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MOTOR CARRIAGES AND GOOD ROADS.

The United States in some of its aspects, despite its great population, its large cities, wealth and inventive powers, appears susceptible of further advances. Of late agitation in directions affecting what may be termed its internal economies has been manifest, and good roads for the country districts, electric traction lines for country and city alike, and improved pavements for cities have been discussed on all sides by private citizens and by legislators. Ten years ago the steam railroad, the growth of little more than a generation, was pointed to with interest as a cause which had revolutionized the world. For in modern times the transportation of freight and of passengers is the most important business of humanity. The idea of the steam railroad was the creation of large units of transportation. Great trains of cars bearing several hundred passengers became the railway manager's ideal.

The steam railroad seems to have reached pretty nearly its limit, and now a most formidable competitor for local traffic has come upon the scene in the electric road. The five and six car steam train is supplanted by a number of single trolley cars run at frequent intervals.

These matters the capitalists have in charge. But the improvement of roads and streets affects the municipalities, the county and State authorities, and very directly the individual. For on roads and streets the horse-drawn vehicle and the bicycle travel, and the latter, once a toy and now an everyday vehicle, is a principal cause of the new agitation. With good roads all over the face of the country, and with proper city pavements, a new field of work for the inventor at once is open. The horse is being more and more relegated to the background. The bicycle surpasses him in its powers of transporting humanity. It illustrates the immense reduction of friction on journals by the use of ball bearings. After ball bearings had settled this part of the problem, the rolling friction difficulty was solved by the pneumatic tire, and the bicycle, in great measure a perfected type of machine, is going into universal use.

In France recently there has occurred a competition between road vehicles driven by power. From the early days of this century repeated efforts have been made to produce a road engine. To the existence of this machine a good road surface is essential. France is peculiarly adapted to its introduction on account of her good roads. There the bicycle is in universal use, and the power-driven road wagon may become a part of the machinery of transportation.

In the United States, with cobblestone pavements, and with sandy and muddy roads disgracing city and country alike, much has to be done before the work of producing a successful traction engine or carriage can be accomplished. But the production of the bicycle has done so much to facilitate progress, and has solved so many of the mechanical problems of the perfect road vehicle, that it seems a pity that the power problem cannot also be solved. The motor is now what is wanted. It must be light. The bicycle of twenty-five pounds weight carries a two hundred pound rider. The motor carriage of the future must be light.

With good roads all through the country traversed on bicycles by every one, and with power-driven vehicles for freight, in place of horse and wagon, the life in the country districts would be revolutionized. Daily delivery of the mail and of light express matter would become practicable, and the progress of the individual would be favored. But until good roads come this cannot be. The trolley road as an approach to the desired cheap traction has proved welcome to country and suburban dwellers. The advent of a practical power-driven vehicle coupled with good roads would prove just as welcome and more in consonance with the vested rights of the community in such roads as they possess; rights in which are now surrendered to the electric road companies with far too great readiness.

Kentucky Hemp.

Mr. James K. Reeve, in the Country Gentleman, says: In 1882 the crop amounted to about 4,000 tons; it had not varied much from this for a long time. Cheaper fibers were brought in to help meet the demand for lower priced goods, and jute and sisal for a while nearly drove American hemp from the market. The fall in price has reduced the value from $160 per ton to $100. The Kentucky crop for the present yearis estimated at only 3,000 tons, but there is no prospect of an advanced value.

Besides the introduction of cheaper substitutes in the way of fibers, hemp has met disastrous competition from another source. Tne use of metal in the place of fibers has assumed large proportions: The first step in this direction, and one which largely curtailed the market for hemp, was the use of iron cotton ties—the straps which are used to bind the bales. Then came the introduction of steel wire cordage for standing rigging on ships. In connection with the baling of cotton, bagging made from jute butts was also adopted in place of the former hemp bagging. Thus, while its value is as fully recognized as ever, the relentless demands of competition have forced manufacturers to use cheaper substitutes, until the demand for it has almost ceased. Its principal employment now perhaps is for the adulteration of flax, with the single exception of which it is doubtless the best fiber produced.

