine in two ounces of lard. Strip the udder often and then bathe it with warm water and soap.

## SORE TEATS.

The teats become sore from various causes, especially in young cows after calving. External injuries, warts and constitutional disorder induce the trouble.

*Symptoms.*—After calving, tender and inflamed, scaled or cracked teats, a bloody discharge mixing with the milk as well as coming from the sores; pain in milking; kicking which may grow to a settled habit; diminished milk; sore udder; perhaps inflammation of the udder (see last disease above).

*TREATMENT.*—If warts be the cause, pluck or cut them away, and dress the wound and sores once or twice daily with a lotion of four grains of arsenicum to four ounces of pure boiled or distilled water. If soreness results from cracks, apply two or three times daily a preparation composed of twenty drops of arnica and one ounce of lard. If injuries be the cause, use an arnica-lotion twice a day. Calendula-lotion applied to the sores several times daily is a good treatment for sore teats in general. If ulcers are forming, aid the process by giving hepar. When the ulcers break, give silicea every four hours to complete the cure. Before making an application, and before milking, cleanse the teats well, and foment them with warm water to soften them. A tube gently inserted up the teat at milking-time will draw off the milk, avert kicking, and aid the healing.

## COW-POX.

Cow-pox is a pustular eruption on the udder, and is caused by contagion, and perhaps by bad food and atmospheric influences.

*Symptoms.*—Fever; diminished or suppressed milk; appetite less, and chewing of the cud stopped; large, round eruptions on the teats, depressed or concave at the center, containing at first a thin, serous fluid, which grows thick and yellowish, and oozes out; the ulcers being broken, they leave deep-seated, malignant ulcers; if they be not broken, a scab forms, which leaves sound skin underneath, when it falls off. (It is an interesting fact that the virus of cow-pox, taken from the teats, is that with which the human family is inoculated in vaccination as a preventive of small-pox.)

Another form, known as “spurious cow-pox,” is indicated by eruptions of varying size and shape, the top swollen and containing a thick, yellowish matter (not concave as noticed above), forming a crust which, if not disturbed, will fall off and leave sound skin, but will leave many small, ulcerative sores, which are hard to heal if removed in milking or by other mechanical agencies.

**TREATMENT.**—One or two doses of sulphur daily will usually suffice. If ulceration occurs, give mercurius or hepar. If the sores run together and irritate the surface, give arsenicum twice daily. Apply a calendulation to the sores.

## GONORRHŒA.

This is a disease of the mucous membranes of the canals through which the urine passes. It occurs in either sex and is caused by excessive sexual intercourse, or diseased organs during the intercourse, and by lack of cleanliness.

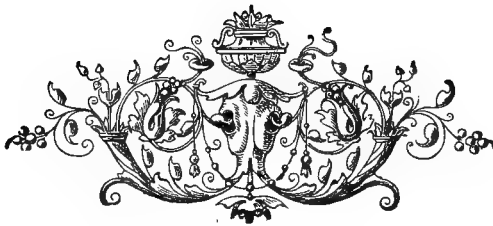
*Symptoms.*—In the bull the sheath is red and swollen. In the cow, the tail is shaken and moved aside; the bearings swollen, sore and internally red. In either sex, there is a constant discharge of matter from the organ, with frequent, small and painful discharges of urine.

**TREATMENT.**—Usually aconite will be sufficient if given at the beginning, when there is much inflammation, with difficulty and pain in urinating. Give four or five doses three hours apart. If, after the signs or inflammation have abated, the difficult urination continues, especially if the urine be greenish and tinged with blood, give cantharis every three hours, or every six hours with aconite midway between the doses. After a few doses of the above remedies, especially if much soreness exists, with thick, white, greenish or yellowish discharges, give two grains of mercurius three

times a day. Iodine is useful, ten drops three times daily. A dilution of thirty drops of iodine to one pint of water may be good (for the cow) as an injection into the vagina two or three times a day. When recovery begins, it may be completed and the system restored by giving sulphur once or twice a day for a week. Wash the parts often with cold water, and inject the same into the rectum and vagina. Allow no exercise of the sexual instinct until a full and complete cure is effected.

### CASTRATION.

Castration of calves should take place from the sixth week to the fifth month, according to the animal's strength, the weather, and the season. The operation in calves is seldom attended with serious results, though proper precautions should be taken to prevent undue irritation or inflammation. Medical treatment is generally unnecessary. For requisite information on the methods of performing the operation the reader should consult a competent operator. Suitable directions upon the care of the animal after castration, and upon the required treatment of resulting complications, are given in the article on Castration in the Horse.



## CHAPTER VI.

### MISCELLANEOUS DISORDERS AND INJURIES.

#### SIMPLE FEVER.

**C**ATTLE are particularly subject to a simple type of fever, especially when kept on low, marshy lands. It sometimes develops into a typhoid or intermittent form. Its causes are exposure to damp and cold, miasma, exhalations from foul water that contains vegetable refuse and other influences of the kind.

*Symptoms.*—Dullness; languor; thirst; heat of the body and base of the horns; quick and hard pulse; refusal of food; heaving of the flanks; more than normal pliability of the skin; the nose alternately moist and hot.

*TREATMENT.*—Aconite is needed until the fever abates, a dose every four to six hours. If the appetite be poor after the fever subsides, give nux vomica two or three times a day. Keep the animal in a clean, roomy, well-ventilated place, free from excessive litter. Feed lightly on mild food, such as bran and oatmeal. Give a fair amount of cold water.

#### INFLAMMATORY FEVER.

Inflammatory fever often affects cattle in an epidemic form, especially those that are young, and is at times attended with great mortality.

*Symptoms.*—At first the symptoms of simple fever come on. Then the case is generally marked by lameness in one leg, usually a hind one, which is swollen; reluctance to move; eyes inflamed and protruding; tongue dry; nostrils expanded; muzzle dry; neck extended; breathing quick and labored, with occasional deep breaths; loss of appetite and cud. Later, the animal is seemingly unconscious, moans, gasps, stands still or staggers; loins tender and painful; swelling on the loins, back, and shoulders, which produce a crackling noise if pressed; weakness increases; the animal falls; ulcers on different parts of the body; offensive discharges from the mouth and nose; dung very offensive, sometimes bloody; urine high-colored, bloody and offensive; death within twenty-four hours.

**TREATMENT.**—Give aconite every hour, or oftener in very severe cases. If no improvement is seen, give this in alternation with belladonna. When the animal is growing better, increase the time between the doses. Though this disease usually ends fatally, these remedies should be given while the animal is kept in a comfortable place with plenty of clean, dry straw. If it improves, simple food may be given. To prevent the disease, do not allow cattle to go too freely upon rich pasture after being poorly fed. Impure water must be avoided during the disease, and even pure water allowed only in small quantities.

### TYPHUS FEVER.

This frequently follows inflammatory fever, especially in adult animals, and occurs more often on low, marshy, malarial lands. It is sometimes epidemic and marked by great fatality. Predisposing causes are want of water, excessive work, foul stables, injurious plants, bad food, great heat after rains, and stings of insects.

*Symptoms.*—Loss of appetite and cud; stupor and staggers; eyes fixed but not red; horns, nose and ears rapidly alternate between heat and cold; the head hangs, or is carried up, and from side to side; moans; discharges of blood from the nose, and sticky saliva from the mouth; the urine is strong and high-colored, and the dung is in hard small lumps, or both may be stopped; coat rough, dull and staring; skin sometimes bound to the under tissues, sometimes separated by air, the hand passed along the back producing a peculiar rattle; cows give little or no milk from the commencement; ulcerating tumors often appear on the back, belly, limbs, sheath and udder; death often ensues very suddenly, though the disease may continue three or four days. During improvement, or after an apparent cure, a relapse may set in. Tumors may remain after danger is passed, as well as stoppage of milk, hardness and scantiness of dung, loss of appetite and cud, swelling of the teats, and air under the skin, but these may be corrected.

**TREATMENT.**—For full, hard pulse, hot, dry skin, and great thirst, give aconite every hour or two for three or four doses. If to these symptoms are added congestion of the head, wild expression, and sensitiveness to the light, give aconite and belladonna in alternation every two or three hours. If there be great loss of strength, trembling, much thirst, glassy eyes, hurried pulse, cold and swollen legs, scanty, or bloody urine, involuntary passages of offensive dung, arsenicum is very valuable; give it every hour until improvement is noticed. This alone has effected cures. If great drowsiness remains after recovery, opium is needed. If the animal



be furiously delirious, for treatment see Nervous Fever. Feed sparingly on light, wholesome food, keep the animal away from others, and before healthy cattle are admitted remove all refuse and disinfect the place with carbolic acid.

### NERVOUS FEVER.

Nervous fever is sometimes epidemic and may become very destructive by contagion.

*Symptoms.*—Dry tongue, mouth and nose; loss of appetite and thirst; weakness; convulsions, sometimes violent; the animal totters and falls; dung at first dry, but becomes soft; then food passes undigested; foul tongue; much disagreeable saliva in the mouth; fever increases at night; delirium.

*TREATMENT.*—In abrupt cases, with decided fever, begin with aconite, at intervals of two to four hours. When the fever subsides somewhat and great excitability ensues, give belladonna. For furious delirium and involuntary passages of dung, alternate belladonna with hyoscyamus, or, if the animal be unconscious, with stramonium. When no specific remedy is indicated by the symptoms, or after the violent symptoms have subsided, leaving reduced muscular power, bryonia is advisable. Muriatic acid is required for great debility and dry mouth. For constipation with cold extremities, diarrhœa, or weakness after the disease is subdued veratrum is useful. Give the animal light, nutritious food, but sparingly, and provide a well-ventilated place, free from excitement.

### ANTHRAX.—SPLENIC FEVER.

The term anthrax applies to a very infectious disease, known by different names, according to the type or stage. It generally occurs in hot weather, arising in rich, damp places, especially those in which there are much decaying vegetable matter and excessive moisture, as on dried-up lakes, ponds or water-courses, or on newly-turned ground where rich pastures have been. It is caused by any form of contagion which favors the transmission of the poison from a diseased to a healthy animal, as by food and drink, though it is seldom or never communicated by the air. Animals in poor condition put on rich food, or well-fed ones which have insufficient exercise, are more liable to its attacks. The virus is most potent in an animal that is yet alive or has just died or been killed, though it will remain active for many weeks in any weather and atmospheric conditions. It is susceptible of transmission to man as well as to any of the domestic animals, being more often taken by contact of the virus with a break or abrasion of

the skin. If the flesh of an infected animal be eaten by man or beast, the disease is readily transmitted. We thus see the urgency of care in handling animals that are afflicted with it.

*Symptoms.*—Perhaps the most notable characteristic of the disease is its rapid progress. It may be of an apoplectic form, the animal suddenly falling and being soon seized with convulsions, the pulse and breath being quickened, the skin turning blue, and death ensuing in an hour or less, in some cases before it is learned that the animal is sick. The disease may be characterized by external swellings, or not. If so marked, it is sometimes known as blain, gloss-anthrax, black-tongue, black-quarter, bloody murrain and the like (which are elsewhere spoken of in separate articles); but these types are not now under consideration, the present discussion having reference to the form known as splenic fever, so named from the enlargement of the spleen, though the carbuncles which *occasionally* form show its relation to the kinds just alluded to. Distinguishing symptoms of this are an alternation of high and low temperature, this going up to  $105^{\circ}$  or  $110^{\circ}$ ; purple mucous membrane; loss of milk in cows; increased thirst; very rapid pulse; then perhaps an interval of apparent health, followed by spasm of the muscles of the back and loins, with loss of power of motion in the limbs and trunk; violent convulsions, peculiarly affecting the eyes; diminished temperature; seeming unconsciousness; mucous and bloody discharges from the nose, mouth and rectum; possibly formation of carbuncles during the disease on different parts of the body.

*TREATMENT.*—In the most severe cases medicine will be of little avail. Give ten drops of aconite every ten or fifteen minutes if the feverish symptoms are marked. For sudden falling and other apoplectic signs, alternate belladonna with aconite, every fifteen, twenty or thirty minutes, according to the severity of the symptoms. Nux vomica and opium are also good when such symptoms are present. Sixty drops of nitro-muriatic acid, two drachms of chlorate of potassa, and three grains of bichromate of potassa, a dose twice a day, is very highly recommended by a leading author. Some of these remedies will often be found helpful, though the rapid progress of the scourge does not often admit of successful treatment of the first that are attacked in a herd. If carbuncles form, sulphur, arsenicum and mercurius will be found valuable internal remedies, and a wash of dilute carbolic acid should be applied two or three times a day if the carbuncles gather and break.

When an animal is supposed to be infected, give solid, nutritious food, provide a comfortable stable that will furnish an abundance of pure air, and give ten drops of arsenicum night and morning. Before healthy cattle come near the quarters in which the sick have been kept, deeply bury the

dead, and thoroughly disinfect the stable or other quarters with carbolic acid. The attendant must exercise care about letting any of the discharges come in contact with breaks in his skin, or with the mucous membranes.

### MILK-FEVER.

Milk-fever is a frequent and fatal disease which may occur within a day after calving, though there is danger of it until the fourth day has passed. It is caused by difficult labor in calving; high stall-feeding; excessive or too rich food after calving, insufficient exercise, cold and wet, summer heat, over-driving, and bad treatment. One attack predisposes to another. It is more likely to attack fat cows that give much milk.

*Symptoms.*—Listlessness; trembling; great thirst; loss of cud and impaired or lost appetite; breathing and pulse quickened; heaving flanks; nose dry and hot, and the horns hot; urine scanty; dung hard and lumpy. Later the eyes are bright, staring, of a leaden color or streaked with red; eyeballs prominent; breathing difficult, and pulse not so rapid; the cow shifts the weight from one hind leg to the other; inclination to lie down checked by swollen belly; udder hard and swollen, furnishing no milk, the animal totters, falls, rises again and falls, finally with inability to rise; in some cases she lies quiet, resting the head on the ground, or turning it toward her side as if in great pain; eyes dim, wild and fixed; lost sight; in other cases she is restless, foams at the mouth, and the paunch is much swollen; death in a few hours, or possibly two days.

*TREATMENT.*—At first, if fever is prominent, with quick pulse and breathing, and scanty urine and loss of milk be noticed, give five drops of aconite every half-hour for four or five doses. After those doses, if there be a furious and anxious expression, protruding eyeballs, general restlessness, hot horns, dry, hot nose, and painful swelling of the belly, give aconite and belladonna in alternation every two hours, or oftener if the case be very severe. If the disease advances after several doses of the first remedy, there being greatly swollen paunch and udder, cold extremities, difficult breathing, slow pulse, and intense pain, give twenty drops of ammonium causticum in a wineglassful of water every fifteen or twenty minutes until the swelling subsides. When the swelling has been reduced and the cow is sleepy, insensible to pain, unable to hold the head up from the ground when down, and has glassy eyes and open mouth, with loss of power of seeing and swallowing, give twenty drops of arsenicum, at intervals of from fifteen to sixty minutes according to the severity of the symptoms. Opium may be alternated with the arsenicum if the cow is utterly prostrated, with cold surface, glassy eyes, and weak pulse. Give nux vomica three times

daily when the cow has partially recovered, but is still unable to rise. After apparent recovery a relapse may be averted by giving sulphur several days an hour before the morning feed. To restore the milk give chamomilla.

Before calving, especially in hot weather, give only very easily digestible food, and closely watch the cow to detect any symptoms of the disease after calving. Upon the appearance of the disease put her in a roomy stall apart from other animals, free from excitement, with plenty of fresh air and clean, dry straw. Put her on a level when lying down, the feet being in the natural position of a cow lying down, bolstering her with bundles of straw, her head and neck being on a gentle incline. Remove at once all dung that is evacuated. Frequently remove the milk from the udder. If the urine does not pass, draw it with a catheter two or three times daily. If the cow can not shift herself, she must be turned over several times a day, or she will grow worse and suffocate. Food must not be forced upon her in any form, but if she can swallow, a small quantity of tepid water may be gently given now and then. Cold water dashed upon the spine and immediately wiped off is of great benefit, though chills and colds must be avoided.

#### BLACK QUARTER.—BLOODY MURRAIN.

Black quarter affects young cattle chiefly, and is quite common.

*Symptoms.*—When fully developed, there will be high fever; quick, full pulse; outstretched head; hot mouth; quickened breathing; loss of appetite; blood-shot eyes; moaning; lameness, usually in one leg; painful swelling about the quarters or joints; tender back and loins; swellings on the back, shoulders and loins; crackling on pressure of the swellings; patches of skin hard, dry, and then sloughing, leaving unhealthy sores with an offensive discharge; mouth and tongue ulcerated; offensive fluid drops from the nose and mouth; diarrhœa; exhaustion; death.

*TREATMENT.*—Medicine is generally of little avail, but the following remedies may relieve and possibly cure. For the early stages, with quick, heaving breath, expanded nostrils, and dry muzzle, give ammonium causticum; mix one part of the strong liquor in seven of water and give ten drops of the dilution every half-hour. When local swellings appear, alternate rhus and belladonna, ten drops every one or two hours. Rhus and mercurius in alternation are serviceable for severely ulcerated tongue and mouth; free discharge of saliva, or of bloody fluid, given the same as rhus and belladonna. For prostration, purging, pain in the bowels, and bloody fluid from the mouth, give arsenicum. Apply carbolic acid, one part of strong acid to twenty of water, to all swellings, sores and ulcers. The patient should be isolated from the herd.

## EUROPEAN RINDERPEST, OR CATTLE PLAGUE.

This disorder, known also as Russian Cattle Plague, is a contagious fever which is communicable to other animals than cattle. It is marked by a general congestion of the mucous membranes and an excessive growth of the outer layers of the cells of the skin and membranes, with a shedding of the latter. It is transmitted only by contagion, but very readily in that way. Its violent symptoms may occur in a day after its germs have been communicated, though it may not become fully established for ten days.

*Symptoms.*—At first, irregular but rather an increased appetite; dullness; tottering; occasionally the animal bellows, stamps, and is vicious; hanging head and ears; chewing slow and irregular; upon rising the animal yawns, humps the back and draws the feet under the body, but does not stretch itself, as is usual in healthy cattle; trembling; bristling hair; eyes blood-shot; eyelids swollen; husky cough; dry, scanty dung, and scanty urine, both passed with difficulty; the animal is tender; pressure on the loins causes dropping of the back. After the third day and as early as the eighth, twitching; bristling hair; trembling limbs; the ears hang and are cold or hot, as are also the roots of the horns; mouth red and hot inside; gums swollen and spongy, sometimes spotted with red; loins more sensitive; skin very tight; violent, hollow, convulsive cough; pulse at the jaw weak, rising to 90 or 100; dung scanty and hard, sometimes nearly black; urine light-colored; wind-puffs on the back and loins; fever worse in the evening; in cows, the milk is stopped and the udder shriveled; tail extended straight or strikes the side; the animal looks at the side; if vigorous, he is violent; if feeble, he shakes his head and grinds his teeth. About the tenth day there are great weakness and thinness; running eyes, the tears forming a crust; white, sticky discharge from the nose; tongue relaxed; loss of cud; dung watery, and forcibly discharged; hind parts greatly swollen; breath very offensive. Four or five days later one will see a gray, corrosive and offensive discharge from the nose, eyes and mouth; skin of the mouth dried up, that of the body peeling off; cold extremities; quickened breath; dung watery and bloody, passing involuntarily and nearly constantly; general stupor and loss of feeling; death following three days later; or the symptoms in favorable cases decline daily, recovery not being complete, however, for several weeks.

*TREATMENT.*—Give bryonia for heat, or coldness with shivering; drowsiness; loss of appetite and strength; constipation; short, difficult breathing; loose cough; offensive breath. Mercurius is needed for moist tongue; heat; thirst; red eyes; discharge from nose and eyes; swollen and sore nose; pain in belly; difficult swallowing; discharges from the bowels

watery, slimy and bloody, with straining. Arsenicum will be particularly good for a mucous, irritating discharge from the nose; alternately hot and cold surface; shivering; thirst; depressed spirits and strength; foul breath; swollen eyelids; feeble pulse; profuse diarrhœa, with offensive smell; general prostration of vital functions. This may also be tried as a preventive. When the lungs are much involved, and there is not the prostration which requires arsenicum, give phosphoric acid, alone, or still better, in alternation with belladonna. Rhus is needed for red and swollen skin, especially in the legs; stiffness; itching eruptions, which spread and grow moist; loss of power in the limbs; scurfy and grooved skin.

### AMERICAN RINDERPEST, OR TEXAS CATTLE DISEASE.

This is an exceedingly infectious and contagious disease. It may be taken from cattle being with those infected, by contact with their litter and dung, or by walking on the same roads, and its virus may remain in a place for weeks or months. Cattle have died within four or five days after an exposure to the infection, but the time may be longer; indeed, the sickness may not show itself for a number of days.

*Symptoms.*—A suspicion of the presence of the disease may lead to an examination with the thermometer, and the temperature will be found to be several degrees above the normal if the disorder exists. The first patent symptoms are trembling, disinclination to move, unsteady gait, skin alternately hot and cold, drooping head, appetite and thirst apparently normal, and the milk diminished in cows. About the fifth day there will be noticed shrunken sides; quickened breath; inability to rise or stand; continued efforts to urinate, resulting in small, bloody discharges; the dung passes hard and dry, with straining; the milk in cows grows less, not stopping wholly, and is of a thick, creamy consistence. Still later there will be drooping ears; base of the horns hot; eyes dull and staring; trembling in the flanks; listlessness; feet braced under the body and the back arched; head and ears more drooping than before; dung hard, covered with mucus and blood, and passed with effort; perhaps diarrhœa, and frequent discharges of dark, bloody urine; increased breathing, pulse and temperature; weakness; the animal falls, is unable to rise, and death ensues. Calves are seldom attacked, if ever. Milch cows are specially liable to the disease, and abortion is much more apt to occur during the disorder.

*TREATMENT.*—It is not advisable to resort to treatment, the destruction of the animal being best. Iodide of potassa and chlorate of potassa may be used with advantage, if any treatment is undertaken. Carbolic acid surely has some efficacy. The pure article or very strong solution

may be put in a large open vessel and be held under the nose so the animal will inhale it. *Small doses* of the same acid diluted may be given internally, especially in severe cases, and will be very beneficial. At the same time the heavy oil of tar should be sprinkled freely about the yard, as it contains a large percentage of carbolic acid. Give a low diet of soft mashes throughout, and return slowly to the regular food when recovery begins. Insure plenty of outdoor air, salt and water. For other remedies and the general care for diseased animals, one may select from those given under European Rinderpest, according to the symptoms, though it is believed that carbolic acid is the best of all. As a *preventive*, the heavy oil of tar or carbolic acid, copiously sprinkled around the yard or stable, will usually prove very beneficial, and such precaution should be taken whenever it is thought that cattle have been exposed to the disease.

This dreadful malady originates chiefly in the district near the Gulf of Mexico and is communicated to Northern cattle by herds which are brought from those sections. It has been known in the North as a very virulent and fatal disease from the time that cattle were first brought from those gulf-districts. Confusion has often arisen because of the various names by which it has been known at different times, as bloody murrain, yellow murrain, dry murrain, distemper, black-water, red-water, American cattle plague or rinderpest, gastric, splenic, period, acclimating, Spanish and Texas fever. Indeed, many cases of loss by death have been attributed to murrain and other disorders when Texas fever has been the real trouble, and this confusion calls for a special regard to the following considerations: *First*, infected cattle from the South may show no patent signs of the disease and yet healthy cattle will become most fatally infected by contact with the yards, fields, bedding, cars, troughs, scales, etc., which the diseased cattle have visited; *second*, Northern cattle are carelessly purchased in the markets, in warm weather, after they have been exposed therein to the virus left by the Southern cattle, and are then taken to farms for grazing, only to be attacked with Texas fever, and then die with what the farmer will mistake for another disease; but, *third*, while infected Southern cattle will communicate the scourge, with most disastrous results, to Northern cattle, the latter, when so infected, do not transmit it to others—that is, the virus loses its potency in one remove from the Southern cattle. Hence, it is never safe to buy cattle in the market for grazing *during warm weather*, for one can not be *sure* that they have not been exposed to the poison of infected animals from the South. A hard freeze will render the virus harmless, and any inclosures, roads, cars, etc., in which infected Southern cattle have been can not be used with impunity until after the following winter. They should, so far as possible, be scrupulously closed against other cattle until that time, and it is better to

scatter in them the heavy oil of tar or strong carbolic acid. Though the disease generally destroys those which are attacked, we can fortunately prevent its spread by excluding from our herds the cattle from the districts in which it originates. If it does invade Northern cattle, they will not transmit it to their mates, and their loss will be the end of the trouble, *provided no infected Southern cattle are in the herd.*

### RHEUMATISM.

Rheumatism is caused by wet and changeable weather, by exposure to cold when warm, or when weak from some illness, by damp, marshy pastures, and the like.

*Symptoms.*—The *acute* form is marked by fever; affected parts hot, painful and swollen; soon lameness; dry skin; constipation; reluctance to move and inclination to lie down; diminished appetite; listlessness; sometimes tremors and adhering skin; lessened or wholly suppressed milk in cows. In the *chronic* form, which is more obstinate, there will be an absence of fever; parts affected painful, but not so hot and stiff as in the acute type; nearly all parts affected, but mainly the joints, the disorder shifting around.

*TREATMENT.*—Aconite is always best for the first, and is indicated by fever, cases resulting from cold, and irregular, jerking pulse, five to ten drops every two to four hours being suitable as the dose. Bryonia is needed after the fever; or, if the fever has not wholly disappeared, give this and aconite in alternation, if the swelling (especially in the legs, shoulders and sides) is not confined to the joints and is not particularly tender; and if the animal lies down, and the pain is worse by slight motion. Arnica is especially good for cases resulting from over-exertion; for swelling and pain confined mainly to the joints; also for tenderness of the skin. Arsenicum is valuable if the feet be tender, and the animal trembling and reduced in condition; and it is also useful for cold, swollen joints, sweats, alternating heat and chilliness, and heart-complications. Gelsemium is invaluable for terrible pain; aggravated symptoms at night; loss of the use of the affected parts; swellings, shifting from joint to joint; legs affected and marked by coldness and paralytic weakness. Rhus is needed if stiffness and lameness are more noticeable when the animal begins to move after rest. Should the above remedies fail or give only partial relief, give sulphur a few days, returning afterward to the remedy especially indicated; it is also good to prevent a relapse in changeable weather. Give plenty of clean, dry straw, in a warm place. Rub swollen joints once or twice daily. In *chronic* forms the cattle should never be exposed to cold or



stormy weather, and if turned out in the day in cold weather, should be comfortably stabled when brought in. Give a diet of milk, or milk-and-water gruel, with carrots or clover. Refer to the treatment of Rheumatism in the Horse for local applications and coverings.

#### LUMBAGO.

This is a rheumatism in the muscles of the loins which is caused by wet or cold, and attended by lameness, first in one leg and then in another, the animal walking stiffly and painfully, and evincing tenderness in the loins.

**TREATMENT.**—Treat as under the above article on Rheumatism. Keep the animal comfortable, covering the loins with woolen blankets.

#### DROPSY.

This consists in a collection of water in some part of the body, caused by bad feed, poorly-kept stables, neglected or mismanaged colds or other diseases, and like influences.

*Symptoms.*—If it be *general* dropsy, swelling begins at the feet and extends to all parts of the body, and, if they be pressed with the fingers, the indentation remains a short time. If it be dropsy of the *chest*, there are feebleness and langour, very difficult breathing, feeble and irregular pulse, and fore legs standing apart, the motion of the water being heard upon striking the chest. If the *abdomen* be especially affected, it is distended and the motion of the water can be heard, when the animal is lying on one side, by striking on the opposite side. Occasionally draught-oxen are troubled with dropsy of the legs. In addition to the symptoms just named under the special forms, there are generally dry skin; much thirst; poor digestion and appetite; scanty urine; paleness of the eyes and inside of the mouth; weakness; loss of strength; death in some cases.

**TREATMENT.**—Immediately treat the first symptoms, for the disease is often curable only at this stage. Be careful not to mistake the swelling which is incident to general dropsy for an improvement in the flesh. For remedies and general care refer to the article on dropsy in the Horse.

#### FOOT AND MOUTH DISEASE.

This is a contagious fever that is marked by ulcers and vesicles about the mouth and hoofs, and may be communicated to man by the milk of affected cows. It is epidemic, spreads by contagion, and animals are predisposed to it by poor food and housing, cold and wet, draughts of cold air, filth, and

reduced condition. The virus is potent for months and may be communicated by the clothes of attendants, by food, manure, places trodden by infected animals, the milk (to calves), and other agencies. Any animal, including dogs, cats, swine and poultry, may be affected by the virus which is in the discharges and milk.

*Symptoms.*—Chill; dullness; stupidity; eruptions on the hoof, mouth and teats; diarrhœa; dim, watery, blood-shot eyes; alternate heat and coldness of horns, ears and nose; arched back; diminished chewing of cud; milk decreased, yellow and thick; udder swollen, hot and tender; hair staring and harsh; pulse somewhat quickened; temperature increased, perhaps to  $103^{\circ}$  or  $104^{\circ}$ ; flow of saliva; pain in the mouth, with suppressed eating. The vesicles in the mouth are first small and red, then whitish-yellow, as large as a bean, and transparent, then filled with a pus-like fluid, bursting in about eighteen hours, and leaving sores which may unite and form deep, irregular ulcers; the nasal membrane may be affected. The vesicles on the feet first appear on the crown of the hoof and in the cleft, soon bursting; they cause pain, swellings, lameness or inability to stand, and the bones may be diseased and induce serious disorders. The vesicles on the teats are similar to those on the mouth, with soreness and swelling, and upon drying leave scales. Occasionally vesicles appear in the nostrils and on the muzzle, eyes and vagina. In *severe* cases, high fever ensues, ulceration increases, the animal is exhausted, loses flesh, discharges bloody mucus from the mouth and offensive matter from the nose; swollen face; foul breath; small, rapid pulse; grunting; quick breathing; belly and legs dropsical; diarrhœa; hoofs drop off in pieces; death in nine or ten days. In *favorable* cases, the fever subsides in about four days, and the symptoms decline for a week or two, when the animal recovers.

In milch cows the case is often complicated by the vesicles bursting from pressure in milking, when ulcers form, the cow resists milking and holds back the milk, thus promoting inflammation and perhaps hardening of the udder; or parts of the udder may fall away in consequence of internal ulcers, making the cow comparatively useless for milk. In such cases abortion is frequent. Infected calves usually die from the inflammation of the stomach and intestines which supervenes.

*TREATMENT.*—Mercurius should be given for heat, redness, dryness and swelling throughout the mouth; red spots on the mucous membrane of the mouth, which become ulcerous, burst, and unite; swollen tongue and face; abscesses in other parts; slimy, stringy, bloody, offensive discharge from the mouth. It is also useful in aiding the formation of matter and reducing hardness. Antimonium tartaricum is serviceable in alternation with mercurius. Arsenicum may be given at the beginning for harsh,

staring hair, cold legs and ears, and indifference. Dilute hydrastis is invaluable as an application to the sores, and for soothing and healing the mouth. Antimonium muriaticum is often beneficial when applied between the parts of the hoofs, if the soreness is excessive. Afford a quiet stall; plenty of straw, and fresh air of a moderate temperature; all the water that is wanted; soft food, such as milk, boiled grain, meal and water, bran, and mashes. Give only pure water for the drink. Bathe the feet occasionally with warm water. If the udder is affected, strip out the milk frequently. As a preventive, avoid the infection or contagion, if possible; observe absolute cleanliness; disinfect with carbolic acid, chloride of lime or sulphurous acid all places where the cattle stay, and even then such places should be closed against other animals for a long time. A diseased animal should not be removed from its place of sickness for at least two weeks after full recovery, and then only after it has been thoroughly treated with a wash of carbolic acid. The milk should be buried deeply. Though it may do no harm to feed it to the pigs after it has been boiled, it is better to bury it. Take great pains to keep the virus out of the bodies of attendants. Bury or burn the dead. If other animals are allowed to eat the flesh of such patients they will contract the same or a similar disease:

#### FOOT-FOUNDER.

This disorder is marked by inflammatory fever; loss of appetite and spirits; dry, hot mouth; slow and infrequent chewing of the cud; high-colored urine; hard dung; poor and scanty milk. It is uncommon among cattle. For fuller particulars, see the corresponding disease in the Horse.

#### FOOT-ROT.

This is caused by injuries from blows; gravel between the parts of the hoof, as well as thorns and any sharp body; moist soils; long walks on rough roads.

*Symptoms.*—Sudden lameness; hoof hot, swollen, and tender on pressure, especially about the crown; pus forms, if the trouble is not arrested, passes upward, and escapes from the top of the hoof, the horny crust falling off.

*TREATMENT.*—Put the animal on dry, soft litter. If injuries by blows or long walks be the cause, apply to the foot a bran-poultice, mixing in a little arnica-lotion. If pus forms, open the gathering with a lancet when it has pointed, and dress with calendula-lotion. If there is an unhealthy discharge and slow healing, apply carbolic-acid lotion.

## SWOLLEN JOINTS.

For swollen *foot*, caused by injury, apply arnica externally and give it internally; for that resulting from cold, use dulcamara; for cases arising from dropsy, give china and arsenicum; for that caused by movement, but relieved by rest, give rhus; if the sole be hot, use squilla; if the general swelling of the foot be hot and rather hard, bryonia; if the swelling be near the fetlock, thuja.

If the *thigh* be swollen from a bruise, use arnica externally and internally; if the swelling is hot and hard, give bryonia; if damp and cold, give arsenicum and china, followed by sulphur.

For swollen *knee*, caused by a bruise, use arnica internally and externally; if the swelling be old and painful, china; if not painful, pulsatilla.

## DISEASE OF THE TAIL.

Occasionally the hair falls from the tail, matter comes from the end, and ulcers form and involve the bone, causing parts of the tail to fall off. This is generally fatal, though arsenicum, mercurius and sulphur may be serviceable. Sulphurous-acid lotions may be applied to the diseased parts.

## WATER ON THE BRAIN.—HYDROCEPHALUS.

Water on the brain of a calf causes enlargement of the head and symptoms similar to those of apoplexy (see Apoplexy), except that its symptoms are slow and gradual, while those of apoplexy are rapid and sudden. Remedies may be selected from those given on Apoplexy in the Horse.

## INSECTS IN THE HEAD.

*Symptoms.*—Increased heat of the ears and roots of the horns; dry muzzle; quick, small, full pulse; little appetite; absence of the cud; staring coat; dullness; seeming lack of consciousness; loss of flesh; pain; listlessness; giddiness; falls; head fixed on one side, or turned from one side to the other; unsteady movements; rapid turning around in one place, followed by falling, and then a repetition of the same.

*TREATMENT.*—Give belladonna for dullness followed by violent or unsteady movements, and cantharis for frequent changes of the body and of the head. Graphites may be useful for listlessness, with drooping head and distressed manner. Yet medical treatment can be of little avail.

## INFLAMMATION OF THE EYES.

This affection of the eyes is caused by violence from a blow; irritating matter in the eye, as dirt or hay seed; cold; sudden changes of temperature; and it may be inherited.

*Symptoms.*—Dull, watery, closed eye; corner red or swollen; membrane attached to the eyeballs streaked with blood-vessels; eyelids hot, swollen and tender, afterward glued together; sometimes dilated pupils; tears.

*TREATMENT.*—Cases resulting from violence should be treated with doses of arnica and conium; some cases require an internal and external use of euphrasia, with doses of belladonna and cannabis. If the presence of foreign matters be the cause, remove them and use arnica and conium internally and externally. If a cold causes the disorder, give camphor, bryonia and euphrasia; belladonna is also to be used for scalding tears, enlarged pupils and marked redness. If eruptions about the mouth, and swollen tongue and throat appear, as they do among young cattle on wet lands, and if slight ulcers appear on the front of the eyeball, give sulphur and remove the animal to a comfortable stable or shed. If the disease is hereditary, blindness will most likely result eventually. In these cases the animal enjoys apparent recovery at intervals, then suffers as before, though the inflammation may shift from one eye to the other, and a cure is at least doubtful. Refer to the remarks on Inflammation of the Eye in the Horse.

## ULCERATED OR SWOLLEN EYELIDS:

These frequently exist independently of inflammation of the eye.

*TREATMENT.*—For ulcers at the edges, mangy skin, and an anxious manner, give sulphur or mercurius corrosivus. For dropsical swellings which retain the impression of a finger pressed upon them, as in dropsy, give arsenicum, with good food.

Swellings differing from the last in containing gas instead of fluid occur among well-fed and fattening cattle, and are best treated with pulsatilla.

## CATARACT.

A cataract may develop after severe inflammation of the eye, when the eyelids are red, sight gradually impaired, and a whitish, brownish, or yellowish body forms on the pupil.

*TREATMENT.*—The treatment is the same as for Cataract in the Horse. An impairment of the sight of the ox does not, however, so materially affect his value as it does that of the horse.

## INFLAMMATION OF THE EAR.

This derangement is usually caused by the presence of seeds, insects or bits of hay in the ear.

*Symptoms.*—The head hangs toward the affected side, the animal frequently shaking the ear, or rubbing it with the hind foot or against the wall; ear swollen, tender, and containing mucus or pus.

*TREATMENT.*—If an insect is in the ear, it will come out upon pouring a little sweet oil into the ear; other foreign bodies should be removed; then inject into the ear, with a small syringe, a lotion of arnica, one part to ten of water. If pus or an abscess has formed, give mercurius, alone or alternately with hepar. Belladonna or pulsatilla will usually suffice for swelling and tenderness, without threatened ulceration, and for great pain. For offensive discharge of pus inject diluted carbolic acid into the ear. Arsenicum may be useful in case an abscess forms.

