

**Sir John Bennet Lawes, Bart. F. R. S.,  
F. C. S., L. L. D.**

We present herewith a portrait of the distinguished agriculturist. He was, says the London Times, born in 1814, and succeeded to his estate of Rothamsted, in Hertfordshire, in 1822. Was educated at Eton and at Brazenose College, Oxford, where he remained from 1832 to 1835. During his academic career he displayed at once a strong partiality for the laboratory, and on leaving the university spent some time in London for the purpose of studying in a practical manner the science of chemistry. Possessed of independent means, a handsome property, and a beautiful old manor house and domain, Sir J. B. Lawes at once interested himself in agriculture. In October, 1834, he first commenced regular experiments in agricultural chemistry, on taking possession of his property and home at Rothamsted, and from that date up to the present time he has unceasingly been applying his scientific knowledge to the solution of questions affecting practical agriculture. In the commencement of his experiments, among other subjects the effect of bones as a manure on land occupied his attention for some time. A friend and neighbor, the then Lord Dacre, particularly directed his notice to the fact that bones were very variable in their effect in different soils. Several hundred experiments were accordingly made, some upon crops in the field and others with plants in pots, in which the constituents found in the ashes of plants as well as others were supplied in various states of combination. Striking results were gained from these experiments, in which the neutral phosphate of lime in bones, bone-ash, and apatite were rendered soluble by means of sulphuric acid, and the mixture applied for root crops. The results obtained on a small scale in 1837-8-9 were such as to lead to more extensive trials in the field in 1840-41, and in the final taking out of a patent early in 1842. This being done, Sir J. B. Lawes established large works in the neighborhood of London for the manufacture of superphosphate of lime, by which name the manure is known which has produced such a revolution in the science of agriculture.

Mr. Lawes has also received a gold medal from the Imperial Agricultural Society of Russia. Last June the emperor of Germany by imperial decree awarded the gold medal of merit for agriculture to Mr. Lawes and Dr. Gilbert, jointly, in recognition of their services for the development of scientific and practical agriculture. The honor, therefore, which has been recently conferred upon Mr. Lawes is merely a final and national recognition of his reputation and life work.

The results of the Rothamsted investigations are to be found in the journals of the Royal Agricultural Society of England, the reports of the British Association for the Advancement of Science, the journal of Chemical Society of London, the proceedings and transactions of the Royal Society of London, the journal of the Society of Arts, the journal of the Horticultural Society of London, the Edinburgh Veterinary Review, the reports of the Royal Dublin Society, the Philosophical Magazine, the Agricultural Gazette, the Chemical News, and in official reports and scattered pamphlets and newspaper letters.

Rothamsted is situated some twenty-five miles from London, in Herts, and is easily accessible to visitors, Harpendon being the railway station. Mr. Lawes' manor house is a remarkably fine specimen of old English architecture, and the domain surrounding it contains some magnificent timber, including an avenue of limes, which, for size and regularity of dimensions, are perhaps unsurpassed in the south of England. Around the family mansion lie the 500 acres which form the experimental station of agricultural research, with which Mr. Lawes' name is so intimately connected. It is not only entirely maintained by him, but he has further set apart a sum of £10,000 and certain areas of lands for the continuance of the investigations after his death. The staff of skilled and

scientific labor is very considerable, including often three chemists, two or three general assistants, a botanical assistant with several boys under his supervision, three computers and record keepers, and a large permanent laboratory staff. There are now stored in the laboratory about 30,000 bottles of samples of experimentally-grown vegetable produce, animal products, ashes and soils. The field and feeding experiments, including the making and application of manures, the measurement of plots, the harvesting of crops, the taking of samples, the preparation of them for preservation or analysis. Sir J. B. Lawes' investigations have embraced (1) researches into the exhaustion of soils, including experiments on crops; (2) researches on the principles of rotations and fallow; (3) on the mixed herbage of grass lands; (4) on the process of vegetation generally, including researches on the action of manures; (5) on the origin of nitrogen in plants; (6) on the feeding and fattening of cattle, and generally on stock as meat producing and manure making machines; (7) on rainfall and drainage; (8) on botanical characteristics; and (9) on the chemistry of the malting process, and the comparative value of malt and barley as food for cattle. Besides this, Sir J. B. Lawes has, in conjunction with Prof. Way, acted upon a royal commission, appointed in 1857, and extending to 1865, in which

all druggists, is said to be harmless to man and beast, and we know it to be death to insects. It would be well worth trying, and we would like to hear from some one who has given it a test. There is great need of some simple drug or appliance that will protect cows and horses from the insects that annoy them so much.

