RINDERPEST,
ITS PREVENTION AND CURE;
AND
GYPSUM
AS A SANITARY AGENT.

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GYPSUM,
(OR SULPHATE OF LIME)
ITS ADVANTAGES AS A MANURE, DEODORIZER,
AND SANITARY AGENT.

BY

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PREFACE.

The following remarks were, in the first instance, written as letters to a relative, and a dear friend of the author's, but who are unfortunately unacquainted with chemistry, as reasons for his having dared to advance to them the theory how to prevent, as well as to cure the Rinderpest and other contagious disorders to man and beast (now reduced to practice upon cattle), and as a collection of chemical facts, probably unknown to them, or which might have otherwise escaped their observation. As he went on, the matter increased to its present length. It was begun with a view to please those whom the author feels it a pride, a credit, and a duty to please and benefit, and in the words of a late fellow-townsmen of his (Dr. J. Alderson), who wrote an agricultural essay under similar circumstances as far back as 1796, he may say, that "should their publication excite the attention of any truly ingenious mind only till they produce refutation, or induce others by experiment to confirm them, the end of the author will be fully answered." Originally influenced by these motives only, a sense of duty to the public has since induced him to publish what he trusts will be found to be of use not only in itself, but to direct the minds of those more competent to grapple with the subjects treated upon. Probably the author's many imperfections will therefore be overlooked or pardoned, especially as the labour incurred by him has had to be done only by stealing odd moments and the "filings of time," and in hours which ought to have been devoted to repose.

John J. Lundy.

Leith, 2nd October 1865.
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ITS ADVANTAGES AS A MANURE, DEODORISER, AND
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Amongst the many substances used as artificial manure, one of the
most valuable to the Farmer (and most neglected by him), is Gypsum,
or Sulphate of Lime, the value of which has never yet been
properly appreciated,—a neglect arising from ignorance of its exist-
ence, or the proper mode of applying it to the various purposes for
which it may be beneficially used.

Liebig says, in his Agricultural Chemistry, that the action of
Gypsum chiefly consists in giving a fixed condition to the nitrogen
or ammonia which is brought into the soil, by other manures or
the rain, and which is indispensable for the proper growth of
plants. The evident influence of Gypsum upon the growth of
Cereals, Turnips, Potatoes, and Grasses, and the striking fertility
and luxuriance of a meadow, upon which it is strewed, depends only
on its fixing in the soil and retaining in the manure the ammonia,
which would otherwise be volatilized. The Carbonate of Am-
onnia contained in rain water turns Gypsum, by double decompo-
sition into Sulphate of Ammonia and Carbonate of Lime, and the
Sulphate of Ammonia possessing no volatility is consequently re-
tained in the soil, and is only given up as the plant requires it.

In some plants Gypsum does not form a component part, nor
enter into immediate combination with them as food, yet it must
strike every intelligent observer that the views of the Professor are
just and correct, and we may fairly conclude that its effect on stable
and fold-yard manure, guano, and rain water, is to combine with
them, and render them more profitable by retaining their virtues,
and consequently prolonging the duration of their beneficial effects
until the growing plant assimilates them.
Sir Humphrey Davy, in speaking of those Crops which are found to contain Sulphate of Lime in any sensible proportion, (such as Clover, and Turnips,) says, it is probably combined as a necessary part of their fibre, so that it must originally be furnished by the soil. Hence the necessity for the Farmer applying it to those crops that require it, especially to land wherein Lime is deficient. Sulphate of Lime may thus be considered as having a two-fold action as a manure for all such crops, and a valuable aid to all other manures, less quantity of others being required, when it is used, to attain equal results.

As a manure to those plants in which it is found more particularly to exist, such as Clover and Turnips, it is better applied in the same proportions that are found to exist in the plant, as giving the best results, and affording a convincing proof to the Farmer of the benefits which Agriculture may derive from the assistance of the Chemist.

The action of Gypsum depends also upon its chemical affinity towards the other substances previously existing in the soil naturally or artificially. Possessing as it does the power of retaining and fixing the Nitrogen or Ammonia contained in the soil or manure, it thereby prevents the escape of that substance upon which their virtue mainly depends, and forms, by this new combination with them, Sulphate of Ammonia and Carbonate of Lime, the beneficial action of which is not confined alone to Clover and Turnips, but applies to all kinds of crops, acting as an efficient auxiliary to the culture of Barley, Wheat, or other cereals and leguminous plants.

For Clover it is recommended, even without the addition of other manures, as a top dressing. The produce of Clover, thus dressed, often doubles that which has had no Gypsum applied to it, as it prevents the land becoming Clover-sick, which may be often remedied by its application. Sir Humphrey Davy, on an analysis of Clover, calculated that an average Crop carries off, at least one bushel of Gypsum per acre; no wonder, therefore, that soils containing so little of it should become tired of Clover or "Clover-sick," the land being sooner or later exhausted and incapable of any longer supplying the demand the plant makes for it.

As a good crop of Clover often materially benefits the succeeding crop, it is recommended where the land has not got Gypsum naturally, that a dressing of from four to six cwt. per acre be applied broadcast when the grass seeds are sown in April or May, and harrowed in, which is more beneficial than the ensuing Spring; but if applied to seed, it is better used when the ground is moist, and adheres to the plant.

For Grasses and Pastures.—Sown broadcast during rain or when wet with dew, it will be found to increase the growth of white Clover, making it grow where it would not previously. Six to eight cwt. to the acre may be applied;—but it will be found much better if ten cwt. be used. It will materially improve its growth, to use as a top dressing three cwt. to the acre, in combination
with such other manures as contain Ammonia, and thus increase the effect of both. When it is known that sheep's wool contains 5 per cent. of Sulphur, it will in some measure indicate to the careful observer that the sheep must obtain it from the food, which must have been extracted from the land. It is therefore likely that unless it be supplied artificially to the soil, where it may not be derived from springs or other natural sources, these grasses which favour the growth of wool will gradually fail, and the weight and quality of the fleece diminish. If this Sulphur be extracted from the soil in the shape of Gypsum, then the plants upon which the sheep feed must take from the soil at least 13,000 tons of Gypsum per annum, reckoning the estimated number of sheep, ten years ago, in the United Kingdom, at 30 millions, and the average fleece at a little less than 4 lbs. only. It is highly probable that well gypseumed sheep farms would produce heavier fleeces of better quality, and with fewer vermin. It would be worth while for some of our extensive sheep farmers in hilly grass lands, with these facts before them, to try careful experiments, as beyond the use of sheep dips and smears (of the composition of which they are, as a rule, entirely ignorant), little has hitherto been done, except to grow the largest amount of food for sheep and manure for arable lands, without giving a thought to what food shall produce, not only the most flesh, but the largest quantity of the best wool as well as flesh and manure.

In Pastures where cattle are feeding, a slight dressing of two cwt. per acre will fix the Ammonia contained in their droppings, and sweeten the herbage for the cattle, preventing the waste of grass so often seen around them.

Notwithstanding the astounding results to land irrigated by town sewage in such localities as the Craigentinny Meadows (between Edinburgh, Leith, and Portobello), the production would be greater, and the herbage better and sweeter, were Gypsum sown broadcast over the land immediately after the sewage has been applied and soaked into the ground. It would render the locality more healthy, and remove all cause of complaint, provided the different conduits and channels were also arched over, or the service of the sewage supplied, as the health of the community requires it should be, by a proper system of piping. Indeed, it is a wonder that the local authorities of Portobello, dependent as it is for its prosperity on the salubrity of its atmosphere, should not have insisted upon the adoption of some plan for the deodorisation of the sewage applied there, or at all events that the channels by which it is conveyed be covered. It is equally surprising that the authorities of Leith should not have insisted upon the same plan being carried out, as, were it adopted, there would be nothing to prevent the land being gradually feuded for villa residences from the west of Portobello all the way to Leith. This cannot be done so long as the meadows are irrigated by the present open sewers, as except the wind blows sea-ward, it carries its malarious influence over Portobello, Leith, or Edinburgh. Dr Littlejohn, in his recent
able Report on the Sanitary State of Edinburgh, says distinctly of the Abbeyhill district (which is the nearest to the meadows) that "it is highly probable that a great part of the mortality of the Abbey, and some of the poorer districts of the Old Town, is in a great measure owing to the unhealthy breezes which blow so continuously during many months from the east over these meadows;" also, that "it has been plausibly conjectured that the special intensity and virulence of these winds depend on this contamination;" and further, that "it is difficult otherwise to account for the high death rate of the district of the Abbey, in which there is little overcrowding, and where only a small proportion of the population can be said to belong to the poorest classes."

For Barley, Oats, and Wheat, Gypsum combined with other ammoniacal manures will be of service, when applied alone to land, especially if applied as a top dressing immediately after sheep are taken from Clover or Turnips. It doubles the value of the manure they leave on the land; and for this purpose I would advise that they be confined in as small a portion of the field as possible at a time, by moveable fences, compelling them to finish one part of a field at once, and not giving too great space to stray over among untenant turnips, as is commonly and unscientifically the present custom, which loses as it does the greater part of the ammoniacal properties of the manure they are placed there to deposit for succeeding crops of cereals, as well as wasting the Turnips not completely eaten. This, however, does not apply to Clover, as it is well known that sheep, if confined in too small a space for the number of them, destroy more than they eat. In America and in Germany it is universally used for these Crops. In Lincolnshire, Gypsum alone, sown and harrowed in with the seed, at the rate of eight bushels to the acre, showed a result decidedly superior to a Crop not gyspumed. I would advise Farmers to try the experiment, and I think they will be astonished at the result.

For Turnips, Gypsum is strongly advised, not to the exclusion of any of the many manures now introduced to the notice of the public, but in combination with them. It will be found to be an excellent auxiliary to their action, retaining their virtues for the benefit of the Crop, preventing the escape or volatilization of the Ammonia contained in them, and requiring only half the manure to be used to produce as good a crop.

In applying Gypsum to Turnips, if not previously mixed with the manure, I would advise the Farmer to sow five to six cwt. or more per acre on the land, previous to the application of other manure, and to harrow it in with it. No lime should be applied, as its action upon manure when put on the land immediately before or after the manure, has the contrary effect to Gypsum, by decomposing the Ammonia contained in it, and causing it to escape into the air.