## CHOKING.

Choking is easily recognized by feeling the obstruction in the gullet, by the difficult breathing, violent attempts to swallow, and the discharge of saliva from the mouth. *Prompt action is imperative.*

*TREATMENT.*—An obstruction near the front part of the gullet may be removed by putting the hand, properly protected, into the throat and withdrawing it; but if it be too far down for this, take a strong stick, cane or willow, or still better, whalebone, four or five feet long, make it smooth, put on the end an egg-shaped bulb (the smaller end being attached to the stick), covered with soft leather and firmly fastened with strong strings, passing the string around the stick and back to the hand to prevent the bulb from remaining in the gullet if it should chance to slip off. With this instrument push the obstruction into the stomach. If the obstruction is reasonably soft, it may be crushed by carefully pressing the hands or two blocks of wood on its sides. In some cases it may be necessary for a surgeon to open the gullet. The greatest care and gentleness should be exercised in crushing it or forcing it downward.

## POISONOUS PLANTS.

Poison from plants may cause suffering and death, though it may not be easy to detect the poison unless it is known that the animal has been among noxious vegetation.

*Symptoms.*—Loss of appetite; numbness; much thirst; grinding teeth;

stamping; the animal strikes the flanks and rolls, as in colic; swelling of the abdomen and other parts; sometimes fury, insensibility, paralysis and death.

**TREATMENT.**—Empty the stomach with a stomach-pump immediately, and force warm water into the paunch until the animal vomits, continuing until the stomach is entirely cleansed. Such a pump will usually not be at hand, and considerable quantities of olive or linseed oil will often be of advantage. Give camphor internally. Then use only the mildest food.

### SWOLLEN BONES.

The bones may be swollen, very tender, and often attended with ulcerating wounds. The disorder is very difficult to cure.

**TREATMENT.**—Give mercurius corrosivus internally, and apply a lotion of the same externally, if the swelling is callous and hard. In chronic cases, when pus forms, one or two doses daily of silicea will be very useful, omitting its use at intervals. Protracted treatment is generally needed.

### BREAKING OF THE HORNS.

This misfortune is attended with considerable bleeding, which may be stopped by fomentations of a lotion of arnica or calendula. If the horn is still warm, it may possibly be restored by replacing it at once and fixing it with bandages, covered with cloths frequently soaked in one of the lotions just named. Give arnica internally when used externally. Follow with symphytum, especially when the bone also is broken. Squilla is another useful remedy. Tie the animal so that rubbing the horn is impossible.

### ABSCESSSES, SPRAINS, WOUNDS, DISLOCATIONS, ETC.

Among the miscellaneous diseases and injuries incident to cattle are many whose treatment is the same as that for the horse, and the reader is referred to their respective articles in Part II. In this number may be mentioned Abscesses, Ulcers, Open Joints, Cuts and other Wounds, Bruises, Ruptures, Dislocations, Fractures, Sprains and Strains of various kinds, and other forms of Mechanical Injuries.

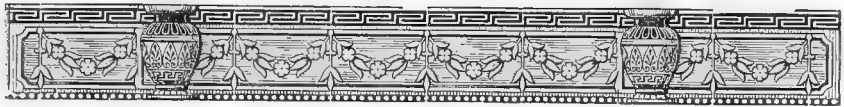
### CAUTIONS ABOUT DISEASED CATTLE.

A few words may be said in conclusion upon the liability of disease arising from the careless or unscrupulous regard paid to diseased cattle.

The chief aim in breeding and raising them is the production of beef, milk, butter and cheese for the table. On the part of the consumer of these staples too much caution can not be taken to patronize only such butchers and grocers as are known to be careful and conscientious in the selection of what they sell, as this is the only direct means of guarding their tables which is at the command of those who do not keep their own cattle. On the part of the breeder and raiser there is a sacred obligation to avoid the use of cattle which are not in a good state of health. To the unscrupulous farmer or raiser, who cares only for the dollars which he is to get, no suggestions are of any use. Others will conscientiously choose the best of food for stock which is intended for the production of meat and milk; will slaughter, sell, or milk for use only those which are in health; will not only exclude from the market the products of those of his herd which are affected with anthrax, foot and mouth disease, ulcers and sores in general—thus precluding the chances of the human family taking the same or similar diseases—but will take the additional precaution to keep the flesh, milk, droppings, urine, etc., from swine and poultry in particular, since such affections, so contracted by these two, have an almost immediate entrance into the human family through the flesh, lard and eggs.





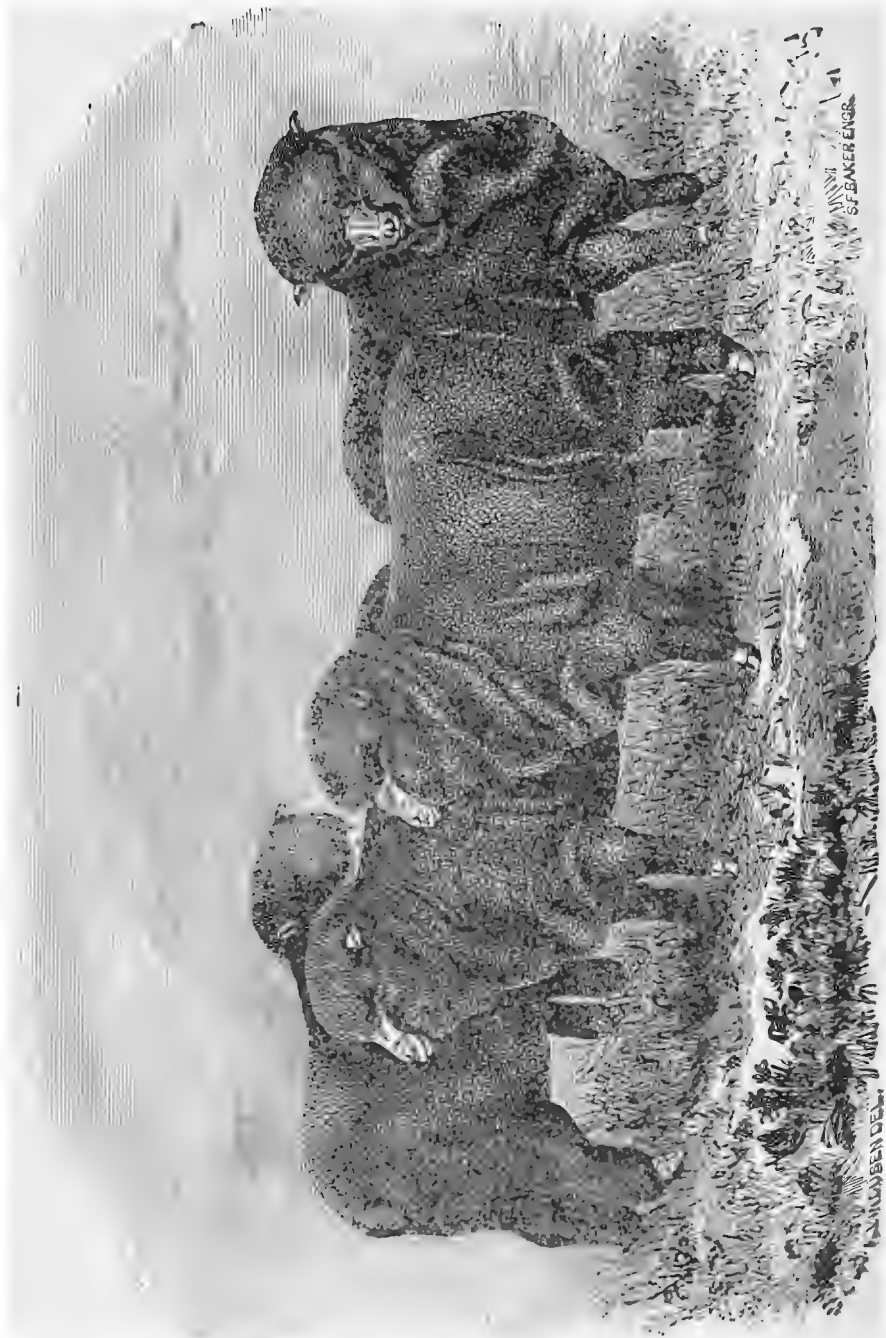


## PART III.

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# THE SHEEP AND ITS DISEASES.





THE FULL-BLOODED MERINO SHEEP.

## PART III.

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# THE SHEEP AND ITS DISEASES.\*

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### STAGGERS.—GIDDINESS.

**T**HIS is very dangerous, occurring most frequently in lambs, especially in those not over six months old, seldom among sheep over two years of age. It is caused by small insects in the head. It is said that these insects will produce tape-worm in a dog, that the joints of tape-worm from the dog will produce the insects in sheep, and hence, that the presence of dogs will induce this disease. A cold, wet season and low, damp localities favor the development of the disorder.

*Symptoms.*—Stumbling; turning round often; head turned to one side, or held high up and forward; impaired appetite; indifference; wild look; eyes bluish, the pupils enlarged and the eyeballs prominent; then blindness, stupor, loss of flesh, exhaustion and death.

*Treatment.*—Whether the bone be absorbed or not, a veterinary surgeon may perform an operation to remove the insect. In any case, the treatment should be applied immediately upon the discovery of the disorder. Belladonna is the only medicine that has effected cures. It may be given every day at first, then every two days until the affection disappears.

### INFLAMMATION OF THE BRAIN.

Inflammation of the brain, in which the brain is gorged with blood, is caused by over-driving, high feeding, blows on the head, sunstroke, and the like. It is most common among lambs.

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\*The reader should carefully note the remarks upon "Signs of Health and Disease" on page 41. He will also readily infer that all requisite information upon the treatment of the few ailments of the Goat will be easily derived from the following directions upon the Sheep. The organism and habits of the Ox and Sheep are so similar that their diseases are generally the same, and references to Part II. should be made for treatment in all but a few diseases of the sheep. The remarks upon "Anatomy and Physiology" on pages 227-229 are of special importance at this point.

*Symptoms and Treatment.*—Hot head; dullness; drooping head and ears; bright, red, staring eyes; staggering. Later, the animal looks wild, dashes about, falls heavily in convulsions and dies. Treat as directed for this disorder in the Ox on a preceding page.

### APOPLEXY AND PARALYSIS.

Apoplexy is very common in sheep, and usually arises from rich pasturage, over-driving, and hot weather.

*Symptoms and Treatment of Apoplexy.*—Dullness; sleepiness; red, fixed eyes; enlarged pupils; quick, hard pulse; loud breathing; heaving flanks; distended nostrils; falls, convulsions and death. Treat as for Inflammation of the Brain in the Ox. Give scanty food at first. Since another attack is liable to occur, it is best to fatten the animal for slaughter.

Paralysis is sufficiently described as related to the Horse and Ox, and the reader is referred for treatment to the articles devoted to Paralysis in those animals. Rub the parts. Give gruel as food.

### HYDROPHOBIA.

Hydrophobia is caused by the bite of a mad animal, usually a dog, and its symptoms appear from two to twelve weeks after the bite. In addition to the symptoms among cattle (which see), the sheep chase one another, lose flesh and appetite, are restless, and have increased sexual instinct. Ewes often become stupid and paralyzed and die without violent symptoms, while lambs have fits, and rams and wethers dash about and violently butt any object in reach.

**TREATMENT.**—When a rabid dog has been in a flock, and it is not absolutely known which sheep are affected, give belladonna to the whole flock once a day for several days, then once a week for some weeks. If it is known which ones are bitten, they alone need be so treated. For fuller treatment see Hydrophobia in the Ox and Dog.

### FITS.—EPILEPSY.

This disorder frequently occurs an hour or two before daybreak on a cold morning. On rising from the bed the animal stares, staggers, falls, struggles, kicks, rolls its eyes, grinds its teeth, foams at the mouth, and sometimes passes dung and urine involuntarily; soon the paroxysm subsides and the animal appears in good health. The fit may occur daily, and its repetition will exhaust the animal and perhaps prove fatal in time.

**TREATMENT.**—On the first attack give a few doses of aconite during the first day, followed by belladonna or stramonium. See Epilepsy in the Horse. Change the pasture and give comfortable shelter.

### LOCK-JAW.—TETANUS.

Lock-jaw is fully treated in the sections devoted to the Ox and Horse, and to them the reader is referred. It is not so difficult of cure among sheep. Sufficient shelter for lambs, and for ewes in labor, during cold rains and severe weather, and care in castration, will avert many cases.

### WATER IN THE HEAD.—HYDROCEPHALUS.

Water in the head is not uncommon in lambs of weak constitutions, and those produced by ewes likewise affected. It is an accumulation of serous fluid on the surface of the brain.

*Symptoms.*—These are readily noticed, the head being enlarged, and the hind quarters perhaps paralyzed. Sometimes the disorder comes on gradually; the lamb staggers; the appetite is impaired or lost; the bowels are loose at one time and bound at another; enlarged skull; flesh lost; death. If the disorder exists at birth, it may be necessary to crush the skull to save the ewe in labor.

**TREATMENT.**—The disorder is fatal, though relief may be given by belladonna and hellebore. The best preventive is a complete change in the stock for a new flock, with special care of the ewes in the lambing-season.

### BLAIN.

Blain is an infectious disease, with causes, symptoms and treatment similar to those given for the same disease in the Ox (which see). It will be noticed that the head and throat are greatly enlarged. Be prompt in treatment, and remove the diseased animal from the flock at once.

### ULCERATION OF THE MOUTH.

This is at first marked by inflamed, hot, red mouth; swollen gums and tongue; free flow of saliva and mucus from the mouth. In a few days small white vesicles appear on the gums and palate, which break and leave ulcers; sticky saliva drips from the mouth; other symptoms being refusal of food and loss of cud. It is sometimes epidemic. At other times it accompanies foot-rot. Treat as for Blain in the Ox.

## BLACK MOUTH AND MUZZLE.

This affection consists in scabby eruptions about the muzzle, eyes and ears, possibly on the whole surface. It is more common among lambs than sheep.

TREATMENT.—Give mercurius and sulphur internally, and at the same time apply to the eruptions, in severe cases, an ointment of that one of the two which is administered. Continue them until cured.

## STRANGLES.

This disorder is an inflammation of the salivary glands, with formation of pus, but is uncommon among sheep. Its symptoms are fever, swelling under the lower jaw, and tumors which tend to form pus. Its treatment is the same as that for Strangles in the Horse.

## HOOVE.—BLOATING.—TYMPANITIS.

Hoove is caused by greedy and excessive eating of clover, turnips, or other food, or by the engorgement of the gullet, the stomach becoming enormously swollen.

TREATMENT.—*Be prompt.* A surgical operation may be necessary. For this, and for the symptoms, as well as full treatment, see the same disease in the Ox. Ammonium causticum and colchicum are first required.

## DIARRHŒA.

Diarrhœa is caused by bad food at any season; new grass in the spring; in lambs, poor milk and the first grass that is eaten. In many cases it may be a symptom of another disease, when the cause itself must be treated. In some instances it needs no attention, as it may be but a natural way of discharging injurious matter. A change of food should generally be made, and lambs may be dipped in cool water every morning for two weeks and allowed to dry, keeping them on old soil. For fuller treatment, see Diarrhœa in the Ox.

## DYSENTERY.

Dysentery, an inflammation of the mucous membrane of the intestines, is often confused with diarrhœa, which is only a natural way of discharging injurious matter. It may, however, result from neglected diarrhœa.

Treat as for Dysentery in the Ox. Give a diet of gruel and a little hay, and remove the exciting cause. Wash off the slimy mucus from the thighs and tail with soap and warm water, putting on sand or fine dirt to keep off flies and prevent the tail from adhering to the quarters.

### COLIC.

Colic is not common among sheep, but lambs over-fed with milk, herbs, or rank pasturage may be affected with it. For symptoms and treatment, see Colic in the Ox, noting particularly the symptoms which distinguish it from Inflammation of the Bowels, with which it is easily confounded.

### WORMS IN THE INTESTINES.

Worms in the intestines of lambs are indicated by disordered digestion, swollen abdomen, much mucus in the nostrils, diminished chewing of the cud, and wasting about the loins. Its full treatment will be found under the same disorder in the Ox, *cina* and *felix mas* being the chief medicines.

### INFLAMMATION OF THE LIVER.

This is very common among sheep. It is often fatal and frequently leads on to rot, a very serious malady (see next disease). It may be produced by excess of nourishing food, but generally, it is believed, it results from miasmatic influences, as from damp pastures that have been overflowed, and other decaying vegetation. It is sometimes epidemic. Its symptoms are fever; dullness; quiet mood; hanging head; constipation; yellow skin and eyes, especially in the corners of the latter; heaving flanks; lameness in the right fore leg; pain from pressure on the right side; early death; or a chronic form ensues, ending in rot. Appropriate treatment is given under Inflammation of the Liver in the Ox.

### ROT.—FLUKE DISEASE.

Rot is a common disease, and the most destructive one known among sheep. It results in a breaking up or rotting of the liver and internal tissues and organs. Careless thought should not produce a confusion of this with foot-rot, because of any similarity of names. Its chief causes are miasmatic influences, as decaying vegetable matter on miry lands, in the beds of streams that are nearly dry, and in water lying on any pasture after rains. Bad food, watery grass and thawing grounds are all favorable to its

occurrence, while animals are predisposed to it by shearing in bad weather, exposure to cold and wet, and by the general conditions conducive to a low state of the system. The essential characteristic of the disease is the presence in the liver and gall-ducts of parasites, or flukes. These derange or wholly destroy the functions of the liver and lead to most serious structural changes in that organ, finally reducing it so it will break on the slightest pressure, or almost dissolve away when boiled.

*Symptoms.*—Though the disease sometimes develops rapidly, its symptoms are more likely to be so gradual as not to attract attention at first. They begin with a slow walk, drooping ears and shaking of the head, though the animal may appear in good condition, and even gain flesh. Then appear dullness, slowness, and indifference to the touch of attendants, the eyes being dull, watery and yellowish; eyelids swollen; skin yellow, puffed, and easily retaining the impression of the finger; pale lips, palate and gums. Then one may notice a loss of flesh; hollow flanks; breath very offensive; tongue, muzzle and eyes very yellow; rigid back; wool discolored, coming off easily, perhaps with patches of skin; skin loose and flabby, with bluish-black spots on it; soft flesh, producing a crackling noise when handled; bowels loose at one time, then bound; scanty, high-colored urine; loss of appetite; excessive thirst; dropsical swellings in the abdomen and other parts; loss of cud; nostrils clogged with sticky mucus; copious tears; on the upper part of the neck and lower part of the jaw appears a soft, inactive tumor, larger during grazing, and disappearing during the night; rapid, weak pulse; quick, short breath; the animal continues lying down; weakness; listlessness; wasting; death. Another form of rot, occasioned perhaps by cold, by wet, by shearing in bad weather, and the like, is marked by a continual, distressing cough, in addition to many of the symptoms above named.

*TREATMENT.*—First remove the sheep to *dry* quarters and give a diet of corn, beans, peas, and other nutritious but not juicy food. Keep a good supply of rock-salt within reach of the animals. Give arsenicum for weakness, swollen belly, loose skin, and soft flesh, and alternate it with china if the skin be yellow. Bryonia is suitable for quick, difficult breathing, and deranged urine and dung. Yet these remedies can only relieve such symptoms for a time; they can not cure the disease, for this involves the destruction of the flukes. Tonics which act upon the liver are the main reliance, and even those will be of little service if many of the parasites are present.

Keep the sheep away from low pastures and such influences as were mentioned above as producing the disorder. Give salt daily when flukes are known to be present, or are suspected. Sheep should not be admitted



to infested fields as a rule, though the chances of infection are greatly reduced by simply keeping the flock out of them when the grass is wet with dew or rain. Isolate infested animals, and even destroy them in some cases.

Professor Law names the following, a half-pint daily to each sheep:

Linseed, rape, pea, oat, barley, or unbolted wheat flour,	40 lbs.
Powdered gentian or anise seed,	4 lbs.
Sulphate or oxide of iron,	1 lb.
Common salt,	4 lbs.

Though this may be given with some hopes of benefit, cases that are bad or confirmed will generally resist the best treatment.

### DISORDERS OF THE RESPIRATORY ORGANS.

The disorders of the breathing-apparatus in the sheep are in general the same as those in cattle, such as Cough, Cold, Catarrh, Bronchitis, Laryngitis, Pneumonia, and occasionally Consumption. Their symptoms and suitable treatment are given under the appropriate articles on the Ox. It may be remarked that a form of *cold in the head*, characterized by a thin, watery, mattery discharge, is contagious, and that an animal so suffering should be isolated to prevent a further spread.

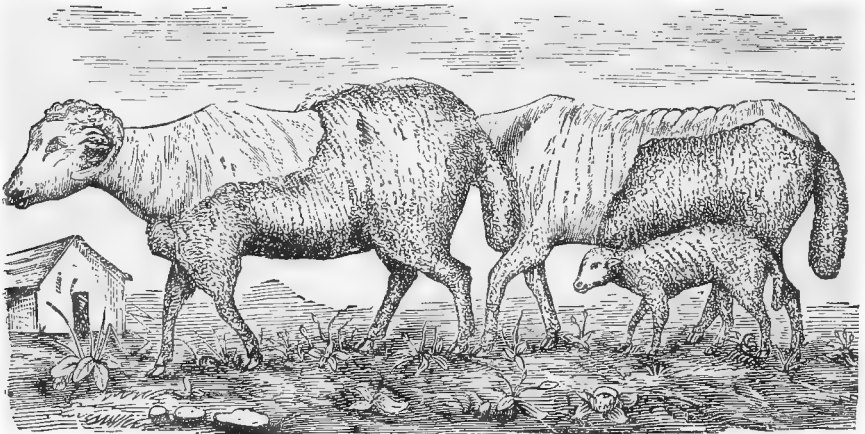
### SCAB.

This is a very destructive disease, similar in general to mange or itch in other animals. It is due to the presence of parasites, which are easily transmitted from one sheep to another by direct contact, by occupying places in which infested sheep have been kept, or by rubbing objects which they have touched; and even attendants or dogs will carry them to the flock. The disorder is more common in dirty, weak, unhealthy, and long-wooled sheep. In addition to itching and scratching, it is characterized by pustules, ulcers, scabs, and falling of patches of wool.

TREATMENT.—First moisten and remove the scabs with warm soapsuds. If the wool is heavy, patience will be requisite, and care will be needed to avoid staining of the fleece. Professor Law gives the following as suitable and safe:

Tobacco,	16 pounds.
Oil of tar,	3 pints.
Soda-ash,	20 pounds.
Soft soap,	4 pounds.
Water,	50 gallons.

The tobacco is to be boiled in some water, and the oil, ash and soap dissolved in boiling water, then water is to be added until fifty gallons in all have been used. The preparation is to be applied at a temperature of about 70° F., each sheep being kept in the bath three minutes, the attendants meanwhile breaking up the scabs and rubbing the liquid into all parts of the skin. Upon taking the sheep out, squeeze the liquid out of the wool so it will run back into the bath. It may be necessary to repeat the application two or three times. The amount given above will be enough to treat fifty sheep once. In persistent cases it will be necessary to shear the



A BAD CASE OF SCAB.

sheep. In such instances, or whenever the wool is very short, some oily application is advised, since it will not so readily wash off, and the author quoted recommends one part of oil of tar to forty parts of castor oil. Avoid applications which contain mercury, arsenic and other poisonous ingredients. Provide clean, dry quarters, without crowding, fresh air and nourishing food, such particulars being essential in treatment and very serviceable in preventing the disorder in animals not already suffering from scab. To eradicate all traces of the malady, observe the directions upon cleansing the infested places and objects which are recommended for Mange in the Horse.

### LICE AND TICKS.

These are very troublesome to sheep. Ticks most often infest the fleeces of ewes in the spring, and, passing to the lambs, make them weak by drawing their blood; and they may remain in a fleece alive for a year after it is clipped.

**TREATMENT.**—To a dilution of one part of the tincture of tabacum and ten of water add an equal quantity of vinegar, and with this saturate the wool; or, as a less harmful though equally efficacious expedient, thoroughly soak the skin and wool with olive oil, and afterward wash with soap and warm water. The use of soap and water alone is unavailing. A liberal rubbing with a lotion of equal parts of sulphurous acid and glycerine or water will drive away the insects; dilute carbolic acid will do the same.

### FLY IN THE NOSE.

In the summer the gadfly deposits its eggs in the flaps of the nostrils of the choice sheep in a flock while asleep; larvæ are soon hatched, pass up the nasal cavities to the small nasal sinuses, and descend in the spring, burying themselves in the ground and coming out as flies in the summer. In the passage upward and downward the larvæ irritate the delicate membrane.

*Symptoms.*—Inflamed nostrils; pain; dizziness; stamping; violent sneezing; tossing of the head; discharge of larvæ from the nose with much mucus.

**TREATMENT.**—Give sulphur internally, and burn it under the sheep's nose so it can inhale the fumes. The sneezing caused by the fumes will expel the larvæ, and they should be destroyed if not already dead. Avoid blowing powders up the nostrils.

### MAGGOTS IN THE FLESH.

Sheep that are dirty about the tail and quarters, and those that have sores, are attacked by a large blow-fly which deposits its eggs in the filth or sores. The eggs produce maggots which burrow in the skin and cause swelling, pain, low spirits and weakness. If the maggots are not promptly removed, pus and ulcers will form, and death ensue.

**TREATMENT.**—The best treatment is to search out and remove the maggots, and keep the affected parts clean with diluted carbolic acid. *Carefully avoid all mercurial applications.*

### GOITRE.

This is an unsightly tumor which arises from an enlargement of the thyroid gland, situated on the side of the neck. In lambs the enlargement may extend from the jaw to the breast-bone. It is probably caused by mineral constituents of the drinking-water, and is most common in localities

in which the water contains magnesian limestone. The tumor is at first soft, but afterward becomes tense and hard, and will be gritty if opened.

TREATMENT.—Provide pure rain water. Give iodine internally and apply the same externally. Spongia is an excellent internal remedy, as is also drosera. A local use of a lotion of mercurius corrosivus will be beneficial in some cases, alone or used at intervals, with iodine applied at other times. To prevent goitre in lambs, give the ewes in winter rain-water, good feeding, and an abundance of open-air exercise. Neglect of such precautions has been followed by the loss of the entire produce of the year. It will take a long time to effect a cure of a case of real goitre.

### FOOT-ROT.

Foot-rot is either mild or malignant. The *mild* form is an inflammation of the space between the two parts of the hoof and is usually associated with Ulceration of the Mouth (which see). It is caused by sand or gravel in the affected part, hard roads, hot weather, and fatigue. The inflammation often extends to the whole foot, with ulcerations, the pastern and fetlock joints perhaps becoming involved. There is lameness in one foot, or, if both front feet are affected, the animal creeps about on its knees, and pain and fever are present. The *malignant* form affects the whole foot, and is caused by a change from dry, upland fields to soft, grassy meadows. The hoof becomes softened, grows irregularly, cracks and splits; foreign matter in the cracks irritates them, producing inflammation and disorganizing the parts, attended with ulcers, detachment of pieces of the foot, and disease of the bones, cartilages and ligaments.

TREATMENT.—At first remove all foreign matters, foment the hoof with tepid water, and dress all sores with a lotion of arnica or calendula. Remove matter, rough edges, and decayed horn, cutting open ulcers to the bottom if it be necessary to reach the matter, and syringing out the sores. Then apply a poultice of turnip or oatmeal, followed by bandaging with calendula-lotion. If, however, the formation of pus continues, use the poultice again. Bandages should be continued until the hoof becomes sound, and all irritating substances be kept out. During the formation of pus give silicea or hepar, followed by sulphur or thuja. See Foot-Rot in the Ox.

### SWELLING OF THE JOINTS.

Such swelling is rather common among lambs. It is an inflamed condition of the joints, usually the knee, sometimes the hock and fetlock, and arises from damp and cold.

*Symptoms.*—Swelling; heat; stiffness; pain; general disorder of the system; the symptoms grow worse, ulceration sets in, with matter discharged; chronic lameness or death.

*TREATMENT.*—Shelter the animal; foment the joint and bandage it with rhus-lotion; give aconite for fever, and hepar or silicea if pus forms.

#### MISCARRIAGE.—ABORTION.

Miscarriage is frequent in ewes, though seldom fatal, and even seems to be epidemic. It may arise from weakness; intercourse with a ram or hasty driving during the latter stages of pregnancy; a sudden fright. It is apt to occur when a cold winter is followed by a wet summer.

*TREATMENT.*—If the disorder seems general among the ewes, give each of them a dose of arnica once a day for a few days. If miscarriage has begun, give secale every six or eight hours. Ferrum sulphuris is beneficial if the trouble seems to result from a weak system. See other remedies and fuller information in the article on Miscarriage or Abortion in the Cow.

#### INFLAMMATION OF THE UDDER.

This disorder of ewes arises, during the lambing-season, from cold and wet, damp, easterly winds, or lying with the udder on the cold, wet ground. Its progress is rapid and often fatal; hence treatment must be prompt.

*Symptoms.*—Udder swollen, very tender, and growing hot and hard; quickened pulse; loss of appetite; fever; perhaps ulceration.

*TREATMENT.*—Afford a dry, warm shelter. Give aconite for fever, five or six drops three or four times daily. When the fever subsides, give belladonna and bryonia in alternation two or three times a day. After the above remedies, if hardness remains in the udder, give a few doses of sulphur. Mercurius will be especially needed if pus or ulceration ensues. Empty the udder of its contents by hand if the lamb will not do it. Fuller information is given in the section on this disorder in the Cow.

#### DISORDERS INCIDENT TO LAMBING.

*Milk or Puerperal Fever* is much to be dreaded. For causes, symptoms and treatment, consult the section on the same disorder among cows.

*Inflammation of the Pudenda* may be produced by injuries to the parts of generation from forcibly taking the lamb away from the ewe. The pudenda are hot, painful and swollen. Wash the parts well with

tepid water and bathe with arnica-lotion. Give arnica internally two or three times a day. Aconite alternated with sulphur is sometimes useful.

### BRAXY.

Braxy is a term which is used with a variety of meanings. An inflammation of the mucous membrane of the stomach and bowels is known as *dry* braxy; if the serous membrane of the abdomen is affected, the disorder is known as *water* braxy; another form that is marked by diarrhœa or dysentery is known as *dumb* braxy. *True* braxy, which we are now considering (the others having been sufficiently noticed in other places and under different names), is a blood-disease, and is caused by excessive eating, particularly of turnips and rich food; by a change from poor to rank food; by whatever will derange the general system; and by contagion in some cases. It is sudden in its attacks, so far as visible symptoms are concerned, and is very often fatal, death not unfrequently occurring in a few hours. It arises particularly in frosty weather.

*Symptoms.*—Staggering; quick, bounding pulse; hot, dry mouth; quick, hard breathing and panting; hard, dry dung and dark, scanty urine, both difficult of passage; weakness; the animal falls, rolls on its back, and dies; sometimes, however, the skin is puffed out and the underlying gas produces crackling if the hand is rubbed over it; in other cases the paunch is swollen out on the left side.

*TREATMENT.*—Treatment must be given in the first stages. In the earliest symptoms make the animal move about briskly. For prostration give arsenicum, ten drops every fifteen or twenty minutes. Should it be necessary to puncture the paunch (see this operation under Tympanitis in the Ox), nux vomica and ammonium causticum should be given, ten drops every hour until improvement begins, then once in two or three hours. Drench down small quantities of hot gruel, while the animal is kept in a warm place. If the dung is hard and the belly painful, warm water may be injected through the rectum. Should recovery ensue, be very careful about the food for some days. Shelter and avoidance of a sudden change to rich pasturage are useful in preventing the disease.

### SHEEP-POX.

Sheep-pox is a very contagious and destructive disease, and its infection may be carried by other animals, by shepherds, and other means, and when its virus has been deposited on the pastures or in other places frequented by sheep, the disorder readily spreads. It may be communicated to a dog,

but not to man. It is of two kinds: the mild, in which the pustules are few, and remain distinct; the malignant, or "confluent," in which the pustules are many, irregular in outline, running into each other, rapid in their action, and generally fatal.

*Symptoms.*—In about a week from the time the infection occurs the animal leaves the flock, is dull and listless, with quick breath, rapid, short pulse, swollen eyelids and red membrane of the eyeball. Later, small, red, inflamed pimples are found in the skin where there is no wool, which rapidly increase in number and extend to all parts, but especially to the inner side of the thighs, the anus, the adjoining bare spots, the lips and the mouth; these then grow larger and appear as pustules, the system generally becoming disturbed, the thirst great, pulse tremulous, appetite impaired, cud lost, bowels inactive, or sometimes loose. In perhaps a week the center of the eruptions is transparent and elevated and filled with a fluid, at first clear, then turbid; the pustule now takes on a yellowish, opaque appearance, is generally flattened, the skin around it becoming pale; the pustule then dries. If the scabs or eruptions be rubbed off or broken, the healing will be slow. In ordinary cases the eruptions last sixteen or eighteen days, from their appearance to the natural falling of the scabs; then the animal, in favorable cases, recovers. In the "confluent" form the fever is very severe, becoming typhoid in character; pulse rapid and strong at first, then weak and tremulous; quick and offensive breath; blood-shot eyes; swollen eyelids; mucous membranes blue and congested; great pain in the back and limbs; intense thirst; offensive smell from the skin; the wool falls off in patches, or readily comes off with the hand. The pustules run together, forming a mass of rotten matter and ulcers; the face becomes disgusting, with swollen nose; yellowish discharge from the nose and mouth, pustules in the nasal cavities, and even back to or beyond the throat; great tenderness generally; prostration; diarrhœa; death in eight or nine days from the appearance of the eruptions.

*TREATMENT.*—Isolate infected animals to prevent the spread of the malady and do not return them until all scabs have disappeared. Keep the eyes, mouth and nostrils well cleansed with a weak dilution of carbolic acid. Keep rock-salt in reach of the sick and the well, and add a little vinegar to the water. Cool, dry, well-aired sheds, with comfortable bedding and protection from rains, should be provided. Give gruels of oatmeal or bran, and a drachm of saltpetre to each affected sheep, but avoid heat-producing foods in the main. Such local applications may be used for the pustules as were mentioned for Cow-Pox. Antimonium tartaricum should be given as soon as the disease is certainly known to exist, and it is also very useful in the eruptive stages. For much ulceration, offensive smell

of the breath and skin, and formation of pus, mercurius will be invaluable. Sulphur is efficacious when scabs are forming, and for completing a cure when it has begun. All objects that have been touched by the infected sheep should be thoroughly rubbed with strong carbolic acid.

Owing to the malignant character of the disease it is better not to undertake any treatment unless the infection has spread so far that the slaughter would involve a heavy loss. If it is detected in time, the safer and cheaper plan is to kill and bury or burn the infected ones and thus cut short the malady. When it has gained a start, good results may be obtained by inoculating the well with the virus of the sick, since it has been clearly proved that the disease taken by inoculation is much less fatal than when occurring by the natural mode of infection.

### WOUNDS, SPRAINS, FRACTURES, ETC.

The suitable description and treatment of all such injuries as Cuts, Wounds in general, Dislocations, Fractures, Sprains, and the like, may be gained by reference to the sections devoted to them respectively in the Horse. Severe cases are best treated by an immediate slaughter, before the incident derangement of the system so far advances as to render the flesh unfit for food.

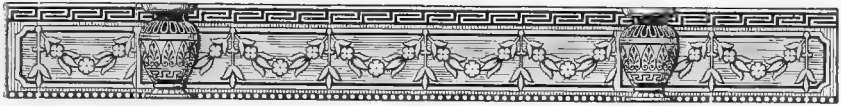
### FEVERS, RHEUMATISM, DROPSY, ETC.

For the various forms of Fever, Rheumatism and Dropsy, the reader should refer to these diseases as they are found in the Horse and Ox. It may be said that a form of Dropsy known as Red-Water occurs quite often in sheep when they are first fed on turnips, and in lambs that are weaned in cold, damp surroundings. This type requires good shelter, a change of diet, and the treatment, in general, laid down for Dropsy in the Ox.

Disorders which occur more or less often in the sheep, and are not mentioned in this part of the work because they are sufficiently considered with reference to the Ox, are Thrush, Inflammation of the Bowels, Inflammation of the Spleen, Constipation, Loss of Appetite and Cud, Black Quarter, and several easily recognized diseases of the Skin.





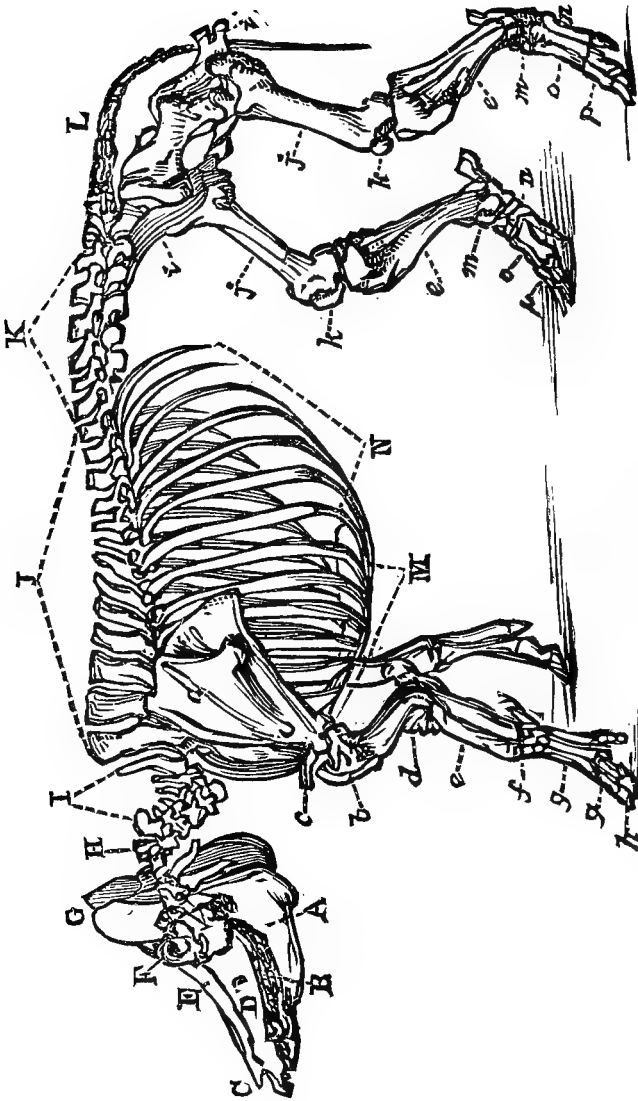


PART IV.

