

GOOD ROADS

To Build Earth Roads.

NOTWITHSTANDING all that has been done or proposed in the way of road improvement, the real problem for the next twenty-five years will continue to be how to make good dirt roads. Model roads, under the Higbee-Armstrong act, or any other possible act, will not cover the State of New York with macadamized roads inside of seventy-five years. The change will not be perceptible to the majority of farmers inside of twenty-five years. Of course, this kind of work should be pushed forward with earnestness and liberality. The trolley meanwhile will go a great ways to supplement the macadam, but both together cannot lift us out of the slough. We must study the dirt road question, and not consider it as of little importance. County engineers, taking charge under the pay system, ought to make a solution of the question, which the old pathmaster system did not, and never could have done. A good dirt road could never be made by surface draining. It was no more possible—and never will be possible—than to make dry meadows by surface draining. The farmer knows that he must underdrain his land, and do it thoroughly. But if you go into a highway and drive a spade down in the middle of your road you will find that the crust even in the driest weather is not more than six inches in thickness. How long a rain will it take to soften this or break it up entirely? The result is mud holes, and in a wet spell almost impassable roads, and this has been the history of our country roads ever since we took possession of the land and laid them out. It would continue to be the story forever under the pathmaster system. What is needed is underdraining as well as surface draining. In some cases a main ditch along the centre of the road, thoroughly laid in six or eight inch tile, would be sufficient. In other cases it would need the French system of tile ditches on each side. European model roads have these deep ditches four feet deep on each side of the road, and in some cases there is an additional ditch down in the centre, all tiled and covered. The expense of such a dirt road would, of course, be vastly less than a macadam or telford road, and it would pay for itself in the saving of a single year to the farmers adjacent. There could be no objection to a thoroughly well laid stone drain, where tile is costly and stone plenty. In other cases, drain your roads as you drain your meadows, and they will be passable driveways and haulways at all seasons of the year. We note that where trolleys are built they improve the drainage, and do it with covered drains.—E. P. Powell, Clinton, N. Y.

Foster Self-Respect.

Good roads foster a proper self-respect, both in the man who uses them and the man who lives adjacent to them.

New Jersey Commissioner of Public Roads: Bad roads are costing many a farmer much of the self-respect he feels when driving along a good road at a good pace, with clean buggy, clean harness and a clean horse.

J. A. Mount, ex-Governor of Indiana: The man who lives surrounded with good highways, who sees a good turnout going by, driving rapidly, with handsomely dressed people in the conveyance, will think more quickly, has more pride and is apt to catch inspiration and become more active and progressive.

W. W. Pendergast: To sum up, a perfect highway is a thing of beauty and a joy forever. It blesses every home by which it passes. It brings into pleasant communion people who otherwise would have remained at a perpetual distance. It awakens emulation, cement friendships and adds new charm to social life. It makes the region it traverses more attractive, the residences more delightful; it stimulates a spirit of genial improvement. Fields begin to look tidier, shabby fences disappear, gardens grow fewer weeds, lawns are better kept, the houses seem cosier, trees are planted along its borders, birds fill the air with music, the world seems brighter and the atmosphere purer. The country is awake, patriotism revives, philanthropy blossoms as selfishness fades and sinks from view. The school-house and the church feel the magic influence—the wand of progress has touched even them; the old are young again, the young see something new to live for, and to all life seems worth the living. The daily mail reaches each home. The rural cosmopolitan "feels the daily pulse of the world." Wheelmen are no longer confined to the cities. Bicycles, now within reach of all, are no strangers among farmers. The golden days of which the poets long have sung are upon them. The dreams of the past are coming

the "good time coming."

Great Cost of Hauling.

There is gradually transpiring a greater intelligence as to the value of good roads. Government experiments show that in the South the average cost of hauling a ton a mile is twenty-five cents, that the average length of haul to market is twelve and one-half miles, therefore it costs the Southern farmer on the average \$3.12 to haul a ton of stuff. Now, if a farmer hauls twelve tons of stuff to each horse worked on the farm, and runs, say, a five-horse farm, his hauling for the year will cost \$187, a much larger sum than he is likely to suspect.

Government calculations, based on census reports, reveal the astounding fact that the hauling connected with farming operations costs one-fourth the home value of the produce raised on the farm.

VEGETABLE MIMICRY.

Stapelia and Other Flowers That Have Fetid Odors.

Quite a number of flowers have distinctly mimetic odors. It can hardly be doubted, for example, that the offensive smell of the carrion flowers stapelia, Aristolochia, arum, rafflesia and others is more effective in promoting cross fertilization because of its resemblance to the odor of putrid meat. So completely are the flesh flies deceived that they often deposit their eggs on the petals of carrion flowers.