Gypsum applied alone to Turnips acts as an excellent manure in lands where it is deficient. The Mark Lane Express says:—

"In our report of the Lincoln Agricultural Meeting, we incidently
noticed some Turnips exhibited by Mr Terry of New Holland, as a specimen of the extraordinary effects of Gypsum alone as a top-dressing to this important plant; we now give some further particulars,—the weight of one Turnip was 12 lb. 3 oz., and measured 30 inches in circumference: another was nearly of the same size, and the remaining one fell short only three or four inches in girth: several highly satisfactory proofs have been offered in this part of the country of the efficacy of Gypsum, when very fine, as a top-dressing for Turnips." As a Preservation from Fly a top-dressing of three or four cwt. of Gypsum per acre applied to the young plants, during wet weather, will have the desired effect, and also tend to destroy grub at the same time.

The use of Gypsum has been found in Cumberland, Westmoreland, Lincolnshire, Leicestershire, and many other parts, to be attended with the most satisfactory results in the culture of Potato Crops; and no doubt the application of it may again restore the Potato to its original productiveness.

There are instances that have answered well, where Potatoes have been planted with Gypsum alone, by applying fifteen to twenty cwt. per acre; others have tried it, in the ordinary way, with farm-yard manure, giving eight to ten cwt. per acre, and strewing it upon the manure before planting the Potatoes in the rows. Two and a half cwt., each of Gypsum and Guano per acre answered exceedingly well, and from a very narrow inspection it was not perceptible that any had failed; while of others planted alongside with farm-yard manure alone, at least one-third did not come up.

The more Gypsum used to Potatoes the greater is the production of the Crop, and those who have tried it have found them, when taken up, to be much more productive, with a finer and cleaner skin—a sufficient proof of the restoration of health to the plant.

Potatoes, when cut for seed, should have plenty of Gypsum thrown amongst them, and be turned well over with a shovel, so that the Gypsum may have an opportunity of healing up the wound, caused by cutting. It is now no longer questionable that Gypsum forms a part of the Potato as well as the Turnip, and should by all means be supplied with a liberal hand.

It is of the greatest importance for the purpose of fixing the Ammonia, and its use cannot be too strongly urged, not only as an additional value to other manure, but as a sanitary agent for sweetening the atmosphere, and preventing the flow of urine into the water ponds, so often near to fold-yards, which not only lower the standard of health of the cattle, but often gives rise to disease, especially of a typhoid character.

The loss in farm-yard manure has been estimated at twenty per cent., or nearly one-fifth of the whole solid matter which it originally contains and gives the Crop a less benefit than one-half of the weight will do when the ammonia has been retained and fixed by Gypsum being occasionally strewed over the fold yard.

The practical Farmer who uses every effort to collect and preserve the manure which is put within his reach, is deserving of praise
when he expends his money in the purchase of manures brought from a distance, of whatever kind they may be; but he, on the other hand, is open to censure, who puts forward the purchase of foreign and artificial manures as a substitute for those which are running to waste around him. Let every Stock Farmer, with the help of these facts, make a fair calculation of what is lost to himself and his country by the hitherto unheeded waste of the urine of his Cattle, and he will be able clearly to appreciate the importance of taking some steps for preserving it in future.

The urine of the Cow is not lost sight of in Holland. It is said to contain less water than that of man; but much depends on the food which has been eaten. A healthy average sized Cow gives on an average 1200 to 1500 gallons of Urine per annum, estimated by Professor Johnston to yield about 1,000 lb. of solid matter, of the annual value of from £4 to £5. This urine when six weeks old loses five-sixths of its Ammonia, unless it be fixed by Gypsum or Sulphuric Acid. To saturate the whole of the ammonia capable of being formed per annum by the urine of a single Cow of average size, would require about 700 lb. of Sulphuric Acid. It has been found that 750 gallons treated with only 15 lb. of Acid, produced equally as much hay as two and a-half cwt. of Guano, or one and a-half cwt. of Nitrate of Soda. It were however, far safer and handier to use Gypsum than Acid, as the Gypsum can be strewed in the byre daily, where Acid could not be used, and so prevent the loss of ammonia there, as well as in the tank. It also prevents the necessity of adding water to the urine in the tanks, which is done by some in at least equal quantity, as its dilution prevents a considerable loss of Ammonia during its fermentation, which dilution however, unnecessarily increases its bulk and does not effectually retain the ammonia like Sulphuric Acid or Gypsum. If there are, say eight millions of cattle in existence in the United Kingdom, the urine of which is worth only £4, its loss is equal to £32,000,000, sterling. It is impossible to estimate how much of this yet runs to waste, but one-third of it will amount to more than the whole Property and Income-Tax paid in this country in 1864.

Gypsum is a valuable agent to assist at comparatively little expense, in fixing the Ammonia in the dung and urine of the Cattle, and preventing its loss. I would recommend a small quantity being strewed upon the floors of the stables, cow byres, and fold yards, whereby it will not only promote the health and comfort of the animals, but of those who attend them, purifying the atmosphere they breathe, and preventing both from inhaling the ammoniacal vapour generated from the manure, which is so much money lost to the Farmer. Gypsum should be strewn on the floor immediately before and after the removal of the old litter, or before the fresh straw is put on, thus keeping them always sweet. It should always be strewn on the stable and byre floors after being well swept out, and before the operation of Lime washing, in order to retain the Ammonia liberated by the Lime wash falling upon the Ammoniacal deposits on the pavement and its interstices, in which case it were better
that the Gypsum be damped with a little diluted Sulphuric Acid, to prevent the continuous action of the Lime. If used in sheep pens the ground would be drier, and tend to prevent foot rot, as well as double the value of the manure. The collection of the liquid manure, and drainage from the fold-yard is now becoming more general than heretofore, but it should be kept deodorised by Gypsum, not only to detain the Ammonia, but to keep the air surrounding the tanks sweet. The difficulty of applying liquid manure sometimes appears insuperable, but they may be obviated by adding Gypsum to it, and thus preventing the necessity of carting it upon a young growing Crop. Upon many light soils the damage done by carting liquid manure on the growing Crops is not to be compensated by the benefit the manure affords; and, in other instances, we find the want of the necessary apparatus of pump, cart, &c., is a bar to its adoption by many small Farmers.

One cwt. can be added to, say from seven to nine gallons of liquid manure, or the liquid from the tank may be added to the Gypsum on the ground, and mixed like mortar, adding more Gypsum if necessary until it assumes the consistency of Guano. Were all the Gypsum thrown at once into the tank, it would be difficult to mix it, without well stirring, therefore a small quantity should be put in daily, or dissolved with liquid manure or water to the consistency of paste before being put in the tank, when it could easily be stirred, and would not sink to the bottom, which it might do unless care be taken to prevent it, if the Gypsum be not properly manufactured.

If mixed on the ground, and after the Gypsum has absorbed as much of the fluid as it can do, it may be left to dry, and then fresh additions of the liquid may be made to it. The Gypsum will retain all the Ammonia and the valuable parts of the liquid, water only evaporating each time as it dries. It may then be kept until required for use like Guano, and will be found a most excellent manure for any crop desired. For every six cwt. of Gypsum used, forty-eight gallons of the very essence of farm-yard manure is preserved at a trifling cost, which would otherwise run to waste, fouling the water the cattle drink, and producing typhoid and other diseases to men and animals. It converts it by this simple plan, into a profitable manure of undoubtedly efficacy, in a less bulk and easier applied to the land than by the water cart, whether for broad-cast top-dressing, harrowing, or ploughing into the land; and especially when drilling every kind of seed, or planting Potatoes.

From railway stations and other public urinals a large revenue might be made if proper scientific means were taken, without creating any nuisance so great as now exists. Human urine is a fertilising manure of the richest quality. One hundred gallons, according to Professor Johnston, contain 68 lbs. of dry matter, worth at least six shillings,—the national waste in human urine alone being about six shillings per head per annum, and the urine of six men being equal to five tons of farm-yard manure, or enough to keep an acre of ground in good heart. Some years ago, in the "Report
of the Committee on Metropolitan Sewage," Mr Smith, of Deanston, said he considered the urine of two men sufficient manuring for an acre of land, and if mixed with ashes it would produce a good crop of turnips. By adding Gypsum when human or pig's urine is putrifying, its Sulphuric Acid will fix the Ammonia, and the Lime be converted into a Carbonate, which helps to dry up the Phosphates (present in human and pig's urine, although not in that of the cow, horse, or sheep) along with a portion of the animal matter. If it be so treated, and then dried, and the water evaporated by air or other gentle means, it can be again wetted with putrifying urine until perfectly saturated. Such saturation will fix more Ammonia, dry up more Phosphates, and also detain all the saline and other substances contained in it, such as Urea and other organic matters containing Nitrogen, as well as the Magnesia, Sulphate of Soda, Salt, &c.—water only evaporating from it without any smell whatever. This plan is better than that of Dr Stenhouse, who, precipitating the Phosphoric Acid by Milk of Lime as Phosphate of Lime, found the produce when dried at 212° F., to contain 39 per cent. of Phosphoric Acid and organic matter, but only one per cent. of Ammonia. Or the Ammonia and Phosphoric Acid may be fixed as soon as putrefaction commences by a solution of Sulphate or Muriate of Magnesia by which means the double Phosphate of Magnesia and Ammonia falls to the bottom, and of which salt 7 lbs. may be obtained from 100 lbs. of human urine. Gypsum is by far the cheapest and most effectual, making a better manure, and if the Calcined Gypsum is used, and the mixture kept well stirred, to prevent its setting hard, it will take up about 33 per cent. of its own weight of water, when there will be less risk in loss of Ammonia in drying by heat, as well as the expense if not dried by air; but should it set hard, it would be quite as good a manure when properly ground or powdered, and easier applied to the land, whether for "scaling" like Guano, or for drilling seed.

Pig's urine, as stated before, contains a considerable proportion of Phosphoric Acid (which is absent in that of the cow, horse, and sheep), adding considerably to its value as a manure when properly treated in the way I recommend for human urine, and it is satisfactory to know that in farm-steads all these can be allowed to drain into one tank. The whole of the manurial properties of the urine of man and domestic animals, although differing in their chemical constituents, can be thus preserved by one uniform method; moreover, Gypsum, unlike Sulphuric Acid, can be applied by the most ignorant labouring man without endangering the person, the animals, or the crops.