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THE HOG AND HIS DISEASES.





201. SKELETON OF THE HOG.

A, Lower Jaw, B, Teeth, C, Nasal Bones, D, Upper Jaw, E, Frontal Bone, or Forehead, F, Eye-Socket, G, Occipital or Crown Bone, H, Atlas, I, First Vertebra of the Neck, J, Other Vertebra of the Neck, K, Vertebra of the Back, L, Vertebra of the Loins, M, True Ribs, N, False Ribs, O, Shoulder-Blade, P, Round Shoulder-Bone, Q, Breast-Bone, R, Elbow, S, Fore-Arm, T, Navicular Bone, U, First and Second Bones of the Foot, V, Bones of the Foot, W, Haunch Bones, X, Thigh Bone, Y, Stifle, Z, Hock, aa, Navicular Bones, bb, First Bones of the Foot, cc, Second Bones of the Foot, dd, ee, ff, gg, hh, ii, jj, kk, ll, mm, nn, oo, pp, qq, rr, ss, tt, uu, vv, ww, xx, yy, zz.

## PART IV.

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### THE HOG AND HIS DISEASES.

#### GENERAL REMARKS.

**T**HE observations upon Anatomy and Physiology which are made on page 41 apply with sufficient precision to the hog to make unnecessary a separate treatise thereon. The varied food of this animal points to a similarity of functions as compared with those of man, and all practical hints for a work of this kind will be gleaned from what has been laid down in the several chapters of Part I. Before advancing to the treatment of diseases, however, notes are in order upon a few popular errors of practice in the care of swine.

In the first place, it is generally assumed that the hog is by nature prone to habits of filth. He is naturally disposed to wallow in water or other fluid elements, but will choose that which is clean if he has an opportunity. If he has not, he will take to what is afforded him, however filthy it be. It is only a disregard of his natural fondness for wallowing that leads him to take to offensive mire. A little observation will convince one that this animal is disposed to be cleanly. He will keep his sleeping-apartments clean and dry and will generally deposit the manure in a place apart from the bed, feed and drink. If one would have cleanly and healthy swine, the sty should be so arranged as to permit them to follow such promptings of their nature—a practice which is far from common.

In the second place, swine are not sufficiently protected from the weather. They are proverbial prognosticators of the weather, as shown by their preparation of beds before an approaching cold spell; and they are also sensitive to extremes of heat and cold. Their squealing in cold weather is more marked than the noise made by any other of the domestic animals in the winter; they will huddle together more closely to preserve warmth than others will; and they will with equal persistence seek damp and shady places in summer. These indicate that the hog is much more

sensitive than the majority of people suppose, if one may judge by the exposure to bitter cold and burning heat that is usually imposed. Such neglect contributes to discomfort and disease, and the exposure in winter is peculiarly unwise, in that it creates a great demand for food to merely maintain the temperature of the body, whereas the food should be used directly for flesh-forming purposes.

There is a widespread aversion to the use of pork because of the existence of trichinæ, and it is well to remark that much can be done to avoid this diseased condition by a proper regard to the pen and feed. Trichinæ are parasites in the flesh of the hog which are liberated in the human stomach by digestion, if infested pork is eaten without being long and thoroughly cooked. Rats and mice are peculiarly affected by these parasites and they will communicate them to the hog. It is a well-known fact that swine are prone to eat these animals, and that the latter will infest the pens to get the grain therein. It is obvious, therefore, that special pains should be taken in the construction of a piggery to wholly shut out rats and mice from all possible reach of swine. Besides, the offal of the hog, from the slaughter-house, butcher's shop and kitchen, should be scrupulously excluded from the feed, lest it be infested with trichinæ and so transmit them to healthy swine.

The last caution upon the feed may be carried further. It seems strange that, while hogs are kept solely as producers of food for the table, their owners so generally act upon the rule that any food is "good enough for a hog." This must be the outgrowth of the most complete thoughtlessness. To say nothing in detail upon the necessity of wholesome feeding to secure even acceptable pork, the writer will drop a remark upon the unwise use of milk and flesh-food. It is generally understood that milk is one of the choicest articles of food for swine, and it is if it is from a healthy cow. But what shall be said of the practice of carrying to the pigs the milk taken from diseased cows—because it is unfit for the family? That pigs are afflicted with anthrax, foot and mouth disease, and other malignant disorders, as a result of drinking the milk of cows suffering from the same, is well known. Again, carelessness is exhibited in allowing hogs to eat the flesh of cattle and other animals that have died from these diseases or been slaughtered because they were so affected, and sometimes such flesh is directly fed to them. In either case, they will become diseased and their flesh, when put on the table, will create more or less sickness in the household. Since the hog is not at all fastidious in his eating, it is all the more important that his owner guard the food, and particularly because his only direct use is the supplying of food for the human family.

The above points are mentioned because they are matters for every-

day thought, and a disregard of them leads to the discomfort and disease of the animals, to extravagance in keeping, and to sickness of the human family. With these brief notes we pass to the consideration of the diseases, naming those which are confined to the hog, with a few others not so limited but needing particular mention. A large proportion of the disorders from which swine suffer are common to other animals, and hence need no further treatment than can be found by reference to preceding pages.

#### ANTHRAX.—FOOT AND MOUTH DISEASE, ETC.

As remarked above, swine will contract various malignant diseases by eating the flesh of animals which have been affected with the same, and also very often by drinking the milk of diseased cows. In such cases, the swine will present the same symptoms as are shown by the animals which have thus imparted the disease, and the treatment laid down for the disease of the animal whose flesh or milk has been taken will be required for the affected swine. The fact that a hog has partaken of such diseased flesh or milk is a sufficient guide in determining upon the character of its ailment, and no detailed mention of causes or symptoms is needed at this point, since these are not distinctive diseases of swine.

#### CHOLERA.—BLUE DISEASE.

This is a very contagious and fatal fever, which begins with shivering, a dull, drooping manner and loss of appetite, followed by offensive and perhaps bloody diarrhœa, heat and redness of the surface, with blue, purplish, scarlet or black spots on the skin and mucous membranes. The animal lies on the belly and evinces pain. Vomiting of food or bile attends some cases, and a hard, dry cough is present in many instances. Other symptoms will be much thirst; quickened respiration and pulse; temperature  $102^{\circ}$  to  $105^{\circ}$  (detected by inserting a clinical thermometer in the rectum); thick fur on the tongue; hot, dry snout; unsteady gait behind, the surface of these parts then becoming cold; squealing when the belly is handled; after a time all control of the hind parts is lost, the animal becomes stupid (whereas it is sometimes delirious in earlier stages), and the muscles twitch or jerk. In rare instances there may be constipation from the beginning, instead of the diarrhœa. After a hog has been exposed to the malady the distinctive symptoms will not appear for three or four days in summer, or one to two weeks in winter. The disease generally proves fatal, death ensuing in from a few hours to five or six days. Occasionally an animal will pass through a slow and doubtful recovery.

**TREATMENT.**—Since recovery is rare and the disease is so prone to spread with great fatality, the only safe course is to kill and bury the infected animal at once. If treatment is undertaken, keep the piggery thoroughly infected with carbolic acid, and isolate the patient from the well. Feed well-boiled gruels of rye or barley, and boiled corn-starch. Put a little sulphuric acid into the drinking-water, the latter being cool, fresh and clean. Rhus, five drops every hour or two, is suitable for stages marked by the spots on the skin, diarrhœa, decline of spirits and strength, and threatened paralysis of the hind parts. Arsenicum, same dose as rhus, is a good general remedy, particularly for the diarrhœa, blue spots, cold surface, and vomiting. When the belly is very tender and the dung bloody, ten to fifteen drops of turpentine twice a day will be invaluable.

In the general care, *whether in treatment or prevention*, keep the apartments and bedding thoroughly clean and well-ventilated, dash cold water on the body, insure exercise, and give only good food, not too stimulating to the bowels for the well, and very simple for the sick. Test the temperature of all the hogs in the inclosure, and if it rises to or above 103°, treat or kill them at once. When one has been attacked, disinfect all others with dilute carbolic acid, and put a little of the same or a few drops of turpentine in the food or drink. Mix some charcoal in the food. Keep the well away from the inclosure, and from water that flows out of it. Bury or burn all infected animals as soon as they have died or been killed. Note the remarks under Strangles about confusing cholera with that disorder.

### STRANGLES.—QUINSY.—FALSE CHOLERA.

The last of these three names is used because cases of strangles are frequently mistaken for cholera. Strangles, or so-called quinsy, is a result of colds, chills, or other influences which set up an inflammation of the mucous membranes of the respiratory organs. This may extend to the digestive track and induce a peculiar diarrhœa which, with the rapid fatality incident to both, leads to the confusion with real cholera. The glands beneath the neck are swollen, with a general swelling and stiffness of the neck; the head is immovable; the breathing is difficult, rattling and hoarse, or of a snoring nature; considerable fever is present; the tongue hangs out, and is covered with a slimy, sticky saliva; diarrhœa often occurs; there is a rapid decline of strength; the swelling on the neck tends to gangrene; death rapidly ensues.

**TREATMENT.**—In the beginning it will often be sufficient to afford warm, dry shelter, tepid or cool water and gruels. For dry and inflamed or swollen throat, with suffocating breathing, give six drops of belladonna in

a little water or meal every two or three hours. Ten drops of hepar every three hours will be useful for the symptoms just named, swelling of the head and face, and tendency in the swellings to "point" in suppuration. Give ten drops of mercurius every two or three hours when the swellings become soft and the saliva is profuse and offensive, or if the abscesses break internally. Sulphur is a good general remedy, and is peculiarly suitable to complete a cure that has begun. The greatest virtue is claimed for a mixture of equal parts of sweet oil, spirits of turpentine and kerosene oil, put into the feed and thus scattered over soft stone-coal. It may be used with great hope of good results, both as a remedy and a preventive. Pure air, warmth, freedom from cold draughts and sudden changes of temperature, warm but simple gruels, and tepid water are essential in the treatment, and are most serviceable in preventing the spread of the disease. This disorder is contagious, and the affected animals should be isolated at once.

#### SWINE-POX.

This is a contagious disease, being even communicable to man, and perhaps attacks young pigs most often. It is characterized by little red spots which are more particularly seen on the flanks, behind the shoulders, and in other parts where the skin is thin. After the poison enters the system it is latent ten or twelve days in winter, and three to six in summer. Then there will be dullness, loss of appetite, and stiffness of the hind parts, these being followed by increased temperature, constipation, red and watery eyes, nasal discharge, trembling, and red patches on the abdomen and inside the legs. Little red spots soon appear, generally flat on top, their centers becoming pale or clear, with a red margin. These spots may appear singly or in patches, the latter indicating a more serious condition. When these eruptions appear, the fever measurably declines for three or four days, only to return as the vesicles grow more prominent and irritating. The eruptions finally dry up and form crusts, the latter then becoming gradually detached. The disease lasts three to five weeks, and is sometimes very fatal, though generally the most of the patients recover.

**TREATMENT.**—Keep the pigs in a cool, dry, well-ventilated place, with an abundance of bedding, and avoid heating food, giving roots and gruels of the meal of oats or beans, with a little saltpetre once a day. Provide salt for the pigs to lick, and put a little vinegar in the drinking-water. In the latter stages, when there is much weakness, give such tonics as cinchona and gentian. Use upon the eruptions such local applications as are recommended for Cow-Pox. In other respects, follow the directions and cautions set forth under the head of Sheep-Pox.

## LEPROSY.

By this is meant a disease which, though rare in America, is quite common in some countries of Europe, notably in England. Its essential manifestation is the development of whitish vesicles in any or all parts of the soft tissues of the body. It is most likely excited by a foul state of the sty and food, exposure to wet and cold, and other influences which seriously derange the digestive functions. Its progress is insidious, the organic changes being often far advanced before the disorder is noticed. The thighs, hams, jaws, shoulders, belly, in fact, all parts, contain the whitish vesicles; the animal is slow, drooping and weak; the skin thickens and shows ulcerous sores, with patches of hair coming off; the gait is unsteady, and the muscular control of the hind parts is sometimes entirely lost; the appetite may be seemingly normal; the breath is offensive, and the whole surface emits a more or less putrid odor; as the disease progresses, it will be marked by increased ulceration and swelling of the skin, with flakes coming off, shiny and offensive saliva, and other signs of putrefaction.

**TREATMENT.**—At whatever stage the disease be detected, it is best to kill the hog and bury it, because its flesh will scarcely be rendered fit for food with the best treatment, or with the most approved curing and cooking of the meat.

## MEASLES.

This is of quite frequent occurrence among swine, though it is materially different in character from the disease in the human being to which the term is applied. It is essentially due to the presence of cysts in the muscles, in the tissues, in the eye, brain, and other parts, these cysts containing worms which are believed to be the undeveloped form of the tape-worm which infests the human body, and which enters the hog's stomach when it eats the human excrement of privies or drinks water running therefrom. It is claimed that the human stomach in turn receives the tape-worm when infested pork is eaten without being thoroughly cooked. These cysts can usually be seen if they are under the tongue or in the eye. If they are in the muscles and adjoining tissues, the animal will be in pain, and be stiff; if in the brain, there will be stupor or delirium, or both.

**TREATMENT.**—When the cysts have once become imbedded in the organic structures, treatment is unavailing. An avoidance of the influences which give rise to the disorder, including the deposits about privies—which are not safe as a fertilizer where the hog runs—is the best mode of prevention, and this is the only safe treatment.



## NASAL CATARRH.—SNIFFLES.

This is quite common in the hog, and is generally the result of exposure to cold and wet in the first instance, though it is not unfrequently inherited. It is characterized by the nasal discharge which attends colds in other animals, and often by a discharge of blood from the nose; if the latter continues long, the snout is deformed and drawn to one side. Though a temporary improvement may be noticed at times, the strength will give way if the bloody discharges recur often, and the case will be fatal.

**TREATMENT.**—The disease usually advances so far before attention is paid to it that it will eventually be fatal in spite of treatment. Keep the animal in warm, dry quarters, and select the remedies mentioned for Catarrh in the Horse. One to three grains of sulphate of copper (blue vitriol) night and morning, in solution, may alone be enough, if it is long continued in connection with good care and food.

## PNEUMONIA.—RISING OF THE LIGHTS.

Pneumonia, or inflammation of the lungs, is quite common among swine, and is very often fatal. It arises from exposure to damp and cold, bleak winds, and the like, and is prone to attack all the swine in the herd when it once appears—because all are equally exposed. The most prominent symptoms are loss of appetite, difficult breathing, heaving flanks, and an incessant and distressing cough. These should arouse suspicion when hogs have been unduly exposed, and treatment be resorted to at once.

**TREATMENT.**—Appropriate the remedies prescribed for Pneumonia in the Horse, and observe the notes on general care in the same article.

## APOPLEXY.

The chief causes of apoplexy in man or beast being high-feeding and excess of fat, with inactivity, this disorder is of very frequent occurrence among swine, and it generally terminates in sudden death. Its approach is indicated by dullness and drooping, indisposition to move, staggering gait, wild eyes, absence of appetite, failure of sight, and general numbness. A partial recovery is often enjoyed, but repeated attacks will occur, and they often lead to brain fever.

**TREATMENT.**—Adopt the treatment mentioned for the Horse if any time is afforded. Apoplexy sometimes invades the piggery like an epidemic, and the exciting cause should be sought out and removed, increased exercise being especially needed in most cases.

## BRAIN FEVER.—FRENZY.—MAD STAGGERS.

As elsewhere remarked, brain fever often results from repeated attacks of apoplexy; but it may also be caused by over-feeding, especially with new corn or other heating articles; excessive heat; hard driving; insufficient water. Though there is some difference between brain fever and mad staggers, they are so similar in symptoms and treatment that they may properly be thus grouped. The symptoms which indicate its approach are similar to the first ones of apoplexy; then inflammation sets in and the animal runs wildly to and fro, and dashes against any object in its way.

TREATMENT.—Adopt the treatment given for the Horse.

## EPILEPSY.—FITS.

Epilepsy is quite rare in the hog, but far from unknown. It is ushered in by grunting, restlessness, quickened breathing and a staggering gait; then the animal suddenly falls and lies motionless a short time, after which convulsions come on, and increase in violence; the face is distorted, the neck curved, the legs alternately drawn to and extended from the belly very rapidly; the eyes protrude and turn about; the tongue is clenched between the teeth, the latter grinding together; the animal after a time regains consciousness, rises, timidly hides away for a few minutes, and then resumes his usual habits.

TREATMENT.—Nothing can be done during a paroxysm, but some results may be obtained in preventing a recurrence by insuring freedom from excitement, giving simple food, and keeping on the head cold applications, a cloth bound on the top being suitable. A pint of vinegar, two pints of water and one ounce of sal ammoniac make a good cold application. If one wishes to use internal remedies, they can be selected from those named for Epilepsy in the Horse.

## LOCK-JAW AND HYDROPHOBIA.

These two disorders of the nervous system are thus grouped, not because they are similar, but because it is only necessary to say, first, that they are somewhat common among swine—lock-jaw occurring especially after castration, particularly if high feeding is practiced, and hydrophobia being peculiarly apt to affect the sty because a rabid animal has such easy access to it; second, it is but necessary to name their symptoms and refer elsewhere for treatment.

Lock-jaw is characterized by spasmodic movements of the head and

legs, grinding teeth, stiffness of the jaws, these being soon followed by stiffness in the neck and the greater part of the whole body, and a peculiar elevated position of the head. If the animal survives the twelfth or eighteenth hour, there are good grounds for expecting a recovery. For treatment, refer to Lock-Jaw in the Horse.

Hydrophobia arises from the bite of a rabid dog, fox or other animal, and is at first characterized by dullness and continual licking of the bite; then the symptoms are very similar to those of a rabid dog, and the reader is referred, for fuller notes and treatment, to Hydrophobia in the Dog.

### COLIC AND INFLAMMATION OF THE BOWELS.

These two are mentioned together because one is easily mistaken for the other, though they are radically different, as shown by their symptoms. In *colic*, the animal is restless, utters cries of pain, and *rolls on the ground*; in *inflammation of the bowels*, the symptoms are dullness, loss of appetite, constipation, spasms, continued restless motion, staggering gait and other marks of pain.

TREATMENT.—Select remedies and local applications from those given for Colic and Inflammation of the Bowels in the Horse. For inflammation of the bowels, in particular, provide warm baths, dry bedding, and general comfort.

### WORMS IN THE INTESTINES.

Worms very often exist in the intestines, are very troublesome, and not unfrequently exceedingly fatal. Their presence may be inferred if the animal has a voracious appetite and yet continues lean and out of condition in general, coughs, runs restlessly about, utters cries of pain, snaps at other hogs or whatever animals are in reach. The dung is usually hard and high-colored, though diarrhœa is not uncommon; the urine sometimes whitish; the eyes sunken; weakness becomes more marked and is attended with symptoms similar to those in Colic; staggering and convulsions sometimes ensue.

TREATMENT.—Turpentine, a few drops to the dose, is very efficacious, and does not injure swine if given in proper quantities. Common salt, which is poisonous to hogs when given in large quantities in the food, is an excellent remedy when supplied in such a way that it can be licked at will. Cina and santonine are standard remedies in the treatment for worms. Tansy is also valuable. For tape-worm, put the hog on a fast, and then give *felix mas* or root of male shield-fern; areca nut is only second to this,

being especially suitable for weak animals. Provide clean quarters and wholesome food, and observe care in promoting a healthy condition of the stomach and bowels. Note the remarks on tape-worm under Measles.

#### DISORDERS FOLLOWING CASTRATION AND SPAYING.

It is useless in a work of this kind to give directions upon the various methods of performing these operations. They are matters of practice, to be learned by witnessing the operation. It may be said that boar-pigs should be castrated after the tenth day and before the third month is passed. The best age for operating on a sow-pig is perhaps six weeks. One should seek to have the pigs in good health at the time, and so far as possible choose weather that is neither very warm nor very cold, and preferably not wet. After the operation, it is well to confine the animals for a few days to keep them from getting into water and mud before the sore has healed. Provide good shelter, with plenty of clean bedding. Sour milk or whey and barley-meal make a good feed. High feeding after the operation is very unwise and dangerous. It is not unfrequently the case that the animal, some time after the operation, evinces signs of lock-jaw (spasmodic motion of the head and of one or more legs, grinding of the teeth and stiffness of the jaws), and then the treatment for Lock-Jaw is to be adopted.

#### GENERAL MENTION OF DISORDERS.

As remarked on a preceding page, the hog is subject to many disorders which are common to the horse, ox and sheep, and hence do not need separate treatment. Among them we mention Paralysis, a partial or complete loss of some of the members, as a leg; Diarrhœa, a simple looseness of the bowels as a result of improper food, a cold, or some constitutional disease; Dysentery, or Bloody Flux, which is an inflammation or ulceration of the membranes of the intestines, attended with blood discharges, much pain, and rapid prostration; Stone in the Bladder; Inversion of the Bladder; Inflammation and Enlargement of the Spleen; Protrusion of the Rectum; Erysipelas; Lice; Mange or Itch; Ruptures; Injuries in general. The most of these are readily recognized, and the reader will find their causes, symptoms and treatment sufficiently considered by reference to the articles upon the same disorders in the Horse.

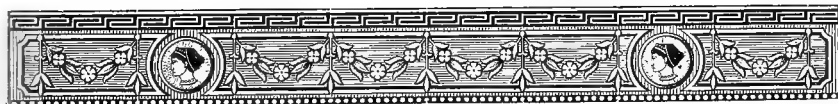
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PART V.

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THE DOG AND HIS DISEASES.





CHAMPION ROB ROY (417). Owned by Arnold Burges.

## PART V.

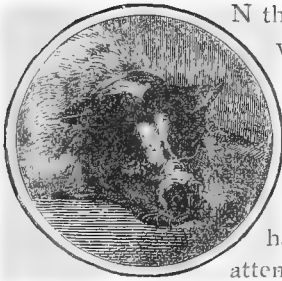
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# THE DOG AND HIS DISEASES.

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### INTRODUCTION.

#### ORIGIN AND TRAITS.



IN the origin of the dog scientific men have differed widely. By some he has been declared a descendant of the wolf, and by others of the fox or jackal, and points of resemblance, such as cranial development, period of gestation, peculiarity of the eyes or carriage of the tail, have been cited in support of each theory. Still other writers have claimed he is of a distinct breed, and have attempted to prove this by the assertion that, though he will breed with all of the above animals, the progeny of the cross are incapable of propagation *inter se*, thus proving they are true hybrids, or descendants of distinct species, it being a well-established principle that hybrids are sterile if bred together. This theory has, however, been completely refuted by observation of the dogs of the Indian tribes, as it has been proved beyond question that these cohabit with the wolves, foxes and coyotes, and that the progeny of these unions are as fertile as any others. From this fact modern authorities have come to the conclusion that the dog is a mongrel, descended from crosses between all the animals to which he bears resemblance, and raised to his present perfection by selection and breeding for specific results. Animals in a state of nature vary but little if any from the original types, because they are

not subjected to any influences that would induce change. They dwell together according to their kind, often in packs or herds, and inbreed to a degree that would be ruinous but for the wise provision of nature which, through their ferocity and the law of force, secures the survival of the fittest, and these, from the prepotency of past consanguineous unions and the unvarying character of life generation after generation, naturally reproduce the typical characteristics of the race. Domestication has changed other animals as radically as it has the dog. Climatic influences and the demand for new and different services, tending to induce breeders to develop classes capable of meeting these demands, are sufficient to account for even the variations in size and instinctive qualities which the dog of to-day displays. Upon any other theory it would be difficult to trace to a common ancestor such different types as the mastiff, weighing nearly two hundred pounds, and the toy-terrier, weighing only a few ounces; the setter, pointer, spaniel and hound, each instinctively taking to the pursuit of game, but each in different form from the others; the bull-dog, with his brutal instincts, and the Newfoundland, with his amiable character and half-human intelligence. But when we remember that the most exaggerated specimens have been evolved from less-contrasting ancestors within the few years that fashion or special need has made them objects of desire, we can more easily regard them as absolute productions, and comprehend the effects of circumstances and influences extending back to the early ages of the world.

The dog is, of all animals, essentially the friend and companion of man. From the earliest times of which we have any record we find him a dweller in the tent of his master, the playfellow of his children, his assistant in the chase, his guard at night, at all times a servant "faithful even unto death." The most ancient pictures and the sculpture of exhumed cities unite with poets and painters of modern times to commend his courage and devotion, and make the dog a synonym of constancy and zeal. Other animals share his servitude, and some may by circumstances or the peculiarities of their owners be admitted to companionship in a greater or less degree. The wild tribes of the desert necessarily depend upon their horses for both subsistence and safety in danger, and the love of an Arab for his horse, with the intelligence the latter acquires from the association, is well known to all who have read the history of the nomadic races. The cat is the favorite with some, but the cruelty and the treachery of his disposition unfit him for the general trust and affection given to the nobler dog. Individual fancies occasionally induce the admission of other animals into similar relations, but of all the brutes the dog alone is the ordinary associate of man, and a reasonable study of his habits and disposition will convince one that he is justly entitled to the distinction.



## DIVISION OF BREEDS.

Custom has divided the dogs of the English-speaking countries into "sporting and non-sporting classes." The former comprehends all that are used with the gun, hounds, fox-terriers and dachshunde; the latter, watch-dogs, sheep or cattle dogs, terriers generally, toy dogs, and those which may be classed under the general term "miscellaneous." "Stonehenge," who is recognized as one of the best authorities, divides these sub-classes as follows: The dogs used with the gun are setters, pointers, spaniels and retrievers. The hounds comprise the greyhound which hunts by sight, the bloodhound, foxhound, harrier, beagle and otter hound, all of which follow their game by scent. Fox-terriers are divided into the rough and smooth varieties, and the dachshund is identical with the German badger dog. Watch-dogs include the mastiff; bulldog; Newfoundland; Labrador and lesser Newfoundland; the St. Bernard and the Dalmatian or coach dog. The last Youatt says is "used in his native country for the chase," and Stonehenge says "without doubt the Dalmatian is a pointer when at home," but owing to the difference in his uses in his native country and elsewhere, Stonehenge adds, he "has always been included in our shows among the dogs not used in field sports, and for this reason I have classed him among the watch-dogs." The sheep and cattle dogs are the colly, the bob-tailed sheep dog, and the Pomeranian or Spitz which Stonehenge asserts is in his native country "employed as a sheep dog." Terriers are classed as rough and smooth, though there are also many which are properly described as nondescript, because, while possessing some of the attributes of certain breeds, they also differ too widely from the best types to be entered with them. The rough terriers are the Skye, both drop and prick eared; the Dandie Dinmont; the Bedlington; the Yorkshire and the Irish. The smooth varieties are the black and tan, or Manchester, the white English and the bull-terrier. The toy dogs, also divided into the rough and smooth, are first, the King Charles and Blenheim spaniels, the Maltese dog and the rough toy-terrier; second, the pug, the Italian greyhound and the smooth toy-terrier. In an appendix Stonehenge mentions the poodles, both French and Russian; the truffle dog; the Chinese crested dog and the Great Dane, these not being properly dogs of the British Isles.

## USES OF THE DOG.

Field sports have existed in Great Britain from the earliest times. They have always been the prerogative of the aristocracy and wealthy class and have been protected by severe forest and game laws. Of old the keeping

of certain breeds of hounds was limited by royal edict to those of royal blood and others who enjoyed the privilege by special grant from the crown. Dogs which were permitted to persons of lower degree were also the subjects of special legislation, and if caught in the forests were mutilated by the keepers by having some of their toes struck off to prevent them from running the king's deer. As the more liberal spirit of modern times abolished the feudal laws, dogs in all varieties became the property of all who chose to breed or keep them, but their employment in field sports is still possible only to those who own or rent shootings, as the right to game has not yet been made a popular one. There has been a great outcry of late over the restriction of game to the wealthy class, and doubtless this is in some respects a hardship, but it is also certain that, if thrown open to the public, field sports in Great Britain will soon become a thing of the past, since, from the demands of agriculture and the density of the population, game can only be kept up by artificial propagation and protection, entailing a heavy expense which wealthy men will not undertake when the sole right to the game is taken from them, and which the public cannot afford. Even as things are now, the use of pointers and setters has been almost discontinued over a large portion of England, as high farming has stripped the land of most of its cover for game, and the birds, from being constantly disturbed, have become so wild they will not lie to point. The moors of Scotland and Wales afford the best opportunities for shooting over pointers and setters, though on some of the large estates in England they are still used for partridges.

Foreign pointers and setters are not allowed to retrieve, which necessitates the employment of a special breed for this purpose. At English shows there are classes for black and other than black retrievers. The former are the better liked for general work, and are divided into wavy and curly coated. Both are descended from the Labrador or lesser Newfoundland, either pure or cross-bred to the setter. Stonehenge says, "in the belief that the nose of the pure Labrador is inferior to that of the setter, I certainly should advise the cross-bred dog for use; but to be successful upon the show bench, the competitor should display as little as possible of the setter." Size, to give them strength, is an essential in these dogs. Two noted prize winners were Mr. Gorse's Wyndham, wavy coated, and Jet, curly coated. They weighed eighty-five and seventy pounds respectively. The class for other than black includes the liver-colored dog sometimes found in litters from black parents, the color indicating spaniel-cross. All these dogs, as well as the Irish water spaniel, are used for wild-fowl retrieving, and in Scotland, for trailing up wounded deer, the colly, pure or cross-bred, divides public favor with the deerhound.

Spaniels are extensively bred in several different varieties, the chief being the Clumber, bred at the seat of the Duke of Newcastle in Nottinghamshire, the Sussex, Cocker, and the English and Irish water spaniel; the water spaniels being used as retrievers, and the others for cover work on cock and pheasants, where beaters are not employed.

The chase is a more general pursuit, being open to those who do not own or rent land but can afford horses and the other expenses incident to the sport. The fox, hare and stag are hunted on horseback, while beagles and otter hounds are followed on foot. In speaking of hounds, sporting law limits the name to bloodhounds, staghounds, foxhounds, harriers, beagles and otter hounds. Greyhounds are not included in the class because they run their game only by sight and are used for coursing. The deerhound is not included because he is only used to find or retrieve wounded deer. Bloodhounds and staghounds are used for the stag, foxhounds for the fox, and harriers for the hare. Beagles are also used for hunting the hare, rabbits, or a drag, and otter hounds for the otter by the sides of the water-courses. Fox hunting is the national sport of England, and the number of packs kept is very large. A pack properly consists of twenty-five couples, but few are as large as this. They are kept up by subscription among the "members of the hunt," that is, those who habitually hunt with each pack. The pack is kept by one member, known as the "M. F. H.," or master of foxhounds, who appoints the "meets," and hunts the pack with the assistance of a huntsman and helpers known as whips. The huntsman has charge of the hounds in kennel, and when going to and returning from a hunt.

Packs of staghounds are comparatively rare, as the stags are park-raised, and consequently less plentiful than foxes. One is known as Her Majesty's Pack, and a few others are kept up in different portions of England. Stonehenge says, "except in Devonshire and Somerset, the staghound is not allowed to kill his quarry, being whipped off as soon as the deer stands at bay."

The harrier now differs from the foxhound but little in size and appearance, being, in fact, largely inbred to the latter dog. Of the harrier Stonehenge says, "breeders still take special care to have a combination of intelligence and high scenting power, sufficient to meet the wiles of the hare, which are much more varied than those of the fox." He also mentions the pack of Sir Vincent Corbett as being the most beautiful he has ever seen, and claimed to be purely bred.

Beagles afford great sport to those who like strong exercise on foot. The taste for this style of hunting is on the increase, and the packs consequently increasing in numbers. Stonehenge says, "foot beagles should not

much exceed nine inches in height; but for 'young England' they are now often used up to eleven or even twelve inches, going a pace which requires a good runner in prime condition to keep up with them." He also mentions the most celebrated pack in England as follows: "A diminutive pack of rabbit beagles, the property of Mr. Crane, of Southover House, near Bere Regis, Dorset, contains the best patterns we have ever known. Mr. Crane's standard is nine inches, and every little hound is absolutely perfect." This standard is kept up with great difficulty, owing to the inability of the dams to raise their whelps, and also to many deaths from distemper. Beagles were great favorites during the reign of Queen Elizabeth, and were bred as small as possible. "A pack of the Virgin Queen's (*it is said*) could be carried in a man's glove." Stonehenge speaks very strongly of the benefit to be derived from beagle packs as training for fox hunting, and says: "We believe we are correct in stating that ten or more of the most celebrated masters of the day learnt their first lessons with the merry beagles."

Otter hunting is followed during the summer, when most other sports of the field are out of season. Though popular, it is not extensively practised, as otters are very destructive to fish, and so are destroyed whenever possible when frequenting noted fishing streams. In Cumberland and Devonshire there are many streams in which the fish are too small to afford much sport and here otter hunting is pursued with relish. There are also packs kept up by subscription at Carlisle and Northumberland, and several private packs in Wales. As in this sport there is a great amount of water work, it is essential that otter hounds shall have a rough, long coat, with an inner coat of thick, close wool, a point always regarded in breeding. They must also have very keen noses and deep, rich voices.

To mention all classes of dogs as fully as I have spoken of those kept for sport would require more space than can be given to this article. I shall therefore pass the others over with very brief remarks and take up the matter of the breeds most used or kept in America.

In the watch-dog class, the most prominent in point of size is the mastiff, which often weighs from one hundred and sixty to one hundred and eighty pounds, yet the gentleness of his disposition renders him a fit companion for children and ladies; in fact, some of the noted prize winners are owned by ladies, who take as much pride in their huge pets as others do in their toy terriers or delicate Italian greyhounds.

The Newfoundland, to suit popular taste, must be black, though Sir Edward Landseer brought the black and whites into prominence through his paintings. The latter are not deemed purely bred, and are often excluded from the regular classes and classed by themselves as "Landseers."

The St. Bernard has been imported to England, and is now very purely bred in both the smooth and rough varieties, though not such a general favorite as the mastiff or Newfoundland.

The colly is probably more intelligent and highly educated than any other dog. By constant association with his master and daily participation in his labors he develops an amount of special knowledge and general intelligence almost inconceivable. No other dog is so intimately connected with his master's daily life, and without his aid sheep-tending upon the moors would be practically impossible. The well authenticated reports of the duties performed by collies read like romances, and certainly show in the strongest possible light the elevating influence which association with man exerts upon the brute creation.

The terriers and toys are practically pets and house dogs. Many of them are highly intelligent, sharp and useful in their stations, while others simply serve to gratify their master's fancy.

#### DOGS IN AMERICA.

In this country field sports are matters of comparatively recent date. Only a few years since a gentleman could not indulge in such pursuits without loss of business and social standing; but with the increase of wealth and consequently greater leisure, the love for sport natural to the Anglo-Saxon race has asserted itself, and proficiency in the field is now deemed a gentlemanly accomplishment. There is no country under the sun which affords more varied or better natural sporting facilities than our own. With an immense territorial area, crossed in every direction by railroads, with every variety of surface, from semi-wooded to prairie, mountain and forest, game of all kinds, from the snipe, woodcock, quail and grouse, to the deer, elk, buffalo and bear, are at the command of all who care to seek them. State associations and local sporting clubs foster the love for the field, and the desire for dogs worthy of such a country has led to the importation of the best specimens, and to competition in public at shows and trials. A few years since our dogs were, as a class, far inferior to those of England, owing to the greater care gentlemen there had taken to keep up their strains. The last decade, however, has seen a revolution wrought in kennel matters, and we can confidently expect to have in the near future as fine dogs as any in the world.

There are reasons why field sports will never be carried to the extent they are practiced abroad, and for the scant foothold which some of them will gain in popular favor. In the first place, they are here open to all, and as rich men are everywhere the exception, it follows that comparatively

few Americans can afford the costly appointments necessary for such development as these sports have attained to with the wealthy class of the mother country. Then, too, our trespass laws and the rights of land owners will prove an insurmountable obstacle to fox hunting proper. No man will stand the rush of a pack over his fields and the trampling of his crops and breaking of fences by horsemen. In England the hunt is supported by the class that owns the land, those who farm it being tenants. It is, too, a time-honored institution which all have been taught to regard with pride as a national sport. Here nothing of the kind exists; we have no class distinctions, and the man who owns a single acre is as strongly defended by the law as his wealthy neighbor who owns a thousand. It will therefore be practically impossible ever to gain popular consent to the establishment of a sport which so large a portion of the community will deem prejudicial to its interests; and even if in certain localities of the Eastern States hunting is followed by a few clubs, it will never become widely spread or generally popular.

The natural sequence of such limitation in sport is that certain varieties of dogs are either not at all or but little used in this country. We have but very few retrievers, because a majority of our sportsmen keep but one dog and break that one to retrieve as well as point. On certain parts of the coast, and by the great rivers and lakes, men who make a practice of wild-fowl shooting keep dogs for retrieving, as water work when the weather is cold is very hard on ordinary field dogs, whose coats are not suited for it; but through a great portion of the West even this shooting is had under circumstances that admit of the use of field dogs.

The hound class is also a small one, and made up of few varieties. Foxhounds are broken to follow all kinds of furred game, according to the section in which such dogs are kept. Deer, foxes, and the hare, commonly called rabbit, are all killed before dogs of the same breed, and consequently there is no demand for those used abroad for each variety of sport. Beagles have been brought out of late, and our shows call together some fine specimens. They are however little used in the field, nor will they probably be so long as the larger hound is so generally useful.

The greater part of our sporting is done over setters and pointers. These are now bred from the best strains obtainable from crack English kennels, and single dogs costing \$1,000 or upward have been imported by both clubs and private individuals. The setter is best adapted to general sporting, as his coat and spaniel-origin fit him for work which the pointer is comparatively ill-suited for. There are three great divisions of the setter family, viz.: The English, Irish, and Gordon, each differing materially from the others, and each with its warm friends and supporters among sportsmen.

