THE FIELD OF ELECTRICITY

Invasion of the Domain of Steam in Suburban Roads.

DEMAND FOR ELECTRIC LOCOMOTIVES

Experiments at Home and Abroad Carefully Watched—Electric Lighting in Edinburgh—Other Developments.

The Norwalk, Conn., city council recently granted the Norwalk Tramway company permission to extend its trolley line to Westport, a distance of about three miles. When that line is completed there will be only a gap of about four miles between the Norwalk Tramway company's system and the system of the Bridgeport Traction company, now reaching to Southport, and with that gap eliminated the New Haven Steam company's main system will be paralleled by trolley roads for a distance of about twelve miles between Bridgeport and Norwalk and South Norwalk. This is an important part of the New Haven company's line for local travel. Figures presented by the latter corporation to the state legislature at the last session showed, for example, that between Bridgeport and Southport during six months the local passenger traffic has increased by 5,131 passengers, or about 25 per cent, as compared with the year 1894, when no electric competion existed. Between Bridgeport and Fairfield—somewhat nearer Bridgeport than Southport—the traffic during three test months of the same period fell off on the New Haven road 60 per cent, owing to the opening of the trolley line. The only chance probably of blocking the new lines is an appeal by the steam company to the superior court, which, under the general street railway law of the state, can rule that a parallel line is not demanded by public necessity or convenience.

An examination of the whole trolley system of Connecticut shows that the steam railroads of the state are now paralleled by trolleys for a distance of about 101 miles, and that about one-third of all the trolley roads parallel steam roads more or less directly. The New Haven steam road is paralleled about sixty miles, the New England road (controlled by the New Haven corporation) about twenty-eight miles, and the Philadelphia, Reading & New England about thirteen miles. Trolley roads almost certain soon to be built or actually in construction now will add about thirty-four miles, of which sixteen miles will parallel the New Haven road, six miles the New England and twelve miles the New London Northern. On the basis of last year's official figures of the results of competition on passenger traffic, the indications are, however, that the total loss of the steam companies by electric rivalry does not now exceed $100,000 a year, as compared with the period before any trolleys had been built. In such a comparison it must be remembered that a large proportion of the trolley parallels represent merely the substitution of electricity for horse power on old street railroads paralleling steam lines.

ELECTRIC LOCOMOTIVES.

Further evidence of the steady invasion of the domain of steam power traction by electric motors is further shown by the demand for the latter. A representative of the Baldwin and Westinghouse companies, speaking of the demand to a correspondent of the Globe-Democrat, said:

"The Westinghouse and Baldwin companies have become convinced that the demand for electric locomotives will grow rapidly in the near future. The steam locomotive which the Baldwin company has been making for sixty years is not to be laid on the shelf right away, but that company has come to believe, I think, that it will gradually, but surely, be displaced by its electric successor, and has grasped the opportunity to take advantage of the coming change by joining forces with one of the two great electric motor companies which control the supply of such motors in the United States. The alliance is an exhibition of the foresight of both companies with respect to coming changes of very great importance, as well as an attempt to avoid the waste of energy by a division of labor and unnecessary duplication, for it would scarcely be practicable for the Baldwin company to set up and use an effective motor plant of its own. Existing patents would stand in the way.

"The allied companies propose to perfect and offer to the steam railroads electric locomotives which they will buy and use. The resources of both concerns, the electric inventions, devices and experts of the one; the methods, the expert locomotive and running gear machinist of the other, are being taxed in the effort to produce a motor which the steam companies can use to advantage for any kind of service, but especially for the rapid and safe transportation of passenger trains running more frequently than steam trains at the present time.

"The demand first to be satisfied is for electric locomotives to draw passenger trains on the suburban roads of the trunk lines. The demand already exists—in fact, all the eastern steam companies have placed large orders. This has been caused by the competition of the suburban trolley roads which are extensions of railways in city streets. Only a few months ago I had a successful business interview with two of the great companies having terminals in Chicago, and hitherto doing a large and profitable business to the suburbs on their main lines. The Burlington company's suburban business in and out of Chicago is threatened by a new corporation, which has undertaken to extend new trolley roads from the city to a dozen towns on that company's lines, and this paying business will be fought for to the death.

POWERS OF THE MAGNET.

"Tesla is working on an idea in the shape of a motor, and you know our company has the first call upon anything that comes from his fertile brain, that I believe will about successfully equip a locomotive with the power desired. This motor is entirely original and truly marvelous. The secret lies in turning the inert and seemingly lifeless force of magnetism into an active force more powerful than steam or a current from a dynamo.