Fetid odors occur in byronia, helleborus, geranium, stachys, ballota, iris and other genera. The odor of others have a curious resemblance to the smells emitted by certain animals. Hypericum hirtum and orchis hircina are bad-smelling flowers with an odor resembling that of the goat; coriandrum sativum has the fetid smell of bugs, while the hemlock, again, emits a strong odor of mice. Along with these may be mentioned adoxa, the musk orchis, the grape hyacinth and other musky-scented flowers.

The resemblance in smell between these flowers and the secretion formed in the scent glands of the musk ox and other animals is, to say the least, a remarkable coincidence. Possibly flies which accompany cattle may be attracted by smells of this description. Very curious also is the vinous smell of oenantho, and the brandy-like aroma of the yellow water lily nuphar, hence called the brandy bottle. Etheral oils exhaled by plants, while attractive to some animals, seem to repel others; the scents of sweet-smelling flowers, such as daphne, thymus, marjoram, melilotus and gymnasium, though grateful to bees and butterflies, appear to be distasteful to ruminants. Kerner states that in general the latter avoid all blossoms; even the caterpillars do not readily attack the petals of their food plants. Odor may therefore be protective or attractive or it may be of use in both ways. The same remark applies to color, which may serve either to attract or repel; the richly variegated leaves of the Indian nettles—species of coleus—and the tinted foliage of begonia and geranium may possibly escape injury on account of the general resemblance to colored blossoms. Instances in which one plant resembles another in smell are not very common in the flowering class, though cases do occur like the garlic mustard and apple-scented saliva. Resembling odors are much more frequent among fungi.—Knowlledge.

An Awkward Position.

The following incident occurred at an entertainment in a large provincial town. On the programme a certain vocalist was down to sing "The Miner's Dream of Home," and to add special effect to the song he, having a friend a fireman at the fire station, about three minutes' walk from the hall, ran out and borrowed his top-boots.

His turn on the programme came around. He appeared on the stage in all the glory of a red blouse, slouch hat, white breeches and (the fireman's) top-boots. His rendering of the song was a great success up to the middle of the second verse, when a commotion was heard at the entrance of the hall.

Then a hot and eager fireman forced his way through the audience up to the footlights, and bawled out at the top of his voice:

"Bill, you've got to come out of them ere boots if you value your life. I'm called to a fire."—Tit-Bits.

The First of Its Kind.

The peace agreement between the British and Boer leaders is typewritten, and is probably the first instrument of the kind. Louis Botha's signature is described as being in a "fine, clerical hand." The others are all somewhat rougher, and Delarey's is stated to be the roughest of all. By the way, he splits his name into three syllables, thus: de la Rey, while his redoubtable colleague of the late Free State signs himself Christian de Wet, also with a small "d."

The mail from London to Shanghai, which now is on the way thirty-three to thirty-six days, will require only sixteen days via the Siberian Railway.

SCIENCE

Incandescent lamps emit more heat than is generally supposed, only six per cent. of the energy of the current being converted into light. A sixteen-candle-power lamp, fed by a current of 100 volts, has heated ten ounces of water to boiling point in an hour, and fires celluloid in five minutes.

An effort is being made to secure the establishment of a Government biological station on the great lakes. The purpose of such a station is to investigate all the problems connected with the fisheries of these lakes throughout their whole extent, principally for the protection of the commercial fish.

A new lifeboat from Scotland is inflated automatically on being plunged into the water. A perforated metal case holds materials for generating gas, together with a spiral spring held under tension by a strip of paper, and as the paper becomes wet it tears, releasing the spring, and this causes the mixing of the chemicals and the beginning of the gas-making.

It has remained for a New Orleans railway company to discover the decorative and advertising value of a smoke stack. Its height obviously renders it a conspicuous feature of the city's perspective, and when encircled with a spiral of incandescent lamps it stands out in the night a veritable beacon of light. The top is decorated with clusters of lamps, the light from which reflected on the clouds of smoke issuing from the chimney make a most pleasing picture.

Experiments by the Government have shown that no matter what the process of cooking, meat loses a great deal of its bulk, owing to the evaporation of the water, which constitutes a large part of all flesh. This loss is greater in small pieces than in the larger ones. In a lean piece of beef weighing from one to one and three-quarters of a pound, the loss of weight was 45.6 per cent., while in a piece weighing from five to five and three-quarter pounds the loss was only 39.3 per cent. The loss of nutrition is not nearly so great, however, as that of the weight would seem to indicate.