Piggeries in large towns should never be allowed in crowded localities; but wherever they are permitted they should only be where open courts are provided in front of the huts, and the courts should be frequently deodorised by Gypsum, whereby the animal, as well as its attendant, would escape breathing the foul stench otherwise arising, which must render the animal more liable to that disease from which few pigs are free in hot weather.
Mixtures of otherwise lost manurial matter, such as the urine of men, horses, cows, and pigs, which vary so much in their chemical proportions, will act like what has been proposed by some chemists as a rotation of manures, rendering it possible to grow more continuous crops of the same kind, through one compost made of all the liquid and solid animal and vegetable refuse of the farmstead with Gypsum. No single crop could be continued on the same land unless there be present naturally or artificially all the constituents of its composition, which possibly might always be the case without danger of exhaustion to the ground were it manured in a scientific manner by practical chemists, having previous knowledge of what was superabundant and all but inexhaustible in the soil by the crop proposed to be grown. I consider the farmer should be able to grow one kind of crop as continuously on the same soil by means of chemistry, or rotation of manures, as the manufacturer can continue to make one article in his factory or workshops. The urines, as well as the solid excrement of each animal, differ materially. For instance, the Phosphates found in the urine of the man and pig are not found in those of the cow, but go away from her in the milk to give bone-forming matter to the calf. It is possible that the urine of the bull or ox may contain Phosphates, and that of the mare and the ewe may contain none, for it is more than probable Nature lets it go into the milk, as it certainly does into that of the sow, but I cannot find anywhere that chemists have experimented for Phosphates on the urine of the bull, mare, or ewe. It is equally possible, and very probable, that Phosphates may be present in the urine of the cow, as well as the mare and ewe when not giving milk, as no authority I have consulted contradicts the idea of their existence, and I have neither had time nor opportunity to investigate it for myself; but if Phosphates are found under such circumstances, then the value of the urine of a farmstead is all the more valuable. One thing is certain, that urines contain many important saline properties not present in the solid excretions, and it may be, if all these matters were saved for use in a proper manner, and added to the vegetal refuse and solid excrement, they may be found, as a whole, to contain every necessary ingredient sufficient to produce continuous crops of any kind suitable to the land and climate.

Dry organic manures, such as crushed bones, horn waste, woollen rags, shoddy refuse, or hair, unless changed in their composition before application to the soil decay slowly, and hence are not so quick in being beneficial as sea-ware, vegetal refuse, and animal excreta or chemically prepared manures. Hence it is found useful to apply such dry substances, where procurable, to Turuips; for as the other manures hasten the early growth of the plant, so these dry matters prolong its growth in the autumn months. But this double effect is produced equally well by using Gypsum to any manure that contains Ammonia, because the Sulphate of Ammonia and Carbonate of Lime then remains in the soil until taken up by the plant, or is washed away by the rains. Unless, therefore, this combined compost contain all the chemical constituents of all the
crops a farmer grows in his rotation of crops, a rotation of manures should be introduced as a necessity where “high-farming” is aimed at.

It may not be inopportune here to insert Johnstone’s table of the relative values of different natural manures in regard to their quantities of Nitrogen, being the quantity of each required to produce the same perceptible result as 100 lbs. of farm-yard manure:

<table>
<thead>
<tr>
<th>Manure</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm-yard manure</td>
<td>100 lbs.</td>
</tr>
<tr>
<td>Solid excrement of cow</td>
<td>125 &quot;</td>
</tr>
<tr>
<td>Liquid do. do.</td>
<td>91 &quot;</td>
</tr>
<tr>
<td>Mixed do. do.</td>
<td>98 &quot;</td>
</tr>
<tr>
<td>Solid excrement of the horse</td>
<td>73 &quot;</td>
</tr>
<tr>
<td>Liquid do. do.</td>
<td>16 &quot;</td>
</tr>
<tr>
<td>Mixed do. do.</td>
<td>54 &quot;</td>
</tr>
<tr>
<td>Mixed do. of the pig</td>
<td>64 &quot;</td>
</tr>
<tr>
<td>Mixed do. of the sheep</td>
<td>36 &quot;</td>
</tr>
<tr>
<td>Liquid blood</td>
<td>15 &quot;</td>
</tr>
<tr>
<td>Pigeon’s dung</td>
<td>5 &quot;</td>
</tr>
<tr>
<td>Dry blood</td>
<td>4 &quot;</td>
</tr>
<tr>
<td>Dry flesh</td>
<td>3 &quot;</td>
</tr>
<tr>
<td>Feathers</td>
<td>3 &quot;</td>
</tr>
<tr>
<td>Cow hair</td>
<td>3 &quot;</td>
</tr>
<tr>
<td>Horn shavings</td>
<td>3 &quot;</td>
</tr>
<tr>
<td>Dry woollen rags, only</td>
<td>2½ &quot;</td>
</tr>
</tbody>
</table>

Liquid blood, pigeon’s dung, dry blood, and flesh, were better mixed with twenty times their weight of Gypsum or ordinary soil, to prevent their overaction upon the plant in contact with them, as well as to retain their virtues a longer time.

In Glue Yards and Tanneries the refuse heaps are (especially in summer weather) a constant source of annoyance alike to the manufacturers, their workmen, and their neighbours, through their fetid smell, which can be altogether avoided by adopting the same plan. Were these heaps covered with a thin layer, and each succeeding addition sprinkled over with a little Gypsum, the waste matter would retain more Ammonia, and become a more valuable as well as a more reliable manure to the agriculturist, or the same result would be attained by mixing with each addition a quantity of weak Sulphuric Acid, sufficient to convert the Lime (which assists the Ammonia to escape) into Sulphate of Lime, which would detain it, and so increase its value and efficacy. To treat this waste with Calcined Gypsum, however, not only immediately deodorises it, but dries it sufficiently to enable it to be ground into a powder, from which the numerous nails can be sifted, and sold as old iron, which is of far more value than the refuse, or the cost of obtaining it.

The proprietors of Stable and Cow Byre dung middens in crowded localities should be compelled in like manner to keep them deodorised, as well when in a state of rest as during the removal of the manure, but specially when it consists of old rotten stuff, and also to deodorise
the bottom of the midden immediately after it is emptied. Most of these places have an outlet to, or are close to the foot pavement, and the stench arising from them is in some places exceedingly prejudicial to the health of those who reside or have to pass near them. I have seen some stables so overcrowded with horses and cows, in which the ventilation was so bad, and the ammonia so pungent, that I could scarcely enter them without coughing violently, and could not remain in them without gradually accustoming myself to it. Seeing that Ammonia is the vehicle by which all gaseous contagions are carried about, there is no wonder that such stables and byres should become the hot-beds of such contagious disorders as influenza, pleuro-pneumonia, rinderpest, and epizootic aptha, not only generating but propagating some of these scourges to owners of cattle. Gypsum properly applied to such places would not only keep them free from Ammonia, but prevent the nitrification of the buildings, which so much damages them.

 Graveyards and Cemeteries, especially in populous localities, but more necessarily at times when epidemic and epizootic diseases prevail, should be freely gyspsumed to fix the Ammonia arising therefrom. This is the more imperative where the soil is sandy and open, as is the case in the churchyards of Leith and its neighbourhood, where it was stated, when an endeavour was made to close the churchyards of that place, as an excuse for not doing so, that total decomposition took place in less than seven years. If the ground, therefore, is so porous as to admit of such rapid decay, it would as surely permit the free upward escape of the Ammonia evolved as it admitted the Oxygen downward to assist the putrefaction to go on so rapidly. Hence the argument was turned against the propounders of it, and happily, these at one time pestilential places were virtually closed by raising the burial fees above those of the suburban cemeteries.

 In a letter to the Leith Burghs Pilot of 21st September last, I stated, that in attempting to account for the origin of Rinderpest, it may not be inappropriate to notice that Sprengel says that in 100,000 parts of the urine of the cow, in a fresh state, ranging in a rich pasture, he found one part of oxide of manganese; and it were well to investigate how that one part of manganese gets into the system. If in the field in its normal state of feeding, then it may be that by the unnatural mode of stall-feeding upon druff, sewage grass, &c., it is deprived of food which contains manganese, or the atmosphere of the byres loaded with ammonia that it is not able to assimilate from its food enough to keep free from disease when gaseous contagious matters are in the atmosphere. If such be the case, it may be that the oxide of manganese, separated from the permanganate of an alkali (like any of Condy’s Fluids) by the liberation of the ozonic-oxygen (the natural scavenger for all organic putridities), would be a cure for the disease by simply supplying the want of manganese in the system. To the healthy as well as diseased, manganese acts as a tonic like iron, and a portion of the liberated oxygen from the permanganate no doubt combines with the hydrogeneous gases, and passes off as water, precipitating sulphur, or forming sulphate of
potash or soda, in either case assisting to liberate the stomach, which
might otherwise remain charged with "wind" and undigested food,
that being a great desideratum in attempting to cure the disease.
Since then black oxide of manganese has been tried in Edinburgh
with varied success.

The Rinderpest Sanatorium officials of Edinburgh should, for the
sake of the health of the people of Leith, be compelled to apply
Gypsum to the burial ground. At present the animals are covered
with quick lime, and then simply covered by the soil. This is done
with an erroneous view to protect the health of the public. They
would be better buried without the lime, as the decay and consequent
evolution of Ammonia would be slower; or if lime be put on them,
which hastens their decomposition and production of Ammonia, they
should, after a slight covering of soil, have a thin layer of Gyp-
sum before being finally covered up. Fields of battle and over-
crowded graveyards are known fruitful sources of disease and pesti-
lence, and we may expect, if the Rinderpest be not soon stopped, that
this so-called Sanatorium may prove an awful scourge to the people
of Leith, placed as it is in such close proximity to the town. Rin-
derpest, Typhus, and all other gaseous contagions are no doubt
propagated by excess of Ammonia in the atmosphere. It may be
that Ammonia gives vitality to the virus, or intensifies it, as well
as being the vehicle of its propagation, carrying it about in the air
as surely as the down carries the seeds of the dandelion or other
weeds. Rinderpest may therefore be prevented, or at all events
mitigated with Gypsum, by which the farmer not only obtains the
benefit derivable from Gypsum itself, but also the economy due to
its improvement of the quality of all other organic manures.