"If you take an ordinary magnet or a piece of iron, through which a magnetic current is passing, and hold it close to little pieces of iron and steel, it will attract them and hold them motionless. This is practically all that the world has ever known of magnetic force. Now it seems to Tesla that this invisible force, pent up within the confines of the magnet, might perhaps be developed or transmitted, or changed, or utilized in such a manner that it would become active and quick where it has always lain passive. Upon this theory he worked for years, and its successful development in the Tesla motor is only a question of small details.

"The principles of the motor, concisely put, are these: An electric current is passed through a circular magnet, in appearance resembling a life preserver. It consists simply of a ring of iron with copper wire bound around it. The electric current generates a strong magnetic current which flashes around and around the circular magnet at a terrific speed. Now, if one holds a nail close to an ordinary electric magnet it will be passive in the hand until it is brought close enough for the magnetic force to seize it, when it will fly out of the hand straight to the magnet. But if one holds a nail close to the circular magnet of Tesla's it will begin to revolve in the hand; that is if the nail is held by the head and the point allowed to hang over the hollow center of the magnet, the point will move around in a circle, slowly at first, then faster and faster, until, if it is dropped upon the table in the center of the hollow, it will spin around so rapidly that the eye cannot follow its motions.

"Several explanations are given of the phenomenon, one that there are several magnetic currents in the iron ring, and they are chasing one another around in a furious race, but the mystery is as profound as ever.

"Another interesting experiment is the balancing of an iron wheel on a nail, or let the wheel revolve upon the finger, using the finger as the axle, and holding it close to the magnet, it will fly around at a rate that will take one's breath away. It is not necessary to touch the magnet at all. All one needs to do is to hold a piece of iron or steel in the hand and bring it within a foot of the magnet, and then he will feel a queer sensation, as of some invisible force trying to draw the piece of metal out of his hand, and, failing in this, trying to twist it around in a circle.

"Such is the principle of the coming Tesla motor. In its application as a motive power on the railroad, the construction, of course, differs from that of the experimental magnet, but the idea is the same.

A TEST OF THE NEW FORCE.

"In equipping the new locomotives the circular magnet is attached to the bottom of the engine, and the axle upon which the wheels revolve passes through the center of the magnet without touching it. When the current is turned on, the magnetic force whirling around in the hollow of the magnet catches the axle and turns it. The power for generating this magnetic current can be transmitted by underground wires for almost any distance, and there is practically no waste of power or energy.

"We tested two of our motors recently on the Nantasket Beach railroad, and while the experiments were successful, they did not completely satisfy us in all the working details. It's the little things in electricity, as in life, that cause trouble.

"A two-motor car was first tested with a load of nine cars, with a combined weight of 302 tons. As this load was too heavy, the cars were dropped off, one at a time, until only five remained, which were drawn fairly well. Then the four-motor engine was ballasted with 5,000 pounds of iron and attached to seven loaded cars, weighing 243 tons. It drew the load easily, and there seemed to be no great effort when the load was increased to nine cars and 303 tons. The two motor engines were then coupled together and attached to various loads up to thirty cars, weighing 954 tons, which were successfully hauled. While making this test something gave out on the four-motor engine, and the less powerful engine handled the entire load, giving us another electric mystery to solve.

"Our company is also keeping a strict watch on the Heilman electric locomotive, now in operation over in France, on a trunk line leading out of Paris. It is said to be a great success, and its admirers predict that it will supplant all competitors. While our locomotives are supplied with electricity from overhead or underground, the Heilman electric locomotive carries a triple expansion steam engine, which generates the electricity required. Steam power produced in the ordinary way drives a dynamo carried on the tender. The motors are placed on the trucks. This arrangement is said to give a saving of 20 per cent in fuel over the simple steam locomotive. At first sight such a result seems incredible, and no one was more surprised at the claims set forth than your humble servant.

"It might be conceded that a locomotive generating its own electricity by the use of steam would be more economical than our electric locomotive, since it dispenses with costly overhead copper wire conductors, and is exempt from the waste of current incident to the use of long wires, but to suggest that it is more economical in fuel than the ordinary steam locomotive sounds like a joke.

"The explanation is that Heilman gets more power out of a given weight of coal by using a triple-expansion engine. Ordinary locomotives are extremely wasteful of steam. By using the same steam thrice instead of once enough power is saved, it is claimed, to make up for what is lost in converting ordinary power into electricity. If this be practicable, the Heilman locomotive has for most purposes decided advantages over other electric locomotives, since it can be used on ordinary tracks without special preparation. Trolley wires and poles are dispensed with, a great saving.

"It is suggested, however, by the Heilman invention that, if it be a practical thing, a further development of the steam locomotive is possible, which would give it a new lease of life and make electric constructors hump themselves to keep up with the procession. For use in long tunnels, however, our locomotive remains the best, since it produces no smoke, as the Heilman engine does."

