

giving a stimulus to other branches of labour, which, without such discoveries, must have remained in the back ground. In enumerating some of the beneficial effects produced by this science, the *Edinburgh Review* says - A change in fiscal regulations, the competition of slave labour, and other causes had threatened to root out the growth of sugar from our West India colonies. But a chemical experiment made in Brussels, by Melsens, suggested to him improvements in the cane juice, which promise to give to capital and skilled labour in this branch of industry the same victory over mere manual toil which in all other arts they have gradually been acquiring. Again, the progress of the art of spinning had not only enabled the cotton machinery to produce threads of a fineness which Indian beauties never dreamed of, but the coillest linen cambrics of Holland and Flanders were already surpassed by the produce of our native looms. The machinery of the flax mills, however, had exhausted its skill upon the stubborn material, which refused to stretch to a more subtle fibre, or produce a finer yarn. But chemistry examined the substance by which the fibres are naturally held together, and forthwith spinning by the aid of steam heat compelled the glutinous matter to relax its hold, and the delicate fibres to slip along each other into threads of previously unattainable tenacity. The steeping of flax, too, was a tedious process, pregnant with noxious exhalations and frequent disease. For ages, particular streams were famed for their efficacy in steeping, and particular localities enjoyed centuries of reputation for their unspun flax. The fineness of the fibre depended upon the plant being neither full grown nor rank, and it was held impossible to grow to a profit both seed and stem at once. But a new mode of steeping has been devised by Schenck, owing to a chemical discovery. This invention has shortened the process to a few hours, has placed all localities on an equal level, by making all tolerably pure waters equally available, has abolished the yearly nuisance and frequent disease, has extracted the finest fibre from the rankest and ripest plant; and has thus placed within the reach of the farmer and of the country the double profit of a full crop of ripe seed, along with a heavy harvest of luxuriant stems. Even upon this improvement further improvements are already spoken of, and a rival patentee is threatening to supersede, by the employment of steam, the hot water employed in the process of Schenck. Further, a cloud was approaching the factories of Lancashire. Cotton, the growth of a rival country, it is feared, might become scarce, and rise in price, - consequences which would seriously embarrass our staple manufacture. Another chemical process here steps in, tears still farther in pieces the single hollow fibres of the flax, and produces a material which resembles cotton in appearance, can be spun with the same machinery, and, according to the discoverer, M. Claassen, may in all probability be brought into the market at a price low enough to compete successfully with natural cotton. Thus a new material is likely to be supplied to our home manufactures, and at the same time a boundless field opened, and a new stimulus given, to our home agriculture - a new bond, in fact, created between the already inseparable interests of our town and country communities. M. Claassen already speaks of larger orders than can be supplied. - *Edinburgh Review*.

Agriculture.

FLAX CULTURE.

Flax seed is generally sown in April, blossoms in June or July, and ripens in September. The seeds are mucilaginous and yield the well known commercial article - linseed oil, a substance which, painters and others who use it know well,

differs from all other expressed oils, by possessing a glutinous quality, and in not forming a solid soap with fixed alkaline salts. The cake which is formed by expressing the oil from the seeds is much used in fattening cattle; but flax is chiefly grown for the fibre, yielded by its inner bark, which is spun into yarn, and manufactured into linen cloth. This fibre when examined under a microscope appears to consist of smooth transparent tubes, intersected, at short intervals, by joints, or knots, similar to those of the lamboon or other reeds. The following remarks in reference to the sowing of the seed, and management of the plant, are compiled from the most authentic sources. The seed imported from Riga has hitherto been considered best adapted for the generality of soils, though some are of opinion that Dutch seed is better for heavy soils. The seed should be plump, shining, and heavy, and before being sown should be sifted through a zinc perforated sieve, twelve bars to the inch, to clear it thoroughly of weeds. In the choice of seed, great care is necessary, and on no account should an inferior quality be used. It must then be sown broadcast, and as evenly distributed over the surface as possible. In England it has been successfully sown with a close drill. It is then covered in with a slight harrowing, after which a roller should be passed over the ground to insure quick and even germination. The quantity of seed sown will in some measure depend on the chief object in view in the cultivation of the crop. When the quality of the fibre is the principal consideration, thick sowing is necessary, but if the seed is the primary object, it will better be attained by sowing thinner. The proper quantity of seed is 2½ to 3 imperial bushels of seed to the statute acre, and if the quality is inferior a little more may be added. It should be sown as early as possible in April, in a sunny situation, as the sooner it is sown the sooner it is ready for pulling, and early sown flax is often of a better quality. Sowing clover and grass seed with flax has always an injurious effect on the latter, and should be avoided.