Rinderpest may thus, by prevention alone, be at once swept
away through destroying the vehicle by which it is carried from
place to place. Bonbiquet says that gaseous contagious matters are
generally accompanied by Ammonia, which may be considered in
many cases as the means through which the contagious matter receives
a gaseous form, just as it is the means of causing the smell of innum-
erable substances of little volatility; and many of which have no
dour. Liebig, in 1840, said—"Ammonia is very generally pro-
duced in cases of disease. It is always emitted in those in which
contagion is generated, and is always present in the chambers of
those afflicted with a contagious disease." Nothing, therefore, can
be plainer to the practical farmer, than that chemical, if not medical
or veterinary science, has shown how to prevent this scourge, although
the means may never have been before proposed. I stated in a
letter to the Leith Burghs Pilot on the 4th August, and the Scots-
man of the 15th inst., it can be done by the use of Condy's Red
Permanganate. It has been tried and proved effectual with cows in
the Rinderpest (which veterinary doctors say is a typhoid fever
analogous to that of the human subject, though not infectious
except to the bovine species); and on the 19th ultimo, Dr W.
Brewer (a London Physician of eminence), in writing to Mr H.
B. Condy, the Patentee, the only person who has hitherto manu-
factured the permangnate as an article of commerce, says:

"The Committee of the National Association for the Prevention of Cattle Diseases have deputed me to write to you, to inquire if you can again supply them with the red fluid in twenty-ounce bottles, as they have used up in experiments all they had. This week six cows, suffering from the Rinderpest, have been treated with ounce doses of the red fluid in a quart of water three times a-day, and to our surprise three have recovered. Yesterday they gave milk again, and this morning they were to all appearance quite convalescent. This has rather taken us all by surprise. The Committee are recommending the internal use of the red fluid."

The partner of Mr Condy had a ewe placed at his disposal, with every symptom of Rinderpest, from a herd of which many had died. After two days treatment she began to give milk again; the day after gave five pints; the next day seven pints of milk, and steadily improved. It has since been found by Dr Brewer, successful to give ounce doses of Condy's Crimson Fluid Permanganate in only eight ounces, instead of a quart of water, acidulated with sulphuric acid, as often as every hour, or even at less intervals. After the first twelve hours or so it is desirable not to disturb the cattle much at night. This fact, together with Mr Elliott's experience, shows, that at first some causes of apparent failure were due to using too little of the red fluid, and that little in too much water, and a probability that the alcoholic stimulant with the "hungering" system tried by some whilst the cattle are under treatment is not so good, as giving the cattle some solid, or still better, semi-solid nourishment with vegetal instead of alcoholic stimulants, along with the administration of the oil and turpentine or other medicine, with strong doses of Condy's Fluid, slightly acidulated every hour. Warm, dry, deodorised, and well ventilated stables are indispensable to speedy cures.

Mr Cyrus Alex. Elliott of Fulham, says in a letter to the Times dated 27th September, "I purchased twelve bullocks at a small fair at Findon, four miles from Worthing, Sussex, on the 14th inst. They were kept in my field near there until Tuesday, the 20th inst., when they were sent by rail in two trucks, which were said to have been cleaned and limed, to New Wandsworth Station, where they were fed with hay and watered, and driven through Wandsworth, over Kew Bridge, to my farm in Boston-Lane, Hanwell. I saw them every day. Late on Friday evening, the 22nd, one of them appeared dejected and unwell; but as it was dark, and the symptoms slight, he was not treated until early the next morning, when he appeared much worse—running from eyes and nose; purged, discharge being like soap-uds, and the stench from it intolerable. He was separated from the rest, and half-a-pint of Oil of Turpentine and one pint of linseed oil were given early. I saw him at 11 a.m. in the following state: Ears and feet cold, breathing laborious, hair staring, &c.; repeated the turpentine and linseed oil, after which he seemed worse; soon, however, he was purged freely, and then appeared better. Two wine-glassfuls of the solution of the permanganate of potash,
or Condy’s Fluid, in a bottle of cold water, were given every hour. After taking the second dose he seemed warmer, and improved in every way. At six p.m. had little or no discharge, eyes looked better, breathing natural, urine passed freely, and he began to eat; he was so lively he could not be kept in the pen of hurdles. I considered him out of danger. On viewing the other bullocks I saw in five decided symptoms of the disease—yellow discharge from the eyes, a little from the nose, hanging down of the head, and an unmistakable dejected appearance. They were all—eleven in number—driven into a pen, and half a-pint of turpentine and a pint of linseed oil given to each; they were then watered. The medicine acted both upon the bowels and kidneys. They then seemed better, had two wine-glassfuls of Condy’s Fluid in a bottle of water given to them, and were fed with linseed tea and hay. These bullocks have all improved, and were pronounced yesterday by the inspector to be healthy. On Monday I saw the bullock first taken ill; he appeared to be sinking from exhaustion, and died about 3 p.m., when he was buried. After I left Hanwell on Saturday, the 23rd inst., I went to Worthing, and found my cow suffering from the disease; they had given the turpentine and oil twice during the day. This animal did not come in contact with the bullocks, though she was on the premises. When first taken ill she was purged, the motions being of a most nauseous smell. Symptoms at 11 p.m.: Suppression of milk, udder cold, ears cold, loss of appetite, and discharge from the eyes. In the morning seemed worse, the coat staring, and feet cold; gave two wine-glassfuls of Condy’s Fluid, in water every hour, until she had taken a quart. After the second dose she seemed better, warmer, and gradually improved, and the next morning was convalescent; had gruel, fennel seed, and old ale given two or three times from Sunday to Monday night.”

Owners of cattle should call in the assistance of veterinarians in preference to using quack nostrums, the composition of which is unknown, however many eures they may hear of by them, as it must be remembered, that cases occur less malignant than others, which recover under all kinds or no kind of treatment whatever, in the same way that men with good constitutions sometimes are able to fight out disease which kills others less robust.

Most of the cowfeeders in Leith have used and are using Condy’s Fluid for disinfection, and Gypsum for deodorisation at my suggestion, and up to the 28th of September there had not been one case of Rinderpest in Leith, while scarcely any dairy in Edinburgh or all round Leith had been free from it. Since then one dairy has been attacked by Rinderpest, and lost by that scourge two cows. The proprietor had only used Gypsum and Condy’s Fluid Permanganate sparingly, labouring under the impression he was doing enough, yet he had been foolishly giving his animals water to drink from a well within four yards of his midden, impregnated with the liquid filtering therefrom, although he had good Crawley water on the premises. The disease would no doubt have broken out sooner but for the
precautions taken,—yet as the cowfeeders are getting a large advance upon the price of milk and cream, if they intend to appeal to the public to assist to pay for their losses, they should not spare the money obtained by the advanced price in adopting every possible plan for deodorising and disinfecting their byres, which ought to be kept as free from ammonia as their own bedrooms, instead of merely being content to let the disease take its chance. Drains ought to be all looked after, and proper stench traps at once applied, the byres white washed with Gypsum (not quick lime), and a plentiful supply every few hours, strewn thickly under their bedding, but specially in the water channels, and upon the droppings. We often hear of the cleanliness of our dairymen, but when closely looked into it generally applies only to the dairy and its utensils, whilst the byre is almost totally neglected, being with the yards and middens in a most disgraceful state,—arising more from want of knowledge, and careless indifference, than culpable negligence.

My opinion is, if the cows, when first attacked, are treated in a scientific manner, few, if any, will die. All healthy cattle, until the disease has left the country, should be given, say at least half-an-ounce once per diem of the Permanganate of an alkali (Condy’s Fluid), and have occasionally a weak solution poured over them with a watering-can rose, or be spunged with it, and then rubbed dry with clean straw. I feel certain they will retain their health. Were it universally adopted to pour a small quantity into all the water given the cattle to drink, and the byres daily disinfected by Condy’s Fluid, and kept constantly deodorised with Gypsum, to fix the Ammonia and sweeten the atmosphere, the Rinderpest would be swept from any locality in a few days, without resorting to the knife. If the knife be the only remedy, the study of veterinary science becomes a farce, and the attainment of progress in knowledge by our veterinarians completely stopped. Unless veterinary surgeons try to cure and prevent disease, of what use are they and their sanatoriums except to propagate it, which they cannot fail to do unless disinfected by some substance that will act perfectly, and no other substance I know of will do it without destroying their clothes except Condy’s Fluids diluted with water. The cure I propose for typhus and other contagious diseases in the human subject, and for the Rinderpest in cows or sheep, is the same—namely, sufficient alcoholic stimulants and a good supply outwardly and inwardly of ozonic-oxygen, by means of permanganate of lime inwardly, and permanganate of soda outwardly by the warm bath, and for the purification of the atmosphere, whilst Condy’s Crimson Fluid would do inwardly for all cases to the cows, and his Green Fluid would be cheaper for the stable and byre. In sick rooms the atmosphere may be deodorised and disinfected by any of these inodorous and non-poisonous fluids, diluted with water and exposed in any open vessel, or by very weak solutions poured out by a fine rose from a watering-pan; or, best of all in sick rooms, by one of the skilful little pneumatic glass perfume odorisers, which, by aid of the breath, throws out of a bottle an almost
imperceptible fine shower of spray. These glass odorisers can be used as well for deodorising a sick patient’s bed-room, bed-curtains, and coverlet, as odourising a drawing-room or parlour with perfumes; or if fumigation by Chlorine be desired, the best plan is to put in a basin half-a-pint of Condy’s Fluid, and add a wine-glassful of common Muriatic Acid, when a gentle stream of pure clean Chlorine will be slowly generated for many hours, resembling the odour of sea air and differing completely from that of Chloride of Lime, being due to Hypochlorous Acid, and not to Chlorine.

J. D. M. writing to the Edinburgh Courant on 30th Sept. says—“From analysis of the different parts of animals, and from experiments made in relation thereto, it would appear that a disproportion of oxygen to hydrogen, and of nitrogen to carbon, is the cause of rinderpest. If it be true that there is less oxygen and more carbon than is natural to the constitution of the various tissues, then the cure is simple. With fresh food and free exercise in open light and air, the double administration of active purgatives by the stomach, and of pure oxygen by the lungs, would in all likelihood be a cure. The cause is within, and no farther away than chemistry can reach. Let us take the advice of the Times of the 28th, and we shall soon know that rinderpest, cholera, and the like, have electro-chemical causes. Professor Faraday has proved that oxygen is magnetic, May not this element hold the balance of powers as well as proportions?” If this gentleman’s experiments and ideas therefore are correct, there is no doubt that the “nascent ozone” of Mr Condy will supply the ozone-oxygen required. It is natural to suppose that cows tied up for weeks together without any exercise, should, in the stifling annomniacal atmosphere of the over-crowded dirty byres, be unable to inhale a sufficiency of oxygen for a healthy state. Indeed, I see no reason why cows should not in their turn all take exercise in the court-yards of byres where there are any, as a help to ward off Pneumonia, which very probably arises greatly from the atmosphere of a crowded byre, tainted as it is with ammonia, carbonic acid, and sulphured hydrogen, whilst the drains of the byre or yard, in many cases communicating direct with the sewers, being without any stench traps, add to the danger. It is found that after some of the cattle of a byre are dead, the remainder have the disease of a more benignant type and are easier cured, shewing that the overcrowded byre and the previous neglect of all sanitary arrangements (except keeping a clean dairy and dairy utensils), has been the pre-disposing cause of the attack, by lowering the standard of health of the animals. All medical men agree that overcrowding and bad sanitary arrangements predispose the human subject for typhus. It is equally so with cattle.