ELECTRIC LIGHTING IN EDINBURGH.

Prof. A. B. W. Kennedy, electrical adviser to the Edinburgh Town Council, has recently had occasion to make an exceedingly pleasant report with regard to the progress of the electric lighting station in that city, says the Electric World. He advised the town council to lay down a plant to supply 40,000 eight candle-power lamps connected, and led them to expect that this figure would be reached within two or three years, and that the works' costs (including all office expenses) would, when the output reached 300,000 units per annum, be about 3 pence per unit sold. Prof. Kennedy now finds that after only seven and a half months' working the lamp connection has reached an equivalent of 45,600 eight candle-power lamps, and that the works' costs (although the output in the thirty-four weeks has only been 285,000, and the greater part of this thirty-four weeks has been summer time), averaged 1.56 pence per unit sold. With this data to go on, he now prophesies that by April next, which will be the end of the first year of operation of this station, 800,000 units will have been sold, and that the average for works' costs will be about 1½ pence. The total income earned will then be £16,000, and the town council will possess a balance of between £2,000 and £3,000, after paying everything, including interest and sinking fund. It is needless to say that one outcome of this favorable result will be the immediate extension of the plant.

Prof. Kennedy also suggests that the voltage between the outer and middle wire of the three-wire system should be raised at an early date to 200 or 250 volts. With regard to the consumers' lamps, he suggests that the town council should issue a notice to the effect that on and after May, 1896, the standard voltage will be 220 in respect to consumers connected after that date, and that on and after August, 1897, the new voltage will be standard for the whole system, and finally that at any time between these dates, the town council will be ready to supply any existing customer with new 220-volt lamps at 6d each, the old lamps becoming the property of the council. The effect of this last clause, Prof. Kennedy thinks, will be that each customer will run his existing set of lamps as long as possible and then buy a new set cheaply from the town council. He estimates that the loss will be about 8d per lamp, and as the present lamp connection is equivalent to about 40,000 8-cp lamps, and means probably about 20,000 actual lamps, the cost of the total operation will be under £700, and the carrying capacity means (for the same percentage drop) will have been quadrupled; an operation which would have cost about £60,000 had it not been necessary to quadruple the capacity by laying extra copper.

ELECTRIC RAILWAYS IN ENGLAND.

The slow progress of electric traction in Great Britain is a matter not easily comprehended in the United States. A recent English writer states that the total mileage of electric roads in that country does not much exceed forty; and that, while it was expected that the opening of the City & South London and the Liverpool elevated railways would have a powerful influence in favor of electricity, it is doubtful if twelve miles of electric road have been opened in the three years these lines have been working. This seems to have been chiefly due to the widespread opposition to overhead wires. As English streets are not remarkable for beauty, the objection to the wires can hardly be on esthetic grounds, but it probably results from a vague fear that the safety of the public might be endangered—a fear much increased by the garbled reports of accidents in America. Accumulators, steam and petroleum, have been tried on certain tramways with no very encouraging results. A change of sentiment now appears to be in progress, as several new electric lines are nearly completed, and the opening of the tram line at Bristol a few weeks ago may be taken as the beginning of electric traction in England. The side trolley, originated on the South Staffordshire line and also used at Bristol, is said to have met with very favorable reception, as it makes cross wires unnecessary.

IMPROVED ELECTRIC CANDLE HOLDER.

A new electric candle holder has been designed which is likely to popularize a style of electric lighting that has always been attractive for drawing room, salon and gallery illumination, the imitation of a candle flame in clouded or tinted glass. This method of lighting has hitherto been somewhat neglected by reason of the difficulties experienced in adapting candles of varying lengths. The new fitting is arranged to hold candle tubes of any length within a range of from about three and three-fourths to six and one-half inches, the stalk being telescopic, and fitted with all the needful adjusting devices.

One Minute Cough Cure touches the right spot. It also touches it at the right time if you take it when you have a cough or cold. See the point? Then don't cough.

IN THE GHETTO OF CHICAGO

Section Thronged wi h Russian and Polish Jews.

THEIR FANATICISM AND THEIR SUFFERINGS

Great Hardships and Much Poverty Endured Uncomplainingly—Ceremonial Observance of the Jewish Sabbath.

The Chicago Jewish Training school is situated in the midst of a peculiar people, says the Chicago Tribune. A people possessed of a fanaticism so high, so fine, so self abnegating that it enables them to endure exile, poverty, and every deprivation without a murmur.