The pointers have no such natural division, but, though of one general race, they are divided into different classes according to size in show classification. Certain families, too, have their own colors, or rather colors to which the representatives of those strains closely conform, and which therefore serve as family marks. From his thin coat and indifference to heat the pointer is specially suited for work on dry prairies, or in the extreme Southern States. His advocates proclaim him the equal of the setter in all ways and places, but this is not the general opinion, and he is consequently not as common as his long-haired rival. Field spaniels are used by a few sportsmen who like their style of work in cover, but taking the country through, these dogs might be included in the non-sporting classes without seriously affecting our sporting interests.

The non-sporting classes are always well represented in shows, and are growing in favor daily. Within a few years most varieties of terriers and toy dogs have been introduced into the country, and good specimens of the mastiff and Newfoundland are becoming quite common. Sheep dogs are deservedly coming into favor, and will soon be largely bred for use on farms and cattle ranches. Trials similar to those abroad have recently been instituted, and the colly will become an important factor of our canine population.

### DISEASES AND CARE OF DOGS.

Domestication, by inducing an artificial life, has naturally had in some ways a bad effect upon all animals subjected to it. The dog in a state of nature has probably but few ills apart from those consequent upon old age; but when domesticated, and especially when finely bred, he suffers from many diseases similar to those of man, and requiring similar treatment. When dogs were worth but a few dollars there was nothing to induce scientific men to study their ills, but with their present values, and especially with the interest awakened in them by the love for the field, which is shared as well by medical men as by others, the attention of the faculty has been called to the treatment of canine diseases, and they are fast approaching the point when they will be as well understood as those of any other class of patients.

Dogs need comfortable quarters, good food, combining meat, vegetables and breadstuffs in due proportion, and also plenty of exercise. The latter is more generally neglected than the former, and to such neglect is due most of the ills from which dogs suffer. Properly attended to, dogs cost but little trouble, and repay this a thousand-fold.

## DISEASES AND THEIR TREATMENT.\*

## HYDROPHOBIA.—RABIES.—MADNESS.

This fearful malady is liable to occur in any dog, and is therefore a source of dread to many people when near one of the species. It results from a specific virus which passes into the system by infection, whether by a bite or by any other means of introduction through a break in the skin or mucous membrane. The most playful bite of an affected animal has the same effect as a malicious one. It affects either sex, not the male only, as has been supposed. It is more prevalent in winter and the damp cold weather of spring, and is not, *in any sense*, peculiar to "dog days" and other hot weather, as is popularly believed.

*Symptoms.*—The wound from the bite rapidly heals, usually without inflammation. During a period thereafter, varying from three weeks to eight months, though usually not more than six weeks, no symptoms are noticeable. The disease, after this period, will develop in one of two forms, the *violent* or the *sullen*, a distinction too often unobserved. In the *violent* form, after the weeks of incubation, the animal is sullen for a few hours, or even three or four days; then is irritable or violently mad for three or four days, and in the third stage becomes more calm, weaker, and dies after being in this stage a few days. In the *sullen* form, the dog passes through the first and third of the stages just indicated, the violent period being absent or being much less marked by excitement, motion and biting. The absence of this violence should not be considered proof that hydrophobia does not exist. Mr. Youatt, who is widely quoted as the highest authority on this malady in dogs, has epitomized the detailed symptoms in the two forms substantially as follows:

1. In the *violent* form, after the period of sullenness, which lasts a few hours, possibly days, there are increased sensitiveness and muscular activity, a disposition to bite, and a *continued peculiarity in the bark*, the last being a very noticeable indication. The animal becomes changed in habits and disposition, licks or carries stones, sticks, and like substances, is restless and snaps in the air, though still obedient and kind to his master. Soon the appetite is disgustingly depraved, so that the urine and excrement from the bowels are eaten, or there is a loss of appetite and thirst; swelling of the tongue and mouth; redness, dullness, and half-closing of the eyes; wrinkling of the skin on the forehead; roughness and staring of the hair; unsteadiness and staggering in the gait; periodic biting, snapping immediately after ap-

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\* Read the remarks on "Anatomy and Physiology" page 41.



pearing quiet and kind. In the latter stages, paralysis takes place in the limbs; spasms affect breathing and swallowing; the external surface becomes irritable, and sensitiveness is increased; convulsions may come on. These symptoms come and go, with periods of comparative health between them, and are often excited by touch, sight or hearing, especially by seeing or hearing another dog.

2. The *sullen* form is marked by shyness and depression, with no inclination to bite, and no dread of fluids. The dog is unnaturally quiet, depressed in spirits, haggard and suspicious, refusing food and seeking close retirement. The breathing is hard; the bark rough, harsh and changed in tone; the lower jaw drops down, the tongue hangs out and saliva constantly flows, the dog perhaps seeming to try to paw it off the lips; the breathing grows more labored; there are trembling, vomiting and convulsions.

It should be noticed that, not only are the violent symptoms absent in some cases, or much reduced, but there is not the inevitable repulsion to water which is almost universally supposed to exist, and which gave rise to the name *hydrophobia*, that is, "dread of water." That the animal may be thrown into violent spasms at the sight of water, after swallowing has become difficult or impossible, is undoubtedly true in many cases, but not always. When it is the case, it is a result of involuntary muscular action, and not of a conscious dread of the water; for thirst may be pronounced in this disease. It has even been reported that, in the fever-stage, a mad dog has been known to plunge his head into water, as if to cool himself. Hence, the test of placing water before a dog suspected of infection is not reliable. Besides, if the sight of water does produce spasms, it is only in the more violent stages, when other symptoms are quite as marked. Again, the frothing at the mouth is not so frequent as is supposed, indeed, not as certain to occur as in epilepsy, or when the jaw is paralyzed. The tail carried between the legs is a symptom not so significant as most people suppose, for it is quite as often elevated.

**TREATMENT.**—To prevent the development of the disease, as soon as the bite has been inflicted thrust down into it some small iron or other metal raised to a red (better white) heat, not merely a black heat, until a thorough searing of the flesh all around the wound has been effected. A point of lunar caustic (nitrate of silver) may be used for such cauterization, but is not so good as the iron. If neither is at hand, grasp the wound with the fingers and forcibly squeeze it so as to drive the blood from the bottom, carefully avoiding contact of the blood with any break in the skin, repeating a few times to remove all the poison if possible. It is always best to apply a ligature close to the bite, on the side toward the heart. If the bite has not been cauterized, wash it at once with cold water, putting in a few

drops of belladonna if it is at hand, and cauterize it as soon as practicable. After cauterization, keep on compresses of water and belladonna until the wound is thoroughly healed, and give a drop of belladonna internally every day or alternate day for six weeks.

If a dog only suspected of being bitten by a mad animal has bitten any person or beast, keep him confined until the full period of development of the disease has passed (even up to eight months), so that all doubt as to whether the person or beast has been infected may be removed, meanwhile giving the patient belladonna internally as directed above. Otherwise, a suspected dog should be killed, unless he has a special value. Any vicious, snapping cur, as being specially liable to madness, should be killed. Of course, a dog known to be mad will be immediately killed. If any person has been bitten by an infected or suspected dog, see Hydrophobia in Man.

### DISTEMPER.

Distemper seems almost like an inborn disease with most dogs, and more frequently develops in superior breeds. It is most common in pups, which are also more apt to recover. It comes on more often in the spring and autumn, in the latter of these more often than in the former. If it results from a natural predisposition, those animals are more susceptible to its development which are kept housed; those also which have flesh-food, are more liable to it than those not having it. The primary symptoms, which usually escape notice at first, are general dullness; failing appetite and flesh; short cough and vomiting; impatience at being disturbed; watery eyes, pained by light. Later, the animal shivers fitfully; persistently seeks a hiding-place; has a more rapid pulse; matter accumulates on the eyelids and finally glues them together, and a yellowish mucus obstructs the nostrils; cough grows more frequent, with very offensive vomiting; increased shivering; rapid wasting of the body; hot skin; warm paws; standing, dull coat. In about a week apparent improvement sets in. A renewal of the disease will very probably occur, with aggravated symptoms, such as weakness in the hind legs, the dog after some days dragging himself along, though not often when older than one year. In this condition there may be another apparent improvement, but a relapse is pretty certain, with intensified force. If the eyes are still blood-shot, and the flesh continues reduced, there is danger yet. In fatal cases, death generally occurs the third or fourth week, six weeks being the common duration of other attacks.

TREATMENT.—*Nux vomica* alone has cured many cases, if given in the first stage, as it always should be, when there is loss of appetite, with

watery discharge from the nose, cough, vomiting, and constipation. Give belladonna if the eyes are inflamed, watery and sensitive to light, and for dry nose, twitching of muscles, the animal trying to hide and starting when asleep. Arsenicum is needed for loss of strength, flesh and appetite, thick, offensive, perhaps bloody nasal discharge, and for diarrhœa. Phosphorus is invaluable for quick breathing, offensive sticky discharge in the eyes, painful cough; bloody froth in the mouth, and paralysis of any parts. Give sulphur for symptoms which return after an apparent recovery, and sustain the strength with tonics, as gentian, quinine and Fowler's Solution. In the way of diet, which is always of the first importance, give cold milk, rice, coarse bread, and an abundance of cold, fresh water. Avoid animal food, grease, sugar and dainties. Observe absolute cleanliness. Keep the bed away from the fire, but let it be warm and airy, the bedding being hay or straw, changed every day, and always being dry.

### APOPLEXY.

Apoplexy is a sudden partial or complete loss of consciousness and power of motion, and may attack any dog, though pet dogs, if kept fat, are peculiarly subject to it. It is caused by pressure on the brain from abnormal flooding of the blood-vessels. At first there may be drowsiness, a staggering walk, and twitching of some muscles; but the attack may be sudden, the dog falling quickly, immovable and apparently dying, though he generally revives in a few hours.

TREATMENT.—The treatment will be found under Apoplexy in the Horse. Rich and over-abundant food and luxurious housing tend to an excess and impurity of the blood most favorable to apoplexy. A simpler habit of life is highly important.

### PARALYSIS.

Paralysis is a loss of power and feeling in certain muscles, and is caused by injury, diseased brain, sexual excess, rheumatism, distemper, mange, or inflammation of the bowels. Though it may affect any of the muscles, or even the whole body, it usually attacks the hind legs, the dog dragging them while he walks with the fore legs.

TREATMENT.—Give *nux vomica* if the cause is not known, or if there be constipation and vomiting. When paralysis follows unusual exertion, exposure to wet, rheumatism or mange, give *rhus*. Insure perfect quiet and good food. Rubbing the paralyzed parts with the hand is beneficial. If the case is bad and persistent, kill the dog.

## EPILEPSY.

Epilepsy is a sudden and violent spasm of the muscles, lasting ten minutes or more. It is usually hereditary, though it may result from an injury to the head, disorders in teething, eating too much raw flesh, and worms in the bowels.

In an attack the animal suddenly staggers and falls, often with a distressing bark; violently struggles; foams at the mouth, perhaps with blood flowing from bites on the tongue; the legs generally grow stiff; the eyes roll wildly; the face twitches. Consciousness gradually returns, and the dog seems perfectly well until another attack comes on.

TREATMENT.—Use the remedies prescribed for Epilepsy in the Horse. All food given to a dog subject to epilepsy should be cooked. During an attack, keep a stick between the jaws to prevent biting of the tongue.

## CANKER IN THE MOUTH.

This is a very troublesome disorder, and if the disease result from long-continued irritation, or be in an old dog, it is deemed incurable. Its symptoms are swollen gums, discharging blood; offensive matter; proud flesh; bleeding; difficulty in eating; loss of appetite, flesh and strength.

TREATMENT.—In recent cases, or in young dogs of general good health, wash out the mouth once daily for several days with a solution of two grains of nitrate of silver to four ounces of water, using a tooth-brush in the application. Hydrastis, internally and externally, may be good.

## SALIVATION.—SLOBBERS.

An overdose of mercury, or the use of mercurial ointments for skin disorders, sometimes produces salivation, of which the symptoms are swollen gums and lips, loose teeth, swollen and red tongue, profuse and constant flow of saliva from the mouth, very offensive breath, easy falling of hair, diarrhœa and straining.

TREATMENT.—Give two drops of nitric acid three times a day. Wash the mouth out with warm water and honey. Keep the dog in a warm, dry place, with clothing if necessary to comfort, and feed him well.

## INDIGESTION.

Indigestion may result from overfeeding, improper food, want of exercise or reduced vitality. Its symptoms are restlessness; reduced appetite;

frequently attempted vomiting, generally with little thrown out, and that being froth and green fluid; foul breath; irregular action of the bowels; distended belly, poor or depraved appetite; rolling on the ground.

**TREATMENT.**—Give *nux vomica* for vomiting of frothy, green fluid; constipation; drowsiness; useful also for pet dogs. *Pulsatilla* is valuable for cases resulting from rich food; flatulence; especially for delicate, high-bred dogs with a tendency to diarrhœa. Insure regular exercise, and wholesome, digestible food in only moderate quantities.

### VOMITING.

Vomiting is such an easy matter for a dog that it not only occurs as a frequent symptom of some disease, but even when food disagrees only a little with the animal. In the slight troubles last named, it needs no attention unless it be often repeated.

**TREATMENT.**—If vomiting occurs daily for some time, change the food. If it then persists, use remedies. Creosote is needed for continual vomiting, unsuccessful attempts at vomiting, and vomiting while in pup. *Cocculus* is needed for nausea after eating, and small quantities thrown out; and *ipecac* for throwing out all the meal soon after eating, as well as for diarrhœa or dysentery. Provide good food and outdoor exercise.

### INFLAMMATION OF THE STOMACH.—GASTRITIS.

This is caused by damp lodgings, drinking cold water when heated, rich food, indigestion, and poisons. The dog evinces great pain; throws himself down, rolls and kicks; lies on any cold surface; constantly craves water, but throws it up as soon as it is swallowed; retching; cold extremities; dry, hot nose; quick breathing; anxious countenance.

**TREATMENT.**—Give no food or drink but cold water, until all symptoms disappear; then, for several days, only cold milk, oatmeal-gruel, and the like. Choose remedies from those given for Gastritis in the Horse. If poisons are the cause, they are to be removed and antidotes given as directed under Gastritis in the Horse, and in the Index of Poisons.

### INFLAMMATION OF THE BOWELS.—ENTERITIS.

This painful disorder results from drinking cold water when the dog is heated, sudden changes to cold or damp weather, damp, shady lodgings, too constant use of animal food, colic, constipation, foreign bodies in the bowels, and the like. The symptoms are very active, such as hot, very

tender abdomen; constant violent pain, sometimes causing the dog to throw himself violently down, howl, spring up, walk about, and again throw himself; these violent actions continue until relief is given, or, in fatal cases, subside just before death. There is no appetite, but constant thirst, and constipation followed by loose, bloody evacuations.

**TREATMENT.**—Apply fomentations of hot water to the abdomen until the symptoms abate. Allow the dog to lap cold water. After the severe symptoms subside, give milk and broth, but no solid food until recovery is established. The remedies are named under Enteritis in the Horse.

### DYSENTERY.

Dysentery is caused by exposure to cold, bad food, damp lodgings, worms, stagnant water for the drink. The symptoms are shivering at first; hot skin; quick, small pulse; short, hurried breathing; vomiting; the dog turns his head to his flanks, the body being tucked up and the loins arched; afterward, loose bowels, with almost constant straining to empty them, resulting in watery evacuations containing blood and lumps.

**TREATMENT.**—Give mercurius corrosivus if the evacuations are bloody, with great straining before and after them. Arsenicum is needed for constant thirst, great weakness, with trembling of the limbs when lying down, and very offensive evacuations; hamamelis, for black evacuations followed by much bleeding. Sulphur often effects a cure after other remedies have failed. Keep the bed warm and dry and feed a cold diet, as milk, rice and milk, and the like, but no solid food before recovery. Mutton-broth will often alone effect a cure, without resort to any medicines.

### COLIC.—GRIPES.

Colic, or spasm of the intestines, is caused by cold, constipation, bad diet, worms, and, in puppies, by disordered milk of the mother. It is marked by fitful pains, the dog turning, rolling and moaning, such spells being followed by perfect ease.

**TREATMENT.**—Nux vomica is needed for constipation and short spasms. Relief will often be afforded by injections of warm water; also by applying to the belly pieces of flannel wrung out in hot water.

### CONSTIPATION.

This is caused by improper food, want of exercise, and deficient secretion of digestive fluids. It is both a symptom of many diseases and leads to

many. In addition to the frequent unsuccessful efforts to empty the bowels, there will be restlessness; flatulence; colic; hot, dry nose.

TREATMENT.—Medicines may be selected from those given for Constipation in the Horse. Use repeated injections of warm water, first thoroughly removing all hard fæces that may be near the anus. If constipation is habitual in an animal, look well to the diet. A small quantity of raw meat once daily may correct the trouble. Other articles suitable as diet are well boiled oatmeal porridge, coarse flour cakes, meat boiled in water to a thick porridge. Insure free outdoor exercise.

### INFLAMMATION OF THE LIVER.

This is a common disease among dogs, generally in a chronic form, and is especially frequent in over-fed and much-petted animals. It is caused by cold, damp, want of exercise, excessive heat, and injuries. The symptoms are much varied, among them being shivering, followed by increased heat in the skin; desire for retirement; loss of appetite and flesh; thirst; cough, followed by vomiting of yellow or greenish fluid, perhaps tinged with blood; yellow hue on the lips, eyes, ears and, later, the whole skin; wasting may reduce the animal to a pinched-up skeleton in fatal cases.

TREATMENT.—Treat the same as Inflammation of the Liver in the Ox. Give only cooked food, in small quantities and regularly. If, however, the animal is not prized as a pet, its cure will scarcely be worth the pains required, even if one knows what the disorder is.

### WORMS.

Worms are found in dogs almost universally. Three kinds exist in the intestines, most likely introduced in the food and drink, namely, the round worm, resembling the earth-worm, which sometimes passes up into the stomach and is vomited up; the maw-worm, resembling a short piece of white thread; the tape-worm, of great length, formed in segments or joints. Each kind is likely to cause some special symptoms. The first one, for example, in addition to the general indications named below, may even pass up through the throat into the nose and cause much irritation. The maw-worm produces itching at the rectum. The tape-worm causes colic, convulsions, distension of the abdomen, constipation, and inflammation of the bowels. While the discharge of worms is an unmistakable symptom, their presence is also indicated by dullness, restlessness, depression, bad temper, short, dry cough, offensive breath, appetite variable, often enormous, dry, shaggy hair, loss of flesh, constipation or diarrhœa.

**TREATMENT.**—Cina is the most valuable general remedy, and is alone often sufficient. *Urtica urens* is to be given when the dog slides along on his haunches, or when maw-worms are known to exist. Another good treatment for maw-worms is a daily injection of a half-ounce of garlic poured on two ounces of boiling water, the fluid being cooled and strained before it is used. *Felix mas* is especially efficacious for tape-worm. Santonine is invaluable for round worms when other remedies fail. Sulphur may beneficially follow other remedies. An entire change of diet may be necessary.

### CHOKING.

In eating, the dog may be troubled by a piece of bone, gristle, or other substance lodging in the throat. He coughs, is restless, can not swallow, seems to be trying to remove the obstruction with his paw, while mucus escapes from the nose and mouth, and the eyes are red and prominent.

**TREATMENT.**—Open the mouth as wide as possible and pour in warm water until the dog vomits. This may remove the obstruction. If it fails, draw it out with forceps, if it is within reach. Should these expedients fail, use a piece of whalebone, or smooth, tough stick, protected at the end with a piece of sponge dipped in oil, to push the obstructing body into the stomach. If all such means are unsuccessful, a skillful operator may open the œsophagus. If this canal is known to be injured, or if there has been considerable effort made in the removal of the obstruction, give arnica two or three times a day for several days, a milk diet being meanwhile provided.

### INFLAMMATORY FEVER.

Dogs of all breeds and ages, but especially when from one to three years old, are subject to inflammatory fever. Though it is usually the result of some inflammation, internal or external, it may be caused by any sudden changes in the temperature of the body, or by unusual excitement. At first, the animal is very sluggish and drowsy, afterward showing extreme restlessness, much thirst, quick, hard pulse, rapid breathing, swollen, watery eyes, burning heat all over, dry, hot nose and mouth, increasing restlessness, perhaps unconsciousness.

**TREATMENT.**—Give aconite at first, especially for dry, furred tongue; great thirst; thick, dark urine. It will often effect a cure. Arsenicum is needed for hot, dry nose; extreme thirst; high heat of the body, especially in the legs and feet. Belladonna is useful for much restlessness and unconsciousness. Opium is needed for a sluggish state, and arnica when an injury is the cause. Avoid extreme changes of temperature.



## PUTRID AND NERVOUS FEVER.

If shut up in dirty lodgings, or fed on damaged or decaying food, or if subjected to undue heat or effort, dogs may be attacked with this form of fever. The symptoms are loss of appetite; restlessness; fitful shivering; dull, heavy look; starting; howling; spasms; eager thirst; quick, small pulse; high-colored urine passed in small quantities; offensive excretions of the skin and bowels; death in a few days, if not early treated.

**TREATMENT.**—Aconite is highly useful in the first stages for fever, restlessness, and offensive, high-colored urine. Gelsemium is needed for sudden weakness, loss of motion, and jerking of muscles. Give belladonna for glistening eyes, hanging tongue, and unconsciousness. Furnish dry, cool lodgings, with frequent supplies of cold water. Give small allowances of cold milk, with a little bread in it if the animal will eat it.

## SMALL-POX.

This is more common in young dogs, and results from contagion. The symptoms are fever; patches without hair, becoming red, then covered with small spots, like insect-bites, which increase and grow pale in the center, with a red circle around the edge. In five or six days these spots contain a clear fluid, which soon turns yellow, the tops become hollow, and then break. Scabs form and fall off. The breath and excrement are disgusting. A return of appetite, with cool, moist nose, indicates recovery. But the animal should be killed at once if the symptoms progress, the nose being hot, tongue hanging, thirst great, breathing hard, with constipation and increased color in the spots; or if the spots do not rise above the skin, or if they run together.

**TREATMENT.**—Antimonium tartaricum is desirable when the eruption is clearly seen; belladonna for delirium; mercurius if saliva fills the mouth, and if there be bad breath and diarrhœa. A dose or two of sulphur is desirable to complete a successful treatment. Furnish cool, airy lodgings, without draughts; sprinkle the place often with carbolic acid. Change the bedding every day, and burn it, with evacuations of the bowels.

## RHEUMATISM.

Stiffness and tenderness of the fore legs and chest in dogs are known as rheumatism, and are especially common in those kept for the house or sporting. It is caused by sudden cold or dampness, plunging into water when hot, a cold, wet bed, and over-exercise. It is marked by stiff fore legs

and shoulders, with hard, tender muscles of the chest; swollen, hot, tender knees; hastened breath; poor appetite; dry, hot nose; howling upon putting the foot down.

**TREATMENT.**—Select medicines from those given for Rheumatism in the Horse. Give no meat diet, and keep the animal warm, dry and out of bad weather.

### COLD.—CATARRH.—SNIFFLES.

This is usually in the form of an inflammation of the mucous membrane of the nose, occurring especially in dogs that are kept in warm lodgings. It may end in distemper, bronchitis, or other disorders of the respiratory organs. Its chief cause is change of temperature, and its symptoms are running discharge from the eyes and nose, sneezing, failing appetite, hastened breathing, dullness, heaviness, sleepiness.

**TREATMENT.**—Give aconite at first, for quick breathing, shivering, hot surface, and uneasiness; nux vomica for sneezing, dry cough, loss of appetite, thirst, unsuccessful attempts at vomiting, and constipation. Mercurius is needed for thick, clogging discharge from the nostrils, nose alternately hot and cold, eyes inflamed and glued together, and swelling of the throat. Keep the animal constantly in a warm place a day or two, feeding him milk or thin oatmeal-gruel, with plenty of water to drink. Sponge the nose with tepid water several times daily.

### SORE THROAT.

Damp lodgings or sudden exposure to cold when heated will produce sore throat. The first symptoms are sneezing and hoarse cough, followed by alternate heat and cold in the ears and nose; noisy breathing; swelling about the jaws and throat; difficult swallowing; the swelling may extend to the front of the neck and, if very bad, cause suffocation.

**TREATMENT.**—Aconite is to be given at the beginning for fever and difficult breathing. Then choose remedies from the list given for Sore Throat in the Horse. Frequently apply to the throat cloths dipped in hot water, and give cold water to drink at short intervals. The diet should consist of milk and broths. Keep the dog in a warm, dry place, free from draughts.

### ASTHMA.

This disorder, characterized by alternate periods of fever and difficult breathing, occurs most frequently in fat and petted dogs, as a result of close

confinement, over-feeding, and want of outdoor exercise. It begins with a cough, so slight and irregular in recurrence that it is likely to escape notice, but growing more frequent, annoying, dry, harsh, and sounding as if there was choking; changes in temperature or food aggravate the cough, so that it is nearly incessant, disturbs sleep, and causes nausea and discharges of mucus from the respiratory organs; the breathing is disordered, perhaps painful; digestion deranged; appetite failing or morbid; breath offensive; hair shaggy; skin mangy. The animal may succumb to suffocation or to exhaustion from coughing; may be seized with convulsions; or, more commonly, is attacked by dropsy (to the treatment of which the reader should refer in such cases), though suffocation will generally follow this issue of asthma.

**TREATMENT.**—Treat promptly in the beginning; if not, a cure will not be effected, though relief can be given in later stages. Give *nuxvomica* every four hours on the days when there is an aggravation of the symptoms; at other times, give *arsenicum* three times daily. For paroxysms of difficult breathing, with inclination to vomit, give *ipecac* every three or four hours during the paroxysms. Provide the best and most nutritious food, in small quantities, but often. Secure daily exercise in the open air, except in cold, damp or sultry weather.

### BRONCHITIS.

Bronchitis is an inflammation, acute or chronic, of the mucous membrane of the lungs, caused by sudden changes in temperature, draughts of air in the lodgings, or standing in the cold when heated. Its first symptoms resemble those of cold, namely, shivering and short, hard cough; later, a constant, distressing cough, dry at first, then with sticky mucus; symptoms of fever; quickened pulse and breathing; dullness; failing appetite; anxious look in the face; nose hot and dry at the commencement, but moist when inflammation subsides. In chronic cases, there is a cough during the winter, coming on after changes in the weather, and attended with short breath and wheezing.

**TREATMENT.**—The appropriate remedies can be readily selected from those prescribed for Bronchitis in the Horse. During treatment keep the dog in the house, in a warm temperature. Milk and bread are the best diet, flesh being especially avoided. Supply fresh water all the time. Meat-broth may be given to old dogs that are very weak. The disease is one to which the dog is more liable than is generally supposed. It may often be avoided by a proper sheltering of an animal after it has become heated by a hard run.

## INFLAMMATION OF THE LUNGS.—PNEUMONIA.

Pneumonia, a frequent affection in dogs, is an inflammation of the substance of the lungs, and is thus different from bronchitis, which affects only the mucous membrane. It is caused by sudden exposure to cold, bathing without drying carefully, clipping in bad weather, and sometimes by distemper, catarrh and bronchitis. The symptoms are quite marked: At first, shivering; tender sides; short, painful cough; fore legs wide apart; pulse quick and hard in the beginning, but becoming gentler and not easily felt; nose hot and dry, with inside membrane redder than normal; hanging tongue; breathing hurried and labored; the animal sits on his haunches, with the head stretched out and mouth open, and seldom lies down. The lungs may completely fill up, giving a dull, heavy sound if struck.

TREATMENT.—Give aconite, at first, for hot skin, quick and obstructed breathing, full, quick pulse, and shivering. Camphor is useful for shivering, dullness, small, quick pulse, and hurried breathing. A short, dry cough, with grunting at every breath, calls for bryonia. Bromine is useful if it is known that the air-tubes are filling up, or if the inflammation keeps up and threatens suppuration. Use it internally and by inhalation. Furnish a dry, warm bed, but not in a warm, close room. Insure fresh air, free from cold and draughts. Use covering if the weather is cold. Give fresh, cold water, milk, gruel and broth, avoiding solid food.

## PLEURISY.

This is an inflammation of the membrane which lines the cavity of the chest, and may result from cold and wet, atmospheric changes, or distemper, or it may be a complication of pneumonia. There is first shivering, then fever, twitching of the muscles, short, quick, irregular breathing, painful, suppressed cough, and pain from pressing the side. The dog stands or sits all the time. Swelling on the legs, chest and belly indicates the super-vention of dropsy in the chest.

TREATMENT.—Choose remedies from those given for Pneumonia in the Horse, and observe the same particulars as to lodgings, clothing and food as were mentioned for Pneumonia in the last article above.

## COUGH.

Nearly always a cough is symptomatic of disease, and when it appears, should be compared with the cough noted in each of the diseases of the respiratory organs considered above, to ascertain what is threatened,

and what general measures are needed. High feeding may cause cough; in which case the amount of food should be diminished, exercise taken, and antimonium carbonicum be administered. If the cough arises from going into the water, or being washed in warm water in winter, or being confined in a low, damp situation, give aconite and mercurius, the cough in such cases being harsh, hard, and attended with vomiting of tough mucus.

### ECZEMA.—SURFEIT.

This results from a hereditary tendency, and is not contagious. It is often mistaken for mange, the remarks on which the reader should compare with the present ones. The hereditary germs of the disease will be developed by insufficient exercise, food that is unwholesome or given in too large or too small quantities, close lodgings, dirty, hard, or too luxurious bedding, or barley-straw bed, and flesh-food also encourages it.

*Symptoms.*—Continual scratching; inflamed patches from which flows a fluid that mats the hair, and forms scabs which come off and leave the skin bare, inflamed, and discharging a thin, watery fluid; this fluid dries and forms scales, which the dog rubs, as he does the scabs, until pustular eruptions form and present the appearance of general ulceration. The affected patches will oftenest be found on the back and inside of the thighs. In fat, over-fed animals the skin is robbed of the hair, becomes very thick in places and is deprived of feeling, so that pinching is agreeable instead of painful; the dog is a repulsive sight, lies around, dull, sleeping, scratching, biting and licking the sores; is wrinkled, chapped, ulcerated and of a foul smell, the skin discharging all the time a disgusting mattery fluid. The disease may be of a local character; for example, in sporting dogs it attacks the toes and feet especially, sometimes exclusively. Whatever its extent, however, its duration is uncertain, its cure difficult, and its return likely to occur, as may be expected in a hereditary disease.

*TREATMENT.*—Rhus is needed for redness of skin; blotches; cracked skin; small yellowish pimples, which run together. Mercurius is invaluable for eruptions that become pustular after a while, or those which are once dry, then moist. For burning heat, great itching, scaly eruptions, pustules becoming ulcerous, and for advanced cases attended with diarrhœa, weakness, loss of flesh and distended abdomen, give arsenicum. Insure absolute cleanliness. Wash the sores gently with tepid water and dry at once. Use a lotion of rhus when giving the same internally. Repeatedly change the bed and air the lodgings, providing a full supply of fresh water, and giving free, moderate open-air exercise. Be careful in the diet. Allow no flesh at all, except perhaps from one ounce to two, according to

the size of the animal, to sustain life after more than three days of perfect abstinence from eating. Though a little flesh might be allowed in case of weak puppies, or when great weakness has come on, broth is better even then. Large, hardy animals may be without food a few days and no harm result. It is a safe rule to keep the animal pretty strictly on a diet of vegetables and articles of food made from the flour of grains.

### MANGE.—ITCH.

This disorder is liable to confusion with eczema, and the reader should compare what is said on that disease with the remarks here made. It is not of frequent occurrence. It is caused by parasites in the skin and presents the aspect of the like affection in the horse, to which the reader is referred. The parasite may be transmitted to the human body, but does not there remain so stubbornly as in the dog. Conditions that are favorable to the development of the parasite are close, unhealthy lodgings, dirty, damp bedding, or general uncleanness, want of air and exercise, bad or deficient food. The symptoms are thinning of the hair; dry, scaly, ridgy skin, especially on the neck, back, ears and eyes; rubbing and scratching, resulting in red spots, or pimples, which burst, their discharge forming yellowish crusts and brownish scales; the dog is dejected, except under special excitement; appetite good and thirst excessive, the body being feverish; in a few weeks the whole body may be affected, and if the disorder is neglected, the dog may become poor, bloated, weak, and hopelessly diseased.

**TREATMENT.**—The killing of the parasites is necessary to a cure. To effect this, follow the directions given for the removal of lice, ticks and fleas given in the following article. If this fails, use one of the ointments mentioned in the treatment of this affection in the Horse. It may be necessary to resort to an ointment composed of one ounce of mercury to one pound of lard, well rubbed into the skin, but the animal should not get wet during its application. Promote a good condition of flesh and general health as a preventive of a recurrence.

### FLEAS.—TICKS.—LICE.

These pests cause the dog much inconvenience and the household much annoyance. They cause the dog to scratch and rub himself, and give rise to small pimples which are torn open and discharge serum or matter and form sores. They may be on any part of the body, but lice are more often found on the head and about the eyes and lips. Scratching and un-

easiness will at once show that they are present, and an examination will readily bring them to view.

**TREATMENT.**—There is no cure except the absolute removal of the parasites and destruction of their eggs. Wash the dog with warm water and soap, well rubbed into the skin, carefully cleanse with tepid water, and dry thoroughly by rubbing before a fire. Then sprinkle with tincture of camphor, and carefully use a comb and brush to remove the eggs on the hair. This may be repeated two or three times, the eyes, lips and ears receiving special attention. The pests may be driven away by a free rubbing with an ointment made of one ounce of sulphur and a pound of lard; or one made of equal parts of sulphurous acid and water or glycerine; dilute carbolic acid may have the same effect. Sulphur internally may be desirable along with the application of the sulphur-ointment. If the eruptions do not disappear, give arsenicum three times daily. Destroy all the bedding and cleanse the lodgings with carbolic or sulphurous acid. Dogs which are admitted to the house should be frequently and well washed.

#### INFLAMMATION OF THE KIDNEYS.

This is a very dangerous disease, but not common, and is caused by exposure to cold and wet, over-exertion, strains, injuries, seasoned food, gravel, and turpentine and cantharides as medicines. It is marked by stiff, straddling hind legs in walking; tender loins; hot, dry nose and mouth, with great thirst; turning of the head toward the loins; urine scanty and high-colored, or thick and clear, and passed with straining; failure of appetite; inclination to keep quiet; the back arched during motion.

**TREATMENT.**—Use the remedies mentioned for this disorder in the Horse. Wring out cloths in hot water and apply them to the loins, changing them often. Give an exclusive diet of milk for some days.

#### INFLAMMATION OF THE BLADDER.

This is sometimes the result of cold and of wet lodgings, but may ensue upon running about after being tied up, or from injuries, gravel, and dosing with cantharides. The urine is sometimes clear, at other times thick, cloudy and bloody, passed in very small quantities, with frequent attempts; generally matter is discharged from the penis; hind legs trembling; belly about the bladder hot, tender and distended.

**TREATMENT.**—Aconite and cantharis in alternation will often be sufficient. Cannabis is useful if the first two remedies do not effect a cure, and if there is great pain during and after urination. Give a diet of milk.

## INFLAMMATION OF THE TEATS.

This comes on a few days after parturition, and is first indicated by small, tender lumps at the base of the teats. The swelling soon increases and extends around the teats, the latter becoming very hot and red. The suckling of the pups may be so painful that the mother will not allow it, and then the inflammation involves the whole udder, perhaps going on until suppuration occurs and an abscess forms at the base of one or two teats.

**TREATMENT.**—As soon as the inflammation is detected, give aconite, alone or alternating with belladonna. If, after a few doses of such medicine, the inflammation and swelling increase, give chamomilla internally and apply to the affected part a piece of soft rag dipped in a lotion of the same.

## DISORDERS OF THE EYE AND EAR.

**INFLAMMATION.**—The dog is frequently affected with an inflammation of the eyelids and eyeballs, known as ophthalmia, which is due to a change of temperature, heat, dust and violent exertion, the disorder sometimes appearing as an epidemic. The eyes are watery and very sensitive to light, a discharge drying on the lids and around the eyes so as to glue them together. The white of the eye is covered with red streaks; sometimes ulcers appear on the front of the eye and may continue until they let the fluid out of the ball, with proud flesh following.

**TREATMENT.**—Aconite, if given promptly in the first stages, is often sufficient for a cure. Give belladonna, after the use of aconite, if there is still great sensitiveness to light, the eyes being shut, inflamed, dim and watery. Mercurius is suitable for discharge of mucus, swelling and sticking eyelids, and threatened ulceration. Sulphur tends to prevent relapses, and is also good for chronic cases. Use arnica internally and externally when external violence is the cause. If the disorder results from eating too much soft food, with little exercise, as it may, allow no flesh-food, and compel the dog to move about when the severe symptoms subside, keeping him in a cool place. Allow him to stay in a dim light until he voluntarily comes out. Wash the eye frequently with tepid water to prevent the discharge from drying on the eye.

**ECZEMA OF THE EYELIDS.**—This disorder appears in the form of pustules at the roots of the lashes, on the edges of the lids. These soon break and the discharge dries and glues the eyes together, the ulceration, if not stopped, extending until it destroys the roots of the lashes, causing them to permanently fall off.



**TREATMENT.**—Clip the lashes close and wash the parts night and morning, to avoid the gluing process. If crusts have formed, soften and remove them with warm water, avoiding all force in taking away any deposit. Mercurius corrosivus should be given night and morning, an application being made on the eyelids composed of one grain of the same and one drachm of cosmoline, this being put on with a camel's-hair brush.

**CANKER IN THE EAR.**—This is a disorder occurring mainly in old dogs, or fat, over-fed ones. It may result from distemper, and is often caused by exposure to cold and dampness. Its symptoms are shaking of the head; whining; rubbing the ear against any object, or scratching it, followed by howls of pain; the inside of the ear is red; in a few days an offensive discharge comes from the ear, which increases in quantity. The disease is liable to become permanent if neglected.

**TREATMENT.**—Give belladonna at first, previous to the discharge, for red, swollen inside of the ear. Mercurius is needed when there is a thick, offensive discharge, tinged with blood; pulsatilla, for thin discharge, or when distemper is the cause; and arsenicum if there be weakness, and irritation of the skin from the discharge. Frequently wash the ear with warm water and inject warm milk and water into it with a small syringe. When the discharge decreases, use a lotion composed of one drachm of carbolic acid, two drachms of glycerine, and six ounces of water.