It has been found by practical experiment, that the dose for a cow may be at the commencement as much as one or two wine-glassfuls of Condy’s Crimson Fluid, in as much water and slightly acidulated, every hour, by the mouth but very soon diminished in frequency, according to the judgment of the party in charge of the cattle; and if a veterinary surgeon use it, so much the better. An in-
jection of a wine-glassful of the crimson fluid (without acid) in a quart of warm water, should be given as soon as attacked. Toddy, ale, or vegetable stimulants should be given at times after the fever is reduced, until no longer required, and all urine and excreta carefully disinfected by the permanganate or deodorised by gypsum, or both, or the treatment of turpentine and linseed oil recommended by Mr Elliot, and found successful in every case (except the first he tried) when accompanied by Condy's Fluid soon after their administration. His first failure arose from exhaustion, and it would no doubt have been a success had a vegetal stimulant or a dose of toddy or ale been promptly given. In the neighbourhood of Norwich, where sheep have been most extensively attacked with what the most experienced men declare similar to the Rinderpest, the treatment most approved is a gruel composed of Indian corn meal with oil cake, and a small dose of nitre and Epsom salts once a day, and the results ascertained by Dr Brewer were found very good.

The large manure heaps carted from the fold yards, and those abominable nuisances created by the Councils of Edinburgh and Leith, by the large accumulations of town fulzie placed in fields abutting on the high roads leading to the country, and at the railway stations, (especially that at Leith, which contains salmon and other fish offal and refuse from a large preserved provision manufactory, as well as fish and other refuse from Leith and the Newhaven district,) would be rendered almost harmless by the authorities compelling the contractors to apply a slight covering of Gypsum. This would add to the quantity, as well as improving the quality of the manure; and it is hoped the public will insist upon the suppression of this nuisance. In London and some other large towns night soil is sold as Animalised charcoal, being mixed with charcoal and Gypsum. In Paris, Berlin, and some other places on the Continent, it is mixed with Gypsum, dried, and sold as Poudrette, and said to be equal to thirty times as much horse or street manure, so that our Scotch fulzie could not be deteriorated but would be much improved by being mixed with or covered by Gypsum, which would fix the Ammonia as it is given off when it begins to putrify. If the other gigantic and pestilential nuisance at Craigen-tinny were abated, and efficient stink traps put to the sewer cesspools in the streets, house drains and waste pipes of the water cisterns (which latter too often communicate with the drains and sewers, damaging the water drunk and the air inhaled by the inhabitants), and the sewers ventilated by communication with the large gas works and other manufacturers' chimneys, where the poisonous gases could be burnt, rarified, or passed away above the houses, instead of often being ventilated by the rain water conductors, which generally just elevates the foul air to a level with and enters the upper and especially the garret storm-windows of houses, causing fever so often in the upper parts of houses, from which those who live in the lower flats and main-doors of the same building escape with impunity; together with the stoppage of sewage running into Lochend and the Water of Leith, the partial closing of the over-
crowded church grave-yards, with the other improved sanitary measures already adopted in Leith, Edinburgh, and Portobello, it would make Leith and Portobello, if not Edinburgh, the most healthy populous towns in Scotland.

Gypsum, through ignorance in its mode of preparation, is sometimes found not to produce such results as are here stated, but when properly manufactured the results will be found truly wonderful to those who have not hitherto tried it. Indeed its use would as a rule save half the manure now used, and produce the same results.

Under the name of Alabaster, it is made into chimney-piece and other ornaments of numerous kinds, where the stone is found sufficiently compact to work with the chisel and lathe, as in Derbyshire. In a powder it is used to adulterate sugar confectionery, such as peppermint and other drops. After calcination it is used for the ceilings of rooms, and the finest kinds for the well known plaster images and castings. Indeed, this substance has such a number of uses in the arts and commerce, it would be almost endless to enumerate them; at any rate, it is a good friend to the farmer, though scarcely known by him.

Whilst the foregoing was in the press, a cow in Leith, labouring under a complicated case of Rinderpest, was placed under the care of Mr Thomas Todd, the Veterinary Surgeon here, who administered in the first stage a laxative, accompanied with a diuretic and sedatives, following them up by Condy's Fluid, slightly acidulated with Sulphuric Acid. As soon as the fever was reduced, the Fluid was continued, along with vegetal antiseptics, tonics, and astringents. On the evening of the third day she was much better, chewing her cud, and gave a trifle of milk. Next day she gave a quart, and same evening two quarts of milk, and was pronounced out of danger.
THE ALBERT VETERINARY COLLEGE,
(LIMITED),
QUEEN'S ROAD, BAYSWATER.
Session 1865-66.
Inaugural Address, on Monday the 2nd of October, at 3 p.m. precisely.
President—His Grace the Duke of Newcastle.
Principal—Professor John Gamgee.

Professor of Veterinary Anatomy, and Curator of Anatomical Museum—James Law, M.R.C.V.S.
Professor of Veterinary Physiology—William Dugald, M.R.C.V.S.
Professor of Veterinary Materia Medica, and Superintendent of Pharmacy—George Armatage, M.R.C.V.S.
Professor of Chemistry—William J. Russell, Ph. D., F.C.S.
Infirmary Superintendent and Professor of the Art of Farriery—Joseph Gamgee, Sen.
Professor of Veterinary Medicine and Surgery—John Gamgee.
Professor of Agriculture—John Coleman, late Professor of Agriculture at the Royal Agricultural College, Cirencester.
Secretary—Mr J. Pritchard Isachsen.

From whom Prospectuses may be obtained

The Albert Veterinary College has been established for the eminently national purpose of founding in the metropolis of Great Britain a Veterinary College of the highest class. For the accomplishment of this object the New Veterinary College of Edinburgh has been transferred to London, and arrangements have been made to open the Infirmary of the College immediately, and the Classes for Students on the 2nd of October, 1865.

AGRICULTURAL CURRICULUM.
Professor John Coleman, late of the Royal Agricultural College, Cirencester, will superintend the Agricultural Department, and will deliver his Introductory Lecture on Tuesday, the 3rd of October 1865.
Agricultural Students have the advantage of attending Lectures on—
The Theory and Practice of Agriculture, by Professor Coleman.
Chemistry, by Dr Russell.
Veterinary Medicine and Surgery, by Professor John Gamgee.
And any other Classes they may wish to attend in the Institution.

FREE STUDENTSHP.
As an inducement to make good progress in the essential studies of Anatomy, Chemistry, and Physiology, all Students entering the Albert Veterinary College not later than the 2nd of October 1865, will be afforded an opportunity to compete for a Free Studentship, in April 1866.

FEES.
Perpetual Ticket for Winter Sessions ... ... ... ... ... £25
Single Class Ticket ... ... ... ... ... ... ... ... ... ... 5 5

JOHN GAMGEE, Principal of the Albert Veterinary College.

THOMAS TODD, M.R.C.V.S.,
Veterinary Surgeon,
23, BERNARD STREET,
LEITH.
CONDY'S FLUID,
FOR THE PREVENTION OR CURE OF RINDERPEST, AND OTHER
CONTAGIOUS DISEASES OF CATTLE.

CONDY'S FLUID is not only the most efficient disinfectant yet discovered, but likewise a powerful, though harmless tonic. It contains little else than oxygen in a very active state, and the metal magnesia which, like iron, is a tonic agent. No fear, therefore, need be entertained that Condy's Fluid, even in an overdose, will act injuriously. The chief thing to be attended to in treating contagious diseases with this remedy, is to secure the utmost possible amount of contact, both internally and externally, for the Fluid. The treatment must be regarded as a purification of the body by chemical means. In addition to the frequent administration of the Fluid by the mouth, it must also be given copiously by injection, as well as applied externally.

Doses and Proportions.

BY THE MOUTH.—One wine-glassful of Fluid in a quart of Water every hour.
INJECTION.—Two wine-glassfuls of Fluid in a gallon of tepid Water every hour.
TO THE SKIN.—One wine-glassful of Fluid in a quart of Water, to be sprinkled every two hours over the whole body by means of a watering pot, having a very fine rose, or any other suitable means. Rub dry with clean straw and cover up the animal with cloths to keep warm.
DRINK.—Into all water given for drink, throw Fluid in the proportion of a tablespoonful or two to a pint of water. This is an important preventive of infection in most cases.

TESTIMONIALS.


Mr. CONDY. 21, George Street, Hanover Square, Battersea.

Sir,—The Committee of the National Association for the Prevention of Cattle Diseases, have deputed me to write to you, to enquire if you can again supply them with the Crimson Fluid, in twenty ounce bottles, as they have need up in experiments all they had.

This week six cows, suffering from the Rinderpest, have been treated with ounce doses of the Red Fluid in a quart of water three-times a-day, and to our surprise three have recovered. Yesterday they gave milk again, and this morning they were to all appearance quite convalescent. This has rather taken us all by surprise, The Committee are recommending the internal use of the Red Fluid.—Yours, etc.

W. BREWER.

EXTRACT from a letter in the Times of 29th September 1855.

On viewing the bullocks I saw in five decided symptoms of the disease—yellow discharge from the eyes, a little from the nose, hanging down of the head, and an unmistakable dejected appearance. They were all—in number—driven into a pen, and half-a-pint of rupentine and a pint of linseed oil given to each; they were then watered. The medicine acted both upon the bowels and kidneys. They then seemed better, had two wine-glassfuls of Condy's Fluid in a bottle of water given to them, and were fed with linseed tea and hay. These bullocks have all improved, and were pronounced yesterday by the inspector to be healthy. After I left Hanwell on Saturday the 23rd inst, I went to Worton, and found my cow suffering from the disease; they had given the turpentine and oil twice during the day. This animal did not come in contact with the bullocks, though she was on the premises. In the morning she seemed worse, the coat staring, and feet cold; gave two wine-glassfuls of Condy's Fluid, in water, every hour until she had taken a quart. After the second dose she seemed better, warmer, and gradually improved, and the next morning was convalescent; had gruel, fennel seed, and old ale given two or three times from Sunday to Monday night.

