



Why Railroads Help.

VERY few months reports are published concerning exhibitions of road building machinery or mass meetings to discuss road construction, held under the supervision of railway companies. It is of no small interest to examine into the reasons which have led one railroad to appoint a permanent good roads agent, another to transport over its lines a trainload of machinery with which object lessons in economical road building are given at various towns, and many companies to offer special rates for transportation of plant for highway improvement. Presumably these corporations are not doing this solely for philanthropic motives, but because they recognize that the high cost of transportation over poor roads diminishes the farmer's ability to market all but the most valuable part of his produce and his power of purchasing return freight; or, in other words, good roads are a necessity to wealthy farmers, and not without wealthy farmers, and many of them, the railway revenues on local business are small.

The census returns for the State of New York show that the decrease in population in the last decade was 2261 in Wyoming, Livingston and Allegany counties. The special train which took the New York members of the American Society of Civil Engineers to the recent convention at Niagara Falls passed through parts of these counties, and some of the members remarked on the fact that in spite of manifest advantages of soil and climate farming is gradually decreasing, and lands formerly under cultivation are now going back to brush and weeds. The reason for this may be complex, but one of the most influential is surely the defective roads, which not only put an additional burden on the cost of teaming, but also isolate each farm and increase the difficulty of social intercourse. This latter influence is much greater than is usually recognized, for men, women and children are gregarious animals, and the hermit and recluse are rare.

Moreover, the lack of good roads is depriving these counties of a very considerable revenue from tourists and pleasure seekers. Their scenery is beautiful, their climate attractive, but their highways keep out the visitor. Switzerland learned this lesson long ago, and has built up an enormous income from tourists by good roads and good hotels. Western New York has, of course, no Chamounix, Zermatt or Interlaken, but it has more picturesque scenery than that to be found along the Oberlap and Albulas passes from Andermatt to San Moritz. Hosts of tourists take the latter tedious two day journey who would never think of it if a magnificent highway did not make the long diligence ride as comfortable as the smoothest roadway and the easiest of stages permit. Throughout this entire distance, moreover, there is rarely a farm in sight, the hamlets are very small and there are only a few villages. It is self-evident that without the high road and its well-kept branches the country would be deserted. If a similar road extended through the three retrograding New York counties, with less expensive but nevertheless good branches to the neighboring villages, it is safe to say that the income from travelers and summer visitors alone would soon pay the cost of maintenance and reconstruction, to say nothing of the increased wealth of the farmers through cheaper transportation.—Engineering Record.

Macadam Machines.

The construction of macadam roads on a large scale has naturally imparted a great impetus to the development of rock crushing apparatus. The first steel rock crusher was built ten years ago and a gradual improvement has since gone hand in hand with an increase of capacity. The most modern plants not only crush the stone but elevate it and separate it into sizes. The stone crushers weigh from two to eight tons each, require for their operation engines of from twelve to twenty-five horse power and give a product of from eight to thirty tons of crushed stone per hour. For separating the crushed stone into different sizes road makers usually use a portable storage bin which weighs 2500 pounds and has three compartments, each of which will hold four tons of stone, and which are provided with discharging chutes on either side so that wagons can load from both sides if necessary. For separating the crushed material into various sizes screens of different types are available. One of the most interesting forms of this apparatus is the revolving screen, which revolves on either a shaft or on rollers and into which the stone passes. Some of these screens are fifty-six inches in diameter, and inasmuch as each screen is punched with holes of two different

sizes, three different sizes of product are obtained, one size passing through the one-inch holes, a second size passing through the two-inch holes, and the largest size passing out at the end of the screen.

Steam Road Rollers.

A class of machine in which great improvement is noticeable is the steam road rollers. The principle on which the newest machines are constructed is to make the wheels, which are absolutely necessary to carry the machine, act as the rollers proper. Road rollers range in weight from five to nineteen tons, and on the larger sizes the driving wheels are about seventy-six inches in diameter and have a facial measurement of from twenty to twenty-six inches. Rapid road building is still further facilitated by the use of spreading wagons, dump wagons, road plows and other improved forms of apparatus which are largely automatic in their operation and which contribute to an economy of time and money.

The Six-Fingered Children.

Unique in the history of freaks is the six-fingered family of Dresbach, Minn. The family now consists of Mrs. Gaskill and ten children. The peculiarity belongs to the mother's side.

Mrs. Gaskill's maiden name was Olive Cooper. She doesn't know where she was born, but the family was probably of New York origin. She remembers only that she was a wanderer with the Cooper family at an early age, and that the Cooper family were basket-makers and venders; they led gypsy lives and crossed the continent from New York to San Francisco several times.

