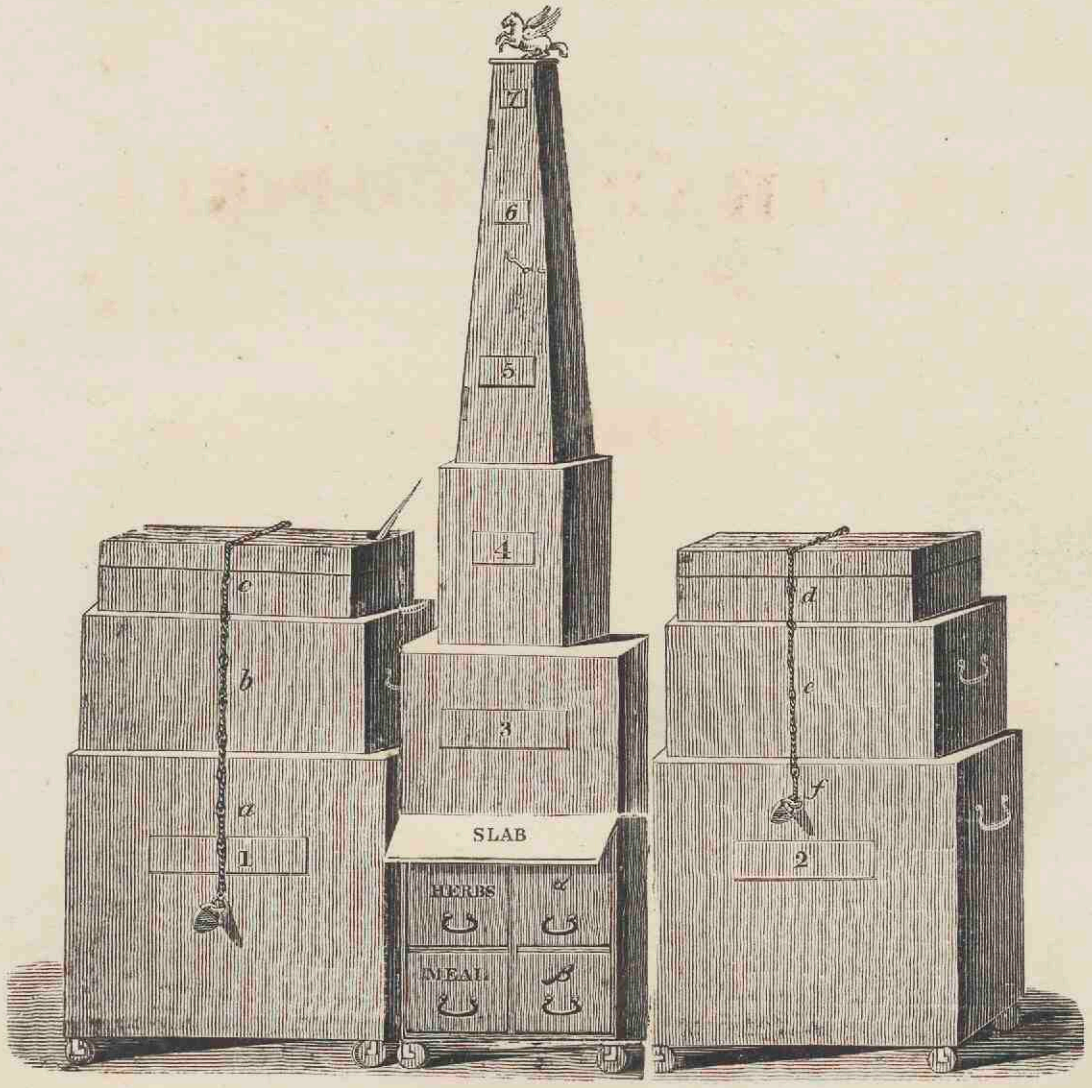
Pharmacopoeia equina; or, new pharmacopoeia for horses



COMMODUM EQUINUM;

OR,

A VERY CONVENIENT AND SECURE PORTABLE SURGERY AND PHARMACY.

1. SURGERY. 2. MEDICINE.

The Contents of these Six Cases are described hereafter.

Explanation of the Labels; which denote also the proper Divisions of the Subject.

3. FERRIERY, *containing various kinds of Shoes, &c.* 4. FOOT *exposed.* 5. HIPPOCOMIA, *or, On the dressing & conditioning Horses*

6. EDUCATION *of the Horse.* 7. EDUCATION *of the Man rightly to use him.*

PHARMACOPŒIA EQUINA;

OR,

NEW PHARMACOPŒIA

FOR

HORSES.

BY

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Dum meliora proveniunt.

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INTRODUCTION.

IN sickness, how long has this worthy animal been the sport of a delusive system of ill treatment, and to his distresses, instead of assistance, has been added gross abuse; as though, from his being placed lower in the order of creation, any vile thing would do for his medicine, or any man, however ignorant, for his physician; yet is he possessing the same elements of matter, the same laws of life, and nearly the same organs as man himself. Placed at the mercy of the ignorant, what nauseous and inconsistent farragoes are forced upon him.

Men, without the smallest previous knowledge that should fit them for such an employ, are occupied, self-appointed, in being his physician; of this description are the generality of shoeing smiths. These men, by long habit, have become as it were the legitimate physicians of the horse; it is however, to be remarked, that the blacksmith has not always been his physician; for, only since the invention of the iron nailed shoe has he assumed this employ, and which may have been the custom during a period of perhaps about twelve or thirteen hundred years, not more; before this, veterinarians, educated for the purpose, according to the knowledge of those times, were occupied with this profession. This we learn from the writings of Apsyrtus, Pelagonius, Hierocles, Vegetius, and others; and the Roman armies, especially of the Eastern Empire, or Byzantium, employed and supported them.

The Smiths or Farriers,* it is obvious, could never, by their employ, attain a knowledge of medicine; and true it is, they did not discover, or know, even the principles of their own peculiar art, or that there was a fundamental defect in it, fraught with a complexity of evil: the fixing for an indefinite period an inflexible bar of iron upon the *elastic* foot was to them of no consequence, though opposing Nature's chief law in the construction of all feet. This elastic principle, though simple in itself, is as necessary to be understood in respect to real good shoeing, as gravitation

* From *Ferrum*, Iron.

to the astronomer; polarity of the needle to the navigator; or electricity to the meteorologist. The sufferings of the animal from this source, I have endeavoured to pourtray in another publication exclusively on this subject,* but believe, that language cannot easily be found to reach the amount of their wrongs from their ignorance in this respect.

But to return to their Medicine. Of the wretchedness and insufficiency of the smiths, for the administration of equine medicine, we may have pretty demonstrative proof by a cursory view of their pharmacy, situated for the most part in some back-kitchen, or hole under the stairs, or dirty box placed against the wall in some obscure corner of the forge, shunning the light and observation, and beset, as though in mourning, with cobwebs and smuts of the chimney. A stone jar of raw oil of vitriol, another of spirits of turpentine, a bottle containing corrosive sublimate, and another butter of antimony, all unlabelled! an assemblage of dirty crocks and greasy broken pots, a filthy ladle for boiling tar, and some tow; to this motly list is commonly added a bottle of oil of aniseed, to serve on all occasions, to convey by the smell a delusive notion of the true nature of their compounds. These acids, or *ails*, as they call them, concentrated or diluted, simple or compounded, as it happens, mingled without measure or judgment, are dealt out to the unfortunate sick, and, like the ills of Pandora's box, prove but too often the heralds of misery and death, rendering incurable, trifles, which often might have been easily cured. Their system of physic, if system it may be called, has remained probably unchanged or improved, from its commencement, and is but the system of "the blind leading the blind." A ploughboy, seeking work, enters a forge, and in a twelvemonth's time, by their system, becomes, by the use of this dingy cupboard, a conceited physician of the horse.—How much longer shall such abuses be permitted?

Sad consequences from such physicians might well be expected; and in the course of a pretty long and extensive practice, I could mention, from my own experience, several. Of this kind was the following: A gentleman riding his mare near Greenwich, she fell with him, and cut her knee with the gravel, and tore up the skin in front of the knee. He immediately sent for a farrier, who came and applied something to it; he then returned to town, bringing her with him. In the morning I was sent for to attend her, but in vain; for, on taking off the dressings, the whole of the parts in

* Dissertation on the Foot and Shoeing, 6 parts, 4to. Second Edition, with numerous plates of new objects, £1. 11*s*. 6*d*.

front of the bones of the knee sloughed away, and came off with the bandage *en masse*, leaving the bones almost bare. This could have happened from no other cause than the application of some most destructively corrosive medicine; and there is little doubt it was their favorite oil of vitriol, in a concentrated state. Of course she was obliged to be destroyed; and such things, I may say, are not by any means unfrequent.

Where there is a violent disease, a violent remedy, say they, must be administered; and to give a strong drink, there must be something strong in it—and what is there so strong as *oil of vitriol?* By such logic as this, I have no doubt, thousands have come to their death; sometimes to the astonishment of their owners.

As an example of this, I was sent for in haste to two very fine coach horses of a gentleman, that were extremely ill; and sure enough, before I could get to them, it being a few miles out of town, one was dead, and the other with difficulty recovered; this sudden death could not have been the natural course of the disease, having had only slight colds before; or rather the idle coachman indisposed to turn out, it being mid-winter, had artfully reported them ill to his master, and to confirm it, sends for the country blacksmith; the next day one was dead, and the other with difficulty escaped; his death was accompanied with great agony, cold sweats dropping from him at every pore, and not as horses die with inflamed lungs; so that the drink given him could have hardly been more or less than the *strong drink* above alluded to.

No art has perhaps ever been more ignorantly conducted than this pretended medicine of horses; which has been often little better than a mockery for the purpose of gain. And it is notorious, that drugs, *effête* and useless, are laid by for the farriers by the trade, and are sold them cheap accordingly, though acknowledged useless, and of no virtue whatever.

There is a favorite mixture of theirs, of almost constant application, and which ought not to be passed over in silence; it is their *hot oils*, or *ayles*, as they call them, generally employed as a wash or embrocation for recent hurts and injuries. This precious mixture, to those who may be desirous of being made acquainted with it, is composed of nearly equal parts of oil of vitriol, oil of turpentine, and common or linseed oil: it is unfortunately used in cases requiring the most emollient and allaying medicines, as bruises, strains, and recent injuries. The following is an instance of its application: in attending a sick horse, at a livery stables,

I was requested by the master of the yard, as a matter of favor, to look at his own riding horse, which had met with a strain of the leg. The horse was lame, and in considerable pain, more than I apprehended could proceed from the hurt; the superior or muscular part of the limb appeared much swollen, the hairs stareing asunder, the skin visible between, oozing lymph, and extremely hot and painful. On applying the finger to the part, and touching it with the tongue, it tasted pungently acid, so that there could be little doubt it was the same favorite oil of vitriol. I merely recommended the removal of it, by a washing of warm water, and a fomentation or two of soft herbs, and a bleeding; the horse immediately became sound, so that he was only lame from this virulent application. Other instances I could adduce of a similar kind; but apprehend these are sufficient to show the danger of employing such very illiterate characters in surgery or medicine. Though sometimes I have thought that grossness and brutality appeared as a recommendation, with some, for employment in this profession.

There yet remains another very logical phrase of these men, a metaphor, more destructive than the sword, which ought also to be exposed; it is this: "*that if the poor horse is ill, he must needs want a cordial,*" though the animal is actually labouring under an attack of some inflammatory disorder, (for his internal complaints are chiefly of this description,) by giving cordials, they every way augment the disease; instead of resorting to large bleedings and diluents, which they ought to have employed. It is high time, indeed, these animals, and the public also, should be relieved from such abuses; and I ardently hope, and humbly trust, the following pages will in a degree contribute thereto, by rendering more clear and simplifying the treatment that should be pursued with horses.

Though much is said about horse medicines, the really useful may be reduced into a narrow compass; his powerful frame was certainly never intended for a display of the delicately poized arrangements and petty combinations of the apothecary's art; he would indeed have been ill suited to the purposes for which he appears designed, if he had been so circumstanced. Small effects are not at all discernible with him; and of alteratives or mercurials I doubt much the utility. By diet and regimen much may be done; and to raise or depress the powers of the system, as his diseases are mostly inflammatory, is nearly all that appears to be necessary with him.

Of his maladies, the principal are those artificially induced to the feet, by the shoeing, from its deleterious principle, various abuses super-added;

next, by work too laborious for his strength, and exertions too long continued; stables too close, and afterwards exposure, incompatible with such previous close confinement; food too stimulant also disposes him to inflammatory complaints; all draughts of air are dangerous, and all unnecessary sloppings and drenchings of water whilst warm.

The Pulmonary system in the horse is immense; and inflammation of the lungs is the grand disease we have to contend with, sometimes connected with that of the bowels and liver, and requires to be reduced, by the free application of a simple but powerful instrument, *the lancet*, which should be used with a bold hand. A valuable hint also to the inexperienced, as it is an easy error for practitioners to fall into, is, that during extensive bleedings, purgatives must be used with the greatest caution, as they produce a much greater effect or even a metastasis of the disorder from the lungs to the intestines; a diarrhœa, or violent purging, ensues, which is truly difficult to stop, and frequently destroys the horse; very small doses only can be administered, or perhaps still more safely a laxative diet. The best indication for the employment of the lancet, is the heat under the tongue, the turgid vessels of the *conjunctiva* of the eye, and pituitary membrane: as to the pulse, from the smallness of the artery, and thickness of the skin and hair that covers it, it is perhaps less to be depended upon, though, for appearance, generally resorted to by the practitioner. The appetite for the most part improves when the bleeding has been carried far enough, and the return of health soon follows. If the viscera however have been previously disordered, or have suffered by a neglected or careless bringing up of the young foal, they may give way to the violence or shock of the attack, and death ensue; otherwise, this treatment, if timely resorted to, is generally attended with success.

Of idiopathic, or pure *fever*, there is none I believe in the horse; what is called fever with him, is constantly the inflammatory affection of some organ or organs, and by far the most frequent of the *lungs*.

There is however one disorder of this animal that appears not reduceable to the simple system we have laid down, but which forms an exception to it. Excessive hard labour, and very high feeding, applied together, undermine the healthy actions of the stomach and viscera, after a time, according to their various strength, and give rise to a singular train of appearances, which are denominated by the general term *farcy;* of which the *glanders,* though casually receiving a distinct appellation, is probably only a more virulent variety. Appearances of the same kind also take place on excessive reduction or depression of the animal, as by turning

out in low damp situations, especially, if foundation has been previously laid by the above measures of high feeding, &c. For high feeding, we may remark, is not a proper, or at least a salutary compensation for such unnatural exertions, as it is most commonly apprehended; that it would evidently be more politic and a saving in the end, to employ more power, or in other words, more horses, than to ruin and destroy the few in this way. Spices with tonics and bitter medicines to the stomach, are most efficacious in this disorder of which I propose to give some *formulæ* hereafter; a remission of labour and a bleeding, if much inflammation exists, moderate exercise and good grooming, appear the most successful means of removing it. The loss to coachmasters by this disorder is prodigious: a great share of which might, I believe, be prevented by a careful attention to the early appearances of the complaint, and setting them aside for treatment before it becomes desperate, which they are not often inclined to do, and then not sufficiently persevering in the measures necessary.