When the plants are about three inches high, which will be in about a month, they should be carefully weeded, though, if the land has been properly cleaned, few weeds ought to appear.

The time when flax should be pulled is a point of much necessity to determine. If a fine fibre is wanted, it should be pulled rather green, but if the seed is the principal object in view, a somewhat longer time should be given. The best criterion to judge of the proper time of pulling, is when the seeds in the boll begin to change from a green to a pale brown color, and when the stalk assumes a yellowish hue as far as about half its length from the ground, and to lose its leaves. Pulling should only be done in dry weather, and should not be commenced before the dew is off in the morning. It is very essential to keep the stalks even, like a brush, at the root end, and the short stems should be kept separate from the long ones. The handfuls of pulled flax should then be laid across each other diagonally, to be ready for the operation of rippling, or taking out the seed, which ought to be done the same or the following day, otherwise the heads of the stems become hard, and are liable to get broken by the force necessary to draw them through the rippling machine. This apparatus is of a very simple character - it is an instrument like a comb, with iron teeth, round, smooth, and tapering, about 12 inches long, fastened into a wooden frame, and placed so close that the pods cannot pass through. This frame is screwed on the middle of a nine-foot plane resting on two stools. The ripplers sit astride this plane at opposite ends, at such a distance from the comb as to permit of their striking it properly and alternately. As the

handfuls of flax are drawn through the comb, the seed falls on a winnowing sheet below, where it is collected, and afterwards gently dried, when it is ready for use.

POTATO DIGGER.

Among the implements of farm labour exhibited at the Manchester Fair was a machine for digging potatoes, invented by a New Hampshire farmer; which promises to be of great service to the agriculturalist. - The machinery is placed on a wagon and the wagon is placed at one end of the potato field, with oxen or horses attached and as it passes down the rows, digs the potatoes, separates them from the dirt, and loads them in the wagon.

BONES.

Nature uses the salts of lime for the framework of animals. The use of bones as a manure was known in England since 1776; but it was only within the last twenty-nine years that they were employed extensively. Large quantities were imported into Hull from the continent; in the former place machinery was erected for their comminution, and the crushed most sold out to the farmers of York and Lincoln; and from the successful application of bones to the turnip crop they were gradually looked upon as something more than a manure subsidiary to the farm-yard. Previous to machinery being discovered for reducing bones to a state of comparative firmness, the bones were burned for the sake of their ash, which was called "bone earth;" or when burned in close vessels the residuum was called animal charcoal or bone black. By each of these methods the organic matter was lost. Other times they were mixed with quick-lime, strewed in the bottom of dung-pits, and there decomposed by the ammoniacal salts in the urine. Again we find them broken by hammers, from which, as great discoveries spring from insignificant causes, may have led to the invention of machinery to abridge labour; a more general faith in the efficacy of bones led to greater trials of them for manuring purposes, and the discovery of the value of the residue was greater when applied to the soil in a finely divided state, and science corroborated the fact - Bones are crushed by passing through a series of rollers with deeply indented rims, each underlaying set having the teeth more closely fitted, until the inch, and half-inch standards are reached. - The "dust" is formed out by screening the more closely ground articles. - *Libra in Agr. Gazette*.

Natural History.

A TALE OF TWO DOGS.

Bacon Cuvier's curious story of the Sparrow and the Swallows, has been universally read, and has caused many a sage mind to pause and ponder over the ingenuity displayed by them in obtaining the mastery over their assailant, and to reflect on the strange manifestation of instinct which enlisted so powerfully in their behalf the assistance of the whole swallow tribe in order to be revenged on the daring intruder. Many instances could be given which display a similar development of instinct. The following story of two dogs comes first to hand. - A gentleman resident in Lincolnshire was lately travelling about eighty or ninety miles from home, and left a favourite little dog at an hotel, while he visited another town in the neighbourhood. On his return, the landlady, in dismay, told him his dog had been attacked by a large dog of her own; and had run away from the house. He left the dog turned again to the same hotel after the lapse of a few weeks; when the landlady informed him