I am, Sir, yours, &c.

Munster House, Fulham, Sept. 27, 1855.

CYRUS ALEXR. ELLIOTT.

From Mr. J. R. BATEMAN.

Mr Condy, Archway Road, Highgate, 29th Sept. 1855.

Sir,—I have been using your fluid as a cure for the cattle plague, and am happy to inform you, that with perseverance and proper assistance I have cured one heifer that was in a very bad state, and a bull, that was also very ill, so far recovered that I turned him out to grass. Likewise took two cows pronounced by the inspector to be diseased, gave them the fluid, and they seem now quite well. I remain, Sir, yours respectfully,

J. R. BATEMAN.
ADVERTISEMENTS.

From Mr Marcus Pool.

Messrs Bollmann Condy & Co. 14, Mount Place, Whitechapel Road, Sept, 28, 1865.

Gentlemen,—I consider it my duty to inform you, in justice to yourselves and for the benefit of the public, of the following results of the employment of your crimson fluid in treatment of the "cattle plague." [Here follow details at too great length for insertion here.]

I am convinced therefore under such treatment it will act as a preventive as well as a cure. I am, Gentlemen, yours, &c.,

* Mr Pool has employed the fluid extensively and with complete success in the cure of the "foot and mouth disease" for some time past.

From JOHN J. LUNDY, Esq., F.G.S., F.R.S.S.A., &c., &c.

H. B. Condy, Esq., Leith, 28th Sept, 1865.

Dear Sir,—Your Crimson and Green Fluids have had a fair trial in Leith during the present epidemic among Cows, and have been found to be of great value in warding off the disease. Although the Rinderpest is so bad in Edinburgh and round Leith, the disease has only broken out and been confined to one byre, where the Fluid had been used only sparingly, and that in a street through which large numbers of cattle pass on their way to the town slaughter-house. It has been found of great use during the late epidemic amongst Horses, as a disinfectant and deodoriser. In our own stables we attributed the escape of the younger horses entirely to using it freely to purify the atmosphere. As an Application for sore shoulders and backs, occasioned by the collar and saddle, a large omnibus proprietor and several others as well as myself, have been able to put horses to work again in half the usual time, as the sores are found by its application to heal much more rapidly. I have also found it very useful for eruptions of the skin. It has been used for disinfection and deodorisation of the clothes and premises of a large pawn broker's establishment, and added greatly to the comfort and safety of the assistants. In opening up drains and sewers I have also been greatly indebted to it.

The Eozonised Water is now much used here by the Medical profession, for disinfecting sick rooms, and also for several diseases which are made considerably easier of cure. I think your discovery of means to manufacture the Permanentes of Lime, Magnesia, Potash, and Soda, has conferred as much benefit on the Medical and Veterinary professions as from their several classes of patients. The public owe a deep debt of gratitude to you for the earnest patient perseverance you have exhibited in not only discovering the means to make commercially what were hitherto only the "Fabrics of Chemistry," but for placing them within the reach of the profession and the public, as well as for making known so clearly and distinctly their valuable properties and adaptation for the many uses to which they can be applied for the comfort and amelioration of suffering in man and beast.—I am, Dear Sir, yours, &c.,

JOHN J. LUNDY.

From THOS. TODD, Esq., M.R.C.V.S. Lond., F. & M.V.M.A. Edinr.

Mr H. B. Condy,

28 Bernard St., Leith, 30th Sept. 1865.

Sir,—I have much pleasure in testifying to the benefit derived from the administration of Condy's Fluid in cases of Rinderpest, and when combined with national treatment, hygiene, &c., the success is apparent and encouraging. In my practice it has proved itself of the greatest service in the prevention of all contagious diseases, both of the horse and ox.—Yours respectfully,

THOS. TODD.

The Fluid is manufactured of two kinds, viz.—Green, for large course operations, such as disinfecting Stables, Utensils, &c.; Crimson, for Household Purposes, Cattle, &c.

H. BOLLMANN CONDY, Patentee,

BATTERSEA, SURREY.

May be had of J. Robertson & Co., 35 George Street, Duncan, Flockhart & Co., 52 North Bridge, Raimes, Blaushards & Co., T. Mackay, EDINBURGH; and Wholesale and Retail of The North British Colour Co., LEITH.
COOPER'S VETERINARY MEDICINE CHEST.

T. COOPER, Chemist and Druggist, 18, Walmgate, York, invites the special attention of Farmers, Graziers, and others, to the VETERINARY MEDICINE CHEST, which he has recently introduced, and which has received the commendations of many of his friends, who have tested its utility. He now offers it for general adoption, as being fitted with Medicines which have undergone a decided trial and proved really efficacious. Each Bottle and Packet is properly labelled, with ample directions for use. No Agriculturist should be without this Medicine Chest, which comprises every thing that may be necessary in cases of emergency, where promptness of action is imperative for success.

The Chest is neat and compact, and the contents are of the very best Quality, and carefully prepared.

The Chest can be re-filled at any time, or any particular medicine supplied.

CONTENTS.

ALTERNATIVE & CONDITION POWDERS.

Which are confidently recommended as invaluable for producing a beautifully smooth and glossy coat, keeping the horse free from humours, and in perfect condition; also curing those troublesome disorders—the Grouse, Swelled Legs, &c.

THE NEVER FAILING GRIPSE MIXTURE.

This Medicine never fails to give the animal immediate relief from the most excruciating pain. It would be advisable for every Farmer to have this mixture always by him, as the Gripses, on attacking a horse, soon terminates fatally, unless a timely remedy be administered.

WHITE OILS, for Bruises, Sprains, Swellings, Sore Throats, &c.
BLACK OILS, for Cuta, Bruises, Burns, Oil and Fresh Wounds.
POTTAGE'S OILS, for Cuts, Bruises, Swellings, Kicks, Saddle Galls, &c.
GARGLE OILS, for the prevention of Gargle or Mortification in Ewes after Lambing, and for cuts, Green Wounds, &c.

TAYLOR'S VESICATING ESSENCE.

Decidedly the most valuable remedy that can possibly be used for Strains or Slips of the Joints and Sinews, Calloosed Swellings of long standing, Splinters, Laming, Wind Galls, Curbs, &c.; also for Inflammation of the Udder of the Cow or Ewe, commonly called "Garget" or downfall of the Udder.

COOPER'S ASTRINGENT MIXTURE, for Purging or Scouring in Calves and Lambs.

This disease proving so often fatal, and consequently the cause of great loss to the farmer, the proprietor has been induced to make the value of this remedy more extensively known, feeling confident that if given in the early stage of the disease, it will not fail to effect a cure.

Also Caster Oil, Foot Rest Ointment, Cordial, Fellon, and Cleansing Drinks for Cattle.

Price Complete, 2s.

The 2s. Chests contain in addition to the above—Cough Balls, Diuretic Balls, and Physic Balls. The 3s. Chests further contain The Yorkshire Specific, Red Mixture, and Restorative Condition Balls.

COOPER'S YORKSHIRE SPECIFIC.

This Specific will be found Invaluable for the Undermentioned Diseases in HORSES.—It is a speedy, safe, effectual remedy for the Colic or Gripse, Gravel, &c., also for Mares after difficult Foaling.

CATTLE.—For Cows after Difficult Calving, Uberated and Segged Udders.
SHEEP, LAMBS, CALVES, and FOALS.—For Diarrhoea or Scour, Ewes after Difficult Lambing, and as an External Application for Fly Galls, Wounds, Swellings, Cuts, Bruises, Frosted Feet or Hands.

COOPER'S RED MIXTURE.

Is the safest and most effectual Remedy for Kicks, Sore Shoulders, and Backs occasioned by the collar or saddle; Sprains in the Sinews, Shoulders, Stiffle and Whirlbone, Broken Knees, Windgalls, Bopepavios and all Flatulent Humours. It cures and heals all Wounds in the Joints and other parts where a discharge is not required; and as a generally useful remedy for external application, on all occasions.

COOPER'S RESTORATIVE CONDITION BALLS.

For Coughs, Cold, Fevers, Swelled Legs, Greasy Heels, &c., and for getting Horses into condition. These Balls are invaluable in cases of Loss of Appetite, Over-fatigue from Hunting or other severe exertion. They prevent Swelled Legs, assist Digestion, and produce a smooth appearance of the skin. Gentlemen who wish to have their Horses in good condition, should give one of these Balls twice or thrice a week, particularly at the spring and fall of the year.

In Boxes containing Six Balls each, 2s. 6d., or Seven Boxes for 15s.

WHOLESALE AGENTS FOR SCOTLAND AND IRELAND—

NORTH BRITISH COLOUR COMPANY, LEITH.
TO FARMERS AND CATTLE OWNERS.

GYPSUM OR SULPHATE OF LIME.

Specially prepared for absorbing and saving Ammonia, whereby Agriculturalists save great quantities of fertilizing Manure that has hitherto been wasted by drainage and volatilization in the air. Its liberal use also assists to keep away Pleuro-Pneumonia and Rinderpest, and has been found in connection with the use of

CONDY'S FLUID

to be a secure Preventive from

RINDERPEST.

May be had Wholesale and Retail of

THOMAS COOPER,
CHEMIST AND DRUGGIST,
18, WALMGATE, YORK.
AUTUMN, 1865.

THE PRICE OF THE

BOUTIN LIQUID MANURE

DELIVERED FREE

At any Railway Station or Wharf in London, for England and Scotland only, is as follows:

The cask of 2½ gallons, sufficient for 11 pecks of seed £1 9 6
'' 4½ '' '' 22 '' '' 2 16 0
'' 6¾ '' '' 33 '' '' 4 1 0
'' 9 '' '' 44 '' '' 5 6 0
'' 11¾ '' '' 55 '' '' 6 10 0
'' 22½ '' '' 110 '' '' 12 10 0

Casks included.

TERMS—CASH OR REFERENCES.

DIRECTIONS FOR USING THE

BOUTIN LIQUID MANURE.

The Liquid must be well shaken before it is drawn off from the cask for use, and it is not necessary to use either dung, Guano, or any other manure (artificial or otherwise) with it.