To help the reader understand the cost of harvesting, and to realize the difficulties that are in the way of producing it more cheaply, a few words of explanation may be necessary.

From the time when the harvesting begins, which is in the latter part of August or by the first of September, a period of five or six months is required for preparing the crop for market. Generally speaking, a year may be said to intervene between the sowing of the seed and the selling of the product. The hemp is cut by hand, a knife set in at right angles to the handle being used. The work is pretty severe, as the stalks must be cut close to the ground, necessitating a constant stooping posture on the part of the workman. Cutting by machine has been tried, but it leaves a couple of inches of the butt of the stalk standing. This is just where the heaviest fiber is produced, and it is estimated that 200 pounds of fiber to the acre is lost by machine cutting. This, at 5 cents per pound, would amount to $10, which is much more than the cost of hand labor. The subsequent handling includes stacking and spreading—which consists in laying the canes out in regular rows upon the ground, to undergo the process of retting. A good crop is calculated as one that when thus spread will fully cover the ground upon which it has grown. It is left thus for some weeks, depending upon the weather, until the retting (the word is probably a corruption of rotting) has progressed so far that the pith or inner part of the cane will separate readily from the husk or fiber. The separation is then done by means of a brake, a clumsy wooden tool operated by hand, which thrashes the woody portion of the stalk out from the fiber and leaves the latter finally ready for market. All of these processes are expensive, the braking alone costing $1 per 100 pounds. The securing of the crop entails so much expense that it is quite common for the grower to secure advances of money for this purpose from dealers and manufacturers. But I am glad to say they are not under such thraldom of crop mortgages and usurious rates of interest as have been too common with another class of fiber producers in the South—the cotton growers. One of the largest buyers of hemp in Lexington told me that he was already advancing money for the payment of harvesting expenses, charging no interest and only requiring that he should be given the opportunity of purchasing the crop at its market value when ready.

After passing through the brake the hemp is twisted into a coil of about 5 pounds weight, which is called a "hand," and in this rough state goes to the dealer. In this warehouse or factory it is hackled or dressed, which is also a hand process, and is then ready for baling and shipment. In hackling, the short fiber is separated from the longer, and makes a second quality. The fine waste product is called tow, and when mixed with tar becomes oakum, which is used in calking ships.

From 800 to 1,400 pounds of hemp is considered an average crop. Even at the present price of $100 per ton, it is a crop that gives a fair money yield per acre, and might still be a profitable one were it not for the extraordinary expense of handling. As it is, farmers are preferring to grow more corn, and to make up the difference in their incomes by letting more land for tobacco.

Maxim's Flying Machine.

In reply to an inquiry whether his flying machine will fall edgeways like a kite in case the propelling mechanism should break down in the air, Mr. Maxim says:

The Anglo-Saxon kites, as made by boys in the United States and England, are rather crude affairs. They have to be provided with a tail, and, as we all know, they often fall to the ground edgeways, striking a very powerful blow in proportion to their weight. But in China men, and not boys, make and fly kites, and these kites are so perfectly made that they never fall to the ground edgeways, neither is it necessary to provide them with a tail. My flying machine is made somewhat in the form of a kite, and I have modeled it after the Chinese rather than after the Anglo-Saxon variety. It will not fall to the ground edgeways. In case the machinery should stop while it is in the air, the machine would be brought to the ground not in a vertical line, but would run down an incline on the air, striking the earth while moving ahead at a comparatively high velocity, while its vertical velocity would not be great enough to cause any serious damage to the machine or its crew.

TWENTY years ago Southern planters paid men to haul away cotton seed and burn it. Now they get from $6 to $8 a ton for it.

Days in Rome.

We may smile at the ignorance and arrogance of the old Romans because they called their golden milestone in the Forum "umbilicus terrarum;" but after we have spent some days among her ruins, her churches and monuments, have had associations of more than twenty-five centuries recalled, and have noticed the activity and vigor in the present life of the city, we are almost, if not quite, ready to say, "Of course, Rome is the center of the world."

