

Scientific Memoranda—American.

CAMPOR VS. PEA BUGS.—A correspondent of the "Horticulturist" says:

"Four years ago, last spring, my seed peas were more than half destroyed by bugs, the largest and best varieties being most injured. The summer following, I had boxes made, one for each variety, with a cover; and when the peas were gathered, I put into each box with two quarts of peas, from six to eight bits of gum camphor the size of a large pea, and mixed them together, and closed the box. The next spring there was not a pea injured. I have pursued the same course every year since, and have not had one pea affected by bugs."

PISTON PACKING AND LIGHTNING.—The following is from the Chicago "Democratic Press" of the 1st ult.:

"An occurrence took place at the New Water-Works during the thunder-shower on Monday evening last, which at the time attracted considerable attention. The water was at the time being raised by the smaller or reserve engine, which is placed in the south wing to be used as occasion may require, the pump attached to this engine, is in the form of a cylinder placed horizontally in line with the steam cylinder of the engine and connected also with the same piston. The pump-valves within this cylinder are constructed in part of a preparation of india-rubber. The attention of the engineer in charge at the time referred to, was arrested by the sudden increase of velocity in the stroke of the engine which it had been previously making at the usual moderate speed. The engine was immediately stopped, then carefully started again, when the same velocity was resumed, as though relieved of the usual resistance. The first engineer being called, and the pump examined, the india-rubber of the valves was found to be completely melted, thus explaining the loss of resistance and increase of velocity. The only question is, what melted the rubber? A charge of electric fluid passing down through the column of water in the tower, and thence through the pump down into the sink or well would have been likely to produce the result."

[We cannot conceive how the lightning could possibly produce such an effect, because, the metal of which the pump is formed would conduct the electricity past the india-rubber packing into the well; something besides electricity melted the india-rubber; the engineer has possibly found out the secret before this.

ICHTHYOLOGICAL.—Viviparous fish, formerly deemed such rare and remarkable natural wonders, are now getting known as abundant in various quarters. The first were discovered on the coast of California, about a year ago.—One species has since been said to have been taken in the Canadian waters, and a United States officer avers that the stingray of the Carolina coast is viviparous. Professor F. S. Holmes substantiates this, and says that the devil fish also bears its young alive.

A NEW MINERAL.—Mr. Henry Wurtz, of Newark, N. J., the State Mineralogist, has discovered in the quarries of Mr. Alyn, near Newark, a substance which on analysis proves to be a new mineral. It was found in thin flakes between the layers of sandstone, and having an extraordinary resemblance in many respects to white paper he has given it the name of "Papyrodyte." It probably exists in small quantities, and will be of no value except as a scientific curiosity, as very few minerals are now discovered. It is flexible and elastic, not acted on by acids, may be heated red hot without change of form, but loses 20 per cent. of water in heating, and then becomes brittle.

GEOLOGICAL.—THE FOUNDATION OF FLORIDA.—A correspondent of the "Floridian," speaking of the substratum of that Peninsula, says, "the upper stratum of Florida rests on one vast net-work of irregular arches of stupendous magnitude, through which innumerable rivers, creeks, and mineral waters in silent darkness perpetually flow. Wakulla, Ocilla, Wacissa, Crystal, Homosassa, Chesicoutaska, Wickswatcha, and Silver Spring, are the principal rivers. The creeks of this denomination are too numerous to mention; most of them

afford fine mill sites. They are, too, partly or wholly navigable for the smaller class of steam and sail vessels throughout the entire distances of their subterranean courses. Those that are not can be made so with comparatively small trouble and little expense. The number of mineral and thermal springs in Florida is more than two thousand. Their principal solid ingredients are the sulphates of lime, magnesia, and soda, oxyd of iron and some iodine. Their volatile ingredients consist of sulphurated hydrogen, carbonic acid, and nitrogen gases.—These gases soon evaporate if the water be exposed in an open vessel to the atmosphere; its taste then becomes insipid, in some instances either magnesian or acrid."

VIRGINIA SILK IN LONDON.—A medal, awarded by the London World's Fair to John W. Gill, of Wheeling, Va., for his domestic silk, has been received by that gentleman. The letter accompanying it says: "The coarser staple products of the United States were expected, but it caused no little surprise to see silk coming from the 'wild West' that rivalled the finest fabrics from the looms of London and Lyons."