If to the above general remarks on the Equine nosology, we add the affections of the limbs, from violence and over exertion, as *Strains; Relaxations* of mucous capsules; *Synovial puffings* of the joints and *Enlargements of bone* from diseased periosteum; which in their recent stage require soothing applications, and after the inflammatory actions subside, blisters and other stimulants; we shall then have a brief outline of the most material part of the simple practice of horse medicine.

In human disease it is often difficult, though aided by speech and description, to ascertain the precise part that is diseased; the difficulty is truly great, therefore, where neither of these can be brought to our aid, or any external indication to guide us, or any swelling or sensible alteration of temperature in the part; such cases may be deemed, without any offence to truth and common sense, *obscure cases*, yet in the practice of common farriers, no such cases ever occur; they think it an impeachment of their skill and knowingness to acknowledge any such thing, and in this case, without the trouble of any nice enquiry, or minute investigation, fix at once upon the shoulder, if before; and upon the round bone or stifle, if behind; though these two great and strong parts of the limb are the least subject of any to be out of order. We shall not, however, blush to acknowledge, that a large share of horse cases are very obscure; and some so perfectly so, as to elude the penetration of the most vigilant. He who takes most pains, if he has a knowledge of the parts, and good common sense, will arrive at the best and soundest conclusions: therefore let none be ashamed or afraid of admitting there are difficulties.

MATERIA DIETETICA EQUINA, OR THE DIFFERENT KINDS OF HORSE FOOD.

Div. I. Fodder or Herbage.—*Pabulum.*

Grass, composed of

- Poa *annua.* The general green covering, or carpet of the earth
- Poa *trivialis*
- Poa *pratensis*

Bents, or High Grasses.

- *Lolium, perenne.* Darnel, or Ray Grass
- *Dactylis glomerata.* Cocks-foot Grass
- *Alopecurus pratensis.* Meadow Foxtail Grass
- *Cynosorus cristatus*
- *Agrostis vulgaris*
- *Anthoxanthum odoratum.* Sweet scented Grass
- And others less copiously.*

Dried, forming Hay: the chief food of Horses.

Clover. *Trifolium pratense.* Purple Clover.

Trifolium repens. Dutch or white Clover. They are held as a stronger diet for horses than the common meadow hay.

Saintfoin. *Hedysarum Onobrychis.*

Lucerne. *Medicago sativa.* Highly nutritious for horses. Of this family also was the ancient very famous *Cytisus.*†

Vetches, the green Herb, or Tares. *Vicia sativa.* Much used in the spring for foddering horses. It is objected, that they are apt to sweat much with it; and unduly exposed at their work, catch cold; inflammation of the bowels takes place, and then affections of the brain, termed staggers. They are given also in the metropolis as a salubrious substitute for turning out to grass.

Vine Leaves. *Vitis vinifera.* The leaves of the vine are collected and laid by for winter food for horses in various parts of France.

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* It is to be remarked, that the *Ranunculus acris, or Crowfoot,* and other plants of this kind, are growing abundantly in the richest meadows, and so scattered with the grass, that it is next to impossible the animals should not receive now and then, in spite of all their care, a portion of them: they serve, perhaps, though poisonous in large quantities, when taken in this way, as a stimulus or pepper to the stomach in quickening digestion. The *Polygonum Hydropiper,* in watery situations, is also particularly pungent, and perhaps serves the same useful purpose. Herbs of every kind, we may remark, are mixed in hay in still greater abundance, as the scythe knows no distinction; and hence it is perhaps, if long continued, and alone, as I think I have distinctly seen, not a very wholesome food for horses.

† This appears to have been the *Medicago arborea* of Linnæus, found in Italy, the Levant, and shores of the Mediterranean. A variety of it, of extraordinary luxuriance, and improved by cultivation, was perhaps the plant so extolled by Virgil, Pliny, and especially Columella.

DYER'S WOAD. *Isatis Tinctoria.* In Hungary this plant has been found useful food for horses. Three or four crops are obtained of it in the course of the year, and it continues fresh and green in the hardest frosts, and under the snow: once planted, it propagates itself by the falling of its seed without farther trouble. M. Bohadsch. Instructions, &c. Tom. III. p. 347.

ACACIA TREE. *Robinia Pseudo-Acacia.* In the torrid zone, where sand abounds and no grass is found, this elegant tree appears the substitute for grass—the animals browsing on its pinnated foliage. Horses in this country, I have observed, are fond of it, and feed on it voraciously. It has appeared to me, that in good soils, the earth may be made to bear a triple stock or crop of food for horses; the lowly grass, the shrubby *cytisus*, and the lofty *acacia.*—In Valentia, and the south of Spain, bordering on the Mediterranean sea, the fruit or pods also of the acacia are given to the horses, when fully ripe, and make a nutritious food.

RYE. *Secale Cereale.* The entire herb often given in the spring, before grass comes, sowed to clear the ground from other crops being early got off. Probably more nutritious than hay, but less so than pulse or grain.

CANE TOPS. *Saccharum officinarum.* "Cane tops, or the tops of the sugar cane are collected as food for horses, in the West Indies. They are deemed more nutritious and wholesome if partially dried in the sun, and then laid in heaps to be sweated before they are eaten. In a season of abundance, says the writer, great ricks of cane tops (the butt-ends turned inwards), should be made in the most convenient corner of each field, to supply the want of pasturage, and other food; and these are very wholesome if chopped small and mixed with common salt, or sprinkled with molasses, mixed with water. Yet the cattle require change of food to keep them in strength, such as Guinea corn, and a variety of grass." Cyclop. Art. Plantation.

MAIZE, or INDIAN CORN. *Zea mays.* The plant. "When Guinea, or Indian corn is planted in May, and is cut in July, in order to bear seed that year, that cutting, tedded properly, will make an excellent hay, which cattle prefer to meadow hay. In like manner, after the corn has done bearing seed, the after crop will furnish abundance of that kind of fodder which will keep well in ricks for two or three years."

WHEAT STRAW. RYE STRAW. OAT STRAW. *Wheat Straw, Rye Straw, Oat Straw,* serve to form good beds, but alone, make indifferent food. Chopped coarsely and mixed with clover, or other hay, it usefully serves to divide it and make it fill the stomach; and mixed with barley it makes excellent food; much used in Spain, in Sicily, and the East, where there are no oats.

CAPIM. *Panicum Spectabile.* In the torrid region of Brazil, almost destitute of grass, they use for fodder a plant called *capim* or *Guinea grass;* in

height and appearance it resembles the sugar cane, and has broad, long, luxuriant green leaves; it is exceedingly prolific, and yields large successive crops of sweet succulent fodder. Obtained originally from the Guinea Coast of Africa. Walsh's Brazil. Vol. ii. p. 12.

Div. II. Manger Meat.—*Frumenta.*

GRAIN.

Oats. *Avena sativa.* Varieties. White, Black, Red, Poland, Potatoe, &c. when baked, and afterwards ground, forming the useful article, *Oatmeal.*

Barley Malt. *Hordeum distichon.* The most ancient food of horses. Germinated by wetting, parched, and then ground coarsely, forming *Malt;* perhaps of all food for horses the most nutritious. Barley and chopped Straw is extolled by many writers as excellent food for horses, and as particularly giving high health and spirits.

Brank, or Buck Wheat. *Polygonum Fagopyrum.* Making a black bread; with which in Holland and many other countries they feed their horses. It appears to be very laxative from what I observed.

Maize, or Indian Corn. *Zea Mays. The Seed.* This is the *Corn* of the Eastern World, and of the Scriptures; given to horses, it is apt to clog the stomach, and not digested, will affect the feet in a singular way, and the hoofs fall off. In America, this not unfrequently happens on a journey. The Greeks also describe this complaint, under the term *Chrithiasis*, see Podora, p. 35, on Founder. It should be diluted with chaff, or other food, as it appears to be too clammy for digestion when given by itself, and especially if hastily eaten. The Millet, *Millium effusum*, follows, when the other is no longer in season, and is given plant and seed together.

Bran. *Triticum hybernum.* The outer shell of the wheat. It is laxative; and often changes the colour of the dung to a lighter brown or yellowish cast. I have been led to apprehend its laxative effects proceed from the mechanical friction of the rough particles or scales of the bran upon the inner coats of the intestines; as the wheat without the bran in bread is not particularly laxative.

PULSE.

Beans. *Vicia Faba.* Supposed to be the strongest and most heating food of horses. Beans, especially imported, are subject to a weevel or maggot, *(Bruchus granarius)* and is supposed very detrimental to horses.

Vetches. *Vicia sativa.* The seed. In some counties given to horses, but not frequently: their precise effects perhaps not ascertained. Knowledge from actual experiment on all these kinds of food is much wanting.

ROOTS.

CARROTS. *Daucus carota.* A cooling and nutritious autumn food for horses.

POTATOES. *Solanum tuberosum.* Horses eat them sliced, and some boil them; but are not so fond of them as carrots.

FRUITS.

GOURDS. In the American Illinois, these, chopped coarsely, are very much given to the horses for food. And in Spain, not only the *Acacia Pods* but, dried *Figs* also are commonly given to horses.

DIV. III. ANIMAL FOOD.

FLESH. Though the horse is naturally an herbivorous animal, yet there is no doubt he may become by habit a carnivorous one; and so can even a sheep, as John Hunter taught a lamb to eat beef-steak out of his hand. In a magazine, I have seen a well attested account of a colt that was in the practice of visiting a pantry window that looked into his paddock, and of stealing and eating mutton, beef, veal, and poultry: pork he seemed to reject.

In the East Indies, meat boiled to rags, to which is added some kind of grain and butter, and made into balls, is thrust down their throats. *Carpenter's Introd. to the Wars of India.* Also sheep's heads, during a campaign, are boiled for them in that country.

FISH. In Iceland, it is stated by Buffon, that dried fish is made the food of horses; and my friend, William Bullock, Sen., lately informed me he saw them in the same practice in Norway.

MILK. *Lac Vaccinum, Caprinum, Camelinum.* The Arabs, when fodder fails, use milk for feeding their horses, and in travelling over the desert.

PROVOCATIVES TO APPETITE AND DIGESTION.—*Condimenta.*

SALT. *Soda muriata.* Stimulating the coats of the stomach and assisting in dissolving the food.

SPICES. *Pimento, Ginger, Pepper, Mustard,* &c. exciting the stomach to a quicker action, and perhaps greater secretion of gastric liquor.

MATERIA VENENATA EQUINA.

I briefly collect what few facts at present exist, on good authority, in this department of Horse knowledge.

DIGITALIS PURPUREA. *Fox Glove.* Half an ounce of the dried powdered leaves of Digitalis was made into a ball, and given to an ass at nine in the morning; at nine in the evening he died. The utmost langour and debility of the system

was produced about a quarter of an hour before death; till which time he remained apparently unaffected; not the least disposition to perspiration was observed: some thick slime came from his mouth a little before he died. On opening his stomach it was rather inflamed.

Four ounces of the fresh green plant, beat into balls, was given to a horse not diseased, except by a swelled leg; it produced no externally sensible effect.

One pound of the fresh leaves, beat into nine balls, was given him; in a few hours it brought on a surprising coldness of the ears and legs, the pupil of the eye was nearly closed, a quick languid pulse; at length cold clammy sweats, which terminated in death; the lower lip hanging down, the legs trembling, and profuse perspiration; he died cruelly convulsed, his skin quite cold everywhere. On opening this horse, there was neither inflammation in the stomach or intestines; its being given green and fresh was the cause of its not affecting the membranes of the stomach, as the dried powder did that of the ass.

Dr. Willan has observed, that in the human it has the valuable effect of lessening the action of the heart and arteries, without debilitating the general system as evacuants do, and may therefore be of great use in some diseases.

YEW TREE. *Taxus Baccata.* Professor Viborg presented twelve ounces of the green plant to a horse that had fasted four hours; he eat of his own accord eight ounces, which proved fatal, as he fell dead without any indication of suffering at the end of one hour from his swallowing it. The same effects were produced by six ounces in an experiment of M. Bredin, and Henon of Lyons. A mule died five hours after taking six ounces mixed with some hay. They all died suddenly and without convulsions. The only effect observed on examination after death was, that the intestines of the mule had small spots of extravasated blood, about the size of the human nail. But what is singular, is, that eight ounces of the Yew plant, with twice as much oats, did not kill or produce any sensible inconvenience, and the same result took place in three or four experiments of Prof. Viborg.*

Poisons, though they may form a class of themselves, branch into both food and physic by indefinable gradations.

HEMLOCK. *Conium Maculatum.* Has been known to kill horses, that through hunger or want of smell have partaken of it.

WATER DROPWORT. *Œnanthe Crocata.* Most malignant to animals. I remember once, at Worcester, seeing a horse lying dead on Pitchcroft Ham; the carcase

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* It would appear from this, that it is the imperfect digestion of the herb that makes it poisonous, exerting then its baneful influence on the coats of the stomach and its nerves, and so producing death, perhaps by sympathy with the brain. It is deserving of deeper investigation. *See Treatise on Cholera, London,* 1832.

very much swollen, almost to bursting. It was not far from a broad watery ditch, on that side of the flat nearest the infirmary. On examining this ditch, I found the *Œnanthe Crocata* in great abundance, which I apprehended was the cause of the misfortune.

WATER HEMLOCK. *Circuta Virosa.* Linnæus describes it as very fatal to animals. In his Lapland tour, he says, the people of Tornea lamented bitterly the loss of their cattle, many perishing every year. On visiting the meadow near the town, he found a large bog or marshy place, where grew in abundance the *Circuta Virosa*, and in the spring luxuriantly. The animals kept from green meat during the winter season, feed on it voraciously on being first turned out, which occasioned the fatality. I am inclined to believe, had these unfortunate people administered to the animals, as early as an hour, or even two, after their seizure, a pint of hot water, a quart of rich oatmeal porridge, and half a pint of the Gripe Tincture, the last to be repeated, if occasion required, with warm clothing, and hand-rubbing the abdomen with flannel, they would have saved the greater part of them. *See Treatise on Gripes, London*, 1816. May we not see in this the vast value of the *Polygonum Hydropiper*, and other hot stimulating plants, in these humid situations, almost inevitably nipped at times by these browsing animals.

WATER PARSLEY. *Phellandrium Aquaticum.* Also very poisonous.

OPIUM. *Papaver Somniferum.* I introduce this among the vegetable poisons for the sake of a useful caution, having observed, that although to the sound horse large quantities can be administered with impunity, yet after or during purgatives, it brings on a violent and fatal inflammation of the intestines, of which I have seen three distinct and well marked cases. It is the more to be guarded against as people are often induced to administer it in order to stop a too violent purging.

ANGELICA. *Angelica Archangelica.* Vitet recommends it as a diaphoretic. Half an ounce of the root powdered was given to a sound horse (Oct. 30, 1793;) he was kept warm, and observed two hours after, his pulse was quickened 20 strokes in a minute; no other visible effect was produced. An ounce was then given, and produced no diaphoresis or sweating. Perhaps a steam-room, after the manner of the Russians, would afford us the best means of procuring diaphoresis in the horse where exercise is forbidden; and as its operation is certain and can be withdrawn or tempered at pleasure, it perhaps would therefore be better than any medicine; as diaphoretics of the horse, by medicine, are those which produce most violent and distressing effects upon the stomach, and probably injure it.