The substitution of crude oil for soft coal as a fuel for both stationary and locomotive engines is steadily growing. If the cost of oil can be materially reduced the use of it will increase even more rapidly. Most of the fuel oils now come from the new fields in Texas and California, and the great drawback to their general use is the lack of facilities for regular and clean delivery. The oil producers say that if there were a line of tank steamers they could deliver oil in New York at thirty cents a barrel, and that would be equivalent to a supply of coal at one-third the normal price. Oil has many advantages over coal—it makes steam more quickly, keeps the pressure more even, emits no smoke, leaves no ashes and does not clog the flues. In the cost of handling, too, it has the advantage, for one fireman using oil can do the work of four using coal.

Exercising Horses.

An English army officer, writing on the care of horses, says: "Regularity of exercise is an important element in the development of the highest powers of the horse. The horse in regular work will suffer less in his legs than another, for he becomes gradually and thoroughly accustomed to what is required of him. The whole living machine accommodates itself to the regular demands on it, the body becomes active and well conditioned, without superfluous fat, and the muscles and tendons gradually develop. Horses regularly worked are also nearly exempt from the many accidents which arise from overfreshness.

"As a proof of the value of regular exercise we need only refer to the stage coach horses of former days. Many of these animals, though by no means of the best physical frame, would trot with a heavy load behind them for eight hours, at the rate of ten miles an hour without turning a hair, and this work they would continue to do for years without being sick or sorry. Few gentlemen can say as much for their carriage horses. No horses, in fact, were in harder condition.

"On the other hand, if exercise be neglected, even for a few days in a horse in high condition, he will put on fat. He has been making daily the large amount of material needed to sustain the consumption caused by his work. If that work ceases suddenly nature will, notwithstanding, continue to supply the new material; and fat, followed by plethora and frequently by disease, will be the speedy consequence."

Longfellow.

Longfellow turned out about one volume of poems a year for many years; nearly four years were required for his translation of "Dante."

Torchon lace of any pattern can now be made by one machine, owing to a recent invention in Vienna.

HE crucifix is not the Cross. Sincerity is the secret of success. Singing saints are seldom sad ones. He who was often weary can always give us rest. To break our mirrors will not make us beautiful. The worldly-wise may be eternally foolish. It takes more than money to make a living. Strength in prayer cannot be measured by length. It is vain hope that the chains of habit will rust off. The recording angel cannot be fooled by church reports. To be at our best tomorrow we must be at our best today. When a father is too tender his sons usually balance things. You cannot worship the Father while you are wounding the child. Good intentions do not improve with age. Grapes of peace do not grow on thorns of passion. We do not need the Cross without if we have the Christ within. Self-knowledge will cure self-love. Practical piety must be personal. Half a truth may be a whole lie. Iniquity is the first cause of infirmity. The love of God is the light of man. The avalanche starts with a pebble. The greedy man always cheats himself. Sense and sanctity are not antonyms. Profanity is often a species of insanity. Humility is one of the gates of heaven. The flames of lust quenches the light of life. Permanency of pleasure depends on purity of purpose. The world's premiums are never worth the cost of the coupons. A Land Speculation. John Jacob Astor, son of William H., married a Miss Gibbs, while the other son, William, married Miss Schermerhorn, a member of an old and opulent New York family who brought him a fortune. These two brothers built adjacent houses in Fifth avenue, which they occupied till death, when the buildings were demolished and the lots—each 100 feet front—were occupied by the Waldorf-Astoria. The combined property before the hotel was erected was worth \$1,500,000, and yet it cost old John Jacob less than \$200.—Rochester Democrat and Chronicle.

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Fear of death in the midst of a storm which threatened to send the schooner Fred A. Small to the bottom is said to have changed Herm Blanco, a full-blooded negro, into a white man. The change lasted three days. Then, so the story goes, Blanco's natural color asserted itself once more, and he resumed his place on shipboard as a man of ebony. "I had heard of a negro turning white from fright," said Captain Z. R. Thompson of the Small, "but it was the first time I ever saw such a transformation. Ordinarily Blanco is as black as night, but while the storm lasted he was almost as white as snow."

In a wrecked condition the schooner came into port yesterday, and was towed to drydock. Three weeks ago she left Valparaiso with a cargo of wood, birds, and monkeys. Six days later she ran into a severe storm. For four days and nights her crew was kept on deck. On the fifth day topmast and bowsprit went by the board. All this time Blanco, the cook, is said to have grown whiter and whiter.—New York Mail and Express.

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