CURIOUS EFFECTS OF HAIR ON GRASS.—A few years ago the purchasers of hog-hair at Terre Haute, Ind., carried it out upon the prairie and spread it on the grass to dry. This was in the fall and winter. After being washed with the rains, it was raked up, leaving a portion sticking in the grass. In the spring this was the earliest green spot and continued to be the sweetest, as was proved by the cattle resorting there to feed. By and by one of them died, then another and another, though apparently fat and healthy. Then one was opened to ascertain the cause of death, and afterwards others for curiosity. In the stomachs of those who had fed most upon this hair manured spot, were found two or three dozen hair balls.

Foreign Scientific Memoranda.

SUBSTITUTE FOR POTATOES.—For the last four years considerable attention has been paid at the Museum of Natural History, in Paris, to the cultivation of a plant coming from China, and known under the name of *Discorea Japonica*. This plant, says the writer of a paper sent to the Central Agricultural Society, may, by its size, weight, and hardy character, become exceedingly valuable in France, as it will serve as a substitute for the potato. Its tubercles, like those of the Jerusalem artichoke, resist in the open air the severest winter without sustaining any injury. Several specimens of these roots, of very large size, were presented in 1852 to the Society, one of which, of a cylindrical form, was three feet in length; another tubercle, presented in 1853, weighed three pounds, the former having been in the earth twenty months, and the latter sixteen. The flavor of this vegetable is said to be more delicate than that of the potato.

MAN VERSUS HORSE.—The following is from the "Mark Lane Express," (English paper):—"Two weeks ago, a trial of strength came off under the following circumstances: It appears that a wager of a quarter cask of ale had been made between a well-known wheelwright of the neighborhood, and a brewer in Ormskirk, that ten men could not draw a load of stone up Burscough Bridge, which a pair of horses had previously done. The wheelwright backed the men, and the brewer the horses. On the day appointed, the horses brought from the quarry, for the use of the Wigan and Southport Railway, a load of stone of about 50 cwts., weighing, with the cart, upwards of three and a half tons. This load they took to the top of the bridge and down again. The worthy wheelwright now marshalled his force, consisting of nine stalwart young men belonging to the neighborhood. A cross piece of wood was firmly fixed to the shafts, supported by as many men as could attach themselves to it, the rest either dragging or pushing, and in this manner, cheered on by the acclamation of an immense crowd, they dragged the ponderous load up the bridge with the greatest ease, the knight of the wheel thus winning the wager with one man less than his stipulated number."

Recent Foreign Inventions.

STEAMING ROVINGS.—Samuel Smith, of Bradford, York, England, recently obtained a patent for steaming rovings or yarns of wool wound on a hollow cylinder perforated with holes. The steam is let into the cylinder and made to pass through the rovings; this, it is stated, greatly improves woolen yarns.

PREPARING SKINS FOR TANNING.—E. V. F. Lemaire, of Paris, has patented an improvement in tanning which is thus described:—The skins are first soaked and hung up in a dry chamber heated to about 72° Fah. by steam. After remaining in this chamber for half an hour, they have distributed over them by perforated tubes a very weak alkaline solution of soda; this is repeated twice—half an hour between the operations. Afterwards at the same intervals of time, streams of water are caused to fall upon the skins until they are well cleansed and are considered prepared in a superior manner for the other common processes of tanning.

IMITATION LEATHER.—Heiman Kohnstam, of London, has secured a patent for the following mode of making imitation leather:—Into a quantity of thoroughly boiled linseed oil mix a quantity of lampblack sufficient to form a thick paste, taking care to stir the mixture well, so as to thoroughly incorporate the two ingredients. Then spread on the linen, woolen, or cotton cloth, which is to form the body of the imitation leather, a coat of this paste and suffer it to dry, after which it is to be rubbed smooth with pumice stone. Second, third, and fourth coats are then added, each of them containing less lamp black than the first. After the last coat is thoroughly dried and rubbed down, it is to get two coats of varnish made with boiled linseed oil and the sulphate of zinc, after which it may be enamelled and resembles glazed leather.

BOILING OILS IN A VACUUM.—John Webster, of London, has taken out a patent for subjecting oils and varnishes to heat in a vacuum instead of in a vessel exposed to the atmosphere. In boiling oils and varnishes over a fire, many accidents have taken place from a flame being brought in contact with the escaping gas from the kettle containing the oils, &c. This method of boiling these substances in a vacuum will obviate this evil.

Bone Dust.

MESSERS. EDITORS.—In your issue of August 5th, you advise Western farmers to use bone dust "home made." If we could only get it we should be glad to use it freely. But the grinding of bones has not even been attempted, to my knowledge, west of New York, and yet tuns upon tuns are lying about the precincts of our cities, or are shipped eastward.