I presume that it is very common for travelers who come here to-day, to wish they could have come a century, or even a generation, ago, when old Rome was less obscured by the bustling capital of the young kingdom of Italy. However, there are compensations. Some of the interesting discoveries are very recent ones, and modern Romans are but repeating the history of their ancestors, in building on old foundations; the continuity is being preserved.

It is a curious fact that this city, which in the past has had the vicissitudes of war and pestilence and prosperity, is suffering now from what is known in America as a "boom." There has been over-building, banks have loaned money on security which did not secure, and unfortunate depositors are beggared. In their haste to build, too, they have forgotten that they live over enormous caverns, and some large structures have collapsed after they were finished, in much the same fashion that others have in a land that had not been dreamed of when Rome was mistress of the world.

But the general aspect of the city is decidedly one of thrift and stability. The new streets are wide, clean and well lighted; so many railway tracks run into the central station that one instinctively says, "All roads lead to Rome!" The new churches have a splendor about them that the old ones lack, albeit there is no Michael Angelo to be their architect and no Raphael to paint their Madonnas. The monument to Victor Emanuel, which is being built on the Capitoline Hill, will doubtless be grander than any other in Europe. It is to include 200 frescoes, 400 statues, and to cost 12,000,000 francs. The equestrian statue of the King will overlook not only the present city, but those wide outlying lands which were thickly populated when Rome was half as large as London now is.

And it is that Rome and her beginnings which most interests the stranger. So much and so well have the best known objects of interest been written about, that I cannot say anything new about them; the most I can hope to do is to refresh the memory of them in some readers' minds and suggest to others that it is worth while to spend a short time in Rome if one cannot do more.

With a scholarly guide, who is thorough master of the history and geography of the city, ancient and modern, a great deal can be accomplished in a week. Such a guide is indispensable to the visitor who wants to make the most of his time.

The seven hills seem to-day more traditional than real. Standing on the Capitoline, the Esquiline, the Coelian, the Viminal, the Quirinal, the Palatine and the Pincian are pointed out as quarters of the city; they differ so slightly in elevation from the valleys between them that we drive from one to another scarcely noticing any change in the level. It is hard to believe that once they were distinct and each had its own wall. The hills were never high, and Rome's masters have not scrupled to level them as they have her palaces and temples when they saw fit.

The present city is from 16 to 22 feet above the level of the ancient Forum. Some of the most interesting ruins stand upon the site of others which far antedate them. Emperors and Popes alike have sought to beautify the city or immortalize themselves at the expense of whatever they could lay hands upon.

The Coliseum, for example, was for 130 years used as a quarry, and because it was so well built that it was more labor to get stone from it than from the hills near by, the Popes not only robbed it themselves, but one of them offered a premium to any one who would take building material from it. And yet it is to-day the most impressive ruin in Rome. The outer walls are made of large blocks of travertine from the Sabine Hills; they are laid without mortar, but still are closely joined, and age has given them a soft, gray brown tone. They cover walls of enormous thickness made of brick and tufa in alternating layers.

How dazzling must it have been when these walls were covered outside and in with white marble and ornamented with tiers of marble columns! The lower columns were Doric, the next Ionic, and the third tier Corinthian. The fourth story, built by Titus, had windows separated by Corinthian pilasters. The interior marbles, which, like the exterior ones, have all been carried away to be used in other buildings, were taken from Nero's golden house, which was near. The Coliseum stands in what was his palace garden, its center, where was an artificial lake. Its present name, given in the eighth century, it is supposed, was given from the colossal statue of Nero. Before that time, it was known as the Flavian amphitheater. It will be remembered that it was begun by Vespasian in 69 A. D. and was finished in eleven years. Twenty thousand captive Jews worked upon it. It is a third of a mile in circumference, and not round, as some pictures represent it, but oval, its longest diameter about 205 yards, the less 169 yards. The height of the walls is 165 feet, and this also, I was told, is the depth of the foundation. There are four tiers of seats; the lowest was for the Emperor, the nobles and vestal virgins; the next was for the freedmen; the third, for the soldiers; and the upper row was set apart for the slaves. From 87,000 to 100,000 people could be seated, and so numerous were the entrances, and so perfect was the arrangement of the staircases for the different tiers of seats, that it is believed that the great theater could be emptied in ten minutes. The audience was protected by a movable awning which was drawn by sailors from the imperial fleet, stationed in the soldiers' tier. Some of the iron fixtures used for the awnings, or the grooves in which they were, are yet to be seen.