HUMAN PURGATIVES *not acting on horses.*

JALAP. *Convolvulus Jalapa.* The root powdered. One ounce according to Vitet produced no sensible effect; two ounces brought on beating of the flanks, convulsions, and death. The stomach was found very much distended and the pylorus inflamed. Vol. 3. p. 105. Two ounces of the resin of Jalap, also killed the horse.

April 4th, 1792, six drams of Jalap was administered to an ass, by myself, at our Veterinary College; it produced no sensible effect.

ELATERIUM. *Momordica Elaterium.* I was desirous of seeing, as the ancients used the *Cucumis Sylvestris*, if this, which is supposed allied to it, or the same, would have any purgative effect on the horse. One scruple was given to a grey horse at the Veterinary College (April 26, 1793) it took away his appetite for a few hours, but produced no other apparent effect. Vitet says that a dram was given in powder, and increased to half an ounce during a course of sixteen days, but produced no sensible effect.

GAMBOGE. Two scruples of this drastic purgative, made into a ball, was given to an ass; it produced no sensible effect. Two drams was then given, which produced no sensible effect; some days after half an ounce was given, without any purgative effect. One ounce was administered to a horse: it produced considerable distress, rendering the respiration more laborious.

COLOCYNTH. This perhaps like the former, would very much irritate the stomach and bowels, without producing any purgative effect; though I know of no direct experiment upon it, and have been cautious of unnecessarily adding to their sufferings by such experiments. The absurdity therefore of putting such things as these into horse physic is evident; and the excellent operation of the aloes upon them seems to render such quite unnecessary. Vitet, I observe, has given it to a horse from half an ounce to two ounces and a half, without producing any very sensible effects.

CASTOR OIL. By reasoning from the human, this medicine has also been imagined of great use as a purgative. I never saw it produce any such effects when administered alone; and, in order to see whether it had this effect, I gave to my own horse, a chesnut Welch galloway, about fourteen hands high, January 23, 1802, nearly a quart bottle full, procured expressly for the purpose. It disordered him for a few hours, and took away his appetite: it however did not produce hardly any relaxation of his dung.

Manna, *Senna*, and other human purgatives, seem also from their effects, equally objectionable, as well as by their price.

CALOMEL. In cases where it has been difficult to give a purging ball I have tried the calomel in powder, in a mash, as a more easy mode of administering it, from a dram and a half or two drams and a half; but it seldom produced any such effect. Bran mashes given with it will relax horses; and has been often mistaken for the effect of the medicine. For the origin of this word *calomel*, see *on Ancient Shoeing, p.* 10.

GLAUBER'S SALT. This salt, given by me as far as a pound to a horse, produced hardly any purgative effect; but increased his urine considerably. Vitet also experienced the same effects. I have administered this salt in a violent diarrhœa of the horse, from an over dose of aloes incautiously given in inflammation of the lungs, and it suppressed the purging very usefully, and effected a cure. Its utility in this respect I have since confirmed in several cases. See also *Treatise on Cholera, p.* 7.

HUMAN EMETICS *not acting on horses.*

EMETIC TARTAR. *Antimonium tartarizatum.* I gave to an ass, at the Veterinary College, March 12, 1793, one ounce of emetic tartar mixed up with honey and liquorice powder. I could not perceive any change whatever that it produced; he eat very heartily after it all day, so that it did not excite even nausea; and two days after I did not perceive him at all ill. Two ounces were then given to a horse, without any sensible effect. Pigs, it is said, will fatten by its use. To dogs it is, however, a very active and useful emetic in small doses.

IPECACUANHA. *Psycotria emetica.* The powdered root. Vitet observes, that from half an ounce to an ounce given to a horse, makes him snuffle and sneeze for some minutes: at the end of an hour, he appears agitated, the belly tense, but not with increase of volume; the arteries and flanks beat with violence for four or five hours, these appearances gradually go off, and at the end of twenty-four hours entirely disappear; the dung not in the least altered in consistence. Given to the extent of three ounces, it distresses the horse greatly; he lies down and gets up, his flanks beat, he sighs and groans, and if copious water is not given him, he dies convulsed: on these symptoms going off, his dung is somewhat moistened, but not purged. If he dies, the stomach is found distended, the pylorus inflamed, the naked membranous part of the stomach of a deeper red, and the blood vessels enlarged.

KERMES MINERAL, or SULPHURET OF ANTIMONY. Vitet says, this does not act at all on horses as an emetic, even in the dose of two ounces. Indeed, for wise reasons it appears that the horse's stomach is rendered insensible to these stimuli;—how unsightly and dilatory on a journey would be such a proceeding! I was informed, however, in Denmark, that white hellebore root would have that effect, placed under the skin of the horse.

WHITE HELLEBORE. *Veratrum album.* Two drams was given to a horse of this root, in powder, mixed up with linseed meal in a ball, April 26, 1793: in about half an hour he shewed great pain by moving his legs, principally the hind, alternately resting on one of them, his fore legs the same, but not so much, his pulse rather quickened, with a short cough, and his head held down. This powder has sternutatory effects on this animal blown into the nostrils, producing coughing, and a flow from the nasal duct. Perhaps in ophthalmies it might be a useful adjunct to other remedies.

BLUE VITRIOL. *Sulphat of Copper.* This violent emetic does not so act with horses, as also the other metallic salts. When large quantities are given they uniformly produce distress, and probably inflame and injure the mucous linings of these parts. It is a singular phenomenon, that whilst his stomach is so little sensible, the skin should be more sensible than the human, as is shown by the effects produced by cantharides, oil of turpentine, &c.

WHITE VITRIOL. *Sulphat of Zinc.* A sudden and strong emetic in the human. We have used it in small doses as a tonic, with the horse, and in this way believe it preferable, as being more astringent, than the sulphat of copper, or of iron; especially when combined with the cantharides.

Various medicines, and of very different effects are lumped under the coarse term, *Alteratives;* perhaps in the horse of little or no use; that is to say, what is proposed by them, can be effected by more certain and simpler means.

ANTIMONY. *Liver, Crude, Glass,* &c. If of any effect doubtful; but serve to annoy the stomach and render the food unpalatable; good plain rubbing, clothing or exercise, better sudorifics.

AETHIOPS MINERAL. Of the same description. Proper dieting, exercise judiciously managed, much more efficient, I believe.

HUMAN NARCOTICS, *not affecting horses in a corresponding degree.*

OPIUM. To an old horse, at the Veterinary College in 1792, unprepared by previous small doses, I gave two ounces of opium: three hours after I went to see him; his respiration was rather increased; his pulse not full but quick; his eye staring: when I approached him unseen, and suddenly he started; his pulse towards night was 70 and strong: the next morning, full, strong, and slower. These were all the effects I observed. The opium was here beat soft and mixed with the meal, that it might the sooner dissolve, and produce its effects at once on the stomach.

Two ounces were given to another horse, and produced the same effects in a more sensible degree. I must again here emphatically remark, that when the animal is in a state of debility, as after inflammatory attacks, severe purging, bleeding, or other evacuations, he cannot withstand its action; but the whole system, especially the alimentary canal, rushes into a most violent and fatal inflammation; and the carcase opened after death, has a peculiarly strong offensive smell. My friend William Moorcroft, informed me he gave a horse one ounce of opium every two hours, in a case of locked jaw, without destroying the animal. That their resistance to its effects is truly remarkable; and the more so as the gentle stimulus of oats produces with them almost the exhilaration of wine.

ALCOHOL. Large quantities of brandy, or spirit of any kind, appear also only to stupify them, but do not induce real drunkenness as far as I have ever seen, and I have pushed it as far as three pints, and two bottles.

TOBACCO. Two ounces of Virginia tobacco was beat with a little water and meal into two balls and administered to an old emaciated horse; but produced no effect that was visible. The next day four ounces were given him; observed five hours after, no effect was produced, except that the respiration appeared rather quickened. In the morning I examined him before the grooms were in the stable, found his dung a little moister and slimy, his pulse equal, 49, a great discharge of mucous from the nostrils, thick, semi-transparent, streaked with white lines. I observed no other effects.

MEDICO-DIETETICS.

To make a Bran Mash.

Take of bran or pollard the quantity intended to be given, as half a peck, put it into a bucket, and pour upon it scalding water enough to thoroughly wet it; let it be well stirred with a stick, or squeezed with the hands, and stand covered over, till of the temperature of new milk, or quite cold, if so required. If it is desirable to render it more nutritious, oats may be added, or malt, or treacle, or honey.

A Malt Mash.

In the same way, using malt for bran.

Blanch Water.

Take three or four handfuls of bran, wet it with scalding water enough that it may be squeezed and worked with the hands till it becomes clammy, then add as much

water as may be desired. It is useful in cases of inflamed lungs or bowels, and with purging physic, as being more soft, bland, and suitable than mere water.

Oatmeal Gruel.

For a gallon take half a pint of good fresh Oatmeal, put it into a beechen bowl, to it add half a pint of water, rub them well together with a heavy wooden pestle for a considerable time: this I have found by many trials, and much experience is necessary to a perfect union of one of the constituents of the Oatmeal with the water, and which simple boiling does not appear to effect, even though long continued, and which does no good to the quality of the gruel; by trituration also, a less quantity of Oatmeal will make as rich or richer gruel than a larger quantity and longer boiling, and certainly much more palatable. At one period of my life I used it for my own supper every night for years, and discovered the advantages of trituration during the course of this practice; for, with a little milk added, it makes a delicious repast, being poured over some new bread pulled in pieces into a bason with a little brown sugar. A table spoonful of good Oatmeal is sufficient for nearly a pint of gruel when trituration is used; and there is no occasion for boiling it, for, when it simmers, it thickens and becomes very rich, and poured boiling over the bread, reduces it to a sort of candy, especially if it be new. The utility of this to invalids, and those who wish for light suppers, has made me thus minutely particularize its preparation, having myself experienced the advantages of it. To make it more delicate and light of digestion, the coarse branny part of the oatmeal should be separated from it, not by straining it, but by subsidence during a few seconds of repose, after all the water has been added in the bowl, which can be poured into the saucepan without it; as soon as it begins to boil it thickens, so as to drop from the spoon without any noise, which is the criterion of its having acquired the due consistence. If it be made entirely with milk, it is too strong and heavy of digestion, but with about one-fifth milk and the rest water, it is light and very palatable.

For horses, thin gruel only is in general wanted, as a diluent; those who make it so thick and rich forget that they are giving them what would be almost as strong and inflammatory as so much oats. I would caution them also against another thing, which is the distending the horse's stomach when in a state of weakness, and want of digestive power, by forcing down with a horn more than they can conveniently digest, although under some circumstances a horn full or two may be administered in this way usefully, yet what he takes of his own accord, will ever serve him best, and it should be presented to him assiduously, where the appetite is delicate; if they disrelish one thing, another should be tried, and even water alone, if they are averse to gruel and such kind of things, which some are, and cold water if given in small quantities and often, if they dislike it warm, rather than omit it; and hand-feeding also, often induces them to feed and pick a little, when no other means will, if nutrition seems necessary, which, in inflammatory complaints, is not so much the case as many apprehend.

MEDICINE.

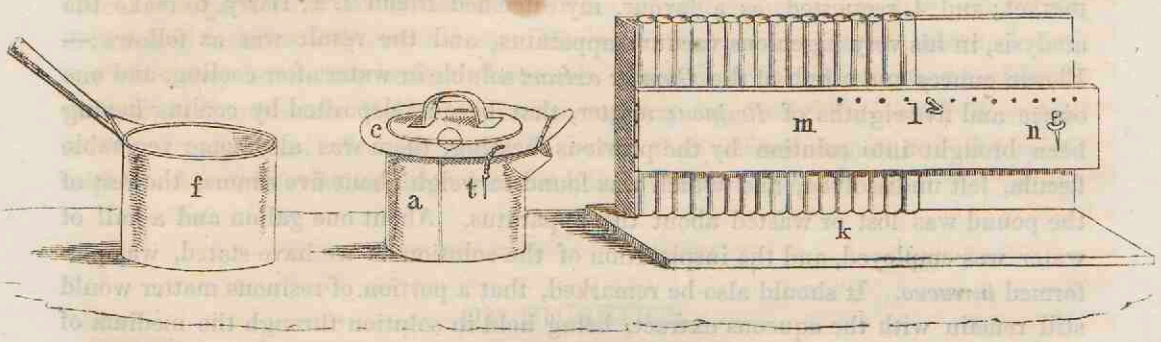
Purging Balls.

As purging physic with horses is the most useful and important of any, and nearly all indeed that really is wanted, and the *aloes* being the best for this purpose, so I shall describe a new and very convenient method for managing this useful extract. This invaluable medicine is the produce of the *Aloe spicata*, *perfoliata*, *vulgaris*, and other species of this genus, it being the juice of the thick leaves of this plant inspissated by boiling down. Being a gum resin, it is with considerable difficulty made into balls of a good consistence, by beating in a mortar, being either too solid, or too soft and deliquescent, though using, as we formerly did, alkali or soft soap for this purpose. This desirable object I attained completely by mixing it with treacle, and casting it in paper tubes: the simple apparatus I use, is represented in the annexed engraving, as it appears now after many successive improvements:—*a*, is a tin pot with a lid and a low handle on it, that the lid of the saucepan may go over and cover it, into which the aloes is thrown, broken into small pieces. This pot has rather a wide spout, with a valve at its extremity, suspended by a loose hinge, which dropping down, falls upon the stream of flowing aloes, and serves to keep the cool air from it, which, without this precaution would set and coagulate it, and which much embarrased me in my first attempts; before the entrance of the spout, and within the pot, is placed a wire grate about four inches square, to prevent pieces of gourd and other foreign matters from choaking it up. The lid opens by a hinge, and the other side of it is fastened by a pin, *t*, suspended by a small chain: *f*, a common kitchen saucepan used for a water or steam bath, the flange, *c*, of the aloes pot resting on the edge of it, and into which it is put, and then placed over the fire. Good aloes being selected, smooth and shining, with as little sand, and dirt, or gourd, as may be, or burnt to a friable state, as sometimes is the case; to any given quantity of this, add one-fifth by weight of treacle, and place it over the fire; in an hour or more, by keeping the water boiling, the aloes is brought to a fluid state, without any danger of its burning, or boiling over, and now and then in the course of this process, but not too often, the lid may be removed, and it may be stirred with a spatula to combine more effectually the treacle with the aloes. When perfectly reduced to a fluid state, the pot is taken out of the saucepan, and it should be as expeditiously as possible cast into the tubes of paper, and as in cooling it contracts and sinks considerably, they are again to be filled up. The consistence of these rolls when cold, will be found excellent, being solid for handling, yet flexible. The balls are readily formed by simply cutting these rolls into pieces of any length with a buttered knife. An ounce weight is a full and sufficient dose for a large sized saddle horse, or coach horse, if the aloes be good; and ten drams for a cart horse, diminishing the quantity in proportion to the size of the animal. The aloes at present

being less adulterated than formerly, a less dose will be sufficient. At *k*, is a convenient stand for placing the paper pipes in; *m*, a door opening with a hinge to secure them; *n*, a staple and nail to fasten it; *l*, a wire to support the pipes of paper, with holes to accommodate any number of them, or they may be simply stuck upright in a cylindrical gallipot, or be placed in bran, or meal.