To the casual observer that locality bounded on the north by De Koven street, on the south by Fourteenth, on the west by Johnson street, and on the east by Canal, is simply a place inhabited by poor Russian and Polish Jews, so crowded and packed together that many thousands of them live within this limited area. Passing up and down the very dirty streets in this vicinity one sees at every step men, either seated or moving, vending all sorts of cheap things, and whole families boiling over, as it were, from the pots of the thronging tenement houses unto the sidewalk from which they open. They are not buoyant, hearty, romping children, and well-fed, contented mothers that one finds biding on the sidewalk, for many hours of the day, when the weather is mild, in every part of this Ghetto, but elfin children and aenemic mothers, for they are a delicate, although a prolific, persistent race. Indeed, how could they be otherwise than delicate since they are slowly starving, not only for want of proper food, but for everything in life, for all they have is hope, which, with them, is surely a thing deferred, but nourished by the religion for which they suffer. How it is that they are a persistent people is a problem which would seem to have no logical solution. Perhaps it is a matter of inheritance; and from the old patriarchs from whom they are descended, they have the peculiar, enduring vitality which has enabled the people of their faith, through many centuries, to endure the untoward conditions which have annihilated races not so endowed.

Whatever the cause, certain it is that here they are living, constantly companioned by poverty and sickness, and yet living and also multiplying, and through all holding firmly not only to the spirit, but to the letter of the Jewish religion as it was taught and practiced in the time of Abraham and Jacob. Strange as it may seem, in this Ghetto there are more than 10,000 people who have been for years, and still are, suffering martyrdom for their religious faith. Prosperity was theirs in their native lands if only they would renounce Judaism and accept the teaching of another faith, but with one accord they turned them from material prosperity, with all its allurements, and accepted exile and the thrall of the grimmest sort of want for conscience sake.

Although they find religious liberty here, these Jews of the old regime find little else for which they have reason to be thankful. Of handicraft they know absolutely nothing, although with very few exceptions they are well, even highly, educated. Many of them are fine accountants, and are quite familiar with the technicalities of business, and many of them could command a fair salary if they would work on our Saturday, their Sabbath. This they will not do. They will sacrifice themselves, their families, their future, but their religion never. This being true, there is not much they can do but peddle. Thus it happens that the spectacle is seen of a man of fine acquirements, often the possessor of exhaustive, abstruse knowledge, going about every day in the week, save Saturday, with a pack on his back. In this settlement of venders who can read and speak in many tongues, and are so familiar with the Talmud that they can give whole pages of it without the addition or omission of a word, the man who has a horse and wagon, however poor, is an exception, and is regarded as opulent.

FRIDAY NIGHT CEREMONIES.

It is when the sun goes down on Friday night that a strange and dignifying transformation, both within and without, but especially within, takes place throughout the length and breadth of this peculiar settlement. Without the shutters are drawn, and every sign of occupation is banished. Before the setting of the sun every peddler has returned; every sidewalk vendor withdrawn his wares; every child is gone, and the streets, so overthronged every other time in the week, are deserted and still. Just after sunset the sixth day in the week one may walk blocks in this section without being able to purchase anything, not even food.

Within the poor houses of these poor people, and here three rooms are a luxury, which is by no means common, whatever the size of the family, the change is greater than without. If there is but one room, though it be dull and grimy and lighted by a single window opening on to a court, it is made as attractive as cleanliness and such little trifles as are kept stored for this one night of the week can make it. A white cloth, often only a coarse bit of cotton, costing but a few cents, but immaculately clean, is spread upon the table and a light set upon it. The children are made as tidy as circumstances will permit, and all evidence of poverty is, as far as possible, banished. The best meal of the week, however poor it may be, has been prepared, and although the miserable home may have been without the cheer of warmth for the whole week, is made comfortable by a freshly trimmed fire lighted before the going down of the sun ushers in the Jewish Sabbath, for after that no Jew here may light a fire until it goes down again. Thus a house where squalid poverty very often reigns the rest of the week, on Friday night is made to assume an air of comparative comfort.

Leaving the children, excepting such boys as are over 13 years of age, gathered about the white covered table, on which have been placed the Talmud and such other books as the family possesses, the father and mother and grandparents, if there are any, proceed to the temple, for they know their place of worship, as have their forefathers through all the centuries, as the "temple." When the solemn service of the Mosaic dispensation is finished, and they return to the abiding place they call home, as they enter the door the children all rise and stand with bowed heads, while the eldest man of the household, the patriarch, the father usually, if there is no grandfather, stretches forth his hands and pronounces the blessing with which Jacob blessed his grandchildren when on his death bed: "God bless you like Ephraim and Manasseh." Then the mother or grandmother pronounces the blessing: "God bