

## RAILWAY SPEED RECORD

540 MILES IN 512 MINUTES ON AN ENGLISH ROAD.

The Train that Made It Consisted of Only Three Coaches, East 43 Feet Long—No Claim Made of Perfection of Engines, Rolling Stock or Machinery—Swiftness Due to Lightness.

The railway racing from London to Aberdeen closed with the contest of Aug. 23. The record rests with the West Coast (London and Northwestern) road—540 miles in 512 minutes (eight hours, thirty-two minutes). The train was reduced to three coaches only, each forty-two feet long, and Perth was omitted as a stopping place. The trains on the rival roads are now making the trip in ten and a half to eleven hours, and are composed of from ten to twelve coaches.

In summing up the results of the speed trials, the London Telegraph says:

"As far as the matter affects the general community, it is not a question of mere racing and record-breaking, but of what maximum of speed ought, under normal conditions, to be attained over the various systems throughout the country, and to what extent such a speed ought to become general. On this subject, wholly apart from the principles and side issues involved in the recent feats of 'racing,' a representative sought an interview with a prominent official connected with the Great Northern service—a gentleman whose experience of many years and high position in the railway world entitles him to speak with authority on such matters.

"In order that the question in all its details may be thoroughly understood it will be as well to give expression to his views regarding the various aspects of the subject called into consideration by recent events. Thus, first and foremost, there arose the question of the

### SAFETY OF THE PUBLIC

and the company's servants, and in this connection the following observations were made:

"None of the trains, either on the East (Great Northern) or the West coast (London and Northwestern) are running at a higher speed than are many of the daily expresses. We very frequently run over certain portions of the line at between sixty and seventy miles per hour daily, whereas the scheme of these trains is to do between fifty-eight and sixty-two an hour over the whole journey. This is accomplished by lightening the trains so that they may proceed up hill as fast as they can down, and by reducing the number of stations at which a stop is made.

"It is principally a matter of reducing the weight of the train. An ordinary one on the Scotch route consists of from ten to fourteen vehicles. The 'racing' trains, on the other hand, are limited to six, or at the outside eight coaches, so that the engine has practically half the weight to haul that it has in ordinary circumstances. This enables it to go up inclines at practically the same speed that it runs down them when carrying the load of an ordinary train. In fact, a level pace is attained during the whole of the journey.

"For eleven miles out of London we have on our line a gradient of one in 200, upon which an ordinary train does not go at from more than forty-five to forty-eight miles in the hour. By lightening the weight we are enabled to increase it from fifty-five to sixty, which is practically about the average speed of the run to York from Aberdeen. It is very important to remember that if the train is lighter the engine has greater control over it. That is to say, it is as easy for the engine to pull up at any moment when carrying a light load and travelling at a high speed as for another locomotive with a heavy weight behind it and travelling at a normal rate to stop suddenly.

"At what speed," asked our representative, "do you consider it possible to run without in the least endangering the lives of the passengers?"

"The conditions necessary to running are a good road and good stock, and those being complied with, the

### LIMITATION OF SAFETY

with regard to speed are almost unknown. In short, to put it in a popular way, you can run as fast as you can get your engine to go, and the men in charge of the trains are certainly not more overburdened with anxiety than they are when travelling slower.

"Then you say there is no more risk incurred in running at the speed which results in a record being established than there is by the ordinary express trains?"

"Precisely, and with a speed of between sixty and sixty-five miles per hour there is not the slightest oscillation or vibration."

"Asked what limit he would be inclined to put in the matter of the highest possible attainable speed, having regard to the absolute safety of the occupants of a train, the official expressed the opinion that in practice eighty to eighty-five miles an hour would probably be the maximum pace, and he added the interesting explanation that the swiftness of the engine is limited by the facility with which the steam which has been used can be expelled from the cylinder.

"Then arose the important question as to why, granted such conditions as the finest engines, the most solidly-constructed carriages, a thoroughly good permanent way, and the most immediate and perfect inspection of the machinery, it should not be possible on that and all other lines to carry passengers at a rate of locomotion which is now regarded as extraordinary. Naturally, the first answer that suggests itself is that the cost incurred by covering distances in a minimum time is too heavy to allow of a general improvement in this direction on lines where competition has not to be faced. But it would seem that such is not the case, and that only indirectly

does the question of expenditure present obstacles.

"In other words, the explanation is given that it costs no more to run a train at

SEVENTY MILES AN HOUR

than at thirty-five—the average rate of progression attained on most of the southern systems—but that it is impossible to reach the higher speed when the engine is in front of a heavy freight. That is to say, it is not within the bounds of possibility, even with the best rolling stocks in the world and the latest applications of engineering skill, to attain a really high speed except by reducing the number of coaches attached to a train.

"For this reason, it appears, whenever the traffic on the Great Northern between King's Cross and Scotland is exceptionally heavy, the express trains are divided and sent in two parts, so that the speed may not be diminished by the addition of any carriages. The practice of attaching two locomotives to one train has proved unsuccessful, as even by that means it has been found impossible to reach a maximum swiftness when the number of compartments is augmented. In this connection the gentleman from whom our information is derived spoke as follows:

"It is only indirectly a matter of cost. In a train consisting of four or six coaches you have not got the same earning power as in one of eight or ten carriages. In other words, there is the question of the cost of running a train, and then there is the other question of the earning power. As a principle you may take it that an engine employed on a train practically to its full power, and whether it is running with a heavy train at thirty miles an hour or with a light one at twice that speed the cost is substantially the same, but of course the earning capacity, which provides the shareholders' dividends, is not the same for whereas the one train will realize perhaps seven or eight shillings per mile, the other will only earn about

FOUR SHILLINGS.

With regard to the engines necessary for a light train or a heavy one, we use the eight-foot single bogie. The 6 feet 6 inch coupled are less fast, but they will haul a much heavier load than the former."

"An inquiry as to whether the lightening of the trains in recent years had meant a loss of income to the company elicited the answer that the only difference in the earning power had been brought about by the increase in the number of third-class passengers and a corresponding decrease in the first-class traffic, as well as by additional working expenses, such, for instance, as those incurred in wages.

"Not for one moment was it contended in the direction in which these inquiries were made that the phenomenal rates of speed now reached are due to the perfection to which the construction of engines, rolling stock, and machinery has been brought. Such matters as gradient and road are of course, important factors where the object is to outdo all previous achievements, but the indisputable fact remains that the swiftness attained mainly depends on the reduction made in the number of cars carried. With an exceptional complement of passengers, involving the use of more carriages, a 'race to the North,' or any other competition of this kind, would become a sheer impossibility so far as the attainment of a record pace is concerned."

## UNHAPPY CODFISHERS.

The Season's Catch of the Gaspé Fishermen is a Failure.

A sad story of famine and destitution comes from the distant coast of Gaspé. This year the schools of cod have not frequented these coasts, and the Gaspé fishermen, who have nothing but fishing to live upon, see distress staring them in the face. Only in a few isolated cases have they taken half their average summer catch. A clergyman writes that he has seen some of the best fishermen of the coast return with a catch of not more than three or four fish.

Apart from the scarcity of cod, there have been such successions of storms and strong tides in the gulf that often the fishermen could not get their lines down to the bottom of the water. Then whole fleets of fishing boats have remained idle for days at a time for lack of bait. One case is recorded in which a man set sixteen nets at night for bait, and in the morning had only a squid and three herring in them, and this was to bait ten or twelve boats with their outfit of lines. They have little hope of doing much in the remainder of the fall season, and they will find nothing to do next winter at their usual occupation of making casks, for the fish dealers have been unable to obtain fish to fill those made last winter. Dealers and fish packers may make them small advances on account of their next season's catch, but when these are exhausted, which will not take long, starvation will stare them in the face.

To add to the prevailing distress, epidemics of typhoid fever are reported in some of the parishes, and the poor wretches who at best eke out a miserable existence by agriculture upon this desolate shore have had nearly all their crops destroyed by a succession of rain storms which have not permitted them a single dry day for harvesting. Headed by their clergy, they are crying out for Government aid and bitterly reproaching their representatives in Parliament for their broken promises in regard to public works of a necessary character.

## One of the Wonders of Physics.

An experienced mechanic who was asked what he regarded as the most wonderful thing for general utility, replied:

"The tracking of a car wheel is the most wonderful thing to me in the whole range of science and invention. Here are two rails, up hill and down hill, around sharp curves and along false tangents, and upon them flies at more than a mile a minute, without jar or jostle, a dozen heavy cars drawn by an engine weighing sixty tons. Passengers realize no danger, yet there is only the little flange of a wheel between them and eternity. An inch and a half of steel turned up on the inner side of the wheel holds up the whole train as securely to the rails as if it were bolted there in grooves."

## THE FARM.

Not So Very Easy.