To make these paper tubes suitably, they should not be formed of hard or stiff paper on account of the throat of the horse: printer's paper, without gum, serves well for this purpose. These tubes are formed by pasting one of the edges, and then rolling them over a cylindrical stick, and to prevent embarrassment from the paste coming in contact with the stick and hindering its being drawn out, the pieces of paper should be cut wide enough, as one circumference and a half, half of the latter serving for paste, and the rest for overplus. Lay these papers tile-fashion, one over another, exposing the edges to be pasted, and one end also extending a little beyond the stick, which is afterwards folded and neatly closed by means of the stick pressed upon the table.

New Apparatus for Casting Balls of Aloes.



It is true also that the aloes and treacle may be simply united by melting in a pipkin, and when cold the doses may be cut out as they are wanted, with a knife or spatula, but where many are wanted, the tubes will be found most convenient.

It may not be improper to state here, that as far as my experience goes, it has not appeared necessary to add to the aloes any aromatic substance or spice as is often done; for during thirty years that I have administered it simply in the formula just given, I never knew a single case of its griping the horse, though I have known it to do so in other hands, where these things have been added; that I believe it is the more likely to do it from such additions, and simplicity of formula is, if nothing forbids it, ever best.

We may remark, that a large dose of the aloes is requisite to operate effectually on the horse, which arises perhaps from the little share of irritability of his stomach and bowels, and which dose produces an extraordinary languor and debility for a day or two after, as will be seen if they are much worked or ridden; the vast relative magnitude of their intestinal canal, and the strong sympathy of the whole system with this part, will sufficiently, we believe, account for this effect.

It is also singular, that a PURGING DRINK, or DRENCH rather, is almost or quite a desideratum in horse medicine, though often pretended to be given by the farriers; for the aloes, the only proper purgative of the horse, is of so resinous a nature, that it is with difficulty miscible with water, at least such was the case a few years ago, from the large proportion of common resin with which nearly all the aloes of commerce was adulterated; but the exposure this has had of late, has much contributed to the rectifying this abuse, and now we get it tolerably free from this adulteration.

In order to form a drink, I found by first uniting it with treacle, this difficulty was in some degree overcome, but if much water is added, a separation of the resin takes place. Another way of accomplishing a better union, is by well rubbing down the aloes with blanched almonds in a mortar, pouring upon it warm water. The mucilage and oil of the almonds, appear to render it miscible for a considerable period. In some cases, as in strangles, where the throat is much affected and tender, and where the giving of a ball would be inconvenient, the utility of such a drink would be considerable.

It was a matter of curiosity with me to know the real proportions of gum and resin, and of fecula, in a pound of the best Barbadoes aloes that could be procured in the market; and I requested, as a favour, my esteemed friend I. T. Barry, to make the analysis, in his very ingenious vacuum apparatus, and the result was as follows:— Eleven ounces and a half of the *Gum* or *extract* soluble in water after cooling, and one ounce and five-eighths of *Resinous* matter, that became deposited by cooling having been brought into solution by the previous heating, there was also some vegetable fæcula, left undissolved, and which was found to weigh about five drams, the rest of the pound was lost or wasted about the apparatus. About one gallon and a half of water was employed, and the inspissation of the solution as we have stated, was performed *in vacuo*. It should also be remarked, that a portion of resinous matter would still remain with the aqueous extract, being held in solution through the medium of the gum, that the exact quantity of resin cannot be perfectly known by these means, but near enough for our present purpose.

Some have proposed to remove the resinous part of the aloes, previous to its exhibition, but this we think a needless trouble, since the aloes, when combined with treacle, has never, as far as forty years experience of it, by myself, and nearly as extensive a trial by several of my friends, been known to gripe a horse, therefore, why, for an imaginary evil, so laborious and expensive a proceeding. If the resin, given alone, should be found, by experiment, which we are not acquainted has ever been made, to gripe a horse, there is from this no reason to suppose it would do so when combined with its native gum, and with treacle also. That we would, by no means, recommend so troublesome and gratuitous a proceeding. In order to detect sophisticated aloes, such a proceeding however might be found highly useful.

There is also in the markets, commonly at this time, another article of this sort, called *Cape Aloes*, as coming from the Cape of Good Hope; very light, shining, and exceedingly brittle. It will dissolve nine-tenths of it in hot water, first being finely powdered in a mortar; the remaining tenth seems to be resin. On standing to cool a fæcula subsides

of about one-eighth, and on standing longer at rest, there was nearly a general deposit, which slowly falls in about six hours, so that it is to be considered rather as a mechanical suspension than as a solution. This deposit, after seven or eight hours, formed at the bottom of the vessel a cohesive glutinous mass, of a shining resinous surface and appearance, and which probably was a mixture of both gum and resin. It is cheaper than the former, but it is found to require a much larger dose of this kind of aloes, to purge a horse, than of the Barbadoes, and it is also generally considered as obtained from a much more heterogeneous mixture of plants.*

Having finished my observations on the physic of horses, there is a circumstance worthy of remark, which I have observed, after several times administering it, in respect to dogs; that the aloes does not appear to act in a dose at all proportionate to the size of the animal if at all. For them the syrup of buckthorn is much used, (*Rhamnus catharticus)* but in the shops is often sold a sophisticated article of treacle and jalap for it, so that people must be cautious in drawing conclusions in this respect.† Tin filings, or pewter scraped, is given by some to dogs for this purpose, which must operate, one should suppose, not by any medical, but mechanical effects, as a very rough confricator of the bowels. The proper purging of the dog seems in some obscurity at present, as are also the causes of the different nature of his alvine discharges, differing so much at different seasons. The white dogs-dung is never given, I find, but when they have eaten bones. Two table spoonfuls of the genuine syrup of buckthorn from Apothecaries Hall, was given to my pug dog, (weighing about 16 pounds) it did not purge him. Treacle would be better than refined sugar, and the spices might be better left out, as ordered in the human Pharmacopœia.

ON DIURETICS.

Next to purgative medicines for horses, those are the most useful which affect the urinary organs; irritating these organs will sometimes remove small inflammatory affections in a similar way to Purgatives, and as they can be resorted to without much

* It may not be without its use, just to state here, that my nephew Charles Clark has informed me that in two or three cases of inflamed lungs that he had lately been called in to, where some farriers had been previously employed, he was prevented from rendering any useful assistance, by these men having administered large quantities of common oil, pretending to the owners of the horse, that it was castor oil; this to the horse, dreadfully nauseous and indigestible mass, remained unchanged on the stomach to the very last, and prevented the operation of any medicine that was given, or even the salutary operation of the food or diet that he prescribed for them. And at last on the death of the animal, this greasy mess to the amount of nearly two quarts, was found floating about in the stomach unchanged. And he found he could do no sort of good where this abominable practice had been pursued. In one case a quantity of Glauber's Salts had been also administered along with it. We hope this announcement may prevent the repetition of such a wretched course of treatment. Probably warned against large doses of purgative physic to avoid that Scylla they fell into this Charybdis.

† In Worcestershire, near Malvern Hills, but especially in Essex, I have observed this plant growing abundantly in the hedges, which I mention, in order to give an opportunity to those who may be disposed to try its genuine effects.

debilitating the animal, or rendering him unfit for service, so are they often employed. I may specify that in the grease more particularly, I think I have seen advantages from their use, and I believe in some cases of farcy also; but by far the greatest number of balls of this kind have been administered, not with a genuine view to medicine, but to serve the interested purposes of grooms and smiths, and much more is said by these men respecting the imagined suppression of urine, and the necessity of provoking this evacuation than at all exists.

Resins, and turpentines, and essential oils, readily move the urinary organs of this animal to secretion; but before the prescription is given for this purpose it seems proper to consider a little the nature of the augment used for this, and for balls in general; by augment I understand the vehicle of the medicines, and which constitutes the chief bulk of the ball, for the medicines alone, it is obvious, would not make a ball of any size or consistence; in books, we often find people hastily recommending what they never tried, or could reduce to practice. Instead of linseed meal so generally recommended, for an augment to horse-balls, I find a much better thing, is bean flour, for adhesiveness, and giving them tough consistence, and still more easily obtained, and as good, is malt dust, or oatmeal; and still preferable to these, as being more easily obtained, is barley meal. It should be sifted through a sieve not very fine, and the bran and coarse stuff be separated from it. Liquorice-powder is often recommended also for this purpose; but when genuine is very expensive, and is therefore generally very much adulterated and so mixed with other powders by the drug-grinders, and venders of drugs, that you know not what you are really giving. The bad cohesion of the linseed meal, arises, I apprehend, from detached particles of oil, remaining in the cake after pressure.

The following prescription for these balls, I believe to be as good as any, and I speak it from actual experience.

URINE BALL.

Nitre, or the Nitrate of Potash .....one pound,
Castile Soap.....half pound,
Common Turpentine .....one pound,
Barley Meal.....two pounds and half, or sufficient to

give them a good consistence: pulverise the nitre, and pound these ingredients well together in a mortar till they cohere and form a tough mass through the viscidness of the turpentine; then divide it into balls of a moderate size, as of an ounce weight, increasing or diminishing this quantity, according to the size of the horse. By liquefying the turpentine at the fire, the process is rendered somewhat easier. And, if a strong smell is desired, and some will have no opinion of these balls without it, two drams of the oil of *Juniper*, or the same quantity of the essential oil of *Aniseed*, may be added to the mass, without any incongruity. And in order to render these balls perfectly cylindrical and handsome, they should, after a little rolling on a board or marble slab dusted with meal, be put into a cylindrical tube made of tin, and with a stamper of wood, be rammed to the exact figure of the tube; an oval form given to

the ball, is, however, I am disposed to believe, the best for administration as more easily passing the horse's throat; if meant for long keeping, let soft soap be substituted for hard.

To form a URINE DRINK is also not difficult, since *Nitre*, *Glauber's Salt*, and *Sweet Spirits of Nitre*, all act on the kidneys of the horse, as do also the turpentines, and the essential oils, rendered miscible with water, through alkalis, soap, or mucilage. The following is perhaps, well suited to this end.

SALINE URINE DRINK.

Glauber's Salts.....two ounces
Nitre.....six drams. *Dissolve in one pint of warm Water, and add of Sweet Spirits of Nitre, one dram by measure, and give with a horn.*

It is the custom to use the large end of the horn for this purpose; I reverse this, and close the large end with a piece of wood, cemented into it, then cutting off the small end, so as to afford an opening of about one inch and a half diameter, I fit this with a good cork; in this way it can be introduced farther into the mouth, along the cheeks, and towards the throat, than the large end, and it is then less tasted, and liable to be rejected; and in case of carrying it to a distance, especially on horseback, its very great convenience must be obvious in the stead of a glass bottle. Where disguise is necessary, as is sometimes the case with the practitioner, these drinks may be coloured by keeping ready prepared a strong infusion or decoction of Alkanet Root, Turmeric, or Red Sanders, prevented from putrefaction, by the addition of a small quantity of Spirits of Wine. Another description of urine drink, as they are now affectedly called, or rather drench, is the following, which I call for distinction the Warm Urine Drink.

WARM URINE DRINK.

Best Turpentine.....half an ounce,
Spanish Soap, cut thin.....three drams,
Potash.....ten grains,
Oil of Juniper.....half a dram, or thirty drops,
Rub them well together in a warm Mortar, and add a pint of warm Water to form the Drink.

To render our empire over these brave and inoffensive animals, as little disgusting as possible, I would recommend to the enlightened practitioner to abstain from medicines as much as he can, or to contrive such as can be readily given with their food; where however from nauseousness it becomes necessary, these medicines must be administered in one or other of the above ways.

In respect to the two evacuations by the intestines and the kidneys, our knowledge is pretty clear and certain; but beyond these I apprehend we are wandering on very uncertain ground; and though prescriptions may be multiplied to make up books for the purposes of booksellers, or to give to the ignorant an air of extensive knowledge in these things, or of dexterity in prescribing, yet their precise effects we do not, or probably ever shall know much about; and let those who confidently think they know,

beware that they have not been led into delusion, or false conclusions, which time, more correct knowledge, and exact observation, will expose; I allude particularly to mercurials and alteratives. Let me recommend also that the young practitioner should observe the greatest simplicity in his formula, as inference will then be less exposed to error, and complex farragoes, and minute things, only expose the ignorance of their proposer.

ON STIMULANT AND TONIC MEDICINES.

The *Cordial* and *Tonic Medicines* appear to divide into four kinds or orders: as the *Alcoholic* or *Spirituous;* the *Spicy;* the *Bitter;* and the *Metallic;* and some of the *Narcotics,* though falling in some respects into this order are excluded for the present.

The Tonics appear to have the power of giving additional tone to the relaxed and weakened fibre, and to call up an increase of its energy and power: the Spices do this without so much subsequent depression; the Spirituous exhaust more; the Metallic appear to produce these effects best when combined with oxygen, and perhaps, other gaseous bases, since the metal by itself would hardly have any sensible effect. Iron even in minute doses appears a powerful tonic, as the Bath waters evince; which instead of being relaxing as common warm water would prove, are rendered highly exciting, and tonic, and stimulant, by this minute portion of iron. Unless we allow the high temperature of the water itself that gives to it these effects, or essentially so aid them, which water moderately warm would not so well do. Internally given, these metallic salts are most of them strong emetics to us, and also to most other animals, but not so with the horse.

Not only the *Sulphat of Iron* and the *Sulphat of Copper*, but the *Sulphat of Zinc, White Vitriol,* is also possessed very strongly of these tonic properties, though their proper dose remains very much a desideratum; for when their effects are rendered externally visible, then it is their poisonous effects only, not producing increase of tone but real distress, that to draw satisfactory conclusions in these cases is truly difficult, though the numerous prescribers of horse medicine find no difficulty in this respect. One thing is certain, very small doses operate best.

In cases of debility from excess of labour or of food, their tonic effects will be found most beneficial, as in Farcy Cases more particularly, where the stomach and *Chylopoietic* system have suffered, they may be of the greatest use in calling up more vigor to the digestive organs; any inflammatory symptoms that appear in these cases, being first subdued, by a bleeding or a rowel; and we may increase and improve their effects by *due exercise, good air, well grooming,* and *wholesome food,* administered frequently, and in small quantities. The *Sulphat of Zinc,* is also a most invaluable medicine, externally applied as a general dessicative, and in producing adhesion of the sides or surfaces of old abscesses and parts becoming inert, drying up discharges, &c. of which I shall adduce some striking instances from my own practice in its proper place, for in this place we are considering internal medicines only.

The *Ægyptiacum*, or *Oxymellate of Copper,** may also be classed along with these,

* A useful formula, and cheaper than the common one of Verdegris and Honey, will be given further on.

and I am led to believe might be made to serve almost every purpose, both of external and internal administration to these animals, and render unnecessary nearly all the others; though it will be difficult to ascertain the precise dose of it, which can only be done by a long and sedulous attention to a great variety of cases.

I shall now give a few formulas, observing the above order.

SPIRITUOUS DRINK.

If spirits alone are given, a wine glass in half a pint of water, it is presumed, would be a proper dose, and of ale, about a pint.

SPICY STIMULANTS.

In respect to *Cordial Balls* for horses, which are words of very fascinating sound with grooms and stablemen, and under this pretence, have horses very often been dosed with drugs and rubbish, containing nothing cordial in them: one farrier told me he made all his Cordial Balls of Brimstone! and the refuse of Druggists' Warehouses is often sold to these men for this purpose.