In the Cooper family there were ten children. Five of them had six fingers and five of them had not. The greatest peculiarity is that every alternate child in point of age has the extra finger, and those who are not six-fingered are blessed with an extra toe, and those who have six toes have webs between their toes. The extra toes and fingers have well developed nails. Exactly the same conditions are found in the Gaskill family. Mrs. Gaskill was married to Zacheus Gaskill thirty-two years ago, and has resided in Dresden since then.—St. Paul Dispatch.

The Throb Artistic.

"You've heard of people who liked to buy books and magazines with uncut leaves because they took a sort of artistic delight in going through them with the paper cutter, haven't you? It often happens that they never read what is printed inside at all. It is just cutting the leaves and glancing through that gladdens their hearts. Well, sir, I know how they feel. I have the same thrill once every week. When I get the envelope with my pay in it I know there isn't a cent there that I can have for my own use, yet, do you know, I simply can't help opening the envelope and looking in? It must be the artistic feeling that comes to the book lover. I can account for it in no other way. If I didn't care for that thrill I might just give the envelope unopened to my wife, and let her pay the money out. But the privilege of cutting off the end of that envelope and looking in it is worth my whole week's work. After all, there's nothing like the artistic throb, is there?"—Chicago Record-Herald.

Responsibility.

Eldridge Reginald George, aged twelve, fell down and broke his ankle the other day. His father was away from home, and his adoring mamma was quite distracted when her darling was carried into the house by a parish policeman. Doctors were sent for, the father telegraphed to and a tremendous to-do was in progress, but through it all Eldridge Reginald George preserved a sad and stoical demeanor.

Two days after the accident a boy chum was permitted to see him. The visitor attempted to condole with the invalid and especially inquired if the foot hurt much. The anguished mother was considerably cheered by her petted son's reply, which she heard from an adjoining room:

"Oh, I don't care about the old foot," he said, "but it's hard on me to be cooped up here when my father's away and there's no one to take care of my mother!"—New York Commercial Advertiser.

Excessive Politeness.

There is a man who is always apologizing, and some say: "How courteous he is! How thoughtful! A born gentleman!" Know that he is a thorough and aggressive egotist. He runs against you, he steps on your foot, he tries to pass you on the left, he knocks your hat as he hangs by a strap in a car, he sits on your coat tail—what does he not do to call attention to his own breeding? Sometimes he throws the accent on "beg," sometimes on "par-don." The speech is merely a rhetorical flourish and he has practiced all the variations.—Boston Journal.

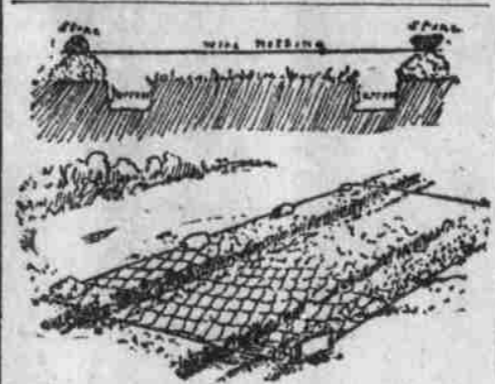
Water in the Army.

An ordinary canteen holds 17 1/2 quarts. With the 277,000 canteens filled the army would carry 3644 hogs heads.

AGRICULTURAL.

Protecting Young Chicks From Hawks.

Where hawks abound, young chicks must be closely guarded. If shut up closely in pens, growth will be greatly retarded. A good plan under such circumstances is shown in the accompanying cut. Flow two furrows parallel to each other and just far enough



WIRE NETTING TO PROTECT YOUNG CHICKS

apart so that the distance from the outside of each shall be just six feet. Make the furrows 150 feet long. Stretch a roll of six-foot wire netting along the furrows, fastening the edges down with stones. This gives a long run on both grass ground and plowed land for the chicks, and hawks cannot molest them. The coop can be set at one end, the other end being stopped with sod. The plan is shown in the cut.—W. D. Maine, in New England Homestead.

Treating a Badly Drained Soil.

Drainage of a heavy, thick soil, inclined to be hilly and uneven, is something that is not always an easy matter, but if one has such a farm, the sooner he begins to make the improvement the better. It is waste of time and money to attempt farming on a field that demands drainage badly, and it is wisdom to abandon the farm entirely or begin to drain it. I have succeeded so well with a home system of drainage with stones that it may be worth recording. The soil was at first quite full of stones, which I at first picked off and piled in one part of the field. A few stones would work up to the surface every spring, and these I would also pick up. In the course of a few seasons I had a fairly good soil without any stones to annoy me. But the drainage was bad. The water would settle in the soil and on the surface in the spring, and the land was always late in getting into tillable condition. It was cold and wet when most other soils were warm and dry. This made plowing late, or if done early a muddy and unpleasant task. The land sloped down in one general direction, but there were numerous depressions which collected the water all along.