Work in the poultry yard is almost continuous if any number of fowls are kept and the best results are desired. The poultry raiser does not have a picnic of it by any means. His patience is put to the test daily, and he must have the patience of Job to overcome all obstacles. And, during the breeding season the care of a lot of fowls is trying and laborious, according to the number of varieties kept. A half dozen breeders will keep a person busy if all the eggs the hens lay are set and the chicks cared for as they should be. With a number of broods of chicks to be fed every little while, watered and got under shelter at the approach of storms; lice and mites to be looked after, houses cleaned out and kept free from vermin, setting hens to attend to, nests to examine for broken eggs, setting hens to be fed and watered and kept free from vermin, these and other details keep the breeder at work, and our experience is that it is about as easy to attend to a thousand birds as to have good, handy houses, ample runs, good facilities for watering and feeding, in fact, if he can, have his plant systemized so as to save labor and reduce the chance of loss, the work is not so hard. And, while it may not be steady work, it is work that takes a person's time and demands his most constant attention. At all events, whether he works or plays, he has got to be there all the time, or some one has to be there to look after the chicks just the same as the merchant and his clerks have to be at the store whether customers come or not.

In the caring for fine stock, however, the breeder cannot give the work to an inexperienced hand to attend to. If the breeder's wife takes an interest in fowls, as she ought to do, she may be able to manage them if necessity compels him to be absent occasionally, or if he be sick. But, if the wife takes no interest in fowls, and refuses to care for them, or pretending to do so, neglects them, then it is a positive necessity for a man to be at home all the time or hire an expert, which will not pay on small plants. No, the breeder does not have a picnic raising fowls, by any means.

## Fertilizing Turnips.

Turnips have been commonly regarded as a "phosphate" crop. By this we mean that phosphates have been, by many, considered as the fertilizer par excellence for this crop; and that if phosphates were liberally applied to the land devoted to turnip culture this was all sufficient, no other fertilizer was necessary. Our brethren on the other sea have exhaustively tested the phosphates and the nitrogenous and potassic fertilizers, singly and in combination; they have used barn-yard manure liberally (20 tons per acre); and they have tried raising them without any fertilizer at all. They have tried raising them on commercial fertilizers alone, without the aid of a barn-yard manure and have thereby succeeded in raising large and profitable crops. Barn-yard manure used alone has also afforded large crops, but the best and most profitable results have been secured by a combination of barn-yard manure, 10 tons; bone meal, 180 pounds; muriate of potash, 100 pounds. This should be intimately mixed, and the above amount applied broadcast to a single acre.

The increase of product, resulting from the use of potash over and above that where this salt was omitted, was five tons per acre. Nitrogenous fertilizers alone do not give best results; phosphatic fertilizers alone do not give best results; a combination of nitrogenous and phosphatic fertilizers, but without the addition of potash in some form, do not give best results; a union of the three or "complete" fertilizer has invariably given uniformly profitable results. This is as might be reasonably expected. When the fact is taken into consideration that "the turnip crop is essentially a 'sugar' crop; and that the presence of considerable potash is an important condition in the formation within plants of carbohydrates, and especially of sugar."

## Poultry Diseases.

Chickens, ducks and turkeys will get sick occasionally. They will catch cold or eat food that upsets them. They get rheumatism, liver trouble, indigestion, constipation, bowel disorders, etc. If we knew the cause we could usually administer proper remedies. If fowls could have free range, pure water, and a variety of food to their taste, there would be little trouble. If they could be kept free from lice and from poisonous influences there would be little of croup, cholera, etc. Try to ascertain the cause, when your fowls get sick. Beyond a few simple remedies, it is not worth while to doctor. Better disinfect and try to prevent. The following, from a report of the Canadian Experiment Station, shows what filthy water will do:

In November, 1890, Mr. M. Cowley wrote that a disease was carrying off a large number of fowls. The fowls first went lame, their combs wilted, and after hobbling about from bad to worse—for a month or five weeks, they died. Upon examination, the livers in most cases were found ulcerated, while in others they looked as if covered with hayseed. All information possible was given. A description of the ailment was published in a report of last year, and excited great interest, one gentleman writing from British Columbia that his fowls were similarly affected. A fowl which had died from the disease was sent to Prof. Wesley Mills, of McGill University, for examination, but no satisfactory results were obtained. Two sick fowls were later sent to the Experiment Farm poultry house, and were put in the hospital for observation, but got better. During the latter part of last summer a letter was received from Mr. Cowley, saying that his fowls continued to die. He was advised to try camphor in some shape in the event of the ailment being acute dysentery or cholera. On the 10th

instant (December) a letter was received from Mr. Cowley, saying that since the cold weather set in, and by the use of considerable alum in the drinking water, the fowls had got better. He was positive that the trouble was caused by the fowls drinking manure water from the barn. He had built a new place, and at time of writing there was not the slightest sign of disease. There can be no doubt that the filthy water was the cause of the trouble. The ailment ceased when the fowls were removed from the source of it.