The arena, which measured 98×58 yards, as now seen is at two different levels. The upper one was made in the fourth century, the older one has been excavated only in part. It was the custom to keep the wild beasts in dark dens for forty-eight hours without food, before they were to fight, and then from thirty gates they bounded together into the arena. A sloping bronze wall with an ivory coping protected the sitters in the lower seats from their attacks, and slaves were stationed behind gratings, where they could strike an animal which attempted to cross this barrier. The arena was three times flooded for naval contests. After Constantine's time, gladiatorial fights were no longer allowed, but beasts still furnished entertainment to the crowds.

In the eighth century, these fights, too, had ceased, and the huge structure was used as a hospital; the wide arches supporting the walls were shut in with boards, and rows of beds were placed under them. When, in the seventeenth century, the French turned the Coliseum into a fortress, the horses were kept on the lower arena. Pope Pius VI. made a chapel of one of the 26 rooms from which the gladiators and Christians came upon the arena. The beauty of the ruin by moonlight has not been exaggerated; but only a poet can describe the scene when to the majesty of the pile dimness and mystery are added. A. D.

Rome, 1894.

The Silver Dollar.

The purchasing power of the silver dollar, which is now equal to that of the gold dollar, would be reduced if the present policy of the Treasury were abandoned. Silver dollars would remain a legal tender, but that would not preserve their purchasing power. They would have the same debt-paying power as gold, but no debts would then be paid in gold. Silver or its equivalent would be exclusively used to pay debts, and would have for that purpose the same power as at present; but when used to purchase commodities its value would be reduced, because the prices of goods, in silver, would be raised. The purchasing power of a dollar at present is the same as that of 23·22 grains of fine gold, whether in bullion or gold coin. There are 371¼ grains of fine silver in a dollar, but it requires about twice that amount of silver bullion to purchase 23·22 grains of gold bullion. This simply means that we are using the gold standard. If we had the silver standard, the purchasing power of the dollar would be that of 371¼ grains of silver bullion, which at present is about fifty cents.

The ratio of 16 to 1 of gold to silver simply means that 16 ounces of silver are of equal value with one ounce of gold. Recently an ounce of gold has been selling for as much as 32 or 33 ounces of silver; as the exact ratio varies from day to day, we will call it 32 ounces. Now it is obvious that the dollar cannot be worth at the same time the value of the gold bullion which it contains and the value of the silver bullion, since these are in the ratio of 2 to 1. It may be either, but it cannot be both. At present it has the purchasing power of the gold bullion, and the different kinds of dollars are kept at a parity, that is, at equal purchasing power, by the policy of the Treasury department, which gives to the citizen the sort of dollar which he desires. A note which calls for coin is paid in either gold or silver at the option of the holder. This prevents gold coin from going to a premium.

Free coinage means that the government shall take 371¼ grains of silver, worth about fifty cents, and give a dollar for it. Whenever that happens it will be impossible for the Treasury to pay out gold and silver without distinction. Gold will then only be obtainable from private individuals, and will go to a premium, while silver dollars will have the same purchasing power as 371¼ grains of silver bullion. Free coinage advocates say the price of bullion will rise. Possibly it might rise 10 per cent; if so, the purchasing power of the dollar would be 55 per cent of what it is now. If it rose 20 per cent, its purchasing power would be 60 per cent of what it is now. In order for the dollar to retain its present purchasing power, it would be necessary for silver bullion to rise 100 per cent, and this is extremely improbable. It is quite probable that the adoption of the silver standard would put up the price of siver bullion for a time. The passage of the Sherman act in 1890 put up the price of silver to $1.21 an ounce in about a month. Then it began to recede, and it is now from 64 to 65 cents. Probably something of the same sort would follow free coinage, but in the end the purchasing power of the dollar would probably not be materially higher than the present price of 371¼ grains of silver bullion. Our adoption of the silver standard would slightly increase the demand for silver, but it would not be equal to the demand which existed prior to 1873. Hence the need of an international agreement as to the use of silver and its ratio to gold.—Louisville Courier-Journal.