**DEAFNESS.**—Distemper, fever, inflammation of the brain, general debility, hardened wax, canker, or old age may cause deafness.

**TREATMENT.**—When the hearing fails, ascertain whether hardened wax is the cause. If so, inject a little warm water and pure castile soap twice a day, until the wax is soft enough to be removed. If distemper is the cause, give pulsatilla; if fever or inflammation of the brain, belladonna; if canker, hepar.

**SCURFY EARS.**—Scurf occurs more frequently on the ears of dogs with short hair. It usually starts from the tip and extends to the roots. Its causes are improper food, filth, sudden disappearance of mange, and natural tendency.

**TREATMENT.**—Arsenicum is to be given for dry, hot ears, the scurf falling in scales; sulphur for rapidly spreading scurf, and itching; hepar for tender ears and moisture under the scurf. Wash the ears once daily with warm water and soap, dry them, and apply with a sponge a lotion made of one part of glycerine and six of water.

**SWELLING OF THE EARS.**—A pale, straw-colored fluid sometimes accumulates between the outside and inside layers of the skin, generally as a result of an injury. It may increase slowly or rapidly. It is best to open the swelling at once, on the inside of the ear at the lowest point, and press

out the fluid. This may be sufficient; but it may continue some days if a blow has been the cause. The fluid may collect two or three times if the opening is not kept free, in which case inject a little warm water, and bind the animal so as to keep the ear in a vessel of warm water for five or ten minutes once daily for several days.

### SORE FOOT.

This disorder affects the elastic bottom of the foot, and is caused by any of the many mechanical injuries incident to running about. The paw swells, bleeds, is painful, scales off, perhaps has hard lumps, causing the dog to limp, and possibly the skin and nails to come off.

TREATMENT.—Carefully remove grit, thorns, or other foreign substances, bathe in warm water, apply cloths saturated with arnica-lotion, giving arnica internally at the same time. If there are signs of fever and suppuration is threatened, apply linseed poultices containing a few drops of arnica. If suppuration has taken place, open the sore, and apply poultices mixed with a few drops of calendula, night and morning. When all the matter is removed, in place of the poultices use cloths saturated with calendula-lotion. During such applications, muzzle the dog to keep him from tearing them off. When improvement begins, put on a shoe, preferably leather, to keep out dirt and remove pressure for a few days. If the feet are merely tender, the licking of them by the dog will often suffice; great relief may also be given by warm fomentations.

### GENERAL MENTION OF DISORDERS.

Disorders which occur more or less often in dogs, but are not specially treated here because they are quite easily recognized, and are sufficiently considered in the Horse to enable one to select suitable treatment from their respective articles in Part I, are Dropsy, Abscesses, Boils, Tumors, Warts, Burns, Scalds, Gonorrhœa, Protrusion of the Rectum and Womb, Cataract, Pterygium, Cuts, and other Wounds and Injuries.





PART VI.

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THE CAT AND ITS DISEASES.





HANDSOME TOM.

## PART VII.

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# THE CAT AND ITS DISEASES.

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### ORIGIN AND HISTORY.



THE admirer of the cat inquires about the origin of the graceful pet which sings on the rug or lies so comfortably on the lap of its mistress, and he learns that "blue blood" runs in the veins of the large family, scientifically speaking, to which it belongs. It is a member of the great class of felidæ, whose proudest representatives are the kingly lion and the royal tiger. In spite of much discussion, the question of the origin of the domestic cat is still without a satisfactory answer. It is very generally conceded that it descended from either the cat of ancient Egypt or the wild cat, but authorities are pretty evenly divided upon the two parts of this question. Mr. Wood says, "as far as is at present known, the Egyptian cat is the origin of our domestic cat," and we accept his conclusion, as well as his statement that it came to western and northern countries through Greece and Rome.

That it was known in very early times is shown by many allusions to it in the books of the Sanscrit language, which date back thousands of years before the Christian era. In ancient Egypt it commanded a veneration which staggers our credence. We are told that a Persian king captured an Egyptian city without opposition by resorting to the stratagem of giving a living cat to each soldier when going to battle, the enemy offering no resistance lest the sacred animal be killed. Stories of a like kind are

mentioned in history, and we learn that the death penalty was inflicted on any one in Egypt who killed a cat. This animal held a high place in the public and private worship of that land, as we read in the pages of history, and as is further proved by the vast numbers of images and adornments representing it which have been discovered in later times. Hosts of them were embalmed, and that, too, by the costly process used on the royal families, so that it may be said that Egypt permanently preserved the bodies of her kings and cats.

We find that the Turks had and yet have a profound respect for this animal, handsome sums being devoted to hospitals for its care and treatment. In the tenth century Howell the Good, of Wales, imposed a heavy fine upon any subject who killed a cat. In the Middle Ages a different sentiment was rife, superstition connecting the animal with witches and Satan, especially if it were black—a superstition which is not unknown to-day. Great numbers were burned alive on St. John's Day in a certain quarter of Paris, the king starting the fire, Louis XIV being the last ruler to perform this proud royal act. To such superstitions and barbarities may perhaps be traced the prejudice of modern times against this innocent animal. In both ancient and modern Germany there has been a peculiar dread of a black cat and its supposed Satanic influences. In Sicily cats are held in almost extravagant esteem. In England and America not a few have ridiculous notions upon the curative properties of the blood, skin and other parts, to say nothing about fancied relations to Satan and witches.

Over against the repugnance to the cat which many profess, often because it is simply the fashion, one may mention, as a few of the great number who have admired and fostered the animal, Richelieu, Cardinal Wolsey, Montaigne, Fontanelle, Turner the painter, Tasso, Pierre Jean de Beranger, and Dr. Jonson. Adding the weight of the tastes of such men to that of the favors shown in ancient times, we catch the force of the saying that "a cat may look upon a king."

#### TRAITS.

He who dispassionately studies the traits of the cat will recognize a measure of aptness in the old Arab's saying, that Allah had placed in the cat the spirit of a gentle woman, and in the dog the soul of a brave man. At the present time, however, any claim of gentleness for this animal is promptly met by the unsupported assertion, that "the friendship of years is suddenly and irreparably broken by an accidental tread on the tail," and an invidious comparison is drawn by alluding to the patient and forgiving affection of the dog. The cat is by far the more delicately constituted in

the nervous system, and is thus exposed to the most exquisite pain and distressing shocks. But in spite of this, if she has been properly treated before, it takes but slight assurances that no harm was intended to call forth fully as much kindness as the dog will show. This difference is noticeable: the dog will take pains to cultivate friendship with those who are indifferent or unkind, while the cat will cultivate it only where it is evidently mutual.

If those who harbor such a prejudice will exercise a disposition to learn the facts, they will probably corroborate the view of one keen observer who has said that he had "never known a cat to cement a friendship with any one without such friendship lasting till death." Dr. Stables has given a large number of instances in which she has staid by the sick-bed of her master or mistress, almost to the point of starvation; has evinced unquestioned loneliness in the absence of that one in the family who has shown her special kindness; has lain by the cradle of the babe and kept off other cats, and even dogs; and has been trained to such a point as to sport with and protect pet birds, when she would immediately devour any of their kind that she might find in their natural freedom. The testimony of that writer is fully sustained by any one who has been observant of the cat when it is kindly treated and trained. One frequently-cited evidence of her innate kindness is her nursing of puppies, rabbits, rats, and other animals. It is readily seen that, in addition to her proverbial attachment to places, which leads her to seek her home when taken away a long distance in the closest confinement, she is disposed to be as closely attached to persons and dumb creatures. Not only may she be educated to become the protector of animals which she is naturally prompted to destroy, thus disproving the existence of an alleged "ineradicable treachery," but her marked propensity to steal may be so completely overcome by training that her choicest food will be untouched in the larder to which she has access. Indeed, as we might infer from her delicate organism and high type of cunning, she has a docility which has a parallel in few animals, and it but requires pains to develop it. It may be safely said that those which display the disagreeable traits of petulance, theft and treachery are starved, ill-treated, spoiled, or at least much neglected. The strict cleanliness of body which they maintain, the noiseless and graceful demeanor, and the notable absence of a disposition to do willful injury to furniture and adornments, make cats peculiarly fit for drawing-room pets.

The prejudice of to-day is almost wholly due to a disregard of two points, namely, the selection of a proper subject, and the requisite care and training. One will necessarily form a low estimate of the animal if he bases his conclusions upon the stray representatives in whose veins runs

the blood of all chance mongrel breeds, which have "shifted for themselves," and have had no protection against bad weather, bad food, bad dogs and worse boys. Heredity is as well defined in cats as in other animals, and good or bad habits will not only be transmitted, but may be confirmed or corrected by education. No more will this pet be agreeable and prized without training than others, nor will others more readily and fully reward one for the pains that he may bestow.

#### VARIETIES.

The varieties most sought as pets are the Angora (also called Angola, because some think that it originated in Angola, in Africa, instead of Angora, in Asia Minor); the Persian; the Chinese; the Spanish, or Tortoise Shell; the Chartreuse, or Blue; the Manx; and the Tabby.

The Angora is the most beautiful of all. It is large, and has long, silky fur, and a gorgeous, brush-like tail. It is generally perfectly white, but may be a pale-yellow, or almost olive-colored. Whatever the color, it is pretty, gentle and delicate.

The Persian is "beautiful in luster and color of its skin. It is a gray-blue, and as soft and shining as silk. The tail is of great length and covered with hair six inches long, which the animal throws over its back after the manner of a squirrel." The hair on the neck is also very long, and the color is said to be sometimes pure white.

The Chinese, which some claim is not properly a cat, is rather above the ordinary size, has fine, glossy fur, and hanging ears.

The Spanish, or Tortoise Shell, is white, black and reddish-brown mixed, and is very elegant in form.

The Chartreuse, or Blue, has long slate-colored fur, and a bushy neck and tail. This is perhaps what is popularly known as the Maltese.

The Manx has long, slim legs, close-set fur, staring, restless eyes, and no tail, there being only a knob in its stead. It is an unearthly looking creature, and "might fitly be the quadrupedal form in which the ancient sorcerers were wont to clothe themselves on their nocturnal excursions." There seems to be little doubt that some animals presented at cat-shows as specimens of the Manx are really common cats with the tails cut off. Indeed, not a few even yet say that the Manx is a myth, though some high authorities do not question its existence.

The Tabby is striped, like waved or watered silk, and may have any of a variety of colors. In technical language, we apply this name to those that have such marking, but it is popularly used for any grown cat.

In addition to the above, mixed breeds in great variety present almost



every conceivable color, from perfect black to spotless white, and many of them are desirable as pets and valuable as mousers.

#### HEALTH OF CATS.

Most people never think that a cat suffers a loss of health that is worth notice, and they entirely neglect their pet until it is perhaps found dead in the alley. To expect an animal of such a delicate organism to be free from disease is most unreasonable. It is doubtless true that many have little concern, too, whether the cat suffers or not. Two classes will perhaps put a low estimate on a work which is devoted to the comfort and health of an animal which they lightly esteem. One class will be found in the country, where vile mongrel cats are the only ones known, and whose only redeeming characteristic is a fecundity that supplies the demand as rapidly as it is made by the deaths which ensue from neglect and cruelty. The other class will be those who cultivate the contempt for the cat which many profess, because they suppose it is popular, without reflecting that it is not an evidence of superior taste to despise what God has created. But the great admiration—often extravagant, of course—evinced for this animal by a host of good people, the high money value put upon it by such people and by most people in our cities, and the frequent applications made to the family physician when a favorite cat in the household is suffering, all point to a large class who will welcome the present treatise. Before the treatment is entered upon, a few hints are in order upon the care which is calculated to ward off in great measure the ailments to which this animal is subject. To preserve the health, the smoothness and gloss of the fur, and the temper, one must regard the food, drink, housing, and general management.

**Food.**—In this matter perhaps no error is more general than that of starving a cat to make it a good mouser. The practice has arisen from the mistaken notion that a cat kills mice and rats for food only, while the truth is that she does it quite as much because it is at once her sport and her nature, and that she will follow it up more faithfully if she is properly fed and kept in her normal health and spirits. If one wants his pet to become a thief and prowler, with an abundant stock of fleas and vermin, let him neglect to feed her regularly. Give at least two meals a day at regular hours. After each feeding remove the dish and never use it a second time without first washing it. The quantity that is requisite can best be determined by experience, but some breeds, the Angora in particular, require more than others.

Oatmeal porridge and milk, or white bread soaked in milk a little

sweetened, will make a good breakfast. For a dinner, the same may be given with an allowance of flesh. Horse-meat is much used in Europe, and is good, though liver and boiled lights are better. Fish is the favorite meat of the cat, and should be at least occasionally provided, particularly during sickness. Oysters are also well suited to its wants and are keenly relished by some. Raw beef is, of course, to be recommended. An excessive amount of flesh, however, tends to produce diarrhœa, liver being especially conducive to this derangement. Boiled eggs at regular intervals are desirable, as are also vegetables of any kind that the animal likes.

Though the food should be ample for the needs of the cat, over-feeding is one of the most prolific sources of mischief. Sweet, fresh milk should always be given in abundance, and this, with the oatmeal or bread, will be quite sufficient in most cases. The mice which the cat will contrive to get will generally be an adequate supplement. Delicacies from the table are always to be withheld. It may be said in this connection that a cat's disposition is often spoiled by feeding it from the table while the family is eating. This should not be allowed, and a little training will induce her to patiently await her time, even if she sits by the table during the meal.

GRASS.—A lady writer says: "Cats will never prosper without grass to eat. It is, with them, a panacea for nearly all their ills. They eat it to keep the stomach in good order. It cools the blood, prevents humors, and aids digestion." It is supposed that the eating of grass helps the cat to get rid of the hair which it swallows in the process of washing. While licking itself, the loose hair clings to the tongue and is swallowed. In the stomach it tends to form hard balls, which interfere with digestion and act as an irritant to the stomach and bowels, causing fever, fits, vomiting and dysentery. The grass acts in such cases as a lubricant, like castor oil, enabling these balls to be easily thrown off by the stomach or bowels. Grass can be supplied to cats in the winter by laying by a few cuts of sod in the cellar, conservatory, or any warm place, being kept watered, and a small piece being given at a time. They will eat it greedily, and even swallow the roots. If it causes them to vomit no harm will be done. If a cat appear ill, tries to vomit, or vainly tries to evacuate the bowels, and no grass can be procured, give a teaspoonful of castor oil, sweet oil, or glycerine. The readiness with which most of them will feed upon asparagus in the garden should induce one to keep a supply in reach when practicable; and their natural preference for catnip will suggest a like course, for it is well-known that cats take delight in rolling about in catnip, whether dry or green.

DRINK.—Of milk we have already spoken; but it is a mistake to suppose that it is always preferred, since water will generally be chosen for

the mere quenching of thirst. Both should be kept in a particular place, in different vessels, or in separate divisions of a double dish. The drinking-vessels must be washed at least once a day and a fresh supply be provided as often, for milk that is the least unsavory will not be taken by a well-bred cat, unless hunger forces it to accept it, nor will it drink water if it is not fresh and free from dust.

**HOUSING.**—If one is to have a cat that is fit to be seen in the parlor, or to be allowed in the house at all, he must give it suitable housing. If he turns it out at night, it will, in addition to becoming a thief and prowler, surely be gaunt, ugly, unhealthy, and covered with lice and other vermin from its visits to the roosts of poultry and birds. If properly fed and treated during the day, it will not be inclined to go out at night. Make a good bed in a clean, cosy place, give free access to different parts of the house, and do not put your cat out at night unless it shows a marked desire to go. Many people turn it out to keep it from soiling the carpets, but this is unnecessary, for proper management will supplement its natural dainty cleanliness, and thus prevent this practice, unless sickness or too close confinement induces it. It is always well to place a sand-box in some remote part of the house, and to keep it accessible at all times. Not only can one train his cat to use it herself, but she will also teach her mates and kittens to do the same.

**CARE OF THE FUR.**—The Hindoo word for cat means “the cleanser,” and an apt use of the term it is, for no other animal keeps itself in such exquisite cleanliness. No one should fail to keep the apartments in which the cat is kept as clean as possible. If she is compelled to wear a dirty coat for a considerable time, it will be the more to her credit if she does not become discouraged, careless and slovenly. At times the surroundings will be such that the soiling of the fur will be unavoidable, and it is then best to give an occasional bath with warm water and the mildest of soap, carefully drying with towels, in a warm room, to prevent the contracting of a cold. For obvious reasons, white cats will be more often treated in this way, and perhaps the water which gets into the ears, and the colds which are taken, aggravate the alleged liability of those of this color to become deaf—a liability which is grossly exaggerated by many.

To insure a clean, glossy coat, give at times an ounce or less of fresh butter. “It not only acts as a gentle laxative, but the grease, combining in her mouth with the alkalinity of her saliva, forms a kind of natural cat-soap, and you will see she will immediately commence washing herself, and become beautifully clean.” When the fur is rough and “seedy,” give a saucer of milk, warmed a little with hot water and slightly sweetened with sugar. If cream is smeared about the mouth or on the paws, the cat will

lick it off and use it in dressing herself. To prepare her for shows, touch her all over with a sponge dipped in fresh cream, and she will clean and polish herself with a striking effect.

A begrimed coat is a source of poor health, and one that is rough and staring is generally the first symptom of disease. Hence, both in hygiene and treatment, attention to the fur is of much importance.

**GENERAL REMARKS.**—The health and temper of cats are seriously impaired by rough treatment of all kinds. No one can reasonably expect to have a pet that is fit for the drawing-room if it is harassed by dogs and street-boys, or continually teased by pulling its ears, tail and fur; nor, indeed, if it is treated as if it were merely suffered to be in the house, instead of being sought. That an animal is so patient as to allow children to smother it in their aprons and wraps, to carry it over the shoulder by the legs or head, and even to drag it by the tail, is a rebuke to parents who are so unfeeling as to permit such abuse. Her good nature merits some considerations of humanity. Her delicate nervous organism, too, demands protection against pain, fright, and all forms of rough treatment.

## DISEASES AND THEIR TREATMENT.

Cats are subject to nearly as many diseases as the human race. But while the diseases of nearly all other animals have been studied with great care, those of the cat have been neglected, except by a few admirers of that animal. Yet there are thousands of people who would highly value any practical information, in order that they might save the life or preserve the health of a loved pet or valuable mouser.

Cats soon show when they are sick. Almost the first symptom is a neglect of their usual toilet. A cat that omits to wash and clean itself is surely ill.

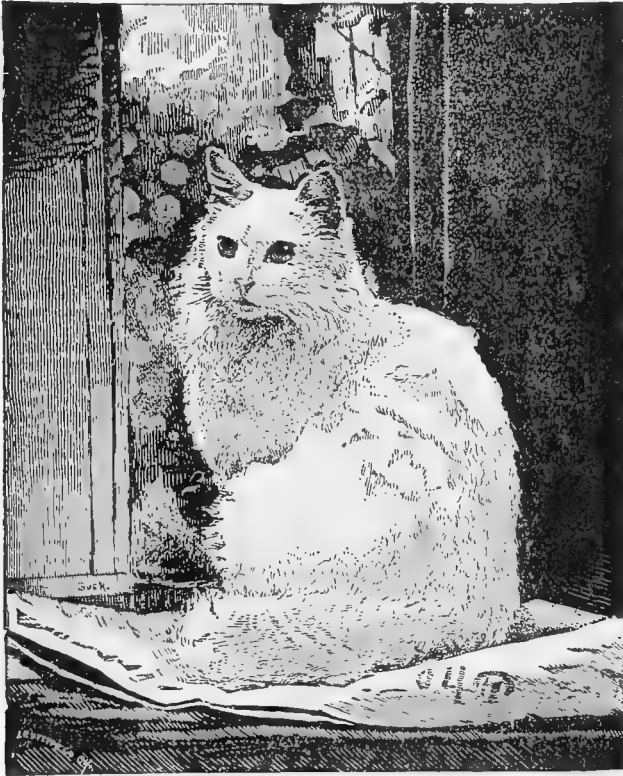
Another prominent symptom is a rough condition of its fur. The hair no longer is smooth and glossy, but appears to stand out straight from the skin.

A hot nose is a pretty sure sign that a cat is feverish or has inflammation somewhere. I shall enumerate the disorders of cats in the order of their frequency, and give briefly the best treatment adopted by others, together with my own experience.

There is no reason why we should not treat the cat and all other animals with the same humanity with which we should treat our fellow human beings. Some physicians and surgeons take offense, or pretend to, if asked to prescribe for a cat or other domestic animal. No physician need feel any loss of dignity in doing a humane act. When a veterinary

physician or some one who makes diseases of animals a speciality can not be procured, the family physician has no moral or humane right to refuse to prescribe. The writer, although an old physician of large practice, never refused such aid, and if the following hints shall enable humane people to relieve the suffering of their pets, he will be sincerely gratified.

When medicine is not given in the food, and is to be administered by hand, it is well to put on thick, stout gloves to avoid bites and scratches.



204. HAFIZ (from a photograph).

Then wrap the cat in a strong cloth, carefully covering the feet; let an assistant hold it between his knees, and open the mouth wide. Doses in a fluid form should be given little by little from a spoon. If a pill or bolus is the form, put it well back *against the roof of the mouth*. If tasteless powders or homœopathic pellets are used, it is only necessary to place the dose on the tongue, when it will be absorbed or swallowed. In all cases, be gen-

tle, so as to avoid fright and injury. Studiously clean off from the lips and fur all remnants of the medicine, for the cat will not lick it off if it is distasteful, and its presence will be annoying. It is a good rule to withhold food for two hours after a remedy has been given, unless special directions to the contrary are mentioned in any particular place.

### CONVULSIONS.—FITS.

Among the causes of fits the principal is overfeeding with meat, especially when young. Cats should have but a small quantity of meat once a day. The best diet for a cat under one year of age is milk, oatmeal and milk, or plain bread and milk.

Fits are generally of such short duration that but little can be done for instant relief. If they last more than a minute, a whiff of chloroform, ether or ammonia may do good. In order to prevent them from running into the fire or injuring furniture or ornaments in their wild and delirious action, throw a shawl or sheet over them and hold them quiet. The preventive or after-treatment is the most important.

**TREATMENT.**—The diet must be carefully watched, and if they are fat, put them on a low diet. If they are poor and lean, give them regularly milk and a little raw meat twice a day. If the disorder arises from worms, give santonine (one-tenth grain in milk every three or four hours for two or three days). A cat with fits should be watched, and if her fæces or vomit contain worms, you may be sure that worms are the cause. If the cat is very poor and scrawny, give half a teaspoonful of cod-liver oil three times a day. If the fits are frequent and the cat is rigid, or stiffly convulsed, give nux vomica three times a day (a few pellets or grains of the third trituration, or a spoonful of a solution of one or two drops of the tincture in half a glass of water). If the eyes are red and blood-shot and the head is hot, give belladonna in the same dose as nux vomica.

### DELIRIUM.

Cats often have attacks of delirium, which may be mistaken for fits, though there are no true convulsions. The animal is discovered with staring eyes and bristly fur, rushing here and there in a terrible manner. It tries to climb up the wall or break through a window, and ends by plunging into the darkest corner, and mews piteously or screams frightfully. Here it will remain and die unless attended to.

**TREATMENT.**—Put on a pair of thick gloves or mittens, grasp the cat firmly by the nape of the neck, wrap a shawl around the body, and

with a sharp pair of scissors clip or slit one of the ears slightly in the thin part; then with a sponge or rag wet the ear with warm water to cause the blood to flow, and a few drops will give relief. Give the cat some belladonna or hyoscyamus as directed above, put it in a cool, quiet place, and allow it to sleep. Do not allow it to be disturbed for several hours or a day, for the animal is left in a very nervous state, in which a slight sound will alarm it and bring back the delirium.

When cats are *teething* this delirium often occurs. In some instances the gums ought to be lanced. Feed the cat very sparingly with warm milk, not cream, for a few days. Place within its reach water to drink, and grass to eat.

#### APOPLEXY.

If a cat suddenly becomes stupid, sleeps heavily and cannot be roused, and breathes with a snore, it has apoplexy. Bleed from the ear a few drops, and give one-tenth drop of opium (laudanum) every half-hour.

#### INFLAMED EYES.

This is generally due to catarrh or injury. If it arises from catching cold, the eye will be swollen, the inside of the lids red and secreting a mucus which sticks the lids together and runs out of the corners. Give internally some pulsatilla or hepar sulphur. Locally apply a wash of weak borax-water, or a few grains of alum or sulphate of zinc to a teacupful of water.

#### CATARRH OF THE NOSE.

After catching cold, cats will sneeze and show all the symptoms of influenza. It is often epidemic. When influenza is prevalent among men and horses, dogs and cats are similarly affected. Give hepar sulphur, and if the case is severe, with sore, raw nose and a watery discharge, give arsenic or arsenic iodide, third trituration, or ten drops of Fowler's Solution in a half-teacup of water, a spoonful every two hours.

#### SORE THROAT.—DIPHThERIA.

Sore throat arises generally from a cold, and is preceded by catarrhal symptoms. The cat will seem to have difficulty in swallowing food, will swallow when not eating, and the glands of the throat are swollen. Cats

have diphtheria, which they often get from children by whom they are fondled. Give belladonna and mercurius, and wrap the throat up in flannel wet with cosmoline; or tie a strip of pork around the throat. If it is diphtheria, the same treatment will be ample, with a few grains of sulphite of soda in water.

### INFLAMMATION OF THE STOMACH.

This is often caused by cats eating food that has been poisoned. If you are sure it is arsenic, give a few drops of peroxide of iron, or dialized iron, every half-hour. The symptoms are constant vomiting and retching, with great thirst. If it is not from arsenic, give a few pellets or a powder of arsenicum, third trituration, every hour or two. If this fails, give a grain or two of sub-nitrate of bismuth, dry on the tongue, every hour. But do not forget that all the symptoms of this disease are often caused by worms, and then nothing but santonine will save life.

### DIARRHŒA.

Diarrhœa is generally caused by irregular or excessive feeding, or exposure to wet and cold. Fat meat, or too much liver or oysters will cause it. It soon reduces the cat to a skeleton, and will end in dysentery and death.

If caused by improper food, give pulsatilla and a diet of boiled milk, or no food at all, for a day or two. A few grains of bismuth will often avert it. If it comes from a cold, give mercurius, second trituration. If it is chronic and obstinate, give the following prescription:

℞	Tinc. opii,	one drachm.
	Castor oil,	one ounce.
	Aromatic syrup rhubarb,	one ounce.
	Emulsion,	two ounces.

Mix.

Give one-half or one teaspoonful every two hours. In all severe cases of illness, put the cat in an empty room, not too cold, with a warm bed in it, and a box of sand.

### DYSENTERY.

Dysentery is an inflammation of the mucous lining of the intestines. It is attended by fever, pain in the bowels, crying and discharge of white or bloody slime, with straining.



Give aconite and mercurius, with colocynth if there is colic. If this fails, use the prescription given above for chronic Diarrhœa. A grain or two of powdered ipecac every two hours will be needed if the discharges are green and very bloody.

### BRONCHITIS AND CONSUMPTION.

Cats are very subject to bronchitis, especially pet cats, if they are exposed to cold and wet. It begins with symptoms of a common cold, such as staring coat, shivering, and slight cough. The cat becomes very ill for a day or two with the acute stage, which soon passes into the chronic form. There is then difficulty of breathing; the cat is constantly coughing, with the tongue hanging over the lower lip; she has an anxious expression about the face, and her eyes are watery and filled with matter; she gets thinner and moons about, refusing all food, or at times eating voraciously, with depraved appetite.

Confine the cat to the house, in a warm room; feed her on beef-tea and bread, or milk and arrowroot-gruel. If she is constipated, give a small teaspoonful of castor or sweet oil, and prepare a mixture as follows: In half a glass of water put one drop of Fowler's Solution of arsenic, and five drops of tincture of gelseminum. Give a teaspoonful of this every hour until the feverish or acute stage has passed. If you have homœopathic remedies, give a small powder of arsenicum (third) and six pellets of gelseminum (first), alternately one hour apart.

After the acute stage has passed into the chronic, and the cough is wheezy and frequent, give five drops of syrup of squills every two hours or six pellets of pulsatilla (second), alternated with hepar sulphur (third), two hours apart. In bad cases, with very difficult breathing and painful cough, give a small powder of tartar emetic, second trituration, alternated with six pellets of phosphorus, the third. If the cat is left with a cough, and grows thin and weak, give half a teaspoonful of pure cod-liver oil three times a day. This generally acts like a charm, and the cat soon recovers her strength and flesh.

*Consumption* often results from neglected bronchitis and needs only good care, freedom from exposure, a diet of raw meat, and cod-liver oil.

### DISTEMPER OR YELLOWS.

Lady Cust, writing of diseases of cats, says:—"This is different from distemper in dogs. It rarely occurs but once, and is a dangerous disorder. It begins with constant vomiting of bright-yellow, frothy liquid. Diarrhœa

then comes on, which ends in dysentery." She advises "half a teaspoonful of melted beef marrow, free from skin," and says that one dose is generally sufficient to check the vomiting. But several of my cats had this disease and I treated them all successfully with calomel and ipecac. Put three or four grains of each into half a glass of water, and give a teaspoonful every hour, (or give a small powder of mercurius dulcis, second trituration, and the same dose of ipecac, second trituration, alternately one or two hours apart). Feed them nothing until the vomiting is checked; then give them small quantities of warm milk, to which may be added a little mutton-broth.

### MANGE.—RING-WORM.—ECZEMA.

The "mange" of cats is generally a species of "ring-worm" (which they often give to children, or catch from children). It is often a "psoriasis" or an "eczema." The skin becomes red and irritated in spots, where the hair soon falls off, or the skin becomes red, scaly and wrinkled. The poor animal presents an unsightly and even loathsome appearance in bad cases. In all instances the annoyance and irritation make the cat very unhappy, for the itching is intolerable, and her biting and scratching aggravate the disease.

I have been very successful in treating them just as I would a human patient. The diseased surface should be sponged with pure castile soap-suds, and carefully dried; after which, if the disease is mild, apply the following ointment:

℞	Boracic acid (pulv.),	one drachm.
	Almond oil,	two drachms.
	Vaseline,	two ounces.

Mix.

Rub in thoroughly with the finger or soft rag. Repeat this every day and the eruption will soon disappear. In severe cases use an ointment of one drachm of sulphurous acid to one ounce of vaseline (or a wash of one drachm of sulphurous acid to one ounce of water). Nearly all varieties of mange are caused by microscopic fungi in the skin, and when they are destroyed the disease leaves. Carbolated cosmoline has been found useful, and so has an ointment of chrysophanic acid, ten grains to one ounce of vaseline, the latter being especially good in cases of ring-worm.

*Internally* the best remedy is arsenic, one-tenth of a drop of Fowler's Solution, three times a day, or iodide of arsenic, third trituration, a grain three times a day. Cod-liver oil is useful if the cat is much emaciated, since it readily restores the flesh.

## CATS WITH KITTENS.

If you have a valuable and favorite cat pregnant, do not allow her to be pushed about, struck or kicked, or she may miscarry, or suffer during her confinement. Sometimes the kittens are still-born from such ill-treatment. See that the cat is well and regularly fed and properly housed.

When she has kittens, never be so hard-hearted as to destroy all her family at once. There is no other animal that exhibits more affection for its progeny. It will go hungry that its young may eat, and will face the most terrible danger in their behalf. If her children are taken from her, the mother will go about for many days in the most distracted and melancholy manner, filling the house with her piteous mewings. Therefore, be merciful and humane. Always leave her at least one baby until it has reached an age when it can find other food than its mother's milk. If a cat is deprived of all her young, she may suffer from painful enlargement or inflammation of the breasts, which sometimes suppurate. I have known many cases in which this retention of milk acted as it does sometimes in women when delirium and child-bed fever set in; and a cat may be dangerous at such times.

A cat's litter may all be born dead, or may be eaten by some old tom-cat, or any other animal. If no kittens can be procured to nurse the mother, a little camphorated oil or phytolacca cerate should be rubbed on the breasts; if she has fever, give aconite and belladonna (pellets) alternately an hour apart. Sponging the teats with warm water will sometimes cause the milk to flow and relieve the swelling and pain.

If the mother dies and you wish to raise the kittens by hand, give them a little new milk sweetened with brown sugar. As a substitute for the mother's licking, rub them with a sponge, squeezed out nearly dry after being dipped in warm water that is a little soapy.

## BRIEF MENTION OF VARIOUS AFFECTIONS.

**BOILS.**—Several of my cats have had an eruption like boils, probably from over-feeding. They need but little treatment, and measures for promoting the general health will be sufficient.

**POX.**—In the spring and autumn cats are frequently afflicted with a disease resembling *chicken-pox* in the human subject. The head and throat are the parts usually attacked, the hair falls off, and the animal's appearance is very miserable. Give hepatic sulphur, third trituration, a few grains on the tongue every three hours, and apply the boracic-acid ointment mentioned under Mange.

FLEAS.—In some countries and towns cats are terribly annoyed by fleas. They are readily removed by a few applications of Persian Insect Powder, rubbed into the fur.

INJURIES, ETC.—Cats stand operations of all sorts very well. If a leg is broken and lacerated by a trap, and cannot be set and put in splints, cut it off. Leave sufficient flesh to cover the bone, and have ready a wire raised to *white* heat, to cauterize and stop bleeding; then bring the flesh together by a needle and thread. If the wound has been made with a knife or the teeth of some animal, sew it up. If an ulcer forms from any cause, touch it with some caustic or burned alum. Cats will persistently lick a wound or ulcer. In some cases it will be well to let them. In others it defeats healing. A fine wire muzzle is the only preventive.

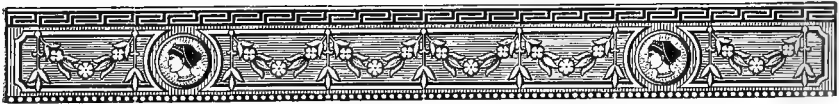




PART VII.

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POULTRY AND LARGE BIRDS.





205. SKETCH OF A COCK.

- |              |  |                            |
|--------------|--|----------------------------|
| 1. Comb.     | 9. Saddle-hackles.   | 16. Primaries, or flights. |
| 2. Face.     | 10. Sickles.   | 17. Point of breast-bone.  |
| 3. Wattles.  | 11. Tail-coverts.  | 18. Thighs.                |
| 4. Deaf-ear. | 12. True tail-feathers.                                      | 19. Hocks.                 |
| 5. Hackle.   | 13. Wing-bow.  | 20. Legs or shanks.        |
| 6. Breast.   | 14. Wing-coverts, the "bar."                                 | 21. Spurs.                 |
| 7. Back.     | 15. Secondaries, lower ends forming the wing or lower butts. | 22. Toes or claws.         |
| 8. Saddle.   |  |                            |

## PART VII.


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# POULTRY AND LARGE BIRDS,

INCLUDING

CHICKENS, TURKEYS, DUCKS, GEESE. AND OTHER DOMESTIC FOWLS.

### INTRODUCTION.

 THE rapid growth of poultry-interests in America and the consequent increase in the financial value of the stock have made a practical treatise on the diseases of fowls a pressing need. Feelings of mercy, to say nothing about self-interest, should prompt one to seek relief for his suffering flocks, but many find themselves helpless in the absence of a reliable guide. The family physician can give no advice, even if his services did not involve too great an expense, for the subject lies outside of his field. Nor does the domain of the veterinary surgeon adequately cover this ground. The poultry-raiser must therefore be his own counselor. He is, however, generally limited to the advice of equally uninformed neighbors, and to stray clippings from newspapers which are as useless as the large class of specifics for human ills which the paragraph-hunter commits to the columns of the same papers.

During many years of practical poultry-culture and an exhaustive study and publication of literature pertaining thereto, the writer has kept in mind this deficiency in domestic works and has reduced the fruits of his experience to an accessible form, together with such reliable information as he has gleaned from intelligent and trustworthy breeders and dealers. He confidently believes that a rational use of the following pages, even by those of little or no experience, will result in the saving of many valuable lives

and the relieving of a great deal of the suffering which has too often been met by a fateful waiting for the course of nature to bring about a doubtful cure or certain death. The successful treatment of one pure-bred fowl will be an ample reward for the study required by this entire treatise. The omission of technical and undefined terms is a prominent feature and, being a constant aid to the reader in his investigations, will be highly appreciated.

The common fowl is taken as the basis of this work, but the remarks are to be applied to other fowls when a given disease is common to them. Some disorders, however, which are peculiar to one species receive separate mention and treatment when they seem to demand it.

#### HEALTH OF POULTRY.

The old adage "an ounce of prevention is worth a pound of cure," applies as well to the present subject as to others. Most diseases of poultry may be prevented by a proper observance of hygienic regulations in regard to food, shelter and general care, and the brief remarks upon health will be among the most valuable that can be made.

*The Coop and Yard.*—It is all-important that over-crowding be avoided, since it is a prolific source of destructive epidemics in fowls no less than in man. They require a rapid change of air, as they are otherwise subjected to influences which favor the development of the germs of disease. A flock of twenty-five chickens, or a less number of larger fowls, should be provided with a coop having an area of at least one hundred and fifty square feet, though a lot of an acre will be a large enough run for four times that number. It must not be assumed that the flock can be increased at will if only a corresponding addition to the space be made. It is prejudicial to keep larger numbers together, since the damaging effects of the exhalations, droppings and impurities of the air can not be counteracted. The separation of a large flock into divisions, with a reasonable space between them, is necessary to the well-being of poultry.

Sandy or gravelly soil is the best for the fowl-house. To secure a dry floor, it is best to raise an artificial mound of earth on which to locate the building. If convenient, you may put in broken bricks, stone and other clean, permanent refuse, covering it with some inches of gravel and sand, and finishing with sandy or loamy soil, beaten down firmly and smoothly to insure ease in cleansing. Heaps of fine coal-ashes or sand should be kept in some part of the inclosure as a suitable place for the fowls to dust themselves. Finely pulverized clay or loam is also excellent material for this purpose.

The location should be well drained. Even for ducks and geese that



are kept confined it is important that the requisite water be afforded without incurring the disadvantages of low, damp, ill-drained, stagnant, or heavy, clayey soil. It is desirable, of course, that the inclosure for waterfowls be located on the brink of a natural body of water, but in the absence of this, an artificial font or pond may be made.

When perches are required, as for chickens, turkeys and Guinea-fowls, they should be so arranged as to be out of the way of the droppings and not so high from the ground as to injure the birds, if fat and clumsy, when flying down from the roost.

*Light and Ventilation.*—Light is absolutely essential to health. If possible, the shelter should be so constructed that every nook shall occasionally be exposed to the action of direct rays of the sun. Caution is requisite in this, however, as in most other good things, and shade should be provided so that the fowls may resort to it whenever they are disposed, particularly in hot weather.

In consequence of the unusually active circulation and respiration of fowls, deleterious exhalations are rapidly thrown off and remain in the air in invisible but poisonous particles. It is, therefore, imperative that every corner and cranny of the apartment be within reach of freely-circulating air. Yet equal precautions should be taken against excessive wet and too sudden colds, for fowls will take cold in a draught as well as human beings, particularly at night. A cool house, perfectly ventilated, without direct draughts, is desirable in this matter. In some seasons a poultry-house should have as limited walls as practicable. In summer a roof is all that is needed. Twine or wire netting makes a good partition.

*Cleanliness.*—The marked tendency of filth to induce epidemics emphasizes the demand for strict cleanliness. In the eradication of exhalations and insects the attention must not be confined to the housings. The yard should be changed at times, if possible, and should, at any rate, be treated as here directed, while strict measures are taken with all outdoor roosts. Dry earth, such as dust in the highways of the country and small towns (in cities it contains too much offensive matter), should be spread on the bottom of all inclosures to catch and disinfect the droppings. Of rather less merit are coal-ashes, dried muck, land plaster and powdered gypsum. Before the accumulation becomes offensive, or even very copious, the whole should be removed and stored away, it being a superior fertilizer. At regular intervals the ground of the poultry-run should be spaded up several inches deep, the dirt being used for the garden, and the soil being replaced with a fresh supply. When the poultry-yard is extensive, plowing will obviously be more economical than spading. Remember that the soil will tenaciously hold the germs of disease.

Even more deleterious than the effluvia from the droppings are the organic exhalations from the lungs and skin which adhere to the walls, nests, perches, and other exposed surfaces. Whitewash should be frequently spread upon such surfaces and the nests be often furnished with new bedding. Diluted carbolic acid, an ounce to a gallon of water, is an excellent purifier. It should be sprinkled everywhere in the apartments, and may be left to evaporate from cloths. It is often allowed to stand in open vessels, but caution should be taken to keep it away from the flock, since it is an active poison. Such danger may be avoided by hanging up by the neck a bottle containing it, with the cork removed.

*Fumigation* is a superior protection against disease, and is especially valuable for the removal of lice. It may be applied in various ways. The fowls being removed, place in the house a vessel containing sulphur, put a red-hot iron in it, and closely shut all openings for some hours. Rosin may be advantageously added to the sulphur. Gas-tar, or that made from pine or coal, is a reasonably good substitute for the sulphur; though shavings wet with carbolic acid and burned in a similar way will be better.

*Removal of Lice and Mites.*—When lice or red mites are present—the rapacious pests which suck the blood and juices of so many fowls, reduce the system, and often destroy life—remove and burn all straw and other litter, take out the perches and char them, with all the wood-work. This use of fire may be made more thorough by first carefully smearing the materials with refuse grease, but the strictest pains are requisite to prevent complete destruction. If the coop is not too valuable, it is well to wholly destroy it. Slaked lime, put in all the cracks and corners, has some efficacy. A good additional measure, and one that is often alone sufficient, is the washing of all parts with a lotion made of one pound of potash and a quart of water, followed with a copious application of kerosene oil. The droppings furnish a favorite harbor for such insects, and they should be removed, with several inches of the dirt, as directed above, and be applied as manure to a garden or field, and plowed under.

*Food and Drink.*—In the present instance, when considering the particular question of health, our remarks will be rather of a negative character, treating mainly of such articles as are undesirable. Whole corn in hot weather is unhealthful, as are also damaged grains, tainted meats, all putrid offal, and excessive amounts of meat, particularly when raw. A too sudden increase of green food induces diarrhœa, though it does no harm if kept constantly before the fowls. Peas, beans, pulse and malt are too stimulating. Over-feeding leaves imperfectly digested material in the blood and thus favors general disorder, and irregular feeding is always prejudicial.

Pure, cool, fresh water or milk is the best to drink. Foul, stagnant, and impure water of every kind is to be avoided, as it has an injurious influence upon the whole digestive system, with a peculiar tendency to produce or invite diarrhœa, cholera, and the like. Even rain-water is sometimes made unwholesome by an exposure of twenty-four hours to the air, a fact which calls for a frequent change of water.

The main object in poultry-raising being to supply the table with meat and eggs, it is strange that so little pains is taken to guard the food and drink. If the flock is allowed to eat and drink any and every thing that is within reach, the flesh and eggs will be as certainly vitiated in quality as that the milk of the cow is tainted by the use of improper food. Still further, if poultry eat the flesh, blood, milk, urine, or droppings of cattle or other animals which are suffering from malignant diseases, such as anthrax and foot and mouth disease, the flock will be afflicted with the same or similar diseases, with the alternative risk of dying or imparting the malignant affection to those who eat their flesh and eggs.

*Miscellaneous Notes.*—Among the miscellaneous sources of injury to health may be mentioned nervous excitement incident to public shows, a boisterous manner of an attendant about the inclosures, the trepidation incident to catching, the approach of hawks, dogs and other animals. Such fright and confusion should be sedulously avoided. Too close confinement tends to general disorder and is favorable to the development of feather-eating and other vices. Blooded animals are more often subjected to such confinement than others. Hot weather long continued lowers the tone of the system and thus exposes the fowl to debilitating affections of the bowels in particular. Excessively dry weather is also weakening, and severe cold is unfavorable to the enjoyment of normal health. Skin diseases are engendered by snow lying on the ground a long time, perhaps because it deprives the fowls of their chances for dusting, when the indoor dust-box is lacking. The presence of a too vigorous male partner may cause debility in the female and interfere with the maturing of the egg. The unusual demand made upon the digestive organs during the period of moulting, in consequence of the growth of the new feathers, calls for special treatment, and such is given in the pages devoted to diseases. The general "running-out" of a flock in the barn-yard, as well as in the inclosure of the fancier, is doubtless often due primarily to in-and-in breeding, by which one family that is kept alone declines by an invariable law of nature. Though apparently favorable results may be experienced for a time, the inevitable degeneracy will eventually become manifest.

## INVESTIGATION OF DISEASE.

“What is the disease?” is the first and most important question to ask. The number of people who fatefully assume from the beginning that the answer to this question is beyond their reach, is inexcusably large. If the non-professional reader would apply even a limited allowance of study and common sense, many of the less important ills might be avoided, and many others be successfully treated. A little special instruction is here given to enable one to detect a disease before it is too late, and thus to avoid, in a great measure, those disheartening ravages which at times come upon the uninformed owner of fowls. The small number of diseases which are liable to be mistaken makes it comparatively easy to form a right conclusion, for it will not take long to read the symptoms mentioned under all of them, if necessary, and thus arrive at the truth by exclusion, by learning that “it is not this,” “it is not that,” and so on.

A general knowledge of the organism, habits and appearance of fowls when in health is, of course, very desirable. A reasonably close observation is about all that we can expect in this matter from the ordinary owner of barn-yard poultry. The experienced fancier adds to this a frequent handling and more detailed study, to learn the normal hardness and suppleness of the flesh, the warmth, moisture and color of the skin, especially about the vent, and the outline and structure of the skeleton. It is also eminently desirable that one know what is a right condition of all the organs, but this is particularly true in respect to the liver and other digestive organs. Such knowledge can be gained only when a well fowl has been killed.

One of the most common mistakes in the discovery of a disease is the forming of a decision after too little study. Finding one or two symptoms which are known to attend a suspected ailment, one is prone to jump at the conclusion that he has detected the real difficulty, when a further investigation would reveal these symptoms, in conjunction with others which would lead to the true conclusion. Every examination, therefore, should be thorough, until a degree of certainty is felt. It is essential, too, that the reader do not expect that a disease will always present just the symptoms mentioned in any book, for they will vary more or less in different fowls, and even in the same one at different times—a caution which merely calls for the exercise of judgment and common sense.

When any doubt is felt upon the contagious nature of a disease, the affected animal should be removed from the flock until the possible danger is past. When a bird dies from an unknown cause it should be opened and the condition of the internal organs be noted, along with a study of their condition as represented in the following pages of treatment.

306. GRAY GAMES.



In general, it may be observed that the presence of lice and mites is often the cause of weakness and loss of condition, and that a search for them will be all that is necessary in many perplexing cases.

Some diseases of little moment are mentioned in this work, as well as some of very rare occurrence, so that the field might be exhaustively covered. It may be objected that too many remedies are recommended, but it will be seen that they are often mentioned as alternatives, in recognition of the fact that one may be at hand when another is not. Any technical terms that may be found in these pages will be defined in the context, or by the cut on page 866 and the accompanying definition of "points."

#### PRECAUTIONS IN SICKNESS.

When fowls are sick they should be removed from the flock to avoid annoyance from others. If the disease is of an epidemic nature, as roup, cholera and the like, a temporary hospital should be made, and be destroyed when it is no longer needed. In cases of the two disorders just named, such a hospital should be more airy than usual. If the quarters used in these malignant diseases are not destroyed, they should be thrown open and subjected to extreme cold, or be closely shut and raised to a degree of heat at least as high as 150° Fahrenheit; for which purpose a stove can be used. Boiling water dashed in large quantities on all parts will also be useful. Other measures recommended above for exhalations and insects may likewise be adopted to secure a thorough cleaning of the place.

#### REMEDIES AND HOW GIVEN.

For the sake of completeness and ease of reference, the requisite directions for medicines and doses are given just as they are needed. A few observations are here made upon the particular effects produced by some leading remedies, with the best methods of administration.

*Special Mention of Remedies.*—Cayenne pepper, asafœtida and gentian act as stimulants on the digestive organs. Do not buy the pepper that is adulterated or has otherwise lost its properties, and do not give it long at a time, nor in such large quantities as to make it distasteful. Ale is a good general stimulant. Garlic, onions and asafœtida favor a healthy action of the breathing-organs. The best known tonic is iron, a few drops of the tincture being administered in the feed, or a few rusty nails being put into the drinking-water.

Another excellent tonic is the "Douglass Mixture," made as follows: Dissolve a pound of copperas (sulphate of iron) in two gallons of water, and thoroughly stir into this an ounce of oil of vitriol (sulphuric acid).

Keep it in jugs and, for general use, an ounce of it may be put into a gallon of drinking-water, smaller quantities in the same proportion. It may be so given every alternate day. Two gallons are named on the supposition of a large flock. For a smaller one, and for a large one in hot weather, a less quantity should be made.

“Chicken Powders” are also superior as a tonic, and are made of equal parts of copperas, cayenne pepper, sulphur and rosin, pounded together and well mixed. Give two or three teaspoonfuls four or five times a week to each dozen fowls.

Charcoal purifies the digestive organs by absorbing offensive matters, and thus stimulates their action. The flock can be taught to eat it by adding a little in a powdered form to the soft food, and it will afterward be taken as the system demands it if it is kept before the fowls in bits as large as grains of corn. When given in the food as a powder, care should be taken not to put in too much, lest the system become clogged with it.

Sulphur is a valued drug, but it should be used with some caution. It has often produced injurious or fatal effects in external applications to young chickens, perhaps more often when mixed with lard. It will also do harm to the eyes, and even produce blindness, if it gets into them. There is danger of its adulteration with sulphuric acid, and when sold in the form of powder it should be washed well in hot water, which will remove the acid without dissolving the sulphur. When it is applied externally, the fowls should be kept out of the wet for a day or two.

Lime-water is used for several purposes and is prepared by slaking four ounces of good lime in a little water, and then adding enough water to make a gallon. Let it stand a few hours, pour off the liquid, and save the lime for use in making the preparation at another time. Lime-water is useful in both health and disease.

*Doses and Administration.*—When one is in doubt about the proper size of a dose for a fowl, he should ask a druggist or physician what is the regular amount for a child. Give to a chicken two weeks old as much as is appropriate for a child of six months; to one of six weeks, the dose for a child of a year; to one half-grown, that for a two-year-old child; to one full-grown, what is needed for a child of three or four years. It will thus be seen that fowls require large doses for such small animals.

When medicines are not taken in the food or drink and are to be administered by hand, they are most easily given in solutions. Pills and other solids will be swallowed if placed far enough back in the mouth. Such manual administration can best be effected by taking the fowl in the lap and holding it with the left arm, while the mouth is opened with the left hand and the medicine is thrust down with the right. In doing this, the

head should be kept in the position naturally maintained in drinking, the neck being outstretched and the beak pointed upward.

In making the dose, the following tables will be serviceable:

DRUGGISTS' WEIGHTS.

20 grains	make	one	scruple.
3 scruples	“	“	drachm.
8 drachms	“	“	ounce.
12 ounces	“	“	pound.

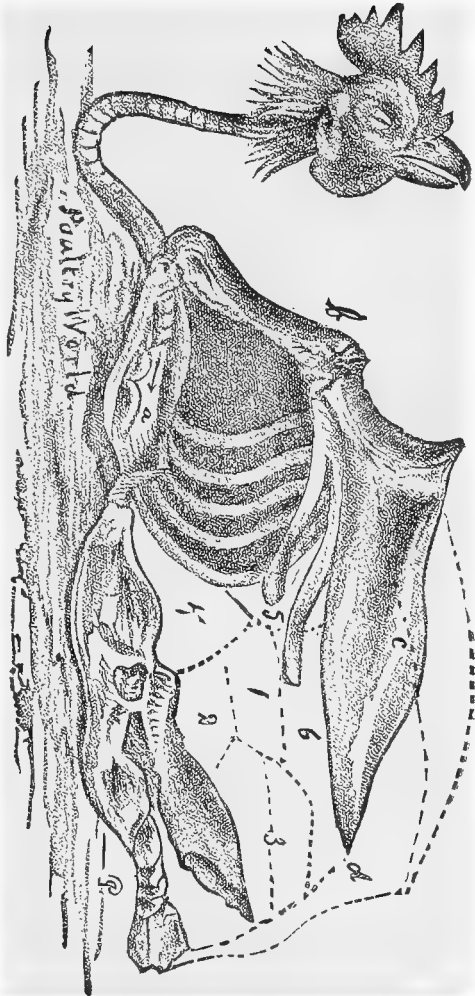
DRUGGISTS' FLUID MEASURES.

60 minims	make	one	fluid	drachm.
8 fluid drachms	make	one	fluid	ounce.
16 fluid ounces	“	“	“	pint.

These weights and measures are not in the possession of many people, and rougher methods may be used with safety for some of the less potent and less poisonous remedies. For example, a teaspoonful is considered equivalent to one fluid drachm; a tablespoonful, to a half fluid ounce; a wine-glassful, to two fluid ounces. So, also, sixty drops of water are accounted a teaspoonful, or fluid drachm; one hundred and twenty drops of alcohol and the tinctures also pass for the same bulk; while a like number of drops of oils and syrups make a much larger proportionate measurement. Such indefinite equivalents should obviously not be accepted when using strychnine, aconite, colchicum, arsenic, tartar emetic, laudanum and other poisons, while scarcely less caution is needed in measuring kerosene oil, sulphur, mercurial ointment, carbolic acid and other dangerous drugs. It may not be out of place here to drop a special warning against leaving any poison, as rat's-bane, arsenic, Paris green, and the like, within the reach of poultry.

*General Remarks.*—It is of the utmost moment in domestic practice, in every department, to use judgment and calm good sense. A disease may appear in any of a variety of degrees of severity, and no rule can be given about the dose that will precisely apply to all cases. The reader must, therefore, increase or diminish the size and frequency as the age of the animal and the malignancy of the case in hand may dictate, restrained by the caution in the maxim that domestic treatment is generally over-treatment, medicines being usually given too freely.





BREATHING APPARATUS.

5, 6, 7, Air-Cells of the Chest and Abdomen, the dotted lines showing the outline when the cells are inflated in breathing. 1, 2, 3, 4, Solid Lungs, not movable. 6, 7, Bones of the Body, the Breast-Bone, 8, extending the length of the body. 1, 2, 3, 4

## DISEASES AND THEIR TREATMENT.

### CHOLERA.—HEN DISTEMPER.

Though this disease is of comparatively recent appearance, it is the most dreaded of all the maladies which afflict poultry. Its nature is perhaps malarial, and it is certainly epidemic and highly contagious. Owing, however, to its obscure origin and character, any disorder that is not understood is quite likely to be called cholera.

*Causes.*—It is caused, or at least promoted, by over-crowding in the coop (though it invades flocks which have extensive runs), and its development is favored by filth, unwholesome and irregular feed, exposure in damp, malarial localities, stagnant drinking-water, extremes of heat and dryness, and other unfavorable conditions mentioned in the opening remarks on health. It attacks fowls of all ages, but more readily the older ones, and the very large and high-fed are especially liable to become its victims. It is a well-grounded suspicion that the droppings contain the germs of the disease, and some confidently maintain that it is the sole medium of its infection. It is certain that special pains should be taken to remove them and render them harmless by carbolic acid or, still better, by covering them deeply with the plow.

*Symptoms.*—Owing to the liability of confusion with other diseases a special study of the following symptoms is of the first moment. The fowl at first becomes weak, sometimes extremely so, staggers, and perhaps falls; is dejected, sleepy, moping, and does not plume itself; has much thirst and fever; gapes frequently; discharges from the bowels, mild at first, become yellowish-green or like sulphur and water, growing thinner, greener and frothy in the later stages, causing increased prostration, and persisting until death in fatal cases; the skin about the vent perhaps very red, with black spots; the animal may be "tucked up" with cramps; the crop fills with wind and mucus, making the breathing fast and heavy; the fowl finally fails to digest its food; the eyes are closed a few hours before death. Among the later symptoms is the change of the comb and wattles to a pale or dark hue. If the bird is opened after death, the liver will be found enlarged, congested, full of dark blood, show a dark-green color, and be so tender that it can be easily crushed with the fingers; the gizzard will be more or less softened, often much contracted, and be filled with dried or greenish food; the crop and intestines will perhaps be filled with sour, fermenting food and mucus, possibly ulcerated, the intestines being much inflamed; the blood will be darker and thicker than usual; the lungs and other organs

will be engorged with blood; the heart enlarged; the testicles more or less changed.

**TREATMENT.**—Treat promptly in the beginning. Remove the whole flock at once to *clean* quarters, if possible, affording a dry, gravelly location not previously used, and provide healthful housings. Separate the sick and suspected from the others and give to each, if practicable, a place by itself. Such isolation is desirable even for such as are supposed to be well, to prevent a spread of the scourge. In general, observe as strictly as the circumstances will permit, the directions previously given for “Health of Poultry” and “Precautions in Sickness.” These measures will tend to reduce the percentage of deaths, but the saving of all the flock need not be expected.

Fowls which are too sick to eat should have every four or five hours a pill made after the following formula of Dr. Dickie: Blue mass, 60 grains; pulverized camphor, 25 grains; cayenne pepper, 30 grains; pulverized rhubarb, 48 grains; laudanum, 60 drops. Mix and make twenty pills. After three or four pills have been taken, give to each bird half a teaspoonful of castor oil and ten drops of laudanum. Give a scanty drink of scalded sour milk, with the Douglass Mixture (see page 874) added in such quantities that twenty-five fowls will get a gill of it per day. It is also well to add a little tannic acid to the Douglass Mixture. Allow no other drink. The one here mentioned is recommended even if the pills are not used. If the evacuations from the bowels become darker and of a firmer consistence, as they should under this treatment, give a drink of alum-water, or strong oak-bark tea, but no other, being careful not to make the change unless such a condition of the droppings has ensued. The latter drink tends to check the discharges.

It is evident that the pills prescribed above are pretty “heroic.” Another meritorious remedy, especially in the earlier stages, or at any time when the crop remains full, is made of ten drops of strong tincture of eucalyptus globulus, five grains of common salt and half a teaspoonful of ground pepper, forcing it down in a tablespoonful of water (PARKER).

One writer vouches for the efficacy of the following:—Powdered garlic, one ounce; tincture of capsicum, two drachms; tincture of camphor, two drachms; tincture of rhubarb, a half-ounce; tincture of opium, one drachm; tincture of the oil of peppermint, three drachms; all well mixed and then shaken so that the garlic does not settle, the dose being six to eight drops in a teaspoonful of water three times a day.

Since one flock responds to a given treatment more readily than another does, we make mention of other remedies which have been tried with more or less success. Take equal parts of red (or cayenne) pepper, alum, rosin

and sulphur, mix well and put into the food once a day, a tablespoonful to three pints of scalded meal. Another remedy: Two tablespoonfuls of epsom salts, four of lime, and ten drops of tincture of iron, put into a gallon of meal. Again, coal oil is highly recommended, a few drops being put into the food, and is well worth a trial. The simple treatment of confining the fowls to a stiff paste of flour and water is of questionable efficacy, though it doubtless tends to lessen the rapidity in the action of the bowels, and, since it will thus retard the prostration, the paste may be used as a part of the food.

To well fowls, and those slightly affected, give in the food a little sulphur, soda, cayenne pepper and tincture of iron, a different one each day, and add carbolic acid or fluid carbolate to the drink. As food for both of these classes good authority favors warm boiled potatoes mashed up with bran (or wheat, oatmeal, or barley meal) and sour milk, mixed with a little pulverized charcoal and bicarbonate of soda. If the Douglass Mixture is added to the food, it will have a good effect on the well birds. As a preventive, nothing has been found that is better than coal oil, or kerosene, which may be given by soaking grain in it several hours before feeding it, or by mixing a tablespoonful in a half-gallon of cornmeal. Powdered charcoal in small quantities, put into the feed, will have a favorable tendency. For obvious reasons lice and mites should be kept away, the food be digestible and regularly given, the surroundings be absolutely clean, and all hygienic measures be observed to keep up the tone of the system.

#### ROUP.—CROUP.—ASTHMA.—YAWS.

Roup is the second of the two most dreaded diseases of fowls and is, therefore, given the second mention. It is a highly contagious malady which first affects the lining membrane of the beak and then extends to the eyes, throat and whole head, eventually involving the entire constitution. According to its more manifest symptoms, it has been called diphtheria, sore head, swelled eyes, hoarseness, bronchitis, canker, snuffles, influenza, sore throat, quinsy, blindness, and by other names, though some of these are hereafter treated as separate diseases. It attacks all ages, but the older birds more readily. It occasionally kills young ducks and turkeys.

*Causes.*—Filth, poor shelter, bad food, indeed anything which reduces the tone of the system will favor the development of the disorder. Exposure to wet and cold, and neglect of slight diseases of the nose, mouth, and air-passages are prolific sources of the ill or at least conditions inviting its appearance. It follows from the last remark that prompt attention to other less malignant disorders may prevent much trouble and save many

lives. It is contracted by a well fowl coming in contact with a sick one, or with the discharges from the eyes, nose and mouth, whether at the drinking-place or elsewhere. The effluvia arising from the droppings is an active provoking cause. If the discharge gets into the human eye or on any break in the skin, it may produce serious inflammation, a fact which makes it necessary to use great caution in handling the affected animals.

*Symptoms.*—These develop either slowly or rapidly, beginning with the general signs of a bad cold in the head, such as wheezing, coughing or sneezing, high fever and great thirst. The discharge from the nose and eyes is yellowish, being at first thin but growing thicker, opaque, *very offensive*, and clogging up or even closing the eyes, nostrils and throat; these parts and the whole head are swollen, sometimes enormously, so that blindness ensues, making the fowl unable to get its food, and thus hastening the decline of the system; pustular sores form about the head and in the throat, discharging a frothy mucus; the breathing is impeded; the crop often swells; the comb and wattles may be pale or dark-colored; during the course of the disease the fowl is feeble and moping. A fatal case terminates in from three to eight days after the distinctive roup-symptoms set in, and those which are not treated when an epidemic is prevailing will generally be fatal. Upon opening a dead fowl one will find the liver and gall-bladder full of pus, the flesh soft, of a bad odor, and, particularly about the lungs, slimy and spongy.

*TREATMENT.*—It is of the highest importance that treatment begin as soon as the first symptoms appear. To detect the approach of the disease—and any bird in the flock should be suspected if one has been infected—raise the wing and ascertain whether the feathers beneath it are stuck together by the discharge from the nostrils during sleep. Keep a close watch on the nostrils and relieve the slightest clogging. At night visit the roosts with a lantern and listen particularly for evidences of obstructed breathing. Remove at once from the flock all infected and suspected fowls, putting each by itself if practicable. Rigidly observe the directions about cleanliness, disinfection, the removal of droppings, and other particulars which have been given for cholera. Take particular pains to keep the discharge out of the reach of well fowls, especially by the purification of drinking-vessels and other tainted objects; for which purpose carbolic acid will be a valuable agent. Give to the sick fowls warm, stimulating food, with some cayenne pepper. Onions will have a good effect if chopped fine and mixed in the feed. Provide warm, dry, gravelly or sandy shelter. The well fowls, too, should have absolutely wholesome food and housing. No remedy can be relied upon to cure all cases of malignant

roup, but either or several will often be found measurably successful. A teaspoonful of castor oil is advisable in the beginning. No other medicine yet tried has been as good as the German Roup Pills, and they will cure when anything can. Along with them give as a stimulant three pills daily, as large as a pea, made of mustard and ground ginger. Also give peppertea as a drink, as strong as for a human being. There is high authority in favor of giving three pills a day, as large as the fowl can swallow, made of equal parts of pulverized sulphur, powdered charcoal and new yeast, with some such stimulant as is mentioned above. In all cases, put a little powdered charcoal in the feed. When the disease persists for several days, repeat the castor-oil purge recommended for the beginning.

Attention to the eyes, nostrils and face is absolutely essential. Wash the head thoroughly with a solution of chlorate of potash and warm water, equal parts, until the eyes and nostrils are opened and clean. Labarraque's Solution of Chlorinated Soda is a still better wash, one part of it to two of tepid water, and it should be used several times a day if the discharge is excessive. Pure castile soap and warm water make another good wash. When the discharge from the nostrils is excessive, it is advisable to inject into them camphorated sweet oil, either through the external openings, or from the inside through the slits in the roof of the mouth. For the last operation, the small oil-can used about the sewing-machine will be convenient. Nitric acid is sometimes applied to the nostrils with a feather two or three times a day, the old scab being removed each time. If the throat is clogged with secretions, clear it out and apply the Chlorinated Soda before mentioned with a camel's-hair brush. When the throat is swollen, relief may be afforded by painting it with a weak solution of lunar caustic (nitrate of silver), and putting into the drink ten drops of a solution of equal parts of sulphite of magnesia and carbolate of lime. Difficulty in breathing may be relieved in any stage by steaming; for which purpose hold the head in a vessel containing scalded bran, still steaming, closing a cloth neatly around the head to prevent the escape of the steam at the sides, being careful not to keep the fowl in this position so long at one time as to suffocate it. A hot stone in vinegar would be an excellent substitute for the scalded bran, and, indeed, some vinegar in the bran would be serviceable. If patient bathing and steaming do not reduce the swelling in the eyes, it may be necessary to open the tumor with a sharp knife and remove the deposit. When the fowl is blind, so that it cannot eat, the food should be put within its reach, or even brought to its mouth, and always be so soft that the soreness of the throat shall not prevent swallowing.

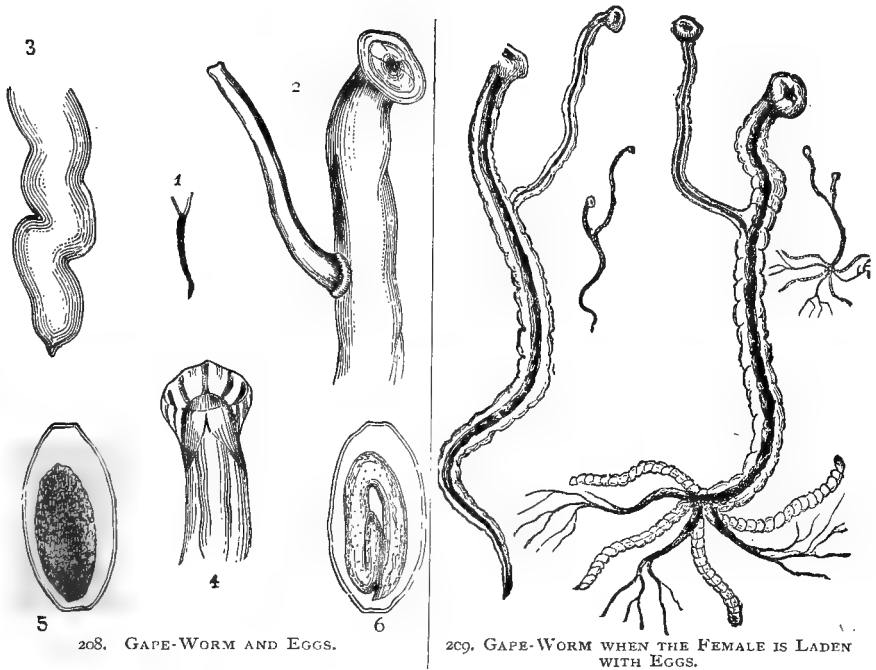
When the fowl has recovered, keep it away from the flock some time and give it for several days a tonic, as tincture of iron, or rusty nails in the

drink, or cayenne pepper, garlic, asafoetida, gentian or onions in the food. The Douglass Mixture (see page 874) is among the best of tonics.

### GAPES.

Chickens, turkeys, ducks and other domestic fowls, as well as many species of wild birds, are subject to a disease which is known by the general name "gapes," so called from the chief and universal symptom.

*Cause.*—The cause of this destructive malady is the presence in the windpipe of a pale-reddish worm, popularly known as the gape-worm.



The female is about five-eighths of an inch long, having a diameter of one-thirty-fifth of an inch. The male is one-eighth of an inch long, with a diameter of one-fiftieth of an inch, and is always attached to the female as a short branch, so that the two present the appearance of a single forked worm. The head of the female is much larger than that of the male, and is supplied with six lips. Of the accompanying illustrations in 208, 1 shows the two sexes together, natural size; the upper part of the same highly

magnified is represented in 2. The tail of the female is shown in 3, this particular one illustrating a marked instance of the general tendency of this part to turn up in folds. The tail of the male, terminating in an extended cup or sucker, by means of which is effected the union with the female, is shown by 4; 5 is one of the eggs, while 6 is the same with the embryo far advanced in development. All of these except the first are much magnified.

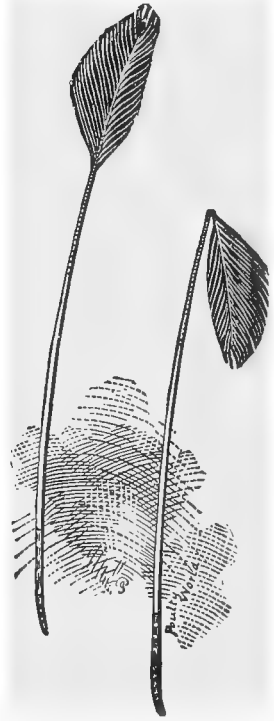
This worm is very prolific in the generation of its young, and produces them by depositing eggs either directly in the windpipe or in the food, drink, droppings, soil, or other places from which they can be introduced into the throat. The cuts in 209 exhibit the gape-worm when the female is heavily laden with eggs, which are best seen on the jointed branches. The second and fourth are life-size, the first and third being the same highly magnified. The eggs will retain their life through much severe exposure and harsh treatment, and their small size (about 1-250th of an inch in their greatest diameter) shields them from notice. Indeed, it is believed that even the lice carry them on their bodies to the fowls, and this view perhaps sufficiently explains the facts from which some have concluded that the gape-worm is one of the forms assumed by the louse. The disease occurs oftenest in midsummer, in unthrifty birds, or in those which have filthy quarters and unwholesome food and drink. It is most common in young birds, though the older ones are not entirely exempt. It prevails especially on premises where large flocks are kept.

*Symptoms.*—Constant gaping is the distinctive symptom, and is attended with difficult breathing, wheezing, coughing, unsuccessful attempts to swallow, drooping, and if not arrested, general debility and death. Every instance of gaping must not, however, be assumed as a case of real gapes, for it may arise from mucus or other obstruction in the throat, or from "crop-bound." The experienced observer will detect the ailment by the difference in severity of the symptom. Yet the treatment detailed below may be safely followed.

*TREATMENT.*—This aims at the removal and destruction of the worms in the windpipe. The easiest and most certain treatment consists in putting some clear, transparent carbolic acid into a spoon or iron saucer and holding it over a lamp until dense white fumes arise, the fowl's head being held in these fumes until it is nearly suffocated. A number can be subjected to this treatment at once by putting them into a close box in which the fumes are generated, but extreme care will be necessary about continuing it so long as to kill them. The fumes of sulphur, similarly applied, are a good substitute, as is also the vapor arising from heated spirits of turpentine or creosote.



Another excellent treatment is to strip a feather of the web, except more or less of the tip, according to the size of the patient, dip it in turpentine or kerosene oil, thrust it into the windpipe and turn it around several times before withdrawing it. Some of the worms will come out with it, others will be killed, and still others will be immediately coughed up. In whatever way they are removed, they should be caught on a paper and burned. The same treatment in substance may be effected, with more certainty of removing the worms, by stripping a feather as just directed (leaving about three-fourths of an inch of the web for a chick of two to six weeks), bending it down, without breaking or cracking it, just below the web that is left, so that it will make a smooth, sharp angle that can be easily thrust into the throat. The accompanying cut shows the feather before and after it is bent. While an assistant holds the patient, open the beak with the finger and thumb of one hand, take the quill in the other, dip it in a solution of three parts of spirits of turpentine to one of water, and thrust the sharp angle into the windpipe as far as it will go, twist it rapidly around, meanwhile drawing it out. A worm will almost surely come away with it. Repeat the operation three or four times to effect a cure, burning the worms that are removed. Care must be taken to insure the insertion of the feather into the windpipe, not into the gullet. Thrust it down through the opening which an examination will reveal in the middle of the tongue. The size of the feather should be carefully adjusted to the fowl, being large enough to fill the windpipe pretty closely. Mr. T. Conner, in recommending this method, says he "never failed to cure the worst case of gapes in this way." Good results may be expected if the feather is dipped into oil, salt-water, a weak decoction of tobacco, or a weak solution of carbolic or sulphurous acid, instead of the turpentine. A horse-hair, twisted up so as to form a fine loop, may be successfully used to remove the worms, being twisted around as directed for the feather, but it has no tendency to expel such as may not be reached.



210. A FEATHER STRIPPED AND BENT FOR THE REMOVAL OF GAPE-WORMS.

Turpentine smeared on the beak and neck is by some said to be sufficient. Camphor pills as large as a pea, or pieces of camphor-gum as large

as grains of wheat, once a day, may be found sufficient, either alone or in connection with camphor or turpentine in the water or food, ten drops to a pint. Powdered alum or sulphur blown down the windpipe will kill the worms (and the patient too, if administered too freely or too often). Again, by putting the fowls into a box covered with fine muslin and dusting lime through it the worms may be destroyed, but caution must be used lest the birds be smothered. Even as simple a treatment as crushed corn soaked in alum-water or kerosene oil is commended by some. The practice of pinching the throat to cause the worms to loose their hold, so they can be coughed up, is of doubtful wisdom, but may be tried when the windpipe is so full as to threaten suffocation. It may then be found necessary, when all other expedients have failed, to dislodge the worms by surgical means. Almost any one can perform the required operation by holding the windpipe firmly, so it can not slip or roll, and then making a short slit with a keen blade not far from the throat, *along* the windpipe, and not *across* it. After removing the worms and anointing the inside with weak carbolic acid, turpentine or kerosene oil, sew up only the cut that is made in the outside of the skin, leaving the windpipe to heal of its own accord.

*Preventive Measures.*—Remove the sick fowls from the flock to prevent infection. Burn all that die of the malady, and all worms that are found. Soak with kerosene oil, crude petroleum or strong carbolic acid the coops, roosts and grounds before admitting well fowls to them. Rigidly avoid all food that has been in the infected place, and burn it. When the disease has invaded a flock, add to the drinking-water fluid carbolate, camphor or lime. Boil the water before giving it if it is suspected of being the cause. When the premises are badly infected, raise the young fowls indoors, or in any place completely removed from danger. In some cases it may be found that the feed is the sole cause of the disease, and a change to corn (crushed if the fowls are too small to swallow it whole) may give complete relief, though the precautions for cleaning the apartments must still be observed and the water be kept pure.

#### COLD.—CATARRH.—COUGH.—BRONCHITIS.

All of these are substantially different stages and symptoms of the same disorder. Exposure to wet and cold is the general cause. Cough is, indeed, a symptom, not a disease, and is connected with the other three. It may, however, attend other diseases, and when its cause is not known the articles pertaining to roup and cholera should especially be consulted. Bronchitis is but an advanced stage or aggravated form of cold or catarrh. The three are marked by more or less discharge from the eyes and nostrils,

sneezing, wheezing, and, particularly in bronchitis, coughing and a rattling, hoarse sound in the throat. To distinguish these from roup, see whether the discharge is offensive. If it is, roup is to be treated; if not, catarrh or bronchitis. In all cases of doubt, use the precautions detailed for roup.

**TREATMENT.**—Remove the fowls to warm, dry shelter and give warm, soft food. These measures will usually be sufficient, but the following will be valuable as aids: For cold or catarrh merely—and no distinction between them is here made—put three drops of the strong tincture of aconite in a pint of the drink; if there is swelling about the throat, two or three grains of the second trituration of mercurius three times a day will be useful; euphrasia, the same as to form, dose and frequency, is desirable for worse instances of this symptom. For bronchitis, in addition to the measures just named, give sweetened water for the drink, adding a few drops of nitric or sulphuric acid. For both catarrh and bronchitis give some stimulant, as ginger or cayenne pepper in the food. The German Roup Pills will also be found of service. Treat catarrh and cold promptly, to keep them from developing into roup. Do not neglect bronchitis, lest it run into consumption.