It is used at the rate of 2½ gallons to each 11 pecks of seed. The liquid is thrown into a wooden or earthen vessel, never metal. It must be shaken in order to part the solid portions of the liquid mass, then the seed is thrown in and stirred with a wooden shovel till all the grains are well impregnated. It is stirred again two or three times during the day. After steeping, the seed must be allowed to dry before it is sown.

DEPOT:

OIL WHARF, LIMEHOUSE, E.

CITY OFFICES:

117 & 118, LEADENHALL STREET, E.C., LONDON.

Wholesale Agents for the West Coast of Scotland, from whom all particulars can be had.

THE NORTH BRITISH COLOUR COMPANY,

LEITH.
TO ALL OWNERS OF CATTLE, FARMERS, AND LANDED PROPRIETORS.

NORTH BRITISH COLOUR COMPANY,
MANUFACTURERS OF
PROPERLY PREPARED
PURE GYPSUM,

For Deodorising, and also for fixing the Ammonia in Byres, Stables, Middens, and Fold Yards, so injurious to the health of the Cattle and their Attendants. It prevents disease, and improves the quantity and quality of the Manure as a fertiliser.

COLOUR, PAINT, AND VARNISH WORKS,
LEITH,
NEAR EDINBURGH.
BRITISH SPECIFIC,

FOR THE CURE OF

Foot-Rot, Murrain, or other Apthous Disorders in Cattle and Sheep.

Wholesale Agents for the United Kingdom,

NORTH BRITISH COLOUR COMPANY,

LEITH, near EDINBURGH.

WILLIAM WALKER,

VICTORIA FOUNDRY,

WALMGATE, YORK.

Ironfounder and Whitesmith by Special Appointment to Her Majesty the Queen.

North British COLOUR COMPANY,

MANUFACTURERS OF

COLOURS, PAINTS,
JAPANS, LACQUERS, VARNISHES,
Black Leads, Laundry Blues,
Mastic, Roman & Vulcan Cements,
Anti-Corrosion and Metallic Oxide Paints,
COLLIERY, RAILWAY, AND WAGON GREASE,
Whiting, &c., &c., &c.

LEITH,
Near EDINBURGH.

COLOURS, PAINTS, VARNISHES, &c., in neat and appropriate Packages, for Export to every Market in the World,
NORTH BRITISH COLOUR COMPANY,
MANUFACTURERS OF THE WELL KNOWN
ANTI-CORROSION PAINTS,
FOR OUT-DOOR WORK.

The Anti-Corrosion Paints manufactured by the North British Colour Company, have been for more than the last thirty years most extensively used by the Nobility, Gentry, Farmers, the different Railway, Telegraph, and other Public Companies, Colliery Proprietors, Builders, Painters, and others, and are still meeting with an increased sale for Painting and Preserving all kinds of external Wood and Iron Work. Two coats of their Anti-Corrosion, laid on crosswise, will not only render any Wood or Iron Work, however exposed, impervious to the weather, but last four times as long as the ordinary paints. It is an infallible remedy for the leakage of brick or stone walls of a porous quality in exposed situations. It is found to be one of the best preparations for Bridges, Gates, Head Gearing of Collieries, Hot-house Lights, Sashes of all kinds, Tiles to represent Slates, Gutters, Water Cisterns, Plaster, Cement, and Stucco Fronts, Brick and Stone Walls, Park and Garden Fences and Railings, Agricultural Implements and Buildings, &c. Being manufactured expressly for external use, it equally resists the effects of extreme heat or cold, or continnance of wet or dry weather, and suffers no deterioration by being kept for years, in any climate. As it is a powder, there is no waste by keeping, and as it requires no grinding, it can be mixed and used by any common labourer, by adding to about three pounds of Anti-Corrosion, one quart of strong Boiled Linseed Oil, so as to make the mixture the consistence of very thick cream, in which state it is to be used with a strong Paint Brush, for the purpose of rubbing it well in. If it be often stirred while using, two coats will be sufficient. It can be made almost any shade or colour to please the purchasers.

Prices and Samples sent on Application.

COLOUR WORKS,
(ESTABLISHED 1832.)
LEITH, near EDINBURGH.
The advantage of the Asphalte Floor in Byres, Stables, &c., cannot be over-estimated on account of its Disinfecting qualities. Architects fully alive to the important laws of physical health now make free use of this valuable material in its application to dwelling houses: and the present crisis of a Cattle Disease loudly calls for its adoption.

ALEX. PORTEOUS,
Asphalter,
36 LEITH WALK,
EDINBURGH.
Pure, "properly prepared Gypsum," a Sanitary and Fertilizing Agent, as recommended in this work, can be had from the Mines and Manufactory of

WILLIAM CAFFERATA,

BEACON HILL,

NEWARK-ON-TRENT
Respectfully intimates, that he furnishes Estimates for the
same, in Town and Country, on Moderate Terms.

GYPSUM,
Guaranteed pure and properly prepared
as a Sanitary and Fertilizing Agent, such
as recommended in this Work, can be
had from the Manufactory of

JOHN MASON,
LONG ISLAND,
CARLISLE.

GEORGE DOUGLAS,
DALKEITH AND MELROSE,
Dealer in Iron and Steel, Nails, Chains, and Shovels, Corn
Sacks, Guano, Bones, Nitrate of Soda, Sulphate of Ammonia,
GYPSUM, Archangel and Common Tar, Spirits of Tar,
Hellebore, Arsenic, Corrosive Sublimate, Black Soap, Soda,
Sulphur, Tobacco, Paper and Liquor for Agriculturists,
Bigg's and M'Dougall's Dip, and other substances for
Dipping and Smearing Sheep, Oil Cake Breakers, Corn
and Guano Bruisers and Turnip Cutters, Cart Grease,
Oils and Paints, all kinds.
GYPSUM
OR
SULPHATE OF LIME.

Sulphate of Lime in a peculiarly porous condition, adapted in a pre-eminent degree for absorbing and neutralizing Ammonia, can be supplied at a low price, on application to the undersigned.

C. FOOT & CO.,
MANUFACTURING CHEMISTS,
BATTERSEA, LONDON, S.W.

BRITON’S
SHEEP DIP.

WHOLESALE AGENTS,
RENNIE & TODD,
46, South Clerk Street,
EDINBURGH.
ANDREW TAYLOR,
RAILWAY CHEMICAL WORKS,
UPHALL,
Near BATHGATE.

MANUFACTURER OF
AMMONIA AND SODA CHARCOAL MANURE,
Which contains many fertilizing constituents, viz.—Sulphate of Ammonia,
Soda, Charcoal, Lime, and Organic Matter.
Price £4, 4s. per Ton.

ALSO
PARAFFIN SAFETY STABLE CANDLE LIGHTS,
Which do not drop or gutter, require no snuffing, burn with a steady bright
light, and are safer and cost less than tallow candles.

Paraffin Safety Night Lights.

WHOLESALE AGENT—
GEORGE C. HASWELL, Wholesale Grocer,
1, SOUTH CLERK STREET,
EDINBURGH.

EMIGRATION TO
OTAGO, NEW ZEALAND.

Assisted Passages are granted by the Agent in Scotland of the Pro-
vincial Government of Otago, New Zealand, to

SINGLE FEMALE DOMESTIC SERVANTS,
who are receiving very high wages in the Province.

First-Class Passenger Ships are despatched Monthly from Glas-
gow and London.

Parties eligible to receive assistance, and others intending to pay
their own passages will receive full information, on applying at the
Otago Office to

George Andrew, Secretary.

Otago Office,
20 St Andrew Sq., Edinburgh.
SCOTTISH UNION
FIRE AND LIFE INSURANCE COMPANY.

EDINBURGH,—47, GEORGE STREET.
LONDON,—87, CORNHILL.

ESTABLISHED 1824. CAPITAL, £5,000,000.

From the DIRECTORS' LAST REPORT it appeared that during the Year ending 1st August 1864, THE NUMBER OF LIFE POLICIES ISSUED WAS 1116.

SUMS INSURED THEREBY .................£514,425.
YIELDING OF NEW PREMIUMS...........17,039.

FIRE DEPARTMENT,
FOR INSURING PROPERTY AGAINST LOSS OR DAMAGE BY FIRE.

Property of almost every description may be assured against Accidents arising from Fire, by the Payment of a small Annual Premium; and Risks involving more than ordinary hazard are moderately rated.

All Losses, when satisfactorily ascertained, are IMMEDIATELY PAID; and the Directors of this Incorporation confidently refer to the liberality and promptitude which have hitherto marked their settlement of claims.

PROGRESS OF THE FIRE DEPARTMENT.

In 1857, the Revenue amounted to ..........................£35,479
In 1860, .........................................................45,699
In 1864, .........................................................54,089

The Revenue of the Company from all Sources is now £213,000, while in 1856 it was £117,000.

Insurances effected on Farming Stock against Loss by Fire or Lightning.

Farming Stock—which includes Hay, Straw, and all Sorts of Grains, Implements of Husbandry, and Live Stock—may be insured with this Company against LOSS by FIRE or LIGHTNING, generally on one Farm, and in the Offices, without any Average Clause, for a year, or for any shorter period, at 5s.; or with the Average Clause, at 4s. 6d. Premium per cent.

The Amount Insured on FARMING STOCK by the SCOTTISH UNION COMPANY for the Year ending Christmas 1864 was ONE MILLION SIX HUNDRED and TWENTY-NINE THOUSAND SIX HUNDRED and NINETY POUNDS.

The following NOTICE has been issued by the SCOTTISH UNION INSURANCE COMPANY, and deserves the best attention of all whom it may concern:—

NOTICE.

In consequence of the numerous heavy losses by fire, which have been occasioned by the carelessness of servants, or others employed on Farms, the following CAUTIONS have been issued by the Insurance Company having an insurance on this Farm, and which, if given effect to, would tend in a great measure to prevent the destruction of Agricultural Produce and Buildings, etc.—

I. When a Steam Thrashing-Machine is used, Wire Gauze should be placed on the top of the funnel, and care should be taken that the Machine is placed at a safe distance from the Rick, Heap of Straw, Timber Building, or other Combustible substance, so as to prevent Sparks being carried by the wind to the same.

II. The practice of smoking is strictly prohibited in any of the Farm Buildings, or in the Barnyard, or neighbourhood thereof. No Fire is to be lighted near the Ricks or Buildings, and when any artificial light is required at the Barnyard, or in the Offices, the Candle or Lamp should always be enclosed in an article of the safest quality that can be procured.