Our notions respecting these stimulants are wholly derived from the feelings of our own stomachs, and what is aromatic and spicy to us, we conceive as spicy to them, and this may not be very untrue, though there is less analogy between the stomach of the horse and the human perhaps, than almost any two stomachs among animals. The stimulus of Spirits, of Wine, or of Opium, is not in many respects the same to them as to us, nor is oats or barley so exhilarating and stimulant to us as to them, so that our conclusions in this respect may not be perfectly correct; and in the metallic Salts also of every kind, and the vegetable emetics, we have no analogy whatever.

In the Gripes, I first used the Pimento as being preferable to the other spices, for cheapness and aromatic excellence, and its effect in curing that disorder would seem to prove its goodness for this purpose, and therefore I made of this my Cordial Balls. The following is the *formula* I recommend.

CORDIAL BALLS.

Pimento Berry, finely powdered or ground .....one pound,
Barley Meal, sifted .....two pounds,
Treacle or Honey, a sufficient quantity to make it into balls.

If more vigorous stimulation should be thought necessary, powdered *Ginger* or *Cinnamon* may be added; or if a very high degree of stimulating effect should be wished, *White Pepper*, or *Kyan*, might be used. A useful Cordial Drink is also readily made in the following way; to which Spirits, Brandy, Wine, Ale, or Porter, can be added, if thought requisite, instead of water.

CORDIAL DRINK.

Gripe Tincture .....four ounces by measure,
Warm Water .....eight ounces by measure.

For interested purposes, what are called Cordial Balls, are often administered to

horses, and after a long fatiguiug journey it is said they are more particularly serviceable; but I should apprehend from what I know of the constitution of the animal, that a good warm mash of sweet new bran, or malt, would be a greater indulgence in such a case, with a good bed to repose on; or the milk gruel before described, made rich and sweetened with honey or treacle; and if he dislikes it not, a little warm ale might be added, which would be preferable, and of more service than all the drugs in the world.

SPIRITUOUS DRINK WITH SPICES.

I introduce here, on account of its great utility, the *Gripe Tincture*, as strictly belonging to this place and class of Medicines, which I discovered some years ago, and used as a valuable secret; and it has been in my hands and of many others a most useful medicine, saving numberless valuable horses from death, scarcely ever failing in its effect, if duly administered, as several of the large Breweries of this Metropolis can testify. The prescription for the Gripe Tincture in that work, p. 10, is as follows: where the causes of this fatal complaint are also shewn.

Take Pimento Berry, ground fine.....one pound,
Spirits of Wine and of Water, each .....three pints.

Let these infuse together several days, occasionally agitating the vessel, and then be strained off for use. About a quarter of a pint is a dose, given as early as possible on the seizure, and it should therefore be always kept in the stable in readiness by the groom or horse-keeper, and the administration of it is not by a single dose and then leaving the animal to his fate, but it is to be administered every hour till relief is obtained, using warm clothing, and, in bad cases, hand rubbing of the abdomen with a flannel glove, if possible, without removing the coverings: in this way, its effect, even in cases the most violent and protracted, if mortification has not actually taken place, is almost certain.

Some improvident, not to say imprudent practitioners, unprovided perhaps with the Gripe Tincture, have hastily substituted the Spirits of Turpentine for it, which being of not so digestible a quality, and of more violent effects, has occasioned I believe the introsusception of the bowels, and loss of the horse.

INJURIOUS EFFECTS OF SPIRITS OF TURPENTINE.

For the Spirits of Turpentine is quite another description of stimulus of the stomach, whether of a nature so well suited or beneficial as spices and wines I should doubt; but the following account from a careful experiment of a large dose of it upon the horse's stomach is particularly worth recording; it was taken from my minute book of cases, and the experiment was made in consequence of a Veterinarian asserting in a communication sent to the Society of Arts, Manufactures, and Commerce, that he had found out a cure for all worms of horses, and that it consisted in giving no less a dose than four ounces of this acrimonious spirit in gruel. The Committee investigating this matter, requested me to repeat the experiment and carefully watch the result of

it; and the following were the effects and appearances on opening the horse after death, and also to see if there were actually worms for it to act upon. No doubt the credit this spirit had got for curing the *Tænia* made this Veterinarian suppose it must kill all the other species too of intestinal worms, and then assert it as a fact; but we may remark that the *Tænia*, or tape worm, though common in dogs, and not unfrequent in the human, is truly rare with horses, that unless positive proof exists of its presence, by pieces coming away, it is not worth fishing for at random by such intolerable measures.*

* I proceeded April 11, 1817, in company with another person also deputed with me to make the experiment, to give a mare at the slaughter-house four ounces of Spirits of Turpentine in a pint of thick warm gruel. She was a chesnut mare, about fourteen hands high: we selected for this purpose one that had upon the fundament a considerable quantity of that white matter which is noticeable in such cases, and which indicates, I have observed, the presence of that particular worm, I have called for distinction, the Whip Worm, being in figure like a hand-whip, or dog-whip, that is, large at the handle part, and tapering to a fine point at the other extremity.

After it was administered I watched her for twenty minutes, then left her, and saw her again at the end of two hours, leaving my apprentice with her during my absence. I found her on my return lying down on her side, and I thought with a look expressive of pain; and the slaughter-house people said she had looked a good deal towards her flanks, as horses do when they have pains in the abdomen.

The next morning I sent at six o'clock to examine her dung; a solitary worm or two were found, but not more; which I should not apprehend had much to do with the medicine. About ten o'clock I visited her myself, but could find no worms, though I examined her dung made during the night, minutely. I let her remain alive till the next morning, forty-eight hours after the medicine, that it might have its full effects.

I then attended again at the slaughter-house, and had her knocked down with the pole-axe. Being dead I proceeded with the assistance of the slaughter-house men to open her, and taking out the bowels and stomach, beginning at the *rectum*, a ball of dung was found in every pouch of this gut for three or four feet from the *anus*; and outside the balls, lying in contact with the lining of the intestine, were several of the worms of the species I have called the Whip Worm, from its figure being like that of a dog whip, that we may not confound this species with the big Lumbricus, or the small Ascarides.* Some of these Whip Worms I observed dead, their skins filled with the white matter which soils the extremity of the *anus*: so that the way in which this curious appearance takes place is, not the excrement of these worms as was before apprehended, but that the dung in its exit, squeezing the tender skins of these dead animals, bursts them, and this white matter falls upon the *perineum*; many hundreds of minute young ones were also found lodging in the mucous lining of the intestines, apparently very newly born; they appeared as did the old ones, alive and hearty, and therefore not affected by the medicine.

Through the whole course of the *rectum* these worms were found; but none in the *water gut*, which is the next to it; again, in the *colon* they were found in great numbers, and appeared to be alive; also in the small intestines; but in the *duodenum*, there were none, which is a bad name in the horse, as it has more than twelve inches of length.

I was now curious to open the stomach, and it afforded indeed interesting matter of reflection; two species of bots were most fortunately found in it, the *Equi*, and the *Salutiferus*, or new species, of which I published an account last year; they were neither of them dead, or even at all hurt by the medicine, but were particularly lively. The *Salutiferus* I found in a distinct cluster at the entrance of the *duodenum*, confirming my suspicions that that was its real natural habitation, just out of the stomach. These animals, I may just inform the Society, are not the offensive and destroying demons that ignorance had painted them; but nicer enquiries than ever were made before, have led me to consider them as stimulants to the stomach, or as the pepper and salt of horses' stomachs: having brought with me a Treatise respecting them, I beg leave to present it to this useful and honourable Society.

I next proceeded to examine the stomach itself, and found that its red part was highly inflamed generally,

* It has lately received the name of *Tricocephalus Equi*.

Of the bitters, Quassia, or Gentian, appear the best suited to the purpose; the following formula I would recommend of this medicine.

BITTER DRINK.

Quassia Chips.....two ounces,
Water .....three Pints, boil till reduced to Two Pints, for Three Drinks; one every Morning, with any Spice, or other addition the case may appear to require.

BITTER DRINK WITH SPICES.

Quassia Chips.....one ounce,
Ginger.....two drams,
Water .....two pints; let them boil ten minutes, then strain off for two Drinks.

METALLIC TONIC DRINK.

If white vitriol should be preferred, or is more easily procured, the following formula may be used.

Sulphat of Zinc.....half a dram,
Ginger or Pimento, ground .....one dram,
Treacle .....one ounce,
Water.....twelve ounces.

Mix the treacle with the powders, and rub them together; then add the water. To these, brandy or other spirits may be added, if thought necessary.

EGYPTIAC TONIC DRINK.

Of Ægyptiacum, or Oxymellate of Copper.....half an ounce,
Pimento or Ginger, powdered .....half dram,
Water, twelve ounces, or enough to form a moderate drink.

Of excellent effect have I seen the following in Farcy Nasal Gleets, suppressing the discharge in a remarkable manner.*

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and in some places blistered, a thing I never saw before; blisters from the size of sixpence to half a crown were seen in various parts of it, which must have given the animal great suffering. "From these facts one should be ready to conclude, that the gentleman who applied to the Society for a reward, had rather hastily drawn his conclusions, without the experiments necessary, taking for granted what has been asserted in respect to the human, for the medicine it is evident from its effects upon the stomach, was here carried as far as it prudently ought."

I have recorded this experiment as it is rather a painful one, in order to prevent, in some degree, the needless repetition of it, at least too often; for where an effect is ascertained and fully known, it is no longer an experiment, though often falsely called so; with inanimate matter this is not of much consequence, but certainly it is quite otherwise with sentient beings.

* I have last year, 1823, seen a cart-horse so glandered he could not be sold for two pounds in Birmingham fair, cured in five weeks' steady administration of this medicine, and the tonic medicine alternately, week by week, by my recommendation, and become worth forty pounds, that he went to his work again at the Eagle Foundry, and remained sound though hard-worked, in drawing heavy loads of cast metal. Another case of a black fine chaise horse of Sir Charles Price was cured by James Beeson, in six weeks, by the steady administration of these medicines, in the same manner, to his great surprise; indeed the effect is truly remarkable, and worthy the attention of Veterinarians. Let me not by silence, however, be guilty of not rendering justice to its discoverer; for though I was the first that ever tried it in these cases, I owe the suggestion to the ingenious Dr. Roberton.

CANTHARIDES TONIC DRINK.

Rj. Zinci Sulphas .....fifteen grains,
Pulv. Cantharides.....seven grains,
Pulv. Pimento .....fifteen grains,
Theriaca, or Treacle..... .....one ounce,
Aq. pur. q. s. ft. Potio cornu digerenda.

Or, if a ball is thought more convenient, I recommend the following formula:

Rj. Pulv. Cantharides..... .....gr. vii.
Zingib seu Pimento..... .....— xv.
Hordei seu Avenæ pollinis q. s. cum Theriaâ globum seu offam conficiendum.

The Spices alone I have found without the Metallic Sulphats to have the happiest effects. The *Chincona*, or Bark, is also a Medicine possessing Tonic properties, and may be classed with these; its price however, and dubious effects, and quantity that would be necessary to be given, would seem a sufficient reason for not resorting to it.

There are stimuli also of the stomach of another description, and might be added at this place, which it may be difficult to class or give an appropriate name to; we shall call them *Adscititous*, or *Parasitic* stimuli, they act mechanically.

It may appear a new sort of medicine, and rather singular, but I am led to introduce them from seeing their effects, as it may lead to something useful hereafter, when their exact effects come to be known; I mean the larvæ, or grubs, producing the *œstrus* or bots, which appear to have the power of irritating the coats of the stomach, and of quickening the digestive action. These are but the native, or natural stimuli of the animal; they can nevertheless be artificially applied, and may be procured from the slaughter-houses for this purpose, and wrapped up in the skin of the stomach to which they adhere, or placed in balls of meal, be administered with the hand. I am led to believe, to sluggish stomachs, and especially when grass is their food, and low damp meadows their situation, they are a useful stimulus, irritating by their *spiculæ or Spines* to a quicker digestion, and so preventing gripes and other diseases, and may under some states of relaxed or torpid stomach, from previous over-stimulation, be found beneficial; at any rate, I choose not to omit them, but to bring them fairly upon the carpet of investigation.

For an experiment to ascertain their effects and to procure the flies from them, I once gave my little Waxy Stallion eighteen or twenty of the bots or larvæ of the *Oestrus Salutiferus*, and during the time he had them he was in as good or better condition than I had ever known him. In the summer months, these stimulants might be administered by means of their *ova* deposited on the hairs of the skin, and their operation would continue one twelvemonth, as they are *annuals*, or requiring eleven months for their full growth and re-production.*

* See a Treatise on these remarkable animals in the Linnean Society's Transactions, Vol. 3, and re-published by me, London, 1815, with Figures of them in all their states, and also those of the Cow and Sheep, &c.

FEVER DRINK.

Though I have before stated that pure or idiopatic, or typhus fever, is not found with the horse, at least, as far as my own observation extends, or of those practitioners on whom reliance can be placed, yet there are frequently high inflammatory actions, which are called fever, and which are to be reduced by the lancet chiefly:—in aid of these evacuations, drinks may be administered of the diluent and saline kind, provoking urine, and promoting free perspiration; to satisfy the bye-standers, such may be called *Fever Drinks;* the following I have used, and recommend:

Nitre.. .....two drams,
Tartarized Antimony .... half a dram,
Warm Water or Thin Gruel .....twelve ounces.

This may be given once or twice in the day, and disguised if necessary, by the Tincture of Alkanet or Turmeric; for although this work is written for general purposes, it is more particularly intended for the use of the Veterinarian, and where confidence is inspired by such innocent means, there can be no impropriety whatever in the use of it.

Also *Acidulous Drinks* are not incompatible with the Therapeutics of this animal, assisting in lessening morbid action and heat; of these either the mineral or the vegetable acids may be used, about sixty drops of Oil of Vitriol to a quart of water, and enough of the alkali of Tartar added to leave it agreeably acidulous, or, if thought better, quite saturated, will afford an agreeable and useful saline drink at a little expence, and if a lemon, rind and all, be cut into it, and then strained from it, it would without much cost agreeably imitate the more expensive saline drinks of the human; a few drops of the Ætherial or Sweet Spirits of Nitre might be added as a diuretic and febrifuge, but in a general way, gruel variously medicated, will be sufficient.

FOR AN EXCESSIVE PURGING or DIARRHŒA.

A Diarrhœa, or violent Flux of the Intestines is often brought on in treating inflammatory complaints by the undue administration of Aloetic Purgatives, and very fatal has it often proved, occasioning apparently a Metastasis of the disorder to the Intestines. I found at length that it was best checked and arrested by the Neutral Salts. Diarrhœas also proceed from the want of biliary, and other secretions, which will be relieved by the following Drink I recommend as very valuable on such occasions.*

FLUX DRINK.

Glauber Salts..... *(Sulphat of Soda)* .....six ounces,
Epsom Salt..... *(Sulphat of Magnesia)* .....three ounces,
Common Salt ..... *(Muriat of Soda)* .....half a dram,
Green Vitriol ..... *(Sulphat of Iron)*.....five grains.

Dissolve these in a quart of warm water, and make three drinks of it, one twice a-day; sometimes Prepared Chalk, a small portion, and sometimes a few drops only of Tincture of Opium, has been added.

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* My friend J. Hall, Esq. has found it equally serviceable to cows, having a lax or scouring.

COUGH DRINK.

In cases of Cough, and even of Broken Wind, I have found the complaint greatly moderated and relieved by the following;—

Linseed Oil (cold-drawn).....two ounces.
Lixivium of Pure or Caustic Kali .....forty drops.
Treacle .....one ounce.
Soft Water, ten ounces, shake them well together, and give to the animal fasting.