I decided to drain. I planned the whole thing out on paper, noting the general direction of the slopes. I could not afford tiles or any expensive material, and so I decided to use the pile of stone. I plowed deep ditches across the land, making them all run parallel with the main slope, and cutting cross ditches in the opposite direction. In this way the whole soil of the field was drained so that the surplus water would run into main ditches and thus down to swampy levels. Then I proceeded to fill in the ditches with the stones, using the large ones first, and placing them so that the largest possible spaces would be left between. On top of these I packed the smaller ones, and on top of them placed a layer of straw and cornstalks. Then I topped it off with six inches of soil, bringing the surface up to within a few inches of the general level of the field. Now this drainage works perfectly. The soil is never clogged with surplus water. I do not plow over the drains, but I have permitted a sod of grass to form on them to mark their course. The water following the line of ditches drains off below the surface, and there is a steady outpour in the main ditch in rainy weather. The cost was only that of my own personal labor.—C. W. Minners, in American Cultivator.

Buying or Renting a Farm.

It doesn't make any difference whether a man has small means or can pay cash, the best policy is to buy. Every farmer is ambitious. He wants to own a farm—to have some place to call home, even if it is only forty acres. The expenses are about equal, buying or renting. The rent amounts to as much, and often more, than the taxes, interest and repairs. The renter has more money to put into stock, but his possessions must accommodate themselves to the farm he rents, and this is often inconvenient. Or he must build extra fence, which is expensive, as the fence is useless when he moves elsewhere. Usually the renter exchanges crops and stock for money when he moves, which is every year or two. Of course he puts the money in the bank and is going to save it until he can pay cash for a farm. During the year he sees something that he is very anxious to own, and as the money is easy to get, it goes. Of course he is going to have a better crop this year, and will make more money on his hogs, and can easily re-

place the money, and more, too. It is just as easy to use it all as it is to use a little, and before the end of the year it is all gone.

The buyer cannot do this. When he sells a crop, or a bunch of hogs, and pays the money on a farm, it is there to stay. He must deny himself many things, but he who satisfies every want will not have his labors crowned with success. Unceasing toil is the parent of success. It only takes about half the year to raise the crop. During the other half the renter does not do enough to pay his expenses. He makes as much as any farmer while he works, but the buyer works while the renter is idle. The weeds need cutting, the fences need fixing, the fertilizers need scattering, the ditches need repairing, and many other things need to be done, so that the buyer is busy the entire year. Perhaps he has less amusement, but amusement is expensive.

A farm should have a good orchard and a garden of shrubbery. Neither trees nor shrubs are costly, but the renter does not put out new ones, nor take care of those already on the farm. The renter leads an aimless, unsettled life. He has no definite aim in view, and works in a haphazard, hit or miss fashion, and it usually turns out miss. The buyer knows just what he has to do, and each day brings him nearer the goal of his ambition. Half of the secret of success lies in having a definite aim and the other half in unceasing toil.—G. I. Johnson, in New York Tribune.

Primitive Justice in Idaho.

Judge W. B. Heyburn, of Wallace, Idaho, who comes to Washington on matters before the Supreme Court, registered at the New Willard during the week.

"Contrary to Eastern impressions," said Judge Heyburn, "we are developing quite a high state of civilization in Idaho. It is not so very long ago, however, that conditions were rather crude in our parts. We had a judge on the bench out there who was an untrifled product, I assure you. He had never read law, but had picked up in some mining camp a copy of the statutes of British Columbia, and he adjudicated cases by that code, and some of his rulings were bizarre. One day a chicken peddler drifted that way from another State and was promptly arrested.

"You are fined \$50 for selling chickens without a license," said the judge, when he had heard the evidence.

"But I haven't that much money," wailed the defendant.

"Make it twenty-five, then," declared the judge.

"I haven't even that amount," faltered the peddler.

"How much have you got?" demanded his honor.

"Just \$13.50," replied the defendant.

"The prisoner is ordered to pay a fine of \$13.50," exclaimed the judge, "and his chickens are confiscated by the court."

"That night a penniless peddler went sobbing out of the village, and an unworthy judge regaled himself and his friends on the appropriated fowl. I am glad to add that a higher sense of justice now prevails in Idaho."—Washington Times.

Wouldn't Stand For It.

"I hardly think my wife sees the joke yet," said Brown, with a smile, "and I am also inclined to think that she was deliberately trying to create a false impression, to which I plead guilty."

