had at a lower value. The Croydon Local Board of Health, as would appear from the evidence of their chairman and their engineer, are prepared, in the event of their being refused a renewal (on reasonable terms) of their present lease of Beddington Farm, to pump their sewage to an elevation of 150 feet, so as to command land at a distance.

It is not necessary that the cost of preparing the land for sewage irrigation should be great. The carriers and distributing branches, whether made as open trenches or of earthenware or cast-iron piping, need not be costly. Whether the liquid is pumped or flows to its destination, its distribution over the land should always be effected by gravity.

"Filtration," in the sense in which the term is used of filtering water for domestic uses, is not applicable to sewage.—Town sewage cannot be filtered through an ordinary sand-filter, either by the downward or upward process; nor is it necessary in any case to attempt this form of filtration for sewage. Mechanical deposition and separation of grit and flocculent matter are alone required, and these operations can best be performed in open canal-like tanks.

Fields irrigated with sewage can be used for horses and milch cows to graze upon, and will fatten cattle and sheep.—But there are practical objections to such use. Cattle grazing in a sewage field tread the surface and foul it with their dung, and are apt also to tread down the banks of the sewage-carriers, and thereby to foul the effluent water. Dung, so applied, is not required for manure by the owner of a sewage farm. Sewaged-fields will yield wholesome hay; but in this uncertain climate there would be great difficulty in making hay from crops of grass so heavy. Where irrigation is carried on upon a large scale, if the crops are to be converted into hay, probably some artificial process of hay-making will be required.

The most profitable course is, we believe, to sow Italian Rye grass, and to sell the crop fresh cut as food for horses and cows. A field will in the year produce four or five crops, each of extraordinary weight. How often the grass should be resown depends upon a balance of considerations. Crops from the same seed annually deteriorate; on the other hand, to break up the soil involves temporary suspension of crops, additional labour, and other expenses. At Norwood, where sewage operations commenced only a year ago, the tenant has already over part of the farm had crops of 50 tons per acre, and expects in the ensuing year to obtain about 50 tons per acre uniformly over the whole. At Edinburgh the strips of irrigated land are let yearly at public roup, and fetch from 20*l.* to 40*l.* per Scotch acre. At Croydon the meadows are equally productive. At Worthing part of the sewage from a population of about 9000 persons was applied last year (1865) to 25 acres of land. The value received for the produce was 645*l.*, or about 25*l.* 16s. per acre. The expenses incurred were 229*l.*, viz., for labour, 164*l.*; for sundries, 65*l.*; total, 229*l.*, or at the rate of 9*l.* 3s. per acre; leaving a balance of 16*l.* 13s. per acre for rent and interest on outlay.

After a consideration of the actual results, extending over a number of years and obtained at various places and under various conditions, we confidently endorse the third conclusion of the last Report of the Royal Commission to which we have already referred, that "When local circumstances are favourable, and undue expenditure is avoided, towns may derive profit, more or less considerable, from applying their sewage in agriculture.—Under opposite circumstances there may not be a balance of profit; but even in such cases a rate in aid, required to cover any loss, need not be of large amount."

Upon many points connected with sewage farms it would be unwise to lay down any fixed rules, the proper course varying under different conditions of soil, climate, lie of the land, &c., or remaining yet undetermined. For instance, as to what is the most convenient disposition of the main carriers and distributing branches; what area of land suffices to purify a given quantity of sewage; how often and at what times relatively to the state of the crop such volume should be applied; the comparative effects of more and less diluted sewage; the comparative value of light soil and heavy soil under sewage irrigation; these and other like questions we prefer to leave to be settled by further experience. But we would suggest that in carrying out sewage irrigation the following points should be attended to:—

1. The irrigated fields should be at least one mile from the town, and if possible in the direction of north or east.
2. The extent should not be less than in the proportion of one acre to every 150 inhabitants whose sewage is to be applied
3. The carriers should be so constructed as to retain as little residuum of the sewage as possible.
4. Care should be taken so to appropriate the land as to leave for each day a sufficient area available for irrigation.

The above remarks apply to the utilisation of sewage of towns of a considerable size; but sewage irrigation on a smaller scale is practicable. *Report of the Commissioners appointed to Inquire into the Best Means of Preventing the Pol ion of Rivers.*

Plaster for Mildew.—According to a correspondent of the Gardener's Monthly, plaster dusted on grape vines early in the morning arrests the mildew. Those who suffer from mildew on their gooseberries might try the same plan, and let us know if they succeed.

Communications.

THE DEVON BULL "BRUNO."

Minudie, May 31, 1866.

Dear Sir,—The Agricultural Society of this place having procured the Devon bull "Bruno," a notice of which you will perceive in the catalogue of Mr. Anderson, now sent you, I have thought of asking you to publish in the *Journal* a statement that the Minudie and Barrons field Agricultural Society had purchased this animal, and giving his pedigree in full. His first cost to us was $100, and about $20 expenses getting him here. He is throughout smaller than the bulls we have had heretofore, but is a beautiful animal of a pure red color, and our members, generally, are pleased with him.

We are making the attempt to get a *pure breed* of cattle, and I am in hopes our present selection will meet the wishes of our community. Yours, &c.,

G. Seaman.

Devon Bull "Bruno," (577) bred at Maplewood farm; calved March 1, 1862.

Sire, *Brigadier* (571); calved at Maplewood Farm, bred by Geo. Patterson, Esq. of Springfield, Maryland, out of Galaxy, a splendid cow and an extraordinary milker, also bred by Mr. Patterson, by imported Herod (214), her dam by imported Eclipse (191), her grandam by imported Anchises (140), and her great grandam bred by Mr. Patterson from stock of Taurus (320) and the heifers presented to Mr. Robert Patterson in 1817, by Mr. Coke, afterwards Earl of Leicester.

Grandsire, *Chatsworth* (591) imported in 1858 from the herd of Mr. Bloomfield, of Warham, Norfolk, England, by Mr. G. Patterson, who gave $1000 for him there; and in a letter of Oct. 6, 1859, says: "I consider him the best bull I ever owned or saw."

Dam, *Brunette 2nd* (1825) bred by Messrs. H. B. & H. M. Hall, of East Burke, Vt., by Winchester, out of Fanny, (710) by Bloomfield (148.)

G. dam, Brunette (1824) by Red Rover (352.)

Gr. g. dam, Strawberry (1061) by Bloomfield (148.)

Gr. gr. g. dam, Strawberry, by Bloomfield (148.)

Gr. gr. gr. g. dam, Strawberry, by Exchange (197.)

Gr. gr. gr. gr. g. dam, Strawberry 1st, (1062) by Taurus (320.)

Gr. gr. gr. gr. gr. g. dam, Old Strawberry, one of the six Devon heifers the late Earl of Leicester gave to Mr. Robt. Patterson in 1817.