Coughs are also sometimes relieved by *stimulating the stomach* to a quicker digestion; and, on the contrary, are increased by foggy and musty food; *stomachic, bitter, and aromatic medicines*, therefore are to be used. *Blisters* to the Chest also are useful in chronic affections of this kind, and also rowels, for the same reason, by their counter irritations to the neighbouring parts.

COUGH or PECTORAL BALL.

Genuine Liquorice Root, in Powder.....half an ounce.
Linseed or Barley Meal, sifted .....one ounce.
Tar ....half a dram.
Honey, enough to make it into a Ball.

Bleeding however is chiefly to be depended upon in these cases. Attention to prevent all *drafts of air* in the stable, which, if rightly made, should ever be aired by its own loftiness, not by openings through it; this I cannot too forcibly enjoin to all who desire to have their stables healthy. *Bran tea*, or *blanch water*, and *infusions of emollient herbs*, are also to be recommended, as of *marshmallows, hyssop, &c.* plentifully bestowed and kept in a pail by night in the manger; powders of *gum tragacanth and nitre*, six parts of the former to one of the latter, may also be used in their mashes or in their food, kept ready mixed in the portable Pharmacy for these occasions, a table-spoonful being a proper dose.

Coughs also proceed very much from the absurd practise of washing horses, and of slopping them over the legs and thighs, and even carrying this wetting to the very abdomen, and this when they come in warm from work, or exercise.

My own horse, a bay chaise gelding, had a terrible deep hoarse cough when I bought him, but guessing whence it proceeded, I forbad him to be washed in this way, and it left him in about ten days, and never returned whilst in my possession. Nearly all the horses in the livery-stable where he stood were also coughing more or less from the same cause, and were relieved by my suggestion.

Let them be only dry rubbed when they come in from work, and be as well cleaned as a succession of soft whisps of hay, or of soft straw, or of coarse rugs, can make them; then leave them till the morning, or till perfectly cool, when they may be washed with safety, if thought necessary, being well rubbed dry after; for no animal formed of flesh and blood, but must sooner or later feel the consequences of such an absurd proceeding,

not only inducing coughing, but often grease and farcy, and I have seen cases of founder, from chill thus induced. If, however, in any case such a measure of washing is rendered imperatively necessary, it should be done with the utmost celerity, and the parts be wiped perfectly dry and afterwards be well rubbed with a whisp.

WORM MEDICINES - - Vermifugæ, Anthelminticæ.

In respect to Worms in the Intestines, they are not easily destroyed, since they can refuse the food that does not suit them; for although we can force the poison down the horse's throat, we cannot force these to receive it. However, drastic purgatives will often bring away large quantities of them, though not with certainty. The spirits of turpentine seems a certain destroyer of the *Tœnia*, or *tape-worm*. With less assurance is scammony and calomel recommended where there are *Ascarides*;* and the *Indian Pink*, *Spigelia Marylandica*,† for the *Teres*, or *large round worms (Ascaris lumbricoides.)* For the Bots, *(Oestri)* no medicine has ever been discovered that will at all affect them; perhaps some mechanical measures would be the best. "Oil to close the pores of respiration, and thus kill them, was a favourite suggestion of the last age, and it was "thought *must infallibly kill them:* nevertheless, it did not. These oils probably in "the stomach are soon reduced to a soap, and digested; how much less, then, could it "affect worms situated in the intestines."—See *Hist. of Bots*, p. 43.

In low cachectic habits, where these worms accumulate in great numbers, they seem to be a useful stimulus to the intestines, and by increasing their action, prevent worse disorders: the good which appears to attend their removal often, is to be attributed primarily perhaps to the purgatives used to remove them. The pretended destroying of worms is a fruitful source of profit to the grooms, and often by measures that are most injurious and ruinous to the animal.

The *scoria* or scales which fall from ignited iron at the forge, have been proposed as a medicine for horses, but not having watched its effects, I dare not prescribe it at random. Whether intended as a chalybeate or tonic, or rather as a rough confricator of the stomach and intestines, I know not, and I should be rather jealous of its forming those balls in the intestines which are called *Enterocalli;* the center of these bodies are generally seen with some heterogeneous substance, and especially those of the rectum, in which I have found more than once scales of iron.

OF POWDERS.

The advantage of Powders internally given, is, the great facility of their administration, being given with their food, or mixed in a mash of any kind, and therefore not requiring the disagreeable trouble of a drench or a ball. Their use is however very

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* Perhaps a dram of each for the horse the over night, and a purgative of aloes the next morning will be the most suitable way, administering them in their provender.

† Perhaps a decoction of it, one ounce and a half of the herb to a pint of water boiled to twelve ounces, with a purge next morning.

limited, for nothing will horses take voluntarily that is unpalatable and offensive to them; and medicines generally are so, and therefore such are quite useless to be presented to them in this form. There is, however, another way of administering small doses of any very fine powder, which is, to scatter it on the tongue, partially drawn out of the mouth; and as the horse cannot very well spit it out, it will, by being entangled in the saliva, be gradually swallowed. Calomel, if thought useful, might be given in this way. The Cantharides, and metallic tonic powders, they will also take freely in their corn. The Antimonials, and Brimstone also, are frequently given them with their provender, to fine their coats, as they say. Liquorice Powder, Spices, and Salt, also appear among the chief articles that can be so administered.

NASAL GLEET POWDERS.

Cantharides, finely powdered.....half an ounce.
Sulphat of Zinc, ditto .....two drams.
Pimento, ground fine .....one ounce.
Barley or Oatmeal .....eight ounces.

Let a table spoonful be given every morning in Corn or Malt.

The stimulant power of these Medicines on the Stomach has a surprising effect in removing these disorders; and with half the quantity of Cantharides, they are an excellent Stomach Medicine in weak digestion, and hide-bound cases, with gentle laxatives occasionally.

TONIC BITTER POWDERS.

Sulphat of Zinc .....five grains.
Pulverized Gentian Root .. ..seven grains.
Pimento ....a scruple.
Oatmeal ....one dram, mix for one powder, to be given in wetted oats or malt.

PULVIS UTILIS.

Rj. Pulv. Rad. Curcumæ vulgo Turmeric, finely Powdered half pound.
Oat Meal, Fig Dust, or Barley Meal sifted . ..... four pounds.

Mix them well and keep them for use. In forming a Drink or Powder, where patience is chiefly wanted, it comes in usefully, or to be used as a vehicle for other Medicines, in Drink, Powder, or Ball. The Curcuma is considerably aromatic, if we may be allowed to judge by the taste, and of an elegant rich colour.

CONDITION POWDERS.

Crude Antimony.....four ounces.
Flowers of Sulphur .....two ounces.
Bean Flour, or Barley Meal.....half a pound. Mix for use.

A table spoonful in their corn is a proper dose.

Supposed to increase the cutaneous circulation, and to make the skin more pliant

and supple, and the hair to lay better and be more glossy. The hand, and brush, and currycomb, should however not be omitted, but be well applied in aid, with gentle sweating exercise. These medicines, however, rather belong to a subsequent chapter, on the *Hippocomia*, or the Dressing of Horses, as laid down in the Frontispiece.

CONDITION POWDERS WITH NITRE.

To the above add as much Nitre as Antimony, to increase the Urine.

See Art. *Condition*, at the end of this Pharmacopœia.

EXTERNAL APPLICATIONS.

SUBDIV.*—*To the Flesh, - - - - Sarcoteticæ.*

UNGUENTUM DIGESTIVUM. Digestive Ointment.

A cheap and excellent digestive ointment is made by softening rosin with linseed or common oil.

Take Rosin, bruised..... .....one pound.
Linseed, or Genoa Olive Oil.....twelve ounces.

Place them over a slow fire till the rosin is perfectly dissolved. As a warm covering from the air, and of gently stimulant qualities, it is an invaluable digestive of Ulcers. When nearly healed, as an ointment of a more drying quality, Diachylon softened by double its bulk of oil will afford it.

ÆGYPTIACUM, or the OXYMELLATE of COPPER.

I have prepared this invaluable medicine for many years in the following way, and, as far as I ever could discover, found it equally or more efficacious than the more costly preparation of Verdegris and honey of the human Pharmacopœia.

Blue Vitriol (Sulphat of Copper) .....twelve ounces.
Vinegar... .....four ounces.
Treacle .....three pounds.

Break the Crystals of Blue Vitriol small in a mortar, put them into an earthen pipkin—(an iron ladle will also do, but it is apt sometimes to turn the mixture black)—wetting the Salt first with the Vinegar, adding then the treacle; place it over a clear fire, and let it boil up the sides till the whole mass is inclined to rise, then take it from the fire, stir it a little, and let it stand near the fire till it has acquired a full red colour; when cold, pour it into a jar or small tub for use, using a wooden punch-ladle to take it out with, always stirring it previously, in order to mix the supernatant liquor with the subsiding oxyd; however when prepared as here directed, it is in general of a consistence that almost precludes subsidence.

This ancient and most valuable medicine, thus cheaply made, is useful internally as a tonic, and externally for healing chapped heels, running frushes, and for closing by adhesion of surfaces, old fistulous ulcers and abscesses, which it does much in the same manner as the Sulphat of Zinc, but is rather milder than that preparation.

DESICCATIVE POWDER, or Pulvis Desiccativus.

White Vitriol, or Sulphat of Zinc, ground fine
White Pepper
Chalk, lightly calcined, each equal parts, well rubbed together.

Any slight luxuriance of flesh may be reduced by using this Powder, with, or in some cases without compression; in general, however, the knife, and touching the mouths of the vessels lighty with the Cautery, is more to be depended upon, and perhaps on the whole less painful. The flesh of horses, if exposed to the air and neglected, especially about the limbs, is very apt to run into luxuriance, which requires both skill and care oftentimes to reduce.

This powder, diluted with an equal weight of flour, and enclosed in a canvass or other porous bag, is useful in dusting elevated flesh, in broken knee cases, or where digestion by ointments has been carried too far; though the air itself in most months of the year, if the fungus be exposed, is desiccative enough to dry, scab, and reduce them.

For the curing *Broken Knees*, see a short Dissertation at the end of this work. *The Surgery of Horses.*

AGGLUTINANTIA.

I add this for the first time as a distinct order, or class of medicines, from observing the powerful effects of the Sulphat of Zinc, in producing adhesions of the surfaces of living parts, and closing of old sinuses; the following are the proportions I have used for the solution. On account of these remarkable properties I have sometimes called it CONGLUTINUM.

Zinci Sulphas .....four ounces.
Water .....one pint, dissolved.

Several cases have occurred in my own practice, which will serve to illustrate its great utility and mode of application, however they will be more properly inserted in another place. *See Surgery of Horses.*

Vulneraries Traumaticæ.

TINCTURE MYRRH.

Gum Myrrh powdered .....two ounces.
Fine Washed Sand.....two ounces.
Spirits of Wine and Water each half a pint: mix and keep them together in a bottle, occasionally well shaking them.

In the same way, and same proportions, a Tincture may be made of Aloes, which is called *Tinctura Traumatica*, or *The Friar's Balsam*, or simply *Tincture of Aloes.*

These tinctures are considered useful applied to recent wounds, penetrating and slightly inflaming their edges and surfaces, and thus inducing a more speedy and firm union of the wound. The blood should not be removed too sedulously, as it is the only true bond of union; if, however, it occurs in clots or thick masses, from the wound gaping, it must be forced out by drawing the sides together, by sticking or pitch plaster; or if there be a more extensive division, by the needle and thread.

Div.****—*To the Skin.* - - - - - - - - - *Dermateticæ.*

PLAIN BLISTER. *Vesicatorium.*

Powdered Cantharides .....four ounces.
Lard, Olive Oil, or Horse Oil .....two pounds.
Oil of Origanum .....two drams.

Mix well together, and let the Ointment be a little warmed when applied, and rubbed in well for eight or ten minutes to the part; especially useful for old strains and for thickenings of bone or of membranes.

STRONG BLISTER. *Vesicatorium forte.*

Powdered Cantharides .....four ounces.
Spirit Turpentine .....three ounces.
Pulv. Gum Euphorb.....two drams.
Lard or Oil .....two pounds.
Oil Origanum .....two drams.

To be used more especially for the chest or abdomen, in inflamed lungs or intestines, or about the pole in affections of the head.

MOIST WARM BLISTER. *Vesicatorium molle.*

Common Rosin.....six drams.
Linseed Oil .....half a pound,—let the Rosin dissolve by applying warmth, and add
Cantharides, finely pulv. six drams.
Lard.....twelve ounces.
Oil of Origanum .....two drams, mix them intimately.

The Linseed Oil and Rosin appear to have the effect of keeping the Ointment moist and soft or liquid for some days after it is applied, and of thus permitting the rising of larger vesications. The Tincture of Cantharides also will blister, but I have found the above prescription answer so well every purpose desired, that I have never used it: Simple Olive Oil and Cantharides will also blister very well; indeed the skin of the horse is remarkably susceptible of Vesication. For a Dissertation on Blistering and Firing—see Rees' Cyclopædia, Art. *Blister* or *Horse Surgery*, at the conclusion of this Work.

Every one should powder his own Cantharides, and as little at a time as he may want, taking care to keep them very dry.

OINTMENT for DRESSING FIRED and BLISTERED LEGS.

I generally let the firing have its effects dry for three or four days before I apply any thing, and then any mild oil or fat will do for a dressing to soften the parts. Butter, lard, sweet oil, or horse oil (a small portion of tar being added), makes a good dressing for these purposes.

Oleum Laurinum .....Oil of Bay.

The green inspissated juice of the Bay Leaf or *Laurustinus*, appears of an aromatic agreeable odour, and for dressing parts where inflammation has proceeded too far, may

have useful qualities, as being more cooling than any similar application of an oily or greasy nature, some of the moisture of the leaf being retained in the extract.

UNGUENTUM AD SCALPURIGINEM. Mange Ointment.

Red Nitrous Oxyd of Mercury, finely levigated, ...half an ounce.
Hogs' Lard .....two pounds.

Mix them well together, and let it be used diligently for some weeks, till the disease entirely disappears, and for a little time after, by way of security, as the least vestige of a scale remaining will reproduce it.

The Oil of Tar, or Pyroligneous Acid (obtained by distilling wood),

Is another most useful application for cleansing the skin from scales and incrustations of the cuticle, alone, or mixed with lard. It clears and softens the skin in a very agreeable way, and will, if industriously applied, cure the mange also.

UNGUENTUM AD UNGULAS. Hoof Ointment.

Take Tallow .....four pounds.
Bees' Wax .....four ounces.
Tar .....half a pound.

Melt slowly over a fire, and stir them well together in the moment of their becoming solid.

To dry hard heels and cracked hoofs it is most useful, or where the cuticle has been absurdly removed by the rasps of the smiths, keeping the hoof supple, elastic, and free from dryness and hardness. Also to fill holes and fissures of any kind, when it is to be made harder by the addition of a portion of pitch to it.

ON TAR TO HOOFS.

It has often appeared to me that common tar applied to horn for any length of time had very different effects to oil, ointments or grease, penetrating, softening, and half-rotting the horn, mixing and combining as it were with its substance; it is an excellent application however to surfaces irritated by sharp edges and points of horn, on that account; but as a mere covering for common use, I think it objectionable. The genuine *Barbadoes Naphtha* is apparently of more mild qualities in this respect. But common rosin softened to the requisite consistence is every where to be procured, and is unexceptionable.