III. It is very desirable that when Lucifer Matches are required to be used, they should be of the patent safety kind, which ignite by friction on the chemical substance outside the box, and in no other way; or, if ordinary Matches are used, Children about the Farm should not be allowed to have them, or any other means of starting fires.

IV. The incalculable discharge of firearms in the vicinity of the Barnyard is also prohibited.

MEM.—When convenient, and circumstances will allow of it, it is of great importance to have two or more divisions of the Stackyard on a Farm, so as to render a fire, when it occurs, less extensive in its ravages.

Parents are specially warned to guard against their Children getting possession of Lucifer Matches, as the want of this precaution has frequently been the cause of many a Farm Steading and Stackyard being burned down.

Manager—GEORGE RAMSAY, Esq.
Secretary—JAMES BARLAS, Esq.
THE SCOTTISH FRIENDLY LIFE ASSURANCE COMPANY.

Head Office—No. 5 ST ANDREW SQUARE, EDINBURGH.

BOARD OF DIRECTORS.

Chairman—DAVID THOM, Esq., Merchant, Leith.
Adam Roland of Grask, Esq.  Thomas Spot, Esq., W.S

Medical Officer—Dr. SCORESBY JACKSON, F.R.C.P. & S.
Manager—Fred. H. Carter, C.A.  Secretary—James T. Spence, C.A.

The "SCOTTISH FRIENDLY" offers to Assurers every advantage on the most moderate rates consistent with safety.
Annuities granted that contrast favourably with those offered by other Offices.
Liberal Commission allowed to Agents.
Policies Indisputable after Three Years.
The highest surrender value given.

GRASS SEEDS,

For Permanent Pasture or Meadow.

The study of Natural Grasses has long engaged our attention, and we were among the first to recommend their use in the formation of PERMANENT PASTURE. After carefully noting the species composing the best Natural Pastures, as well as the results of combination in culture, under varied circumstances of soil, situation, &c., we feel confident that the agriculturalist will be a great gainer by using, in addition to the grasses and clover usually sown, an assortment of such of the Natural Grasses as are known to produce not only the greatest bulk of herbage, but also the largest amount of milking and feeding properties; varying those species, and the proportions of each, according to the nature of the land to be laid down. When the selection is left to ourselves, it is requisite that, along with the order, we be informed of the nature of the soil, extent of the land to be sown, whether Statute, Irish, or Scotch Acre, and whether with or without a grain crop.

W. DRUMMOND AND SONS, Seedsmen,
DUBLIN, and Stirling, SCOTLAND.
THE NON-CONTAGIOUS, SELF-ACTING, TIME AND LABOUR-
SAVING, AND MILK-PRESERVING

COW-MILKER.

A set of these Milkers for each Cow are eminently non-contagious compared to the human hand. What can be a stronger medium of contagion than the human hand engaged in 100 hard graspings of the teat three times in a day? The milker may be in the first stage of a typhoid or other contagious fever, and continue working, thinking that he is only conquering a fit of laziness, and he infects the cow. The cow may have a contagious disease, and she infects the milker. It is an ascertained fact in the case of the human itch, the cow-itch, the cow-pox, and warts. Ulcerated teats are communicated from cow to cow through the medium of the milker’s hands. Many a cow must have communicated the “Rinderpest” to others by the hands of the milker, before the stage at which the milk dries up. Milkers should look to their own safety, and not endanger their lives by selfishly clinging to a contagious mode of milking. This new mode may be rendered perfectly non-contagious with regard to the cows,—by having a set for each cow, or by using a portion of the time saved in washing the hands and apparatus before milking the next cow. In this way, the plan may be perfectly non-contagious so far as transmission from cow to cow is concerned, and non-contagious with regard to the milker, as one or two slight touches are less contagious than 100 hard graspings.

The mixture of atmospheric air with animal and vegetable substances hastens putridity. The mode in producing what is called froth, exposes a large proportion of the milk to air of the most corrupting kind, and the ammoniacal gases from the excrements and breath of the cows.

The dairy maid is scrupulously careful that not a speck of dirt to generate bad air shall pollute her shelves, never seems to reflect, that by the old grasping mode, the milk in the act of frothing must absorb more putrescent air than it can even in a dirty dairy. This mixture with the air by frothing is almost entirely avoided by the gentle fall of the milk in the tubes, and by a certain easy arrangement of the apparatus, almost all unnecessary contact of the air and milk is avoided. The milk will not sour so early, and the butter will not be so rancid—generally the products of the dairy will be wholesomer and sweeter than that which is obtained on the present plan.

The Russian Consul, after testing the matter for several months, purchased a large quantity for Russia. The invention gained a large silver medal at the International Exhibition at Nice, Piedmont.

The apparatus is simple, consisting of 4 electro-plated or silver tubes. The silver are best. The mouth of the teat being opened, as in ordinary milking, the slanting end is gently inserted with a rotary motion. The mouths or openings of the teats of different cows are of different widths, and in some cases the different teats of the same cow have different widths. This has to be attended to, and in no case should a large tube be inserted into a small opening.

Electro-Plated Tubes..........................10s. per set.
Silver .................. ..................15s. 10d.

A large deduction made when sold in quantities. Apply to

THOMAS BARLAND, 16, Norfolk Street, Strand, London [W.C.]

“We have received from so trustworthy a source, so good an account of the Pocket Milking Apparatus, that we feel ourselves justified in calling the attention of our readers to it.”
—Bell’s Messenger, January 4, 1864.

“Tin apparatus is one of the most valuable that can be brought under the notice of the agriculturalist and farming interest.”—From Morning Advertiser, Dec. 9, 1864.

“Little Pardele, Melkton, Ferthshire, 8th September 1863.

“We have used the Barland Milking Apparatus for eight weeks. We consider it (when spitted as mentioned in the circular) perfectly harmless. It milks the cow quite dry. The advantage in saving time and labour, and avoiding contagion, is so manifest, as to need no recommendation.

“ROBERT DAWSON.”

“Sir,—I quite approve of the Self-milk Apparatus, being simplicity and utility combined; and shall highly recommend the apparatus professionally.—Yours, &c.,

“G. WARD, Veterinary Surgeon.”

This Invention saves Labour and Danger of Infection to both Milker and Cow.

WHOLESALE AND RETAIL, OF ROBERT SLIMON,
IRONMONGER, SHORE, LEITH.
LEITH AGENCY
OF THE
IMPERIAL LIFE OFFICE, London,

The NEXT QUINQUENNIAL DIVISION of PROFITS is to be made in JANUARY 1866. All Persons, therefore, who desire to participate must complete their Proposals before 31st October next.

J. B. TOD & SON, Agents,
72, CONSTITUTION STREET, LEITH.

SCIENTIFIC AND ORNAMENTAL PRESENTS.


IMPORTED AND MANUFACTURED BY
JAMES TENNANT,
MINERALOGIST TO HER MAJESTY,
149, STRAND, LONDON, W.C.

Mr Tennant arranges elementary collections of ROCKS, MINERALS, and FOSSILS, to illustrate the new edition of Lyell’s “Elements of Geology;” they will greatly facilitate the interesting study of MINERALOGY and GEOLOGY, and can be had at 2, 5, 10, 20, 50, to 100 guineas each.

PRACTICAL INSTRUCTION in GEOLOGY and MINERALOGY, is given by MR TENNANT, F.G.S., at 149, STRAND, W.C.

GALVANIZED IRON.

ROOFING (Corrugated).
ROOFING (Continuous, the cheapest known).
FURNACE BOILERS.
STABLE PAILS.
HURDLES.
WIRE NETTING.

All respectable Ironmongers keep Morewood & Co.’s Goods in Stock. For Estimates of cost of Churches, and other Iron Buildings, apply to

MOREWOOD & CO., DOWGATE DOCK, LONDON, E.C.

Works—BILSTON and BIRMINGHAM.
ELECTRO-PLATE.

JAMES MILLER

Respectfully invites the Inspection of his Extensive Stock of Best Sheffield Electro-Plated

Dish Covers, Corner Dishes, Soup Tureens,
TEA KETTLES, COFFEE SETS,
CAKE BASKETS, BUTTER COOLERS, and TOAST RACKS,
CRUET AND LIQUEUR FRAMES, EGG EPERNES,
BOTTLE STANDS, SALVERS, FLOWER STANDS,
DESSERT KNIVES AND FORKS IN CASES.
TABLE CUTLERY, WITH ELECTRO-PLATED HANDLES, SPOONS,
FORKS, LADLES, &c.
PORTABLE MANGLES, WASHING AND WRINGING MACHINES.
MODERATOR AND PARAFFIN LAMPS.

JAMES MILLER'S Stock of these Celebrated LAMPS comprises the Newest Designs for the Season, which are superior to those of former years in style and finish, while the Prices are Greatly Reduced. Best COLZA and PARAFFIN OIL, GLOBES, CHIMNEYS, and WICKS.

JAMES MILLER,
General Furnishing Ironmonger,
70 & 71, PRINCES ST., opposite the Mound, EDINBURGH.

INSPECTION INVITED.

WIRE NETTING,

RABBIT AND GAME PROOF,
BEST QUALITY,

Manufactured and Supplied by

WILLIAM BAIN & CO.,
IRON WORK CONTRACTORS,
LOCHRIN IRON AND WIRE WORKS,
EDINBURGH.

Prices—3d to 6d per yard, 2 ft. wide.

Any other breadths at proportionate prices.
DRUMMOND BROTHERS,
SEEDSMEN, NURSERYMEN, AND FLORISTS,
52, GEORGE STREET, EDINBURGH.

DRUMMOND BROTHERS (Sons of Mr Peter Drummond of Stirling, N.B.) take
this opportunity of intimating, that in September 1864, they commenced Business in
Commodious Premises at the above address, where, by studied attention to the wishes
of Customers, they respectfully hope to gain an annually increasing share of the
confidence and trade of the Country.

Turnip and other Agricultural Seeds they use every precaution to obtain
genuine and of pure stocks, and their Mixtures of Clover and Grass Seeds
consist only of most suitable kinds.

With Vegetable and Flower Seeds they are equally particular, in procuring
them of the finest quality and true to name.

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A feature of the work will be a résumé of the labours of the year, and of the important improvements in practice, or of discoveries in theory, which have been made during its progress. The department of Machines, Implements, and Farm Buildings, has been intrusted to the care of Mr. Robert Scott Burns, one of the authors of the "Book of Farm Implements and Machines," and of the "Book of Farm Buildings," and will receive that careful attention which its importance deserves.

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