"One night last week I thought I heard some one prowling about the house, and as there have been a number of houses broken into lately, I concluded that the noise was made by burglars. As I sat up in my bed listening I chanced to glance into the next room, the door of our bedroom being open, and there stood a sure-enough burglar examining our silverware. With this startling discovery came the chilling thought that I hadn't such a thing as a firearm in the house. But I determined to run a bluff, so turning to my wife I said in a loud voice:

"Where's my revolver?"

"John," she answered in a voice equally as loud, "there isn't such a thing in the house, and you know it!"—Detroit Free Press.

Thames Watermen.

Considering the deterioration of the Thames as a highway, it is surprising that the professional waterman should flourish as he does. This is in great part owing to the prize which Thomas Doggett, comedian, established to commemorate the accession of the House of Brunswick. For 179 years now, on August 1 every year, six young watermen, just out of their apprenticeship, have rowed for the flame-colored coat and silver badge for which Doggett in his will provided in perpetuity. The Fishmongers' Company, of which Doggett was a member, provides other prizes, and the contest still excites more than a local interest.—London Chronicle.

The Philosophic Way.

Some people seem to think the way not to let their debts worry them is to spend money having a good time.—New York Press.



The authorities of the city of Rouen, France, the home of the famous cathedral, are considering a plan to utilize the street trolley wires for the extinguishment of fires. The scheme is to place electrically driven pumps at suitable points along the electric tramway system which covers the city, and then, in case of fire, to switch on the current from the trolley wires to drive the pumps.

Professor Becker, of the Glasgow Observatory, has devised a simple and ingenious plan for conveying light to graduated circles at the point where they are to be read with the aid of an attached microscope. It is desirable not to bring the source of light near the circle, on account of the heat, and so Professor Becker sends the light through a solid glass rod, letting it shine in at one end and emerge at the other. The light cannot escape from the sides of the rod owing to internal reflection, and accordingly it is carried and delivered very much like water in a tube. Even when bent the glass rod does not lose its charge.

Professor Tyndall used to explain to popular audiences, with the aid of a brilliant experiment, that the blue color of the sky is owing to floating particles of invisible dust that break up and scatter the short waves, which are the blue waves, of light. This, as a writer in Knowledge shows, occurs principally at a great elevation, where the atmospheric dust is extremely fine, while in the lower regions of the air, where the dust is coarser, the scattering affects all the rays, or colors, alike. The brilliant fringes of clouds, seen nearly in the direction of the sun, are largely due to dust, which especially accumulates in the neighborhood of clouds, and refracts the sunlight around their edges.

"Properly speaking, gigantism is a disease," says the Medical Record. "Dr. Charles L. Dana, of New York City, long ago gave out the opinion that many so-called giants were cases of excessive pathological development, rather than cases of excessive physiological growth. According to Professor Brissaud, gigantism is nothing else than acromegalia (abnormal development of the extremities). M. Brissaud has demonstrated that the combinations of gigantism and acromegalia are far from being uncommon, and that the general symptoms of each one of these diseases are observed also in the other. According to M. Brissaud, acromegalia is the gigantism of adults, while gigantism is the acromegalia of adolescents."

Writing of the recent observations made by himself and others on that part of the solar spectrum which lies beyond the red end of the ordinary prismatic, or visible, spectrum, and contains about four-fifths of the radiant energy of the sun, Professor S. P. Langley says that we are beginning to see that the seasons, "which write their coming upon the records of the spectrum," may in the future, have their effects upon the crops foretold by means somewhat similar to the forecasts made day by day by the Weather Bureau, but in ways infinitely more far-reaching, and that these predictions may come from the direct study of the sun. There are strong indications in the direction of a future power of prediction as to coming years of plenty and of famine.

In his volume on the diseases of the hair, M. R. Sabouraud refutes some popular errors regarding the cause of baldness. Baldness is usually considered an infirmity of old age, and when it takes place in early life all sorts of explanations are invoked, one as baseless as another. As a matter of fact the critical age for baldness in men is from twenty to thirty years. Women are less open to the attacks of the microbe of this disease. The earliest baldness occurs in young men of from sixteen to eighteen years, and the skull is often bare at twenty-two. The most common age for the beginning of the disease is twenty-three and the baldness is usually complete at fifty. The latest age for the beginning is about forty, and in such cases the denudation of hair proceeds with extreme slowness. The younger the subject the quicker the disease attains its complete effect. It is not a malady of the aged, but rather of the young.

Railways in Straight Lines.

There is a railway over the Egyptian desert which runs for forty-five miles in a straight line, but this is easily beaten in Australia. The railway from Nyngan to Bourke, in New South Wales, runs over a plain, which is as level as a billiard table, for 129 miles in a mathematically straight line. There is hardly an embankment, nowhere a curve, and only three very slight elevations.

Among the vessels that touch at Hong Kong the English flag leads, followed by Germany, Japan, France, China, America, in the order given.