EXCITANTIA.

LINIMENTUM AMMONIÆ. Ammoniac Liniment.

Olive Oil.....four ounces.
Aqua Ammoniæ .....one ounce.

This, well shaken, becomes white and thick, forming an ammoniacal soap. It is used for reducing parts thickened and indurated. Another kind of stimulant embrocation is the OPODELDOC, which consists of soap dissolved in a greater or less quantity of spirits of wine, and perfumed strongly with camphor: used in recent strains and bruises attended with swelling.

EMBROCATIO EXCITANS. *Stimulant Embrocation.*

Olive Oil .....three ounces.
Campho .....half a dram.
Spirit Turpentine .....half an ounce.
Aqua Ammoniæ .....three drams.
Water, enough to make it a quart.

Mix well by shaking it, and it makes a useful embrocation.

A CHARGE or STRENGTHENING PLASTER. *Roborans*

A warm or exciting plaster to the skin is called (I hardly know why), *a charge*, by the smiths: it is rather an awkward application to animals covered with hair. Its chief difference from other exciters of the skin is, by its long continued and constant application, and from the warmth which such a covering must impart. The following I believe to be as good a formula as any:—

Burgundy Pitch, or Common Rosin .....four pounds.
Turpentine .....six ounces.
Olive Oil.....four ounces.

It is used chiefly for strains of the loins and kidneys, and for old strains of the legs that have not yielded to embrocations and blisters. A *plaster of pitch* spread on leather, and lapped round the skank, about six inches in width, can also be used with the same views as a corroborant. A pitch plaster on leather speedily applied is also excellent in recent cases of opened joints in excluding the air, and when well applied and accurately adapted to the part, I have seen it succeed without the use of the cautery.

REFRIGERANTIA.

EMBROCATIO FRIGIFERA. *Cooling Embrocation.*

Take Vinegar.....four ounces.
Camphor, dissolved in Spirit of Wine .....half an ounce.
Water, enough to fill a quart bottle.

Or an ounce of the muriat of Ammonia may be used instead of the Vinegar, or both together.

For sprains and recent bruises, or in cases of scalds and burns. Where these things are not conveniently to be had, cold spring-water, or ice-water, are no bad substitutes.

LOTIO REFRIGERANS. *Cooling Wash.*

Acetic Litharge.....one dram.
Sweet Spirits of Nitre .....one dram.
Water .....one quart.

For slight rubs and bruises, or where patience and the remission of the cause is chiefly required.*

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* There are practitioners who will know how to estimate these light prescriptions, for the ignorant are ever apt to prescribe heavily where there is no sort of occasion for it, causing thereby unnecessary suffering to the animals, and loss to themselves.

Cold poultices, and the bruised leaves of fresh herbs, as of *elder*, *cabbage* or *mallows*, come into this division of cooling things, as do also the scraped roots of the *turnip*, *potatoe*, or *carrot*.

RELAXANTS. EMOLLIENTIA.

Cataplasma. *POULTICE.*

To any quantity of bran add scalding water enough to wet it, and rub them well together; then put in lard or kitchen grease enough to render it soft, and prevent it from drying and becoming hard and stiff.

Fine Pollard is better than bran. *Linseed Meal* is equally cheap, and is soft, smooth and oily, and perhaps rather preferable. *Fig Dust* makes a good smooth dense poultice. *Potatoes* I have also tried, but do not like them quite so well as the above.

FOMENTUM TEPIDUM. *Warm Fomentations.*

Wormwood, Chamomile Flowers, Marshmallows, or Common Mallows, the Herb.

The three together or singly; made by pouring scalding water upon them in a bucket, covered up with a cloth, two handfuls of the herb to a gallon. Highly useful in allaying recent inflammatory actions from strains, and also to parts bruised, swollen, or immoderately hot.

LOTIO RESTRINGENS. *Alum Wash.*

Alum .....four ounces.
Boiling Water .....one pint.

For cracks in the skin, and grease chaps; the edges of the sores being anointed previously with lard or hoof ointment.

LOUSE WATER. *Lotio contra Pediculos.*

Tobacco .....quarter of a pound.
Boiling Water.....two pints, infuse 24 hours.

Or Mercurial Wash for the same.

Mercur. Sublimat. Corrosive.....two drams.
Spirits of Wine.....two ounces.
Water .....two pints.
Dissolve the Sublimate in the Spirit, and then add the water.

CLYSTERIUM. *A Glyster.*

Soft Soap.....two ounces.
Water .....three quarters of a pailful.

Smear the inside of a bucket with the soap, pour in the water, or rubbing it in bran dissolve and inject with a syringe, or with *aqua mulsa*, or blanch water. Sometimes it

is necessary after the injection to put a whisp of hay or straw against the anus, and to press the tail hard down upon it to prevent its too quick rejection. Common Salt is also used, about a handful to a bucket of water.

I here conclude this small offering to the Veterinary Practitioner, or rather to the British Public, of a new edition of the *Equine Pharmacopœia*, being the third. It contains some valuable additions, and is a more simple, more perspicuous, and comprehensive way of viewing these things, than has hitherto been entertained; and from having in early life much cultivated the sister arts of Botany and Chemistry, have found them now usefully assisting me in giving greater clearness to these arrangements.

ADDENDA.

ALGARROBA BEANS. *Ceratonia Siliqua.*

The fruit of this tree is given to the mules very commonly in Valentia and also in South America.

On account of some useful remarks we are induced to add the following to the Pabular Division.

REIN DEER MOSS or LICHEN. *Lichen rangiferinus.*

As this useful animal is the Horse, Cow, and Sheep combined, for the benefit of the arctic world, and this plant appears to be for these animals an indispensable provision, so we wish more particularly to introduce it here, to notice one particular property belonging to it, and which, if attended to, may make future essays of introducing this delightful animal into the more southern regions to be attended with more success. My friend, William Bullock, Sen. brought over to England more than twenty of these creatures; thirty he had purchased, but lost many by the way, on ship board, in a manner the most singular, for believing, that as they came from a cold climate they could not be kept too cold, he turned the mainsail of the boat to blow down upon them in the hold, the consequence was, for he did not distinguish between mere cold and *drafts of air*, that he lost ten or twelve ere they could be landed; on arriving in London with them he sent for me, and I told him their complaint, inflammation of the lungs, and with difficulty we saved a few of them; others died. In attending, I found another complaint among them; they were miserably griped with their food, which was principally hay and oats; and on giving them the Gripe Tincture, I saved several more which were on the point of death; others were too far gone to recover; and within a twelvemonth not one was found alive, though afterwards turned out in a park with every convenience.

On reading the travels of Dr. Edward Clarke in these regions I became possessed of a secret particularly worth knowing, to those who may hereafter have any thing to do with these animals. It is stated in a memorandum which I made at the time, as follows. Dr. Clarke says, Travels Vol. x. p. 139. Speaking of this lichen, "The rein deer take it from beneath the snow, where it affords a most delicious diet, being both meat and drink to them. Towards this month (September) we first observed the change that was taking place in this species of lichen. We then found it soft, tender, damp, and capable of being compressed like other plants for our herbary, between the leaves of the books we carried with us for this purpose.

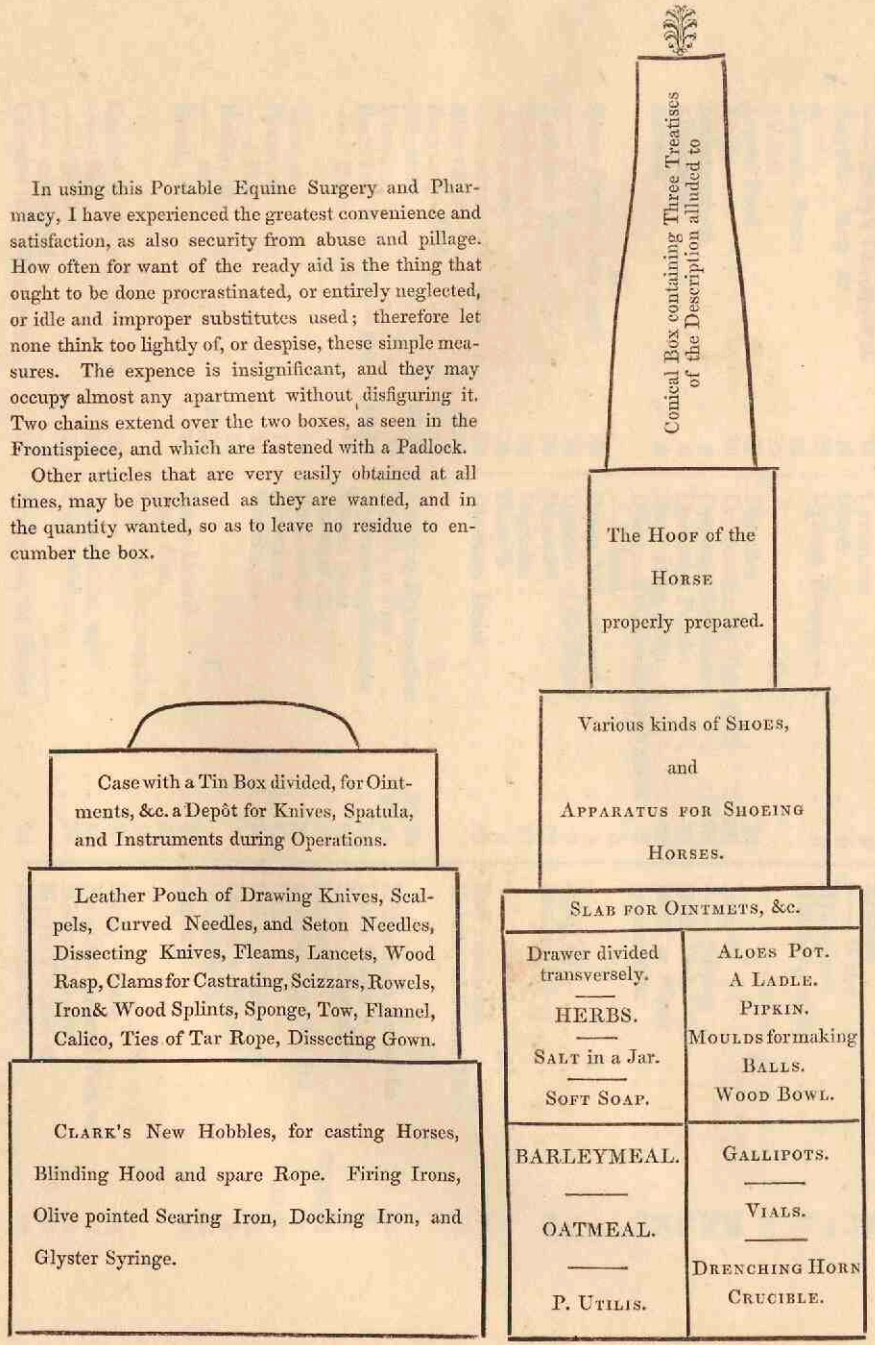
"In this state its appearance was so tempting, that when fresh gathered, we ventured to taste it ourselves; its luxuriant and flowery ramifications somewhat resemble the leaves of Endive, and are as white as snow. To our surprise, we found that we might eat of it with as much ease as of the heart of a fine lettuce. It tasted like wheat-bran, but after swallowing it, there remained in the throat and upon the palate a *gentle burning heat, as if a small quantity of pepper* had been mixed with the lichen; cooling and juicy as it was to the palate, it nevertheless warmed the stomach, and could not fail of proving a gratifying article of food to man or beast during the dry winters of the frigid zone."

Now it is this peppery quality of the lichen that it appears necessary should be known, understood and attended to, as its kindly digestion will much depend upon it, and where in this more southern latitude it is found deficient, it should be looked to and artificially supplied, as it appears to me in order to the full success of the experiment.

FINIS.

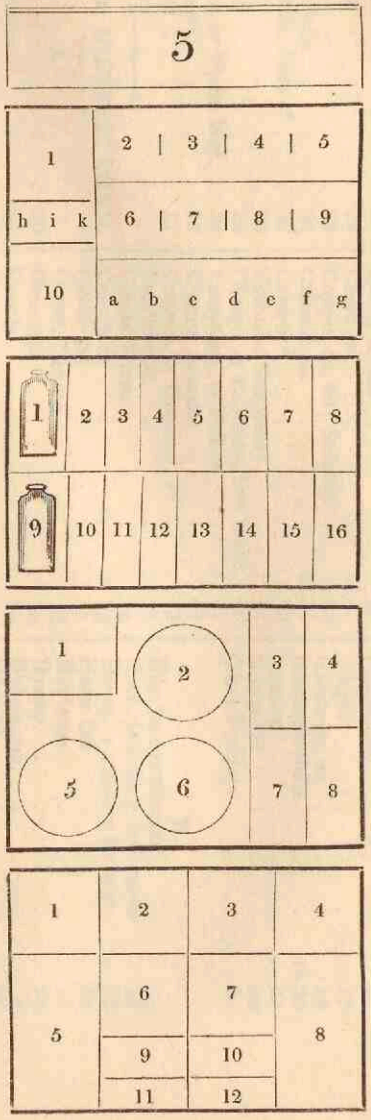
In using this Portable Equine Surgery and Pharmacy, I have experienced the greatest convenience and satisfaction, as also security from abuse and pillage. How often for want of the ready aid is the thing that ought to be done procrastinated, or entirely neglected, or idle and improper substitutes used; therefore let none think too lightly of, or despise, these simple measures. The expence is insignificant, and they may occupy almost any apartment without disfiguring it. Two chains extend over the two boxes, as seen in the Frontispiece, and which are fastened with a Padlock.

Other articles that are very easily obtained at all times, may be purchased as they are wanted, and in the quantity wanted, so as to leave no residue to encumber the box.



Scale, 1-10 to an inch.

PLAN OF THE INTERIOR ARRANGEMENT AND CONTENTS.



No. 5. Plain box with a lid, holding Scales, Weights, a graduated Measure, a Spatula, Papers, &c.

No. 4. Case going within the top of the case below, and filled with square Bottles, chiefly for Liquids.

1, *Gripe Tincture.* 2, *Spir. Vini.* 3, *Vinegar.* 4. *Spir. Nitri. dulc.* 5, *Spir. Turpent.* 6, *Genoa Oil.* 7, *Sulph. Acid.* 8, *Pyrolign. Acid.* 9, *Sal Ammon. cr.* 10, *Cantharides.* a, *Tr. Opii.* b, *Aq. Potassæ.* c, *Sol. Camphor.* d, *Aq. Ammon.* e, *Tr. Myrrh.* f, *Conglut.* g, *Litharg. Acet.* h, *Ol. Origani.* i, *Ol. Anisi.* k,——

No. 3. A Deal Tray with slips of Wood to retain the Specie Bottles in their places lying down. This Tray falls into the Case below, and is drawn out by the Handle.

1 *Antimony* 2 *Antim. Tart.* 3 *Bolus Armnea*
4 *Camphora* 5 *P. Curcumæ* 6 *P. Canthar.*
7 *Potassa* 8 *P. Nitri* 9 *Calomel*
10 *Pimento* 11 *Creta Ppt.* 12 *Merc. Nitr. r*
13 *Zinci Sul.* 14 *Ferri Sulph.* 15 *Corros. Subl.*
16 *Limat. Ferri, scoriæ pulv. or Calcothar.*

No. 2. A square Tin Box with four Partitions. Three round Stone Jars, and a Copper Pot with a Handle for Digestive Ointment.