### CONSUMPTION.

This arises from neglected colds, catarrh and bronchitis, as also from long-continued in-and-in breeding, confinement in dark, unwholesome quarters, and heredity. Its essential feature is a tubercular deposit in the lungs, with a general derangement of the constitution.

*Symptoms.*—In the earlier stages there are no obvious symptoms. Later, a cough comes on, with weakness and loss of flesh, however good the feeding. When a cough persists in spite of all treatment, consumption should be suspected.

**TREATMENT.**—“Take a sharp hatchet and apply it just back of the comb,” is Mr. Ward’s laconic advice. The affected fowl is worthless for flesh or for breeding.

### PIP.

By this term, which has been indiscriminately applied to so many affections, is here meant the disorder which is marked by a horny scale at the point of the tongue. It is only a symptom of some disease, but it demands treatment to avoid a possible case of catarrh or roup. It is probably caused by exposure in damp or cold weather.

*Symptoms.*—Beside the scale on the tip of the tongue, there will be

noticeable a peculiar pip, or "zip" noise; breathing disturbed and effected through the mouth; dry tongue; moping and retiring mood; loss of appetite; irregular and dilatory movements; generally costiveness, perhaps from indigestion; sometimes considerable heat of the body, especially in the belly near the thighs.

**TREATMENT.**—Afford dry, warm shelter. If there be costiveness or indigestion, give a dose of castor oil. Apply to the tongue and nostrils a weak solution of chlorinated soda, if any local remedy is used, but do not clip off the end of the tongue, as some have advised. Spongia, as recommended for mercurius in catarrh, may be used on general principles. The treatment, which consists merely in giving two or three grains of black pepper each day in fresh butter may be resorted to with a good deal of confidence. In any case, give no food except such as has been cooked and is easily digested.

### CHIP.

Chip, or chipping, so named from the peculiar noise made by the patient, is a disease which resembles roup, and attacks young chickens, with very fatal results if not promptly treated. It arises from exposure to wet, in consequence of which the down on the body is kept wet for a long time.

*Symptoms.*—The plaintive "chip" is continued; the feathers droop and lose their gloss; the chicken is very tender when touched, retires to a solitary place, sits trembling constantly and violently, having fever and heat of the body, and gradually sinks and dies.

**TREATMENT.**—Remove the patient to a dry, warm place, handling it gently. In the early stages give colchicum every two or three hours, ten drops of the strong tincture being put into a pint of water, and ten to fifteen drops of this dilution being taken for a dose.

### CANKERS ABOUT THE MOUTH AND HEAD.

These have been already alluded to as being perhaps particular manifestations of roup, and it is best, in general, to proceed with the treatment detailed for that malady. Such cankers, if they exist independently of roup, are caused by poor housing, filth and unwholesome food. They are marked by a watery discharge from the eyes and a somewhat sticky secretion in the mouth and throat. If it is known that roup is not the seat of the disorder, it will be sufficient to wash the affected parts with warm water (adding castile soap if they are gummy), clean out the throat and mouth with a weak solution of chlorate of potash, alum and water, swab off the

ulcers with a feather or very soft brush, and apply powdered borax in small quantities to the spots thus made bare. Stir into the food a little sulphur.

### DIPHTHERIA.

Reference has been made to this as a manifestation of roup. Though it is treated separately by some, it is deemed best in this work, for precautionary reasons if for no other, to refer the reader to the remarks upon that disease. It may, however, be remarked that, if one has a fowl suffering from a mouth and throat filled with mucus, and attended with small white ulcers about the tongue, it is advisable to blow into the mouth and throat powdered burnt alum, or equal parts of chlorate of potash and pulverized borax, being careful to remove the patient to prevent possible infection. Should this effect a cure, one may be confident that the disorder was not diphtheria in any true sense of the term.

### SORE EYES AND HEAD.

The eyes may become sore from dust, excessive heat, dampness, and other causes, and give out a watery discharge. The whole head may become involved in the inflammation. Such mild affections are to be distinguished from cankers and from roup; but it is always safe to keep a sharp look-out for roup when the eyes are sore.

**TREATMENT.**—Wash the parts with a weak solution of white vitriol (sulphate of zinc), or with alum-water, or with a solution of alum and camphor. If the discharge has become gummy or hardened, remove it with warm water and castile soap, following up with one of the lotions here named, or with one of sulphate of lead. Give sulphur in the food, using the powdered form. Avoid the exciting causes mentioned above.

### INDIGESTION.—DYSPEPSIA.

This disorder is a failure to properly digest and assimilate the food, and exhibits a variety of causes, conditions and results. It more frequently arises from too rich, unwholesome, or excessive food, too free use of grain and other hard feed, cold, general weakness, to say nothing of it as a symptom of various other affections.

*Symptoms.*—Listless mood; want of appetite; sometimes scanty droppings, sometimes free, as in diarrhœa and dysentery; fever; crop swollen in some cases, with a "tucked-up" appearance, as if from pain in the stomach; perhaps a sickly, yellowish hue in the comb and wattles, indica-

tive of disorder in the liver; in young chickens, sometimes sinking of the breast-bone.

**TREATMENT.**—Give less food and only such as is soft, mild and easily digested. Limit the drink. Give cut green grass or chopped onions in the food. See Crop-Bound, Constipation, and Diarrhœa.

### LIVER DISEASE.

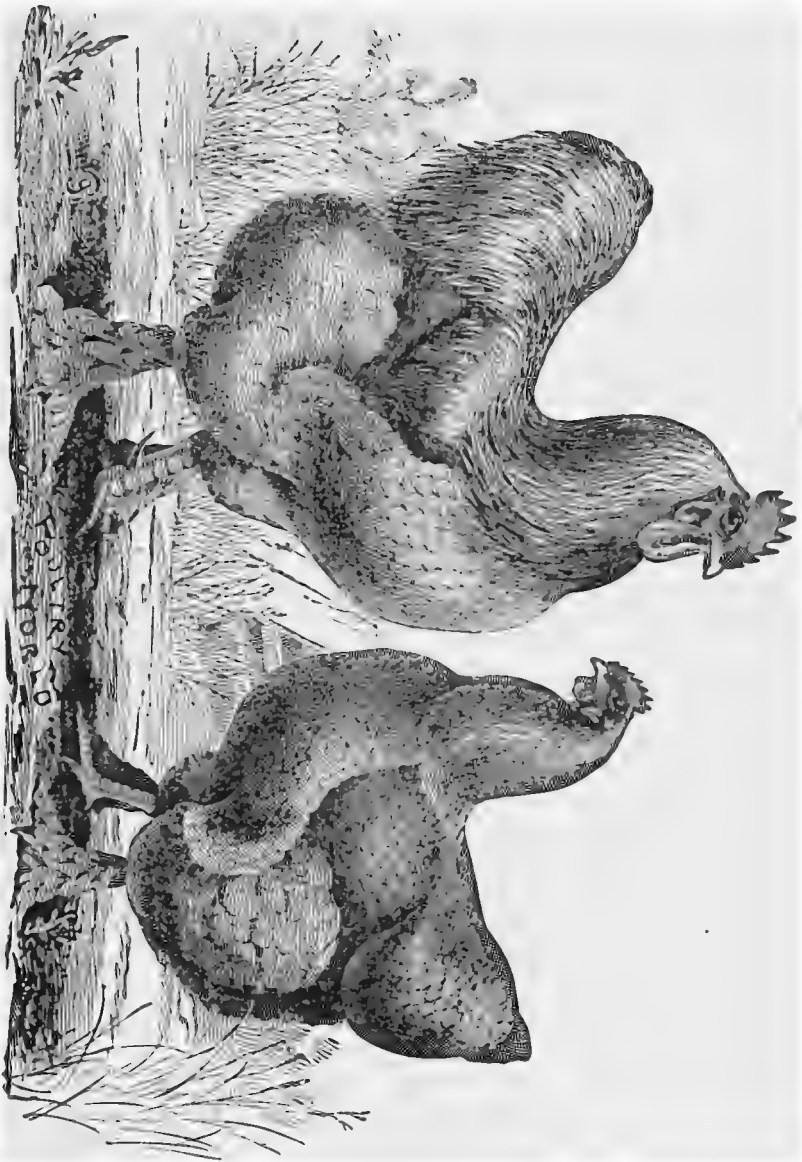
This name, used in all domestic practice with such an indefinite meaning, is here applied to a disease of the liver which causes loss of flesh, a sickly appearance about the comb, wattles and head, and sudden death. The liver, upon opening the dead fowl, is found soft, with cheesy matter in different parts of it, and sometimes a broken blood-vessel. It is said to be more common in Cochins. It is best to destroy an affected fowl at once. One authority recommends small doses of mercury followed by cod-liver oil and Parrish's Food as being of measurable value.

### CROP-BOUND AND WATER-CROP.

The crop may become engorged in consequence of the swallowing of a bone, hard corn or other indigestible food which closes the passage into the stomach. The latter organ being empty, hunger may induce the taking of more food, and thus aggravate the difficulty. Indigestion alone may cause it. In addition to the hardness of the crop, the fowl is uneasy and tosses its head.

**TREATMENT.**—Give very little or no food for a time. If this does not afford relief, pour down the throat some warm water and gently knead the crop for an hour, or until its contents are soft, then give two teaspoonfuls of castor oil. If the difficulty still persists, take a sharp knife and cut a slit an inch long, more if necessary, in the top or at the side, and remove the contents gently but thoroughly with the handle of a spoon, afterward passing the finger, previously oiled, all over the inside, to be sure that everything is taken out (particularly from the opening toward the stomach). Sew up the external skin with white silk, or, better still, with surgeons' thread, being careful not to stitch it to the crop, and leaving the wound in the latter to heal of its own accord. Anoint the parts with witch-hazel oil. Give no food or drink for twenty-four hours, and for a week thereafter only a small allowance of soft, easily-digested food.

By *water-crop* is meant a form of crop-bound which results from greediness in taking drink. The crop is not so hard and may contain wind or gas with the water. The disorder is corrected by cutting down the feed and the drink for some days, and putting chopped onions or garlic, or



211. BUFF COCHINS.

cayenne pepper in what food is given. Also put into the morning feed sal volatile, half a teaspoonful to each fowl, and into the drink a little nitric acid. Do not mistake this for true crop-bound.

### COSTIVENESS.—CONSTIPATION.

Costiveness is caused by indigestion, taking cold, too close confinement, too much dry food and too little green, deficient supply of good water, and the like. It is indicated by frequent attempts to evacuate the bowels, either wholly unsuccessful or resulting only in small, hard and dark droppings. The fowl is uneasy and perhaps staggers.

**TREATMENT.**—Give an abundance of green food, and a soft mixture of bran and oatmeal. Ten drops of sulphate of magnesia may be added to a pint of the drinking-water. Along with an observance of these directions for the food it will be well to give aconite until the restlessness disappears, following then with nux vomica; or, if a cold is the cause, give bryonia. The last three remedies are to be given on the homœopathic plan, in doses as for children, according to the age.

### DIARRHŒA AND DYSENTERY.

These disorders may result from an excessive use of green food, tainted food or impure water, extreme heat, exposure in damp weather, filthy quarters, general indigestion, poisons, or any inflammatory affection of the intestines or stomach.

*Symptoms.*—Loose droppings of different colors, which befoul the feathers; lassitude and loss of condition. In dysentery, which results from a diseased condition of the intestines, the droppings are more frothy, mingled with *blood* and attended with rapid prostration. A form of diarrhœa essentially different from the two described, occurs in old female fowls, in which a white discharge comes away more or less constantly, often dribbling out, and keeps the feathers about the vent encrusted with a white, chalk-like deposit. It is doubtless due to some derangement in the shell-making function, and can best be treated by promoting the general health and using the means noted below.

**TREATMENT.**—Give two pills daily, as large as a pea, made of a mixture of five grains of powdered chalk, five of rhubarb and three of cayenne pepper, adding one-half grain of opium in severe cases. Another good remedy is camphorated spirits on barley-meal, three to six grains for each bird according to the age; or ten to twenty drops of the same may be put in a pint of the drink. For mild cases, and in the early stages of others,



finely-powdered chalk on boiled rice may be sufficient. The remedy last named is recommended for the white discharges of old females, for which the pills prescribed above should also be tried, as well as a little lime-water (see page 367). Restrict the drink in all forms of these disorders, and put into it a little alum or tincture of iron. Dysentery, with bloody discharges, is a serious disorder; it is best to give a dose of castor oil and follow with three to six drops of laudanum every few hours, supplying an exclusive diet of mild gruels. It is of importance that the patient be kept quiet and apart from the flock, especially in dysentery. Homœopathic doses, every two hours, of ipecac and chamomilla can be recommended with confidence, as can arsenicum when bad food is the cause. In spite of all treatment diarrhœa may become chronic. If so, and even before, small doses of sweet oil may be found beneficial. In all cases keep a sharp lookout for cholera and isolate the affected bird when you are at all doubtful regarding the nature of the disorder. Bone-dust is used as a preventive of diarrhœa and it is well to put a little in the feed for some days after a cure has been effected, and also to thus occasionally administer it to well fowls.

### WORMS.

Worms in the stomach will produce substantially the same symptoms as indigestion. If they are in the bowels, costiveness or diarrhœa may be more marked, while the fowl will be uneasy and pick at the vent if they are in the lower part of the intestine. In all cases there will be more or less loss of flesh, and often diminished gloss in the feathers, while the bird has either an impaired or voracious appetite. The only unmistakable symptom is the presence of worms in the droppings when they first pass out. An unhealthy condition of the digestive organs is the main cause.

**TREATMENT.**—A dose of castor oil, followed by a light addition of sulphur to the food, may expel the worms and restore the general health. A little cayenne pepper in the feed and rusty nails in the water will aid the cure. The use of cina and santonine can be highly recommended.

### INFLAMMATION OF THE FORE-STOMACH.

Inflammation of the stomach may arise from improper food, such as that which is too stimulating. Its symptoms are not readily distinguished, but it may be suspected when a fowl pines away without an obvious cause and chooses only soft, cold food, especially if there be increased thirst, a "tucked-up" appearance, and an abnormal heat in the fore part of the belly. Loose, corroding droppings may be noticed.

**TREATMENT.**—Give only soft, mild food and not very cold drink, using the treatment, in the main, that is detailed for Indigestion.

### CORE.

This is a deposit or excrescence in the gullet, or in the organs of digestion further down, sometimes being dark, sometimes brownish-yellow, sometimes ochre-colored and mingled with blood.

**TREATMENT.**—For obvious reasons it will hardly be detected unless a dead fowl is opened. Then others of the flock may, as a precaution, be treated with mercurius, china and silicea, upon the homœopathic principle.

### PARALYSIS.—APOPLEXY.—MEGRIMS.—STAGGERS.

These are all affections of the nervous system due to an excessive flow of blood to the head, or to a weak condition in the blood-vessels of the brain which makes them incapable of bearing their normal pressure. When a fowl is made to stagger from this cause, or to run in a circle, or flutter, without other manifestations, the disorder is called megrims, staggers, dizziness or vertigo. This may become chronic and thus leave no doubt regarding its nature; but mere dizziness and staggering also appear in constipation, roup, cholera, and other diseases characterized by weakness. Geese sometimes stagger in consequence of parasites in the ear, and animals suffering from such a disorder will show symptoms so similar to those of real staggers that the difference will scarcely be detected. If the staggers are followed by falling and unconsciousness, apoplexy has come on. Either of these forms may show a temporary or permanent relief as soon as the blood leaves the brain. Should a blood-vessel be ruptured, the disorder is known as paralysis, and the fowl either dies at once or suffers an impairment or loss of the use of one or more of its limbs. Such paralysis may be relieved and occasionally the recovery may be apparently complete.

*Cause.*—In addition to the above causes, high feeding conduces to the pressure on the brain, Indian corn being especially bad for some breeds. Any too stimulating food tends to the same end, as well as mechanical injuries, violent exertions, disorders of the spine, or even the mild straining in laying an egg. Some of these influences may give rise to temporary or permanent paralysis in the leg or wing, which will disappear if the exciting cause is removed.

**TREATMENT.**—In all of these disorders, remove the patient from the flock and keep it free from excitement and in a dark place. Hold the

head under a stream of cold water to drive the blood from the brain, and afterward give a light diet. Give aconite if the skin is dry and hot; belladonna, for heat about the head and convulsive movements of the head; nux vomica, for the first indications of the disorder; opium for the unconscious state of apoplexy. Beside this treatment, and independently of it, paralysis may be benefited by one-sixteenth grain doses of strychnine, but it should not be resorted to until a day or two after the first paroxysm has occurred and the fowl has begun to hobble about and take its food. Either of these diseases may be profitably treated for some days after apparent recovery with two doses per day of bromide of potassium, four to ten grains at a time, according to the age. It may be remarked, finally, that treatment has been detailed for fowls that are of a particular value for food, exhibitions, or eggs for the table, since those of little value are not worth the pains, and no affected bird is fit for breeding purposes:

#### RHEUMATISM, CRAMPS AND GOUT.

*Rheumatism* is generally caused by exposure to wet, as in the grass in the morning, damp coops or roosts, and by hereditary influences. *Cramps* may arise from rheumatism, or from the same causes as the latter, but some forms are produced by indigestion, internal inflammation, diarrhœa and dysentery. In rheumatism the limbs suffer an impairment or loss of use, are hot, swollen and stiff, the toes being often drawn out of shape; the fowl persistently sits down and can not use the perch; the heart may become involved and thus induce death, preceded by excitable uneasiness. In the treatment, give warm, dry shelter, and good, stimulating, easily digested food, including a little cooked meat each day. Rub the affected parts with hot mustard-water, immediately wiping them dry. Oil of witch-hazel is a good ointment, as are also lard and butter.

*Gout* attacks Asiatics especially, and is characterized by hot, swollen and inflamed feet. Keep the fowl in a warm, dry place, and feed as for Rheumatism. Give three drops of the wine of colchic twice a day and a quarter to a half of a grain of calomel at night. Rub the limbs with sweet oil. Give bryonia to turkeys suffering from this disease.

#### DEBILITY AND LEG-WEAKNESS.

Close confinement without fresh air, continued exhibitions, shock or fright, injuries, or imperfect development of the nervous system, may produce general *debility*. The symptoms are loss of spirits, appetite and condition, with constitutional prostration. Insure rest. Give nourishing food,

a raw fresh egg being a good diet while the appetite is impaired, followed up with a little cooked meat. As a tonic, put a few drops of muriate of iron in the drinking-water, rusty nails in the water being also of service.

*Leg-weakness* is due to prolonged in-and-in breeding, to high feeding, which increases the weight of the body more rapidly than the muscular strength, and to deficiency of the earthy matter of the bones. It most often attacks Cochins, Brahmas and other large breeds, and young cocks are more liable to it than others of a flock. Its nature should be closely studied so as to distinguish it from rheumatism, gout and debility. Its sole manifestation is repeated or constant squatting on the hocks or belly, sometimes with utter inability to stand. In the way of treatment, feed wheat, barley, meat and other articles that do not tend to produce fat. In warm weather dip the legs in cold water twice a day. Give three times a day a pill made of a mixture of five grains of phosphate of lime, one-sixteenth of a grain of strychnine, and a half-grain of sulphate of quinine. Also supply a tonic of iron, a few drops of the tincture or some rusty nails in water. Occasionally give lime-water (see page 367) as a drink.

#### SCALY LEGS.—ELEPHANTIASIS.

This chiefly attacks old birds of the Asiatic breeds, and is caused by an insect which, with its eggs and cast-off skin, increases the size of the scales which form on the legs. Too close confinement, over-feeding, damp or muddy quarters, insufficient meat and too little green food are exciting causes. The insects sometimes infest the comb and then require the treatment given below. The disease is contagious and may be transmitted to other animals or to man. It is characterized by a whitish scurf on the legs and toes, sometimes a half-inch thick on the former, which may grow hard if neglected.

**TREATMENT.**—Keep the fowl in a clean, dry place. Wash the legs well with water and soap, using a stiff brush to remove a part of the scurf at a time if it has become hard; then smear with lard and sulphur mixed, or with kerosene oil. Lard and coal-tar make a good ointment; vinegar or glycerine may be sufficient for mild cases. Some use a wash of a weak solution of sugar of lead in the morning and apply a dilution of creosote at night. Stoddard's Poultry Ointment will effect a cure without any of the above remedies. It should be kept on the shelf in every poultry-house convenient for use. Night is the best time to apply it. This disorder is sometimes called itch, but by the latter term we generally mean a condition in which parasites are *in the skin*. Another form of itch in poultry is considered on the next page.

## BUMBLE-FOOT.—BOILS.—ABSCESSSES.—TUMORS.

*Bumble-Foot* is a swelling, wart, or corn on the ball of the foot which grows in size, becomes soft, and ulcerates. It is caused by bruises from alighting heavily on hard surfaces, and from roosting on small or rough perches.

**TREATMENT.**—Remove the patient to quarters without perches. If the part be painted with iodine in the first stages, a cure will often be effected. Should the swelling continue and be slow in ulcerating, bind on a poultice of bread or turnip. After it has “gathered,” open freely with a sharp blade, wash out the sore with warm water and castile soap, and dip the foot two or three times a day in water, to which has been added sulphate of copper in the proportion of one-fourth of an ounce to a quart of water. During the formation of pus, and while it is discharging, give mercurius.

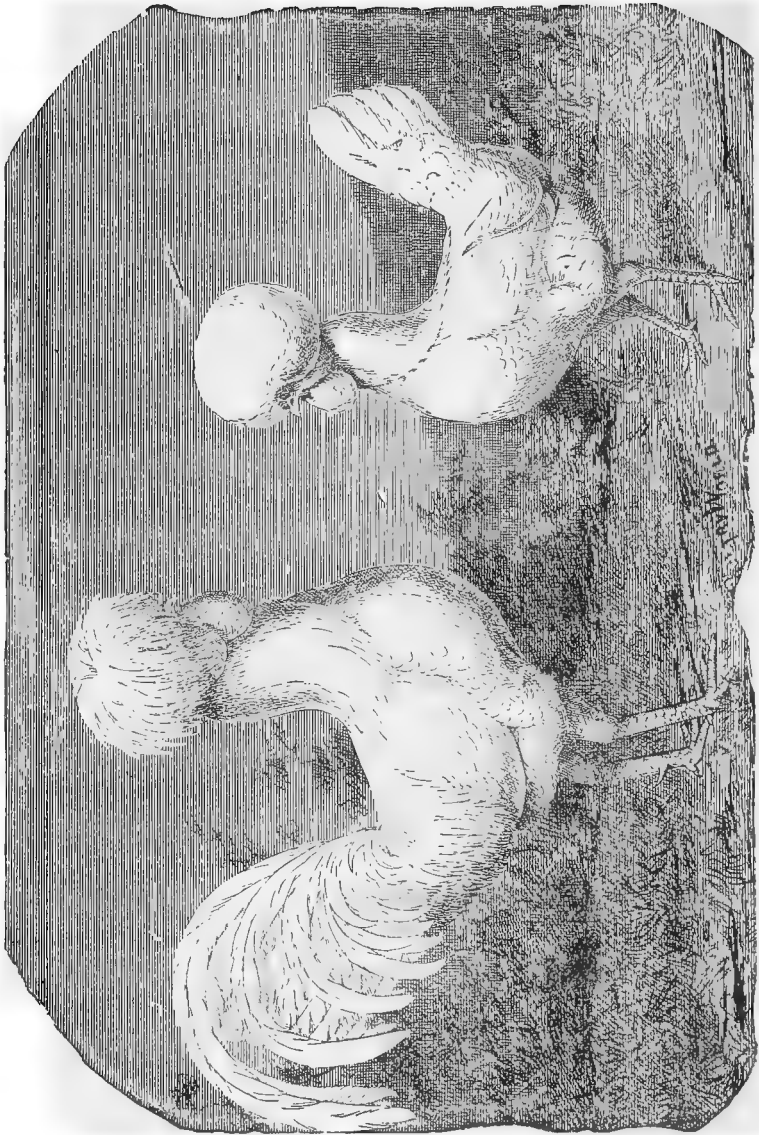
*Boils and Abscesses* may occur on any part of the body, and require the same treatment, in the main, as is recommended for Bumble-Foot.

Fatty *Tumors* may form on various parts without causing any serious trouble aside from their inconvenience. As treatment, cut them out with a sharp knife, preserving the skin so it can be drawn completely over the opening. Sew the skin together, leaving a small hole at the lowest part for the pus to escape. Put on the sore thus left a lotion of calendula or arnica for a few days. Supply wholesome food and quarters to promote the health.

## CHICKEN-POX AND ITCH.

**CHICKEN-POX.**—This is characterized by small ulcers on the head and face, on which scabs will form. It is not to be confounded with roup; nor with the dry, horny scales which sometimes form on the face. It is contagious but not dangerous, occurs principally in cold, wet weather, and perhaps results from peculiar atmospheric conditions. In the treatment, keep the parts clean with water and castile soap and apply vinegar or a strong solution of chlorate of potash, giving a little sulphur internally. Put a teaspoonful each of pulverized charcoal and sulphur in a pint of soft food. To prevent contagion, keep the sick fowls from the flock.

**ITCH.**—Fowls that are kept in unclean quarters and without fresh water are subject, in summer, to an itching eruption, with more or less loss of feathers. Insure absolute cleanliness. Give sulphur once daily for three days; then staphisagria for the same time; finishing with sulphur. If the eruption takes the form of ulcers, give dulcamara. It will be noticed that this disorder is not characterized by the presence of parasites in the skin, as is the case with itch in the human body. Scrupulous cleanliness may suffice.



212. WHITE-CRESTED BEARDED WHITE POLISH.

## WHITE-COMB AND SCURFY SKIN.

When fowls, especially Cochins, are kept in small, unhealthy quarters, or are deprived of fresh green food, a whitish, dust-like scurf sometimes appears at the bottom of the comb, afterward covers all of it, and then extends over the wattles and neck. The feathers on the affected parts lose their web, the bare quill being left, and it may in turn drop off, the fowl dying in extreme cases. The disorder is contagious. After recovery, the feathers will come off at the next moulting season.

**TREATMENT.**—Remove the exciting causes mentioned above, in the diet and location. Apply Stoddard's Poultry Ointment, or a mixture of tar and sulphur. Good authority claims that turmeric has a special efficacy; it may be used in an ointment made of one-quarter of an ounce of turmeric and one ounce of cocoanut oil. If lard be substituted for the cocoanut oil, as it may be, the ointment should be made fresh for every application, and should be occasionally removed thoroughly from the affected parts. Give internally ten to forty drops of castor oil, according to the age, with a teaspoonful of powdered sulphur in the food. Remove the affected fowls to prevent contagion.

A scurf resulting from the same causes as white-comb may appear about the face, comb and neck, perhaps in the form of dry, bony scales, but without the distinctive features of the disease last treated. The measures given for white-comb are, however, to be adopted. Do not confound this with roup or chicken-pox because of the similar symptoms.

## BLACK-ROT.

In consequence of indigestion, lack of variety in the feed, want of exercise or of green food, the comb may turn black, the feet and legs swell, and general loss of flesh take place. The malady is known as black-rot, and probably occurs oftenest in Spanish fowls.

**TREATMENT.**—This is useless except in the early stages. Give then a light dose of castor oil, following with warm, nourishing food and some such simple tonic as rusty nails in the drink, or tincture of iron. Observe the general directions given for Indigestion.

## MOTTLED FACE AND EARS.

Red spots sometimes appear on the face of black Spanish fowls, and on the ear-lobes of Leghorns and similar breeds. The keeping of the sexes together is the cause, and their separation the cure and prevention. Sweet

oil, spirits of turpentine, or a superior article of whiskey may be smeared on to restore the original color. Confinement in dark quarters will aid, and it will also produce that whiteness of these parts which fanciers so much desire when exhibiting fowls at the public shows.

### BAD MOULTING AND FLEDGING.

The period of moulting, in which the old feathers are shed and new ones come in, is a critical one for old fowls in particular, and only less so for others, in consequence of the drain on the digestive and other functions incident to the formation of the new coat. The process may be made slow or irregular by improper food, close confinement, prolonged in-and-in breeding, and other debilitating influences, and will then be marked by inactivity and general wasting. Akin to this function, not only in nature but also in origin and treatment, is fledging, or the formation of the first coat on young fowls.

**TREATMENT.**—This is mainly the same for both moulting and fledging. To assist the function, it is well in all cases to give a little tincture of iron, or to put some rusty nails in the drink, and slightly increase the allowance of lean meat. Add Douglass Mixture (see page 366) to the drink, a teaspoonful to each pint. Give soft warm food in the morning, and, for old birds especially, grain at night. Keep the fowls warm and out of the wet. *Calcarea carbonica* and *agaricus* are valuable remedies.

### SHOOTING-THE-RED.

In turkeys the development of “the red” about the head and neck is as natural as moulting and fledging are to all birds. It is so unmistakable in its manifestations as to need no description. To assist the function, make powders of three parts of cassia bark, ten of ginger, one of gentian, one of anise and five of carbonate of iron. Give to each twenty turkeys, in the feed, a teaspoonful twice a day, commencing two weeks before it is time for the red to appear, and continuing some weeks afterward.

### LICE.

Lice absorb the juices of the body and cause persistent pecking and scratching, great depression, loss of flesh, and even death. The symptoms are such as to create a suspicion of some serious constitutional derangement, and all poultry sick from a cause that is not certainly known should be examined to ascertain whether these pests are on the body. They are



bred in great numbers in filthy quarters and nests, and in flocks deprived of earth-baths. They are especially prone to take shelter in the tufts of crested birds.

TREATMENT.—Attend to the directions for “Cleanliness” given on page 361), remembering that the droppings and other filth are favorite haunts. Thoroughly dust into the roots of the feathers Persian Insect Powder, preferably with one of the powder blowers or bellows. In the absence of this, dip the fowls in a bath made of one part of carbolic acid and sixty of water. A good expedient is the application of suds of carbolic soap on such places as are specially infested. The use of any such fluids as these should be attended with caution to prevent colds. An ointment of sulphur, kerosene oil and lard may be spread under the wings of full-grown fowls, but young ones have been injured and even killed by a too free use of kerosene, as well as by sulphur when mixed with lard. Smearing with simple lard, lard oil, or whale oil, is better for the young. A thorough rubbing or dusting with powdered sulphur has often been sufficient, and yellow snuff is highly recommended for the same purpose. Wormwood and tansy teas are good, as well as oil of fennel. Absinthum and sulphur are good internal remedies. Tone up the system with cayenne pepper, iron, nourishing food and cleanly quarters.

#### RED MITES.

These are scarcely less troublesome than lice, are exceedingly annoying, and will survive very harsh treatment.

TREATMENT.—Proceed as for lice. If the pests are not killed or driven off, and you are willing to stain the plumage of white birds, grind together two ounces of sulphur, two ounces of camphor soda, a half-ounce of carbolic acid or tobacco leaf, and a piece of lime as large as a hen's egg; steep in hot water until thoroughly mixed; let the whole stand until perfectly settled, and then pour it off so as to get out all of the sediment. When it is cold, thoroughly apply it through the feathers with a stiff brush. The ointment of sulphur, lard and kerosene oil, recommended for lice, may be well rubbed under the wings, on the back of the neck, and on the vent. It is a reliable remedy, but the cautions about its use on young fowls must be observed, or fatal effects will ensue.

#### CHILLS.—FROST-BITE.

Young fowls are sometimes benumbed by cold, and even apparently dead. They should be dipped in water as warm as the hand can comfort-

ably bear until they revive, and then be kept in a warm place until completely restored.

The comb, wattles and feet are especially exposed to the frost and may be deformed or destroyed thereby. In the less severe cases, the crown of the comb and edges of the wattles first become purplish and then pale and bloodless. Prevention is the best treatment and an excellent means to this end is the oiling of the exposed parts in the beginning of and during "cold snaps." At such times the thoughtful fancier will frequently examine his fowls to detect any existing or threatened cases. If possible, treat before the parts have thawed any. Rub on snow, very cold water, or pounded ice until the parts have become pliable; then bathe with camphorated spirits, or with "hot drops." If the thawing has taken place by changes in the weather, it may be beneficial to apply sweet oil, glycerine or carbolate of cosmoline until all soreness subsides.

### DEFORMITIES.

**BONE-WEN, OR SPLINT.**—This is an enlargement or excrescence about the bones of the joints. It is incurable.

**CROOKED BREAST-BONE.**—This results from using perches that are too narrow or convex, and should be treated by removing the cause.

**WRY-TAIL.**—If this does not result from a deformed spine, it may be improved by cutting the tendon which draws the tail aside; or by cutting out a bit of the flesh on the side opposite to that toward which the tail points, the healing of the cut forming a scar which will tend to draw the tail back to its normal position.

**SQUIRREL-TAIL.**—By this is meant a tail which turns up over the back like that of a squirrel. It is best treated by cutting the tendon which holds the tail in that position.

**WEB-FOOT.**—Web-foot in young land-fowls may be cured by cutting the web between the toes with scissors. The cut will heal spontaneously.

### ACCIDENTS AND INJURIES.

**POISONS.**—Too much caution cannot be taken when using rat's-bane, strong carbolic acid, Paris green and other poisons. They should be sedulously kept out of the reach of poultry. When it is known or suspected that poison has been taken, pour warm water down the throat and then hold the fowl up by the feet until it runs out. Repeat this several times.

When a fowl meets with an accident which seriously disables it, the best treatment is to kill it, unless a special value attaches to it which will war-

rant the pains of prolonging the life of an animal which, at best, will probably be maimed. A few injuries which may be subjected to treatment in specially valuable birds are here mentioned.

**CUTS AND OTHER WOUNDS.**—Clean out all dirt and other foreign substances. Draw the lips of the wound nicely together and secure them with strips of adhesive plaster (which will generally make it necessary to shave off some feathers), laying them *across* the wound and leaving spaces between them for the escape of any pus that may form. Dress with a lotion of calendula. To keep out maggots and ward off gangrene, put on some preparation of carbolic acid. Should the wound be much inflamed and slow in healing, apply the calendula-lotion. Sweet oil rubbed on any wound will exclude dirt and thus favor the healing. If the wound gapes badly, it may be sewed up. If the bleeding is profuse and does not stop after the lips are brought together, apply cold water or pounded ice.

**CRACKED HOCK.**—The skin on the inside of the hock-joint may crack and seriously impair the use of the limb. The cracking is preceded by a weakness and wavering about the hock, perhaps even by squatting as in leg-weakness or rheumatism. Apply fir-balsam ointment to effect a cure. As a preventive, when the weakness about the hock is noticed, bathe the joints three times a day with a liniment made of sweet oil and ammonia, equal parts, and give two pills daily of lard, three parts, and cayenne pepper, one part.

**BRUISES** are best treated by applying calendula-lotion or arnica, though the efficacy of the latter is ridiculously exaggerated.

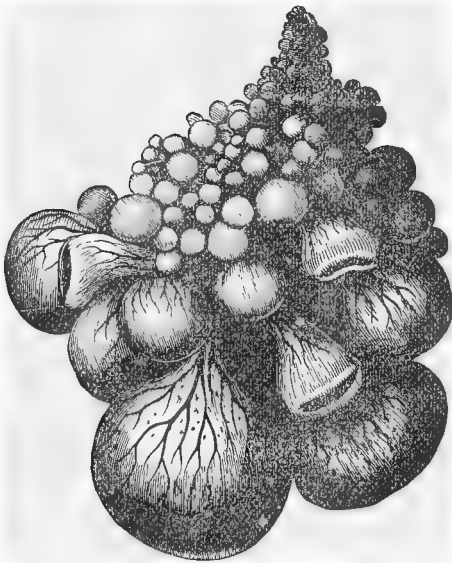
**LAMENESS.**—When this is not a symptom of paralysis, gout, rheumatism or broken bone, it may result from a sprain, and is then best treated by pouring cold water on the affected joint and putting on some liniment.

**BROKEN AND DISLOCATED BONES.**—These disorders may exist without the knowledge of an observer, unless he is well versed in the anatomy of fowls. Though fractures will occasionally heal fairly well without treatment, fanciers will sometimes wish to try their hands at surgery in order to reduce the chances of deformities. Bring the broken ends together until they fit neatly, as indicated by the touch. Cover the part with thick paper previously well soaked in white of egg or mucilage, closely adapting it to the shape of the limb; then bind on strips of pasteboard, also carefully adjusted to the shape. Keep the fowl by itself, as quiet as possible, and deprived of the use of the limb if practicable. The resulting fever may be treated by showering the limb with cold water. When a wing is broken, bring the ends of the bone together as well as you can, close the wing, tie the quills together, secure the wing to the side, if possible, and prevent attempts to fly.

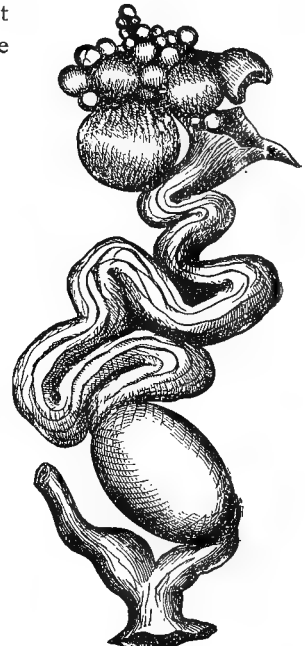
Dislocations may be reduced by drawing the affected limb, gently and firmly, and turning it around in any direction which a knowledge of the joint suggests as suited to the return of the bones to their positions.

### DISORDERS PECULIAR TO FEMALE FOWLS.

Some knowledge of the anatomy and physiology of the organs connected with the formation and laying of the egg is requisite to an understanding of the disorders peculiar to female fowls. Of the accompanying cuts the first represents the ovary, resembling a cluster of fruits, in which the egg, first appearing as a very small yolk, is fertilized and remains a few days. It then passes into and through a canal, called the



THE OVARY.