## CHICAGO CANAL SCHEME.

Engineers Say It Would Reduce the Level of the Lakes and Affect Navigation.

A despatch from Washington says:—The report of the board of engineers detailed to report upon the probable effect and operation of the Chicago drainage canal upon the lake and harbor levels and upon the navigation of the great lakes and their connecting waterways, has just been made public. There is nothing to show, the report says, that the consent of Congress has been asked for this enterprise, and it is certain that it has not been treated as an interstate or an international affair. With this established fact it is impossible to think the supervision of the United States will not extend to the canal in due time. This will become necessary as soon as it becomes a part of the system of navigation waterways. If the new outlet reduces the levels of Lake Michigan and Huron about six inches, that effect will be produced in about two years, it not being a question of many years, as some suppose. The board felt very sure therefore that:—

First, the drainage canal is not solely a state affair, but a national one.

Second, that the tapping of the lakes must affect their levels. If the level of the lakes should be reduced vessels would have to load accordingly. The trustees of the drainage company now contemplate the obstruction of only 300,000 cubic feet, but after the canal is opened it is assured that 600,000 cubic feet per minute will be drawn from Lake Michigan. This would lower the levels of all the lakes of the system except Lake Superior and reduce the navigable capacities of all harbors and shallows throughout the system. Under the laws of the United States those changes in capacity cannot be made without federal authority, and to enable the executive officers of the United States to act advisedly in the matter, it is necessary, in the opinion of the board, not only that measurements be taken, but that the money cost of restoring the navigable depths in channels and harbors be carefully estimated. The navigable capacity of all harbors and channels on the great lakes below St. Mary's falls would be injuriously affected by the proposed canal and the navigability of the inner harbor of Chicago would be diminished also by the introduction of a current therein.

The War Department will take no further steps in the Chicago drainage canal matter until the engineer corps has had an opportunity to make observations and take measurements as to the probable effect the operation of the proposed waterway will have on the level of the great lakes. This work will be taken up as soon as possible.

## THE MARCH TO THE CITIES.

A Movement of Population Which Cannot be Checked.

In 1790 the percentage of urban population in the entire population of the United States was 3.35 per cent.; in 1850 12.49 per cent. of the population of the country was in the cities. In 1860 the percentage was 16.13 per cent.; in 1870, 20.93; in 1880, 22.57; in 1890, 29.20.

Not long ago the Springfield (Mass.) Republican fancied it saw a new trend back toward rural life, and congratulated the country upon a promised reversal of the conditions that have sent the boys and girls of the farm to huddle in the great cities. Unfortunately the facts now at hand do not justify the hope, and this is especially true in the state of Massachusetts.

Early in the spring the commonwealth undertook a new census. The returns have been published for some time, and they prove that the march to the cities still goes unabated. Nearly all the country towns and districts have suffered for the benefit of the cities. Fifteen of the twenty-six towns in one county (Franklin) show actual losses. The hill towns have been fearfully drained, although it seems inconceivable that their pure air and streams should be deserted for the foulness and crowding of the factory towns.

Boston gained 26.29 per cent. in population between 1885 and 1895. Fall River gained 54.77 per cent.; New Bedford, 65.47; Chicopee, 42; Holyoke, 43; Worcester, 44.30; and Everett, 218.94 per cent., while the gain of the entire state was 28.48 per cent.

This is a discouraging showing, but what is to be done about it? We may picture the allurements of life on the farm, but the facts remain that the farmers' sons will have none of husbandry, while the urban population stubbornly refuses to be dispersed through the agricultural districts. We saw this clearly demonstrated two years ago when a mob crying for "bread and work" paraded the streets of Chicago while the crops of the west were rotting in the fields for lack of man to garner them. And this is history. It was true of Italy under Roman rule, and it is true of Italy to-day. It is true of France, true of Germany, and true of England not less than of America. It is unfortunate, deplorable, even menacing, but it is nevertheless irremediable.