1 *Digestive Ointment* 2 *Turpentine*
3 *Tar* 4 *Hoof Ointment*
5 *Ægyptiacum* 6 *Treacle*
7 *Lard* 8 *Roborans—Pitch*

No. 1. The bottom of this Case is formed into a Magazine by Deal Partitions four Inches deep, a Lid covers it, except the Nitre, which is exposed by a piece cut out; on this Lid stand the Pots of No. 2; a Brass Handle raises this Lid.

1 *Nitre* 2 *Cupri Sulphas* 3 *Cera*
4 *Pimento* 5 *Aloes* 6 *Zinci Sulph.*
7 *Sapo* 8 *Resina com.* 9 *Alumen*
10 *Antimon.* 11 *Creta pp* 12 *P. Glycirrh*

INDEX PHARMACEUTICUS.

SUPPLEMENTARY MATTER

TO THE

PHARMACOPŒIA EQUINA.

Preface, p. 7, l. 27, after *success*, add, *Ophthalmes* are also frequent, and to be reduced by vigorous depletion, abstinence from heating food, purgatives, vesicatories, and fomentations. *Gripes*, or indigestions, are also often supervening. For its treatment, see *Nosology*, in an express article.

Page 8, line 4, after *apprehended*, insert, without rest, or almost without any; a continual labour and enormous loads are poorly compensated for by an overdose of heating food; distress follows with disordered stomach, next the liver becomes diseased, then comes, more or less suddenly, the Farcy, and then the just reckoning, loss of labour and of horses, and so barbarity and folly is made to receive its just recompense.

> "As nature, kindly in her wide domain,
> Scatters some antidote to every bane."

Page 9, line 15, insert, it is easy thus to analize into its component parts any portion of hay presented, which will give us a shrewd guess or insight into the place of its growth, whether upland, meadow, hill, or swamp. The condition of it is next to be considered, and the circumstances attending the getting it in, and its probable salubrity, or otherwise, for the horse.

Page 9, line 16, after *clover*, insert, the hay seeds are an annoyance to the horse, lying in the bottom of the manger, and if neglected, liable to get mixed with his corn, and should be carefully removed. A convenient way of doing it is, by a small trap door at one end, through which also the accumulating chaff and dirt should be conveyed in the well-regulated stable.

Page 9, line 34, after *purpose*, insert, sheep walks also have been found beneficial, perhaps from the *thymus serpyllum*, or *motherthyme*, growing there, a warm exciting aromatic. The note on *lichen rangiferinus*, at the end of this work, may be also inserted here in a future edition.

Page 10, line 1, insert, in a very intelligent article in a newspaper, (see *Morning Chronicle*, of September 20th, 1842), is the following paragraph respecting farm horses of the Mid Lothian agriculturists. "The winter keep of the horses is a mixture of half chopped straw, and half steamed turnips or potatoes, and this feed is not only found much cheaper than hay and oats, but the horses are kept in better condition by it, and enjoy better health than with the higher food. The farms here are all held on nineteen years' leases, the beneficial source of all improvement."

Page 11, line 14, after *fagopyrum*, insert, also called *sarrazin*, in the south of France, and it is said, when in flower, to intoxicate sheep if fed on it. See *Mortimart Boisse*, tom i, p. 61.

Page 11, line 37, after *maggot*, insert, *peas*, *pisum*, formerly much given to horses in this country and also in Sweden.

Page 11, line 38, after *detrimental to horses*, insert, in large quantities no doubt, but a scattered few, by their stimulating effects, would aid digestion, probably, and not be injurious.

Page 12, line 2, after *boil them*, insert, others only parboil them.

Page 12, line 4, insert, *Liquorice root*, *Glycirrhiza*, chiefly used as an augment in making cough balls.

Page 12, line 30, after *food*, insert, and assimilating it. A lump of *rock salt*, in slow digestions, is most useful lodged in the manger. A bad case of gorged stomach I cured by this means, April 1845, that had existed more than a week.

Dog's Food. P. 12, l. 30, after *liquor*, insert, the continually increasing price of dog's meat induced me to use the chandler's graves, chopping it fine with an axe, pouring scalding water upon it and steeping it one hour; to this, further diluted, I add six times as much barley meal, a pinch of salt, and a trifle of pepper; let them be well mingled in a proper vessel with a case knife, or in a wooden bowl by a heavy pestle. Cats also like it, but care should be taken not to surfeit them with it. Every fourth or fifth day meat may be interposed. In this way the rapacity of the dog's meat people may be checked. For on account of the price both dogs and cats are often insufficiently fed.

Page 13, line 33, after *Prof. Vibourg*, insert, see also Watson's account of the effects of the yew-tree, in the *Philos. Transactions*, vol. xlvii, p. 199. On *Enterocalli*, by ditto, vol. xlviii, p. 800, and vol. xliii, p. 268.

Page 14, line 4, after *misfortune*, insert, see also *English Botany*, No. 2313, in proof of its fatal effects. The gripes, however, is often, in these lonely situations and unaided cases, mistaken for poison, indeed poisonous is almost any herb that is not duly digested; that poison and the gripes become almost synonymous terms.

P. 15, after *price*, foot of page, insert, RHUBARB, *Rheum palmatum*, the root. I find the following notice in my memorandom book. I gave at the Veterinary College, March 8th, 1792, an ounce of powdered rhubarb made into a ball, to a pony, about twelve hands high; two hours after he seemed in pain, and was pawing his litter with his fore feet, this he shortly after desisted from, nor was he afterwards in any way affected. His dung appeared in smaller balls, and I thought was rather harder than before. On November 7th, 1803, I gave one ounce and a half of best rhubarb to a bay hack horse, without its producing the least purgative effect though he was carefully watched.

Page 16, line 4, after *effect*, insert, and I am well satisfied I have seen mischief done by its administration by inexperienced hands, producing much distress without any benefit whatever.

Page 16, following the word *Horse*, last line, insert, ELATERIUM, the extract of the *cucumis sylvestris*, or *wild cucumber*. One scruple was given by me to a grey horse, April 26th, 1794. It took his appetite away for a few hours; no other effect was perceived.

Page 17, line 31, after *believe*, insert, however, for a formula of this description, see page 35, the *Tonic Bitter Powders*.

Page 18, line 24, after *effects*, insert, a great deal of revolting cruelty was practised at the Veterinary College, on Coleman coming to it in 1794, in throwing poisons into the veins of asses and horses; I find the following recorded in my book of notes, which may prevent the repetition of such useless cruelties, March 7th, 1794; an ass was tied down and the integuments over the jugular vein divided, and by a crooked needle the exposed vein was ligatured in two places, and divided transversely between them, into the lower portion, communicating with the heart, a brass pipe was inserted and tied, and then the ligature on this portion of the vein was removed, having been only a knot and bow easily loosened. An infusion of one dram of tobacco in ten ounces of water was taken up by a syringe and thrown into the vein. The effects were almost instantaneous, and of the most violent nature, every muscle throughout the whole body was thrown into convulsions and violent contractions, the eye was turned round in its orbit from forwards to backwards. The *membrana nictitans* shot out from the eye in a most horrid manner, the nostrils were dilated to their utmost and thrust forwards, a snorting and rattling in the trachea. The legs pushed out, in short he appeared for a little time perfectly dead; but at length the eye returned to its usual situation and the muscles relaxed, but still the greatest agony appeared; the heart beat so fast we could not count it.

After about ten minutes I counted the pulse by feeling the left side

of the thorax, and it was 168 strokes in a minute. The animal lay panting in this way for one hour, then was able to get up and stand. About five hours after the operation I found the pulse 140. The next morning, nineteen hours after the operation, the pulse was 120; in twenty-four hours, the pulse the same, but more languid, and I thought his saliva smelled of tobacco. His mouth, however, seemed locked, that I could not open it. About thirty-four hours after the operation he grew more and more languid and died.

Page 18, line 24, after *effects*, insert, INSECTS. *Cantharides*, a very remarkable effect of the cantharides when given in too large doses is, that it changes the colour of all the mucous membranes to a deep crimson, as though violently injected and inflamed; this effect I have observed in several cases where the powders, through inadvertence or ignorance, were administered without the diluting augment in sufficient quantity; as by the oat, or the barley meal, or liquorice powder, conceiving them superfluous additions.

Page 19, line 26, for one-fifth read two-fifths.

Page 20, note, line 6, after *boiling down*, insert, accurately figured in the *Flora Græca*, see also Maycock's work on the plants of Barbadoes.

Page 20, line 37, after *flexible*, insert note.

About the year 1804, I first found out and used treacle for forming a ball with the aloes, and found it most excellent in consistence as in its effects also; and about some twenty years after, one Morton, of this blessed College, quitting his counter in the Borough, got dubbed a Professor there; so low, by misuse, is this term got, and he, taking this simple and elegant compound, added to it, what would any chemist imagine, common linseed or other oil, and so corrupted it as to prevent any acknowledgment as to its inventor, and then called it, or at least left them, the pupils, to apprehend it as his own discovery. Assuredly, oils and fat are most nauseating to the horse, and no purgative at all; and in its mixing with the aloes, most incongruous and difficult, betraying an ignorance of chemistry as well as of proper medicinal prescription.

Another of these worthy collegians told me, as I walked with him to the slaughter house to examine a dead horse, that he much liked the aloetic purgative ball, as recommended by me, only they were subject to a deliquescence. I replied, that for thirty years I had constantly used them, and never had seen a single instance of their deliquescing; and I further desired to know if he had adhered strictly to the formula. "Oh, yes, he had; but the chemist who made them up thought a little alkali would be an improvement"! Whether the aforesaid chemist

was a full blown Bloomsbury or not I did not hear; but it is very certain that this great school gives a preference, of all others, to the above Mr. Morton.

Page 22, line 21, after *resinous matter*, note. This, by way of seeing its effects, I administered to a horse alone, but it had no operation as a purgative. The gum operated well in a dose of five drams given to a young horse, November 4th, 1841.

Page 22, line 34, after *proceeding*, insert, it has also appeared to me an undoubted fact, that much of its virtue is lost by frequent boiling, and the less that is done with it after receiving it from the manufacturer, the better. I found three parts of the extract, and two of treacle, to afford an excellent consistence, cast in paper tubes and melted together. As to the original prescription, any one who fairly tries it will find its consistence and its operation with nothing to wish for. But whilst some are employed purging and clearing the path of knowledge, others seem as actively employed in throwing back the feculencies again into the stream.

Page 23, bottom of page, after *Charybdis*, insert, another case (John Hand's) has since occurred, where three pints of this abominable oil had been given by the farrier. I tried to get it digested, by giving upon it four eggs rendered nearly solid by beating them up with oatmeal, but to no purpose, the mare died.

Page 25, line 22, after *wine*, insert, or simply by a few grains of turmeric, rubbed down in a mortar with a little of the mixture.

Page 28, line 8, after *spices*, add, or THE GRIPE TINCTURE.

Page 28, line 26, after *certain*, insert, we have also, in an express dissertation, shown this disease to be the same as the human *cholera*.

Page 31, line 2, instead of fifteen grains read eight grains, instead of cantharides seven grains, read five grains, add also to the above prescription thirty grains of meal.

Page 31, line 7, insert, linseed meal, so commonly resorted to, is of too oleaginous and indissoluble a quality for the purposes of a drench, in a ball not so objectionable, or as a powder. For prescriptions for powders, however, see page 35.*

* I have been apprehensive lately, that the dose here recommended was rather too strong, and therefore desire to substitute eight grains of *zinc sulphas*, and five grains of *cantharides*; at least to commence with, if used daily, as the medicine should not occasion distress of any kind, as that would defeat its intention; if small doses do good as tonics, large ones may do much harm.

Page 32, line 34, after *salts*, insert, for these cases of diarrhœa, in reality, proceed, generally, from the want of the biliary and other intestinal secretions,

inducing inflammation and a flow of arterial capillary serum into them, the source of the purgative actions, and will be relieved by the following drench, which I can recommend as very valuable on such occasions.

Page 32, line 42, after *added*, insert, to these measures, bland, demulcent injections may be used, made of dissolved *starch*, *flower*, *gum Arabic*, or *pearl barley*, these clysters, not in large quantities, that they may be the longer retained, defending the mucous lining of the bowels from the acrimony of their own morbid secretions, and thus assist in inducing a return to their proper natural actions and tone.

Page 33, line 25, after *dose*, add, also a lump of *rock salt*, placed in the manger, will stimulate to quicker digestion and so do good.

Page 34, line 10, after *ascarides*, add, bitters, we find, were employed by the ancients to kill the worms, and *aloes* among the rest; by which, it is probable, its invaluable property as a purgative was first discovered. As powders are by far the most convenient form for administration, beyond balls, or drinks, or drenches more properly, so we give farther examples of them.

Page 35, line 14, insert, for two drams, half an ounce.

Page 35, line 16, insert, for eight ounces, four ounces.

Page 35, line 17, insert, let a heaped tea-spoonful be given, &c.

Page 35, line 18, insert, to reduce to some stated rule the proportion of the augment to the medicine employed, I weighed out an ounce of oatmeal and found it to give seven teaspoonfuls, the teaspoon not very much heaped. Therefore, to every twenty-eight grains of the cantharides finely powdered, may be added one ounce of oat or barley meal, and together, with the spices and zinc, a fully heaped teaspoonful would be a proper dose, containing four grains of cantharides and four of zinc in each.

Therefore, four ounces of oatmeal in this proportion should receive $28 \times 4 = 112$ grains of cantharides, or one dram, two scruples, and twelve grains, or a short quarter of an ounce, having four grains of cantharides and four of zinc in each dose.

In exhibiting these powders the augment must be strictly attended to, as we have known, more than once, gentlemen using the medicines alone, supposing the augment of no consequence; and so were giving more than four times the dose recommended, with very distressing consequences. This powder may be kept in a pot or gallipot for convenient use in the stable recess.

If given in too large doses it distresses and does harm, and where this has been the case, we have observed, in a very remarkable manner, that it affects all the mucous membranes exposed to view, as the mouth, nostrils and eyes, etc., turning them to a deep injected crimson dye, as

though highly inflamed with a dewy moisture thrown out upon the surface. Perhaps, in this way, we account for its operation on the bladder, causing strangury, where it is most inconveniently felt, the lining of the bladder being a mucous membrane, occasioning a dreadful scalding in the making of urine, and often a suppression.

If there are any ulcers in the nose in sight, and that can be got at, let them be touched with a solution of sulphat of zinc, of moderate strength, by means of a linen rag tied to the end of a stick.

Page 35. After *Tonic Bitter Powders*, insert, or ALTERATIVE BALL.

Page 35, line 34, after *rich*, insert, *orange* colour.

Page 36, line 20, after *afford it*, add, most useful as a drying ointment, and also in excluding the air in opened joint cases, as is also the above resinous digestive, when made extremely viscid and tenacious. For this purpose a dense pledget of tow, and with the hand a sufficiently thick mass is scooped out for application.

Page 37, line 34, after *traumatica*, insert, or *wound tincture.*

Page 39, line 18, after *cuticle*, insert, or natural rind of the hoof.

Page 41, line 16, after *hot*, insert, in some cases to be applied cold, as where there is inordinate heat.

Page 42, line 16, instead of *lichen rangiferinus*, read *Icelandicus.*