The Quince.

The quince, says a writer in the New York Weekly Tribune, is one of the most valuable fruits we have for preserving, though it can be used for little else, except to add flavor to the plain dish of apple sauce. The best quinces are the large apple quinces, which make such beautiful red preserves. Some fable says that the quince, and not the orange, was the golden apple of Hesperides. Certain it is that the quince is one of the oldest of fruits, and was in use in early English times, and even in ancient Greece.

Quince jelly is one of the easiest jellies made, and therefore one of the best for the amateur to attempt. Cut the quinces into bits, without peeling them, and put them in a porcelain kettle with a little water in the bottom to prevent their burning. Put in all the cores that are not wormy. Cover the quinces closely and let the juice gradually draw out, until the whole mass is a soft liquid pulp. Squeeze this pulp through a linen cloth, and measure the juice. To every pint of juice add a pound of sugar. Boil up the sugar and juice until they turn to a jelly. It requires to be boiled from half to three-quarters of an hour, according to the amount of water that was added. Long boiling tends to make the jelly light and clear colored, but it should not boil long enough to be stringy and tough.

A most delicious jelly is made of one-half pound pippins and one-half quinces. This apple and quince jelly is more delicate than a jelly of pure quinces, and is especially nice for layer cakes and puddings. For jelly use the ordinary small quince or the large smooth quince.

To preserve quinces, core, pare, and quarter them. Lay aside the cores and parings and any imperfect piece for marmalade. Drop the pared quinces in boiling hot water and cook them until they are just tender enough to pierce with a straw. Then put them in bottles. Make a sirup of the strained water in which the quinces have been cooked, allowing two pounds of sugar to a pint of water and three-quarters of a pound of sugar to every pound of quinces. When this sirup is boiling hot pour it over the quinces in the jars. Seal them up and cook them for ten minutes longer, the jars set in water boiling around them. A rich, well-flavored quince treated in this way makes a preserve in which the sirup forms a light jelly around the pieces of quince.

To make a nice marmalade, add about one-quarter pippin apple to the skins, cores and pieces laid aside. Add any water left in which the quinces are boiled. Let the fruit boil for half an hour, then strain it through a colander fine enough to strain out all the seeds, but coarse enough to allow the pulp to go through. Allow three-quarters of a pound of sugar to a pound of fruit, and let the whole mass boil for an hour and a half longer.

A Rainbow Show Bottle.

To prepare this, first ascertain the capacity of the bottle and divide by 7, to find the volume of liquid required for each layer. Then take sulphuric acid to begin with, and tint it blue by the addition of indigo sulphate. For the next layer use chloroform; for the third use glycerine tinted with caramel; for the fourth castor oil colored with alkanet root; for the fifth, proof spirit tinted with green aniline; sixth, cod liver oil, containing 1 part of oil of turpentine to 99 of the fish oil; seventh, rectified spirit tinted with violet aniline. Each of these should be poured in through a tube, the lower point of which should be directed against the side of the bottle, so that the liquid may trickle gently over the surface of the layer below it.—National Druggist.

A Co-operative Rolling Mill.

The result of an attempt to operate a rolling mill at Hubbard, O., on the co-operative plan is interesting. After paying up all outstanding indebtedness there was a surplus of about 25 per cent to distribute to the stockholders out of the 50 per cent of the wages that have been retained by the managers to create a capital. This is equivalent to a reduction of 25 per cent in wages for the time that the mill was in operation. In other words, in order to get out even the company could only afford to pay 75 per cent of the wage scale. Doubtless the hard times was the cause of this ill success.