I respectfully doubt the practical correctness of your own and Prof. Johnston's advice, to apply bone dust to land in preference to super-phosphate, if the latter is properly made. The super-phosphate yields a ready return—repays the expenditure at once—and this I consider one of the best qualities a manure can possess. You cannot estimate the value—the *endurance*—of these slow-acting manures, and you are apt to trust to their remaining virtues a year too long, and thus lose a crop. The great art in farming is to make quick returns. On the other hand our greatest drawback is, that we are obliged to wait six months to a year for remuneration for labor and manure at best, and it would hardly pay to purchase bone dust at 40 to 50 cents per bushel, even measure, and wait three years for full returns. Your Wall street men would grow nervous under a duration of as many months. It is my intention to test the value of bone dust and super-phosphate, upon my own farm in St. Joseph Co., Mich., next year, and shall be obliged to send to your city for it at the above rates, with the cost of transportation added. If I could get it "home-made," I should save one-third of the expense.

CHAS. BETTS.

[We are well aware of the super-phosphate of lime acting more quickly than bone dust, but prospectively like a rotation of crops, so might the bone dust be applied to give a regular return annually. We also believe that if some glauber salts were mixed with bone dust,

the effect would be beneficial. To make phosphate of lime soluble in water, it must be converted into a bi-phosphate or super-phosphate. The method of doing this is thus described by Solly, Prof. of Chemistry to the London Horticultural Society:

"Crushed bones, either raw or burnt (the latter preferable) are mixed in a leaden vessel with sulphuric acid, when, after a short time, the acid is found to have completely decomposed the bones and reduced them to the state of a moist solid, which, however may be easily rubbed to powder, and used in any way as a manure, either alone or mixed with dry soil. The effect thus produced by the sulphuric acid is very simple,—burnt bones consist of the phosphate and carbonate of lime, the latter in a far smaller proportion than the former, and when sulphuric acid is poured over burned bones, the carbonate of lime is wholly decomposed, being converted into gypsum. The phosphate of lime is partly decomposed, the sulphuric acid takes from it the greater part of the lime forming gypsum, whilst the rest of the lime, being still combined with the phosphoric acid, constitutes a very sour and easily soluble salt—a bi-phosphate or super-phosphate of lime."

Solly considers it best to use this manure always mixed with that of the barn-yard. Its manufacture is a simple affair. Feeding in crushed bones into the proper vessel with care, and allowing free action of the acid for a day or two, appear to be all that is required to produce this manure by any farmer.

The Wheat Fly.

We perceive by a number of our exchanges, that the ravages of the wheat fly have been very destructive this season, in some of the western parts of New York. This insect, it seems, has been moving westward from the Atlantic sea-board about 60 miles every year, for a number of years. Various means have been proposed for its destruction, but none have proved effectual. The burning of fires around the fields to smoke them off; the sowing of dry lime dust and sifted wood ashes, among the grain, have been tried with some advantage, but have not proved conclusive.—It is stated that Mr. Mechi, the famous English farmer, manures all his land with liquid fertilizers scattered over his fields and crops in showers by force pumps. If all our wheat raising farmers possessed strong, simple and portable force pumps, workable by their teams, they could shower solutions of various kinds over their wheat fields at such periods as would, we think, entirely destroy this insect in its larvæ state. A weak solution of potash or a lye of potash and lime might effect this object.—Experiment would soon discover the proper solution; we only recommend the plan. It may appear troublesome and expensive for large wheat fields, but the way to estimate the value of anything, is to compare the profits of its use with the loss sustained by not using it.

Great Engineering Invention.

William H. Brown, of Erie, Pa., went to Europe in the Pacific, which left here on the 5th inst., taking with him a model of an invention in engineering, (for which he has taken measures to secure a patent) which must strike the civil engineers of Europe—as it has many of our ablest—as one of the greatest improvements ever brought before the public, for the transporting of blocks of stone to piers in the course of erection in rivers; also the transporting of cannons, and the baggage of armies over rivers. By this invention, the whole of the artillery of a large army could be carried across a broad river in a few hours, without a single boat being required. It is the very thing wanted on the Danube.

A man in Wheeling, Va., lately rendered himself a cripple for life, by a cold bath, while sweating. Paralysis immediately shrivelled his left side, from shoulder to foot, a deadness creeping over it which no medical aid can probably remove.

The crops in various parts of our country are suffering from a severe drought; this is especially the case around New York.