**Preparation of the Wheat Ground.**

Wheat demands for its perfect development, among other favorable conditions, besides showers and sunshine, depth and richness of soil, thorough tilth, and freedom from excess of moisture. Soil that will yield good clover will bear good wheat. Wheat follows corn very well, but this involves rather late sowing. Where there is a market for new potatoes, which, as they are intended for immediate use, may be freely manured, the potato ground—well plowed and harrowed with a dressing of bone-dust, superphosphate, or, if there is much organic matter in the soil, with a dressing of lime—forms an admirable seed-bed for wheat. One of the best rotations, including winter wheat, is corn on sod, early potatoes, wheat, clover and timothy, the grass to be mowed as long as it is profitable—the manure being applied in the fall for corn, and put on broadcast very liberally for the potatoes.

Winter wheat follows none of the usual root crops well, for it ought to be sowed and up before the middle of September, although it often does well sowed nearly a month later.

When wheat follows clover, a crop of clover-hay is often taken off early, and a second crop allowed to grow, which is turned under about the first of August for wheat. In case we have very dry weather, the growth of clover will be meagre. If, however, the clover stubble be top-dressed at once, as soon as the early crop is cut, with a muck and manure compost, or any fine compost, "dragged in" with a smoothing harrow, the second crop will be sure to start well, while none of the manure will be lost. Lime, or ashes, if they can be obtained, are to be spread after plowing under the clover and manure, and thoroughly harrowed in. Forty bushels of ashes to the acre is about right, and where hearths of old charcoal pits are accessible—ashes charcoal-dust and baked earth, all excellent—they form a good substitute for ashes and for lime. Sixty to 100 bushels of evenly dry-slacked lime, which, if it could have been mixed with an equal quantity of soil or sods during the slaking, would be all the better, is a usual application.

The following practice, on heavy land especially, is excellent:—

Turn under the first crop of clover as deep as possible, just before it is in full blossom; cross plow the first or second week in August; then put on 75 bushels of lime or more, and harrow it in lightly. Sow early after a soaking rain, and apply at the time of sowing 250 pounds or more of superphosphate to the acre.—[American Agriculturist.]

A Committee selected from all counties has been formed for the purpose of making arrangements to hold an International Exhibition of animals connected with agriculture at Hamburg next year. The Committee are of opinion, looking back on acknowledged benefits to the farming interests which resulted from the first International Exhibition held there in 1863, that a repetition of the undertaking, after a lapse of twenty years, will be productive of similar service to the agricultural world. The proposed exhibition will comprise the following departments, to be presided over by special committees:—Horse breeding, including mules and asses; cattle breeding, sheep breeding, pig breeding, bee culture, pisciculture, poultry breeding, stables, tools, &c., for the different branches of cattle breeding; and scientific aids to the above. The general programme, as well as those of the separate departments, may be procured free of charge from the Secretary of the Exhibition Committee, Dr. R. Suleman, Hamburg.



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an extensive investigation was undertaken on the application of town sewage to different crops, but especially grass. Comparative experiments were also made under this commission on the feeding qualities of the differently grown produce; the amount of increase yielded by oxen, and the amount and composition of milk yielded by cows being determined. We are pleased to see so marked a Royal recognition of British agriculture.

**Flies.**

The American Dairyman says:—We are now approaching the season when the fly nuisance very seriously curtails the supply of milk, and every dairyman should do all in his power to help the cows to protect themselves from this all-pervading nuisance. When cows are turned to pasture, there is no relief for them except deep water for them to stand in, and then they lose so much valuable time in the water, when they should be grazing, that the want of economy in such practice is seriously felt. When the cows are in the stable, they can be well protected from flies by carefully darkening the stable. This is often done at the expense of ventilation, or the fresh air supply, which should be guarded against, for if the cows become too warm, they suffer from the heat as much as they would from flies. Persian Powder, a yellow dust that is sold at reasonable prices by