THE OVIDUCT.

A partially formed egg (sec 214) is dropping from the ovary into the upper end of the oviduct, and a mature one, ready to be laid, is near the lower end, close to the branch of the gut.

oviduct, shown in the second cut, in which it receives the successive layers of the white. It finally lodges in an enlargement called the uterus, in which it remains until it is ready to be expelled, or "laid."

**EGG-BOUND.**—Sometimes the egg in the uterus (represented by the enlargement toward the bottom of cut 214, near the lower end of the gut) becomes too large to be expelled, and the fowl remains on the nest in vain

efforts to expel it, or comes off and walks about in a distressed mood, with the wings hanging. Cochins are especially subject to this difficulty. Relief may be afforded by giving a light dose of castor oil, but it is better to wash out the vent with water and inject into the uterus (not the gut) an ounce of sweet oil. If an oiled feather be passed up the canal, the same effect as that of an injection will be secured. The use of an instrument to puncture or break the egg is dangerous, and should not be resorted to except as a last expedient. If this disorder is neglected, eggs may accumulate in the duct and form a large tumor.

**EGGS BROKEN IN THE BODY.**—Eggs may be broken in the body by mechanical injuries or by straining in laying them. This is usually fatal. Uneasiness and bagging-down behind are the distinctive symptoms. The treatment is an injection of a teaspoonful of castor or sweet oil.

**SOFT EGGS.**—Eggs without hard shells, or with such as are imperfectly formed, may be laid occasionally or repeatedly. The causes are inflammation of the oviduct (see below), over-feeding, eating ergot, lack of shell-making food, and worry, as by driving fowls about. As treatment, remove the causes, give lime-water (see page 875), and put within reach of the fowl old mortar or powdered oyster shells.

**INFLAMMATION OF THE OVIDUCT.**—This results from taking cold, unwholesome or too stimulating food, and excessive attentions of the male. The symptoms are general fever; feathers on the back and rump puffed out; continued straining, as if to lay an egg; eggs imperfectly formed, perhaps soft-shelled, or even simple yolks. In the way of treatment, keep the fowl away from the cock a long time. Give a grain of calomel and one-tenth of a grain of tartar emetic in meal, repeating the dose the next day if relief is not afforded. Give mild, easily digested food.

**PROTRUSION OF THE OVIDUCT.—HERNIA.**—Straining to lay eggs or general debility of the system may cause the end of the oviduct to protrude from the vent. It may result in “breaking-down behind.” Bathe the protruding part in blood-warm water, oil it, and gently push it back to its place with the finger, repeating the operation as often as necessary. Give such unstimulating articles of diet as boiled rice and potatoes, avoiding those which are known to tend to the production of eggs. Give aconite and mercurius internally; or give once a day tartar emetic and calomel as recommended above for inflammation of the oviduct.

**BREAK-DOWN BEHIND.**—Beside protrusion of the oviduct and broken eggs in the body, this disorder may be caused by an undue accumulation of fat in the hind parts. A cure may eventually be effected by a low diet when the last is the cause, but the fowl is unfit for breeding purposes. Cannabis may be of service.

**SWEAT MALADY.**—If one is so careless as to allow his fowls to hatch in damp, musty coops, he may find them moist, clammy and black under the wings. The treatment consists in giving wholesome quarters, washing the parts and powdering them with flour.

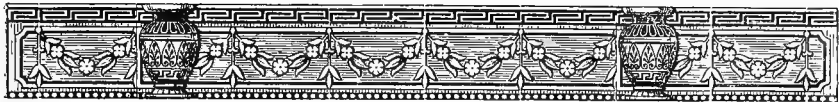
**SITTING FEVER.**—When a fowl persists in sitting, do not resort to the foolish and useless expedients of ducking in cold water, tying rags to the tail, and the like. Let the fever “run its course,” with or without eggs as you prefer.

**FEATHER-EATING.**—This vice is almost wholly confined to hens, and is more common in the French breeds and Malays. Loomis’ Poultry Bit is a sure cure. In connection with it, give fresh meat and bone crushed into small pieces, and indeed this diet alone will cure many cases.

**EGG-EATING.**—If a fowl eats her eggs, she will probably teach the vice to others in the flock. To effect a cure, keep the nest in a dark place. Give fowls that are kept shut up plenty to do by forcing them to “scratch for a living,” which may be done by putting all their grain under a pile of straw, leaves, or other material. The same measures are used as a preventive. Occasionally the hen eats the eggs to get the shells, in consequence of the absence of lime; at such times, keep old plaster, pounded oyster shells and limc-water (see page 875) within her reach. If the vice is persisted in, benefit may arise from giving the hen a wide run, but the use of the hatchet on the neck is a sure cure, and prevents the fowl from setting a bad example.



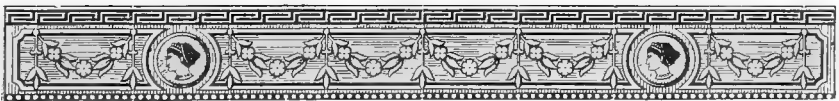
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PART VIII.

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CAGE BIRDS AND THEIR DISEASES.





215. THE FAMILY CHOR.



## PART VIII.

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# CAGE BIRDS AND THEIR DISEASES.



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### INTRODUCTION.

THE cares and conflicting passions of life are most agreeably relieved by the varied tints of the flowers which clothe field and garden, and by the birds which flit among them, to please with their exquisite symmetry, delight with their rich and gorgeous plumage, and charm with their entrancing song. These "beautiful and well-created things" stimulate and purify the love of beauty which is such an essential element of every normal mind and soul, and a genuine delight must ever be felt in a study of their form, plumage, song and habits. In my native land societies are formed expressly for such study, it being my esteemed privilege to have a membership in the one at our capital, and to continue its correspondent in the fair country of my adoption. In such favorable circumstances many things have been learned which could not otherwise have come within my knowledge. While the life of birds in their natural freedom has been a special theme of investigation, we have been led to give studious attention to their needs and care when in captivity, for, in spite of the tenderest care, influences which are inseparable from a life of confinement will always induce some diseases not known among birds in their native fields and forests. As a result of such observation these disorders are treated directly from experience in Germany, usually without the necessity of books;

but in America the little sufferers are too often left to linger and die in the absence of that experience, and of reliable books devoted to the subject. If I shall have the good fortune to allay the pain of those which are in and about the homes of my readers, it will abundantly repay me for my years of study in their behalf. What is offered in the present work is based upon the experience of many others as well as of myself, though a special study of American birds has been made since my arrival in this country, supplemented by an extended practice in treating those which have been brought to the hospital. It has been a source of much pleasure to thus give to the public such aid as I confidently believe will be the means of avoiding many of the sufferings to which our helpless little pets have been subjected, and my thanks are due to the editor for his valued assistance in reducing my language to the wants of the English reader.

A few remarks are first in order upon the care and health of domesticated birds as a class, for nothing is so important in the treatment of a disease as its prevention. Many ills can be avoided by a proper attention to the cage and other apartments, the food, drink, and general management.

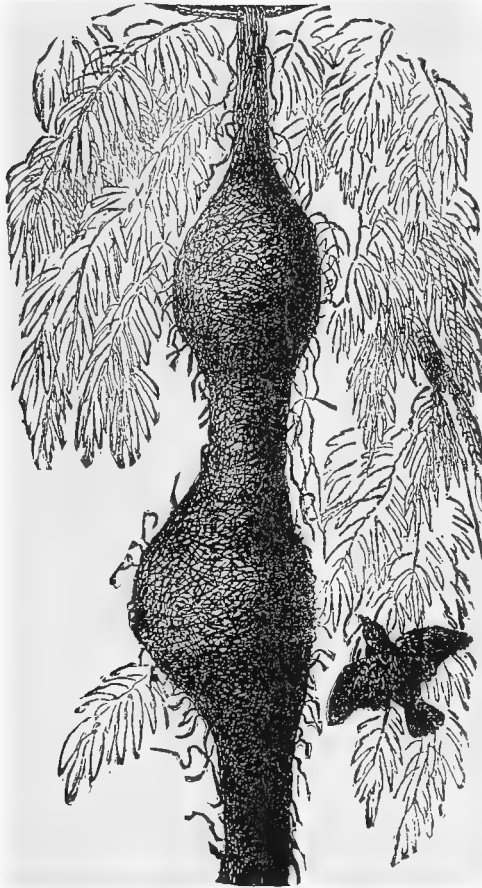
#### THE CAGE AND AVIARY.

*Size.*—In this particular, as well as in others, it is best to keep a captive bird in a condition as nearly like its natural surroundings as practicable. If one can afford a spacious aviary, with suitable apartments, perches and other appointments, she may expect a more healthy condition and better results in plumage and song. But the majority are compelled to keep their birds in close confinement, or have none at all, and for such the first rule is that the cage shall be commodious enough to at least insure ease of movement.

*Cleanliness.*—The temperature of the body of birds is much higher than that of man, and their respiration is proportionately more active. Because of these two facts the exhalations from the skin and lungs are thrown off with great rapidity and demand special pains to insure the requisite cleanliness. Again, by the flitting and hopping of the captive in small apartments the water and food are scattered about, and becoming mingled with the droppings, which have a marked tendency to ferment, they soon produce a foul condition which is highly prejudicial to health. It is, therefore, imperative that the cage be cleaned at least once a week in all seasons, and still oftener in warm weather. To be sure, the desired neatness can be secured only by doing this daily. Indeed, the safe rule, from a standpoint of health, is to attend to the cage or aviary at once if it gives out an odor that indicates an unwholesome habitation. In doing this the apartment should not be left in a drenched or very damp

condition. The perches should receive special attention, and even the sand in the bottom of aviaries should be frequently removed and be replaced with a fresh supply.

Uncleanliness is a prolific source of disorders in the feet, and these members should receive close attention. They will often become encrusted



NEST OF THE ORIOLE.

with the droppings and other matters and thus be irritated and sore. Hairs, fine feathers and tough straws become entwined about the toes, soon cut deep into them, and perhaps cause their total loss. In cleaning feet that have become thus involved, dip them into tepid water until the dirt is

softened and comes off, so that the skin may not be torn away and thus induce painful and persistent ulcers.

Too much care can not be taken to keep out lice and mites, for they are very injurious to the health of birds. They suck the blood, rob them of sleep at nights, always rapidly reduce the strength, and sometimes cause death. They gather in great numbers on the perches, in all cracks, and in other parts of the cage or aviary. Studious cleanliness is the best preventive. Measures for eradication, when they have once appeared, are named further on, under the special treatment for lice and mites.

*Light and Ventilation.*—Light and air are two of nature's most potent agencies in counteracting filth. Every bird should have a liberal allowance of sunlight, though the power and directness of the rays are to be determined by the climate which is natural to the captive. Among those that need frequent sun-baths the canary deserves special mention, though it should never be subjected to extreme heat or a dazzling glare. For the development of the song, canaries are best kept in a very dark cage, made expressly for the purpose, except during the period of moulting and breeding; but this does not apply to the question of light for birds in general. If possible, every cage and other inclosure should be occasionally subjected to the full glare of the sun, the birds being meanwhile removed if their natural condition indicates that such exposure would be harmful. Both in airing and in ordinary ventilation it is imperatively essential that one avoid all direct draughts of cold or damp air on the birds, for they will take cold as well as a human being. The last remark is not sufficiently heeded by the ordinary fancier, and she consequently has sickly or dead birds. A good rule is to keep the temperature at from 65° to 70° Fahrenheit, with an absence of draughts.

*The Bath and Drink.*—A bath should be afforded daily in some suitable dish or font, but on cold days and in the winter the water should be milk-warm, and the bath may be omitted entirely in extreme cold weather. The best drink, since it is that which is provided for all birds in their native state, is cool, fresh water in summer, milk-warm in winter. Special pains is requisite in supplying it, because it will become stagnant by standing and is liable to be impregnated with all impurities that come from the body or surrounding atmosphere. Even fresh rain-water may be injuriously impure by standing in the open air twenty-four hours. It is, therefore, necessary that a supply be given at least once a day. If there is any doubt in respect to absolute purity, it is best to boil the water and give it after it has become cool.

*Food.*—The food, drink and air furnish the materials by which the repair and growth of the system are effected, and upon their selection must

depend the health of the body. Two peculiarities in the anatomy and physiology of birds need special mention here, as bearing directly upon the topic now before us. First, the lungs are very small, but the bones are provided with various air-cells which may be filled or emptied at will to regulate the buoyancy needed for flying. If the food is of such a nature as to interfere with this function, it is evident that the general health will be disturbed and the facility of flight be impaired. Second, the digestive organs exhibit differences according to the various kinds of food which the Creator designed for them. In song-birds, for example, there are three successive cartilaginous stomachs, covered with strong muscles. Indeed,



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organs of this kind are given to all birds which live on grains, seeds and other hard food, and the requisite grinding is effected by small stones taken into the gizzard. This also emphasizes the necessity of giving to every bird the kind of food which it would get in a state of nature.

It is manifest that the only rational principle for adoption in feeding is to accord to a bird a diet as nearly identical as possible with what nature has especially provided for it. Since this natural method cannot be used for birds in confinement in all its details, one must meet the lack of nature's

food, as far as he can, by close observation of the effects of different articles that are at hand. To this difficult question the members of our bird societies patiently address themselves. It is evident that, to give any trustworthy directions upon feeding, one must divide his subject according to the species. Nothing is the cause of more sickness and death among birds than giving them any and every article of food simply because they seem to relish it, or at least take it readily.

*Gravel, Cuttle-Bone and Salt.*—Every cage should be supplied with small gravel, and the best kind is that which may be scraped up along the lakes and rivers. Fine sand is not a good substitute. Without such a provision the digestion is disturbed or entirely interrupted. Again, cuttle-bone and crystal salt should be kept within reach, since they afford needed material for the making of blood and bone. A bird may live even years without them, but it should have the opportunity of getting them as the system demands. This remark is not intended to lead to a disregard of the caution which fanciers emphasize about putting salt into the food of certain species.

*Macena Biscuit.*—As a substitute for the egg-foods which are so extensively used, the writer has an article of his own discovery which he calls the Macena Biscuit, and which, for canaries, mocking-birds, thrushes, parrots and other species, he has found to be much superior. It is mentioned here as an additional food, and not as a necessary part of the following points on feeding and treating. It insures rhythm and flexibility of the voice, is the most digestible for both the old and young, and is thus suited to all cases of debility in particular. It is an admirable remedy and preventive for inflammation of the bowels, and also saves much time and trouble in the breeding season. The birds always have a keen relish for it, showing a marked preference to it over egg-food, and feed it to the young with greater readiness. It is good for old birds in all seasons, is peculiarly suitable at breeding times, and the writer has found nothing equal to it for the young of all kinds, canaries in particular, up to the age of four or five months, as well as in moulting. It will remain in a fit state for food eight to ten days in summer and ten to twelve days in winter. When it does become old, it is readily prepared for use by dipping it in water for three minutes and then squeezing it out. None of the foods for mocking-birds which are sold in the market are made after the formula of this biscuit, and none keep the song and health in as good condition or favor so long life.

#### SPECIAL FOODS FOR DIFFERENT SPECIES.

**Canaries.**—The canary should not be fed on hemp seed under any circumstances. Even when these seeds are mixed with the canary, as they

often are in the market, they are to be avoided, since they will shorten the bird's life. Up to the age of four months, rape and canary seed are the best, with three-fourths of a teaspoonful a day, to each bird, of egg-food, or, still better, Macena Biscuit. After that age they should have only rape and canary seed, with a small quantity of green food every day, if it can be secured. The German rape seed is the best, and if it can be procured, will be all that is needed in the way of seed. Canaries are very often injured or killed by sugar and other delicacies.

**The Mocking-Bird and Thrush Family.**—All kinds of soft-food eaters must be treated with more care than seed-eaters. In this class mocking-birds are the most admired and valued. They need a liberal sup-

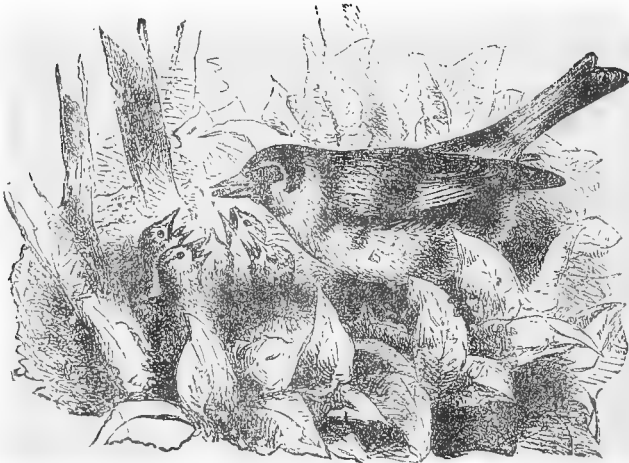


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ply of meal-worms, ant's eggs, earth-worms, caterpillars (without hairs), and sometimes green food, such as berries and fruits. Grated carrots and potatoes, meat, and boiled beef-heart are suitable for summer. For use in winter, and for those people who can not get the articles just named, I will give a recipe upon which a superior mocking-bird food can be prepared, which is also excellent for all soft-food, meat and insect eaters:—Chop finely four pounds of beef and dry it well in a stove; grate one and one-

half pounds of carrots, squeeze them out thoroughly, and dry them; grate twelve to fourteen ounces of white bread; grind twelve to fourteen pounds of hemp seed; add the yolks of twelve to fifteen hard-boiled eggs. Mix all of them thoroughly, adding sweet oil or lard until the mixture is soft, *but do not put in a greater supply of oil or lard*, lest fat be engendered too rapidly. If they can be afforded, dried ant's eggs, in any quantity up to a fourth part of the whole, will make the mixture better. If farina be added to this mixture, in the proportion of one-fourth of the whole, good results will follow, though it is not a necessary ingredient. The preparation of this food will make some trouble, but it will well reward the pains in the charms which it adds to the mocking-bird alone, to say nothing of other species for which it is suitable. When once ready for use it can be fed with much less labor than fresh food, is not conducive to disease, as other kinds are, and will remain good for many months. A less amount than the above can be made, of course, but the same proportion of ingredients should be preserved.

**Red Bird, Cardinal and their Kind.**—Make a mixture of rice (in the husk), hemp seed, sunflower seed, and wheat in the grain. Also, give corn, some fruit, meal-worms, and mocking-bird food made as above directed.



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**Nightingale, Robin, Etc.**—For nightingales, robins, some African finches and titmice, make a mixture as follows:—Bake a loaf of white bread very hard and grind or pound it fine; add the same quantity of grated carrots; a like amount of hard-boiled beef heart, ground, chopped, or, better still, grated; a smaller allowance of hemp seed. Thoroughly mix them,



meanwhile adding water until the whole is loose and has a pleasant odor. It is very desirable to mix ant's eggs in this when feeding it.

**Lark, Starling, Etc.**—To larks, starlings, and the yellow-hammer species, give wheat, oats, canary seed, green food, some earth-worms, meal-worms and ant's eggs. Finely-chopped cabbage, mixed with poppy seed, is especially needed by all of the lark species; and the diet given just above for nightingales and robins is, generally speaking, also good.

**The Bullfinch and Linnet Families.**—For bullfinches, linnets, chaffinches, goldfinches, siskins, and all of the finch species, make a mixture of three parts of German rape seed, and one each of hemp seed, poppy seed and German millet. Hemp and poppy seed should be given with care, for they produce fat too readily when supplied in excess. Beside the above, give green food and fruits.

**Fancy and African Finches.**—The chief food of these is white (not yellow) millet and canary seed; other articles being rape, flax and poppy seed, and a little green food.

**Fancy Chickens.**—For these, make a mixed food of fruit, crumbs of bread, rice (boiled dry), yolks and shells of eggs, meats and other articles from the table, and ant's eggs. Now and then give strawberries, blackberries, huckleberries, grapes and plums.

**Parrots.**—Large parrots with strong beaks should have corn, oats, hemp seed, sunflower seed, millet, boiled rice, milk, bread, ant's eggs, potatoes, nuts, grapes, fruits, and small seeds in general. Salt in bits or crystals should be constantly within reach. Bitter almonds and parsley are poisonous for these birds. It may be said, apart from the question of food, that care should be taken to particularly avoid draughts of air and direct rays of the sun. The bird should have a daily bath, or the whole body be sprinkled with water. A piece of wood for the parrot to bite is requisite to the proper growth of the beak, and should always be kept in the cage.

## DISEASES AND THEIR TREATMENT.

From foregoing observations it will be inferred that the most common causes of sickness in cage birds are unnatural, improper and excessive food and drink, exposure to draughts and extremes of temperature, filth, and vermin. It follows that an avoidance of such influences will prevent the occurrence of many ills. In general, when a bird shows any evidence of sickness, the appropriate diet, as detailed above, should be rigidly observed. In the reader's endeavor to discover what disease is affecting a bird, too much care can not be used to avoid an error which is entirely too common, namely, the forming of a conclusion upon an insufficient study of the patient's

symptoms. The inexperienced fancier is prone to suspect the existence of a disease, and then quickly decide that it is present in a given case, because he finds one or two symptoms which are known to attend it, though a further investigation might detect others which would show that another and perhaps quite different complaint was at hand.

#### HOARSENESS.—COLD.—CATARRH.—“ASTHMA.”

*Hoarseness*, or cold in the head, quite frequently manifests itself in song birds, and only less so in talking birds. It arises from draughts, too cold drink and baths, bad seed, and excessive singing or talking. When the first two are the cause, keep the bird in a warm, very moist atmosphere, both day and night, deprive it of the bath, give warmer water for the drink, and feed lettuce seed. If bad or spoiled seed be the source of the trouble, change to those which are good. If too much singing or talking is the cause, put the bird in a dark room to shut out all light, and thus stop the use of the voice entirely for some time; but the bird must be kept warm.

*Catarrh* is often caused by draughts of air and too cold baths. The head becomes hot, the nostrils clogged, and the breathing obstructed. If a soft feather be dipped into warm salt-water and gently passed up the nostril, the bird being kept warm for some time, it will be a sufficient treatment. Parrots and other birds that will bite should be covered with some fabric before treatment, to protect the operator and prevent resistance from the claws.

*Asthma* is a term that is often improperly applied to cases of cold and catarrh. Birds do not have anything that can in any true sense be called asthma. The chest is sometimes by nature too narrow, and thus gives rise to a condition of the voice which some call asthma, but that is incurable.

#### CONSUMPTION OF THE THROAT AND CHEST.

The special symptoms of consumption of the *throat* are a frequent cough, roughness of the voice, often a failure to take food, either from loss of appetite or from pain in swallowing, attacks of fever followed by shivering being more or less regular. As treatment, keep the bird in a very warm atmosphere, give a little piece of pork and a tea of speedwell (weak for small singing birds; strong for parrots, the thrush family, and large birds in general). This will usually effect a cure in four or five days. If the disease is allowed to run four or five months it will be incurable; hence the importance of early attention and prompt treatment.

The distinctive feature of consumption of the *chest* or lungs is a tubercular deposit in the chest, liver and bowels. The first symptoms are

a "thinning" of the voice and occasional sneezing. When the sneezing comes on in the morning and continues during the day, the lungs have become involved, and eventually a puffed appearance will be manifest in the chest, as represented in the accompanying cut. The treatment consists



220. CANARY WITH CONSUMPTION OF THE CHEST.

in keeping the atmosphere very moist, and at a temperature of from 66° to 72° Fahrenheit (for which purpose a stove with fire can be placed in the room with a vessel of water on it). When the coughing or sneezing becomes continuous, the disease has progressed too far for treatment. A consumptive bird should never be used for breeding purposes.

#### WORMS IN THE WINDPIPE.

Many birds are killed by worms in the windpipe when their owners are at a complete loss as to the cause. A very destructive parasite finds its way to the throat, locates under the glottis and lives on the blood that it extracts. The wound which it makes begins to swell, and the bird is thus deprived of breath. Parrots, fancy chickens and singing birds are especially liable to such attacks. At first the bird shows signs of general impairment of health; a cough sets in and grows worse; the bird throws its head from side to side as if trying to expel something from the throat; finally

death ensues from suffocation if relief is not given. A bird affected in this way should be completely separated from others, for the parasite is readily transmitted to the well. The killing of the worm is the only cure, and recovery rapidly comes on when this is accomplished. The best method of treatment is to put the bird into dense tobacco smoke, and give meal-worms that have been dipped in sweet oil. Care is requisite to avoid suffocation by the smoke, particularly if it is applied long at a time.

#### VERTIGO OR DIZZINESS.—EPILEPSY.

*Vertigo* or dizziness must not be mistaken for *epilepsy* which is considered just below. The former attacks large birds which are kept in *round* and incommodious cages. The bird will turn its head around at times and so continue until it falls from the perch and lies as if dead. Provide a larger and *square* cage. If this does not effect a cure, probably nothing will. Covering the top of the cage with a cloth may afford temporary relief, for it keeps the bird from looking up, which is commonly supposed to be the cause of the disorder; but it will not alone eradicate the malady, which is an affection of the nervous system that is primarily due to the kind of cage mentioned.

*Epilepsy* is produced in nervous and fat birds by violent shocks, as from a fright or loud noise, which causes them to fall in a sudden fit. Pour cold water on the head until the bird revives; then let it fly for some time in a room. Provide more commodious cages for fat, large birds when they have recovered, give less food than before, and guard against shocks of all kinds, as slamming of doors, explosions, and the like.

#### LIVER-SPOTS.

This term is applied to an inflammation of the liver the chief external symptom of which is violet spots under the breast. The bird eats but little, owing to pressure on the stomach. It is a good rule to give the sick bird the food it relishes, except such as tends to produce fat. Seed-eaters should have less rape and no hemp. Mix flax and poppy seed in the food. Thrushes and their species require poppy seed. To parrots give no hemp or meat; half-boiled corn is good for them.

#### INFLAMMATION OF THE BOWELS.

This is a frequent complaint in warm weather, and is caused by an undue supply of heating or stimulating food, fruits, lettuce and other green

feed in excess, and sour, soft food. The disease is very rapid in its course. During the first two days the droppings are green, and afterward become mixed with blood, death soon taking place if relief is not afforded. The bird is very thirsty during the attack. Parrots, canaries, and mocking-birds are particularly subject to the disorder. The patient should be kept warm, and oatmeal-tea (but no water) be given as a drink. From the diet exclude fruits, egg-food, lettuce and other green feed, giving only seed or grain, according to the natural demand of the bird. Meat-eaters must have an abundance of meal-worms and ant's eggs, but no sour or spoiled food. Studiously avoid such of the mocking-bird foods in the market as can become sour. That made upon the formula given on a previous page will not sour, if carefully prepared, and is a good food in this complaint for such birds as those for which it is there recommended.

### RUPTURE.

Young birds are more often than the old affected with a disorder called rupture, which is characterized by a lean, transparent, puffed-up appearance of flesh, with small, red veins, and a falling of the intestines into the lower part of the belly, where the skin becomes black before or after death. Though the malady is generally fatal, because not treated soon enough, relief may be afforded by giving a light and simple diet, since too heating and stimulating food is the most common cause, egg-food being quite often the origin of the trouble. This is generally, if not always, a manifestation of inflammation of the bowels and demands substantially the same treatment. Attend to it as soon as it manifests itself.

### COSTIVENESS, DIARRHŒA AND DYSENTERY.

**COSTIVENESS.**—When the action of the bowels is stopped or difficult, mild cases may be cured by giving green food freely, and substituting the juice of yellow carrots for the drink. The bath should be taken away. In obstinate cases, give one to two drops of castor oil, either directly into the throat from a quill or pen, or in the food. It is well, sometimes necessary, to dip a fine, soft brush or feather into oil and very carefully push it into the bowel through the vent.

**DIARRHŒA AND DYSENTERY.**—These can generally be cured by feeding poppy seed, which should be half-boiled for parrots and thrushes. In the worst cases, particularly if blood is mixed in the droppings, give one or two drops of tincture of opium in the drink. Colds and an unwise selection of food are the chief causes.

### OBSTRUCTION OF THE RUMP-GLAND.

The rump-gland secretes the oil for the anointing of the feathers. It may be doubted whether it ever suffers any disorder other than the itching which results from its obstruction in constipation, and which causes the bird to peck and rub it with the beak more than it does when merely oiling its feathers. If cases of obstruction occur, soften the gland well with tepid water and squeeze it out, but do it very gently, since carelessness or rudeness may kill the bird, and will certainly irritate the gland.

### SORES ON THE FEET AND EYES.

If ulcers appear on the feet from dirt sticking to them, thoroughly soften the feet with tepid water until the dirt comes off. Then put twelve to fifteen drops of strong tincture of arnica into a glass of water and apply some of it two or three times a day with a feather. Stronger dilutions of arnica may be used on larger birds. Clean cages and proper food are efficient preventives.

The eyes may become sore from filth in the cage, and need the same treatment as is given for sores on the feet. The juice of red beets is recommended, both as a drink and as an external application.

### LOSS AND EXCESS OF FLESH.

The use of unnatural food deranges the digestion and causes the bird to disgorge its food, ruffle its feathers, and rapidly lose flesh. Restore the required food and tone up the system by putting a rusty nail in the drinking-water for a few days.

A bird may become fat if it has too much or too stimulating food. The treatment consists in resorting to a simpler diet, including small quantities of ant's eggs, and avoiding the fat-producing articles. A mistaken fondness too often prompts one to pamper birds until they grow fat and dull, and thus indisposed to song and vivacity.

### PAIRING FEVER.

By this is meant a condition in the spring, when the inclination to pair is the most marked, in which a bird ceases to sing, is drooping in spirits, grows thin, ruffles its feathers, and possibly dies. Remove the female from sight and put the male in a cooler place. The normal spirits and health will soon return, and no additional care will be needed.

## FLEDGING AND MOULTING.

Though the growth of the first coat of feathers and the periodic change thereafter are natural functions, they produce a debility which renders a bird peculiarly susceptible to disease. These changes make a special demand on the digestive organs, and an increased allowance of food should be afforded, though without any delicacies. A rusty nail in the drinking-water will be a useful tonic. Meat-eaters need more worms and ant's eggs than usual. The Macena Biscuit is superior as food during these periods for those birds for which it has been recommended above. Keep the bird in a rather warmer atmosphere than usual as a precaution against colds, and insure rest and quiet, being especially careful not to excite the bird.

## LICE.—MITES.—PARASITES.

When a bird is restless, particularly at night, and repeatedly puts its beak under its wings and on other parts, the presence of lice or mites should be suspected, and a minute search be made at once. If they are found, blow *pure* Persian Insect Powder thoroughly into the feathers, in *small* quantities, and into all corners and cracks of the cage. Clean the cage very carefully and anoint all parts of it with kerosene oil, before using the powder. It is best to furnish a new cage after the eradication, until the infested one is surely free from all traces of the pests. Absolute cleanliness is, of course, one of the surest preventives. Both before and after the appearance of lice or other vermin, a supply of sand for dusting and abundant opportunities for bathing are very beneficial. When a cage is infested with red mites, temporary relief can be afforded the bird by spreading a white cloth over the cage at night and removing it after a while. If mites are present, they will collect on the cloth and will be seen as minute red spots. Of course they should be destroyed when removed in this way. This is, indeed, a good expedient to discover their presence.

## DEFORMED CLAWS AND BEAKS.—INJURIES.

If the perches are so small that the bird can reach more than three-fourths of the way around them, the whetting on the points of the claws required by nature is not afforded, and they become too long and deformed. The best treatment is to remove the cause by providing thicker perches. If the claws are so long as to present a deformity, hold them up between your eyes and a light, so that you can see the ends of the blood-vessels; then clip them off near those ends, using *scissors*, not a knife. If bleeding

should follow, rub on a few drops of arnica. This kind of deformity should not be neglected, for the bird is in danger of hanging itself by the feet and thus dying.

The beak may be overgrown in consequence of the bird's inability to whet it. It is treated by cutting it off, with the same instrument and with the same caution in avoiding the blood-vessels as are named in clipping the claws. It is best to have an experienced person perform these operations.

When a bird suffers from a wound, fracture of a bone, frost-bites, or other injury, the precision required in treatment is such that no suitable directions can here be given. It is a great mistake to kill a pet bird because it has a broken bone, for it can be successfully treated at one of the bird hospitals which are found in some of the larger cities; but no time should be lost in sending it to such a place, if it is to be sent at all. If any parts have been nipped by the frost, put on a few applications of a weak dilution of arnica, followed by an anointing with oil.





## FORMULAS FOR LOTIONS, LINIMENTS, OINTMENTS, CERATES, ETC.



**Aconite Lotion.**—Prescribed in various parts of this book:

Strong Tinct. Aconite, 1 ounce.  
Water, 4 “ Mix.

**Alum Lotion.**—For simple inflammations of the eye:

Pure Alum, 1 grain.  
Pure Soft Water, 2 tablespoonfuls.

Dissolve. Put a few drops in the eye twice a day.

**Arnica Lotion.**—For bruises and other injuries:

Tinct. Arnica, 1 ounce.  
Water, 4 “ Mix.

**Arsenicum Lotion.**—

Arsenicum, 4 grains.  
Water, 4 ounces. Mix.

**Bismuth Lotion.**—For scaly eruptions and excoriations, and for itching of the vulvæ:

Sub-Nitr. Bismuth, 1 drachm.  
Olive Oil, 1 ounce. Mix.

**Bismuth Ointment.**—For intense itching and irritation, as in eczema and other skin-diseases:

Nitrate of Bismuth, 30 grains.  
Prepared Lard, 1 ounce. Mix.

**Borax Lotion.**—For excoriations, and itching of the vulvæ:

Pulv'ized Borax, 20 grains.  
Distilled Water, 2 ounces. Dissolve.

**Borax Ointment.**—For thrush and itching of the vulvæ:

Pulverized Borax, 1 ounce.  
Glycerine, 4 “ Dissolve.

**Butternut-Bark Lotion.**—For cuts, stabs, punctures, etc., in horses. Make a strong infusion of butternut bark and apply freely.

**Calendula Lotion.**—For open sores, cuts and lacerations:

Tinct. Calendula, 1 ounce.  
Water, 3 “ Mix.

**Camphorated Borax Lotion.**—For dandruff, ring-worm, tetter, etc..

Pulverized Borax, 1 drachm.  
Spirits Camphor, 1 ounce.  
Glycerine, 1/2 “  
Soap Liniment, 2 “  
Water, 12 “ Mix.

**Carbolic Acid Lotion.**—For ulcers, inflammation of the mouth and itching of the vulvæ:

Pure Carbolic Acid, 10 grains,  
Distilled Water, 6 ounces.  
Dissolve.

**Carbolic Acid Ointment.**—For diseases of the skin in general:

Carbolic Acid, 5 grains.  
Lard, 1 ounce. Mix.

**Chloroform Liniment.**—For rheumatic and neuralgic pains in general.

- (a). Chloroform, 1 ounce.  
Ether, 1 “  
Spirits Camphor, 1 “  
Laudanum, 1 “  
Tinct. Cayenne Pep., 1/2 “ Mix.
- (b). Chloroform, 1 ounce.  
Olive or Salad Oil, 2 “ Mix.

**Condition Powders.**—For various conditions of the horse:

Anise,	3 ounces.
Fenugreek,	3 “
Rosin,	3 “
Ginger-root,	3 “
Copperas,	3 “
Antimony,	1½ “
Saltpetre,	3 “
Licorice,	3 “

Mix thoroughly; give a tablespoonful as the dose.

**Condy's Fluid.**—

Pernanganate of Potass,	1 grain.
Water,	1 ounce.

**Horse Liniment.**—For splint, curb, spavin, warts, and tendency to bony growths, in the horse:

Lard,	4 ounces.
Tallow,	1 ounce.
Mercurial Ointment,	2 “
Strong Tinct. Iodine,	2 “
Oil of Cedar,	2 “
Spirits Turpentine,	2 “
Bin-iodide Mercury,	3 drachms.

Melt the lard and mercurial ointment over a slow fire and add the fluids and bin-iodide mercury when it begins to cool, stirring them all well together. Use it with caution and keep the parts well oiled after its application.

**Hoof Ointment.**—

Mutton Tallow,	2 parts.
Resin,	2 “
Tar,	2 “
Yellow Wax,	1 “
Castor Oil,	1 “

Melt well together and thoroughly mix. The ointment should be used after the feet are washed and have become dry, and is best applied to the horses'

feet by rubbing in with the hand.

**Iodine Lotion.**—For rheumatism and swelling of the glands and other parts:

Tinct. Iodine,	1 ounce.
Glycerine or Olive Oil,	½ “ Mix.

Paint the parts with it, using a brush.

**Iodine Ointment.**—Use, same as that made of iodine lotion:

Strong Tinct. Iodine,	1 drachm.
Lard or Vaseline,	½ ounce. Mix.

**Lard Ointment.**—For raw and inflamed sores in general:

Lard,	1 pound.
White Wax,	4 ounces.

Heat and stir together until cool.

**Lime-Water.**—Prescribed in various parts of this book, and in frequent demand in the stable.

Fresh Unslaked Lime,	3 ounces.
Water (preferably distilled),	1 quart.

Occasionally shake them until the lime is thoroughly slaked; let it settle and use the clear liquid. Keep it in a bottle or jar, well corked.

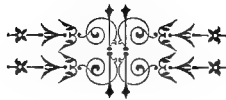
**Soap Liniment.**—For bruises, sprains, pains, rheumatism, etc.:

Castile Soap,	4 ounces.
Oil of Rosemary,	5 drachms.
Camphor,	2 ounces.
Alcohol,	1½ pints. Mix.

**Vinegar Liniment.**—For sprains, especially in the horse: Dissolve in strong vinegar all the salt it will take; apply freely, with bandages.

**Zinc Ointment.**—For burns, blisters, excoriations, inflamed eyelids, and various affections of the skin:

Oxide of Zinc,	1 ounce.
Lard,	6 “ Mix.



# INDEX.

When more than one Part of the book is referred to under a given topic, the distinctions are made by the following equivalents: H, Horse; S, Sheep; Hg, Hog; D, Dog; C, Cat; P, Poultry; B, Birds; ff, "and following pages."

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