## Not There.

What I want to know, said the early oyster, is whether I am to be in the swim this season.

Not this time, said the cook, as he scooped him into a pattie.

We always think that to-morrow never brings us as much as yesterday takes away.

## Health Department.

How to Keep Well.

Health is a comparative term. To be "well" is to be "not ill;" that is, not to be suffering bodily pain or weakness, nor debilitated from the ordinary occupations of life by physical infirmity.

Yet every one however well has, like Achilles, his vulnerable point; and every one, in justice to himself, his family and the state, should devote some portion of his thought and time to a systematic care of his health.

After early childhood the majority of deaths occur from diseases which may fairly be called chronic. Many diseases which are not chronic, in the strict sense of the word, are grafted upon the system months, and often years, before they manifest themselves outwardly.

Many of these troubles are therefore preventable, and the manner of prevention is by assuming habits of moderation in the every day functions of life, as well as by avoiding all excessively exhausting pursuits.

In order that the organs of the body may last for a long time, they must be properly exercised. For those who are well, nothing conduces so much to the continuance of health as a busy, active life intermingled with periods of recreation.

If we omit accidental causes of mortality, and acute infectious diseases, we may say that the disease to be especially guarded against from an early age are insidious complaints of the lungs, heart and kidneys, organs which are liable to become irreparably damaged by a daily sinning against health.

The errors most commonly committed at different periods of life are those to be most constantly borne in mind. To sum up, they are as follows:

In childhood, errors of feeding, improper or improperly administered food, and irregular hours for feeding and sleeping.

In adult life, lack of regular exercise, excesses in eating or drinking, and exclusive devotion to exacting cares.

Old age, like early infancy, suffers most commonly from exposure.

## An Invalid's Comfort.

Much of the weariness and unendurable-ness of convalescence comes to the sufferer from being obliged to remain in the same room and in the same bed in which the days of the severer illness have been passed. To the nervous invalid this becomes almost excruciating, and the constant longing for a little change is a great drag upon the spirits. Even a very slight change has a good effect. In a household of my acquaintance, the mother, an elderly woman, whose days and nights for some time had been full of suffering, became much better but was still unable to leave her bed.

One day the cry, "I am so tired of this room," found a quick response in the careful attention of the daughter, who arranged a cot bed in the adjoining hall, in which there was a large window and out of which opened a door upon a balcony, which gave good air, and though yet beyond her strength to enjoy it, was suggestive of pleasant days in the past.

To this improvised but comfortable bed the mother was tenderly carried and the change proved delightful. It worked like a charm. Her own room, aired and freshened, became, later on in the day, almost a new room to her, and the sleep that followed was refreshing and restoring, and a rapid convalescence to fairly good health was observed from that very time.

## No Tea or Coffee.

Tea and coffee should be positively interdicted to all children, and there should be no exceptions to this rule. In the families of the poorer classes it is found that tea and coffee are given freely to all children and even in the better classes tea is used too much. The parents take it and the children naturally want it, and when the parents are weak the children get it. Tea is a powerful stimulant, upsetting the digestion, exciting the nervous system, which predominates in the growing child, and causing nervousness, sleeplessness and a host of other evil effects. In England, where tea is used much more than here, many cases of tea poisoning are seen annually at the hospitals and dispensaries. Children, who are much more susceptible to all such powerful stimulants, are much more powerfully affected by these beverages, and, consequently, they should never be allowed to use them.

## Hats and Gendarmes.

The attachment of the French to familiar insignia, costumes and decorations has been shown lately in many picturesque ways. It has been proposed to abolish the red pantaloons which have been the distinguishing mark of French soldiers for many years. Statistics prove that these conspicuous uniforms cause troops to suffer a larger fatality than troops clad in sober blue.

But the attachment of the French people to these gaudy garments is so great that the military administration has been no more able to get rid of them than the British war office has been able to substitute another color for the scarlet in which the British infantry have fought for more than a century and a half.

More recently still an order has been issued depriving the French gendarmes—a sort of military police force—of the big hat which has been its joy and pride, and putting in its place a smaller and more convenient head-gear. This, too, has raised a storm of opposition.

A witticism has been going the rounds of the French press which represents the state of the public mind on this subject.

"To abolish the gendarmes' hats!" exclaims an indignant citizen. "How stupid! Better leave the hats and abolish the gendarmes!"

You can lead a man anywhere by the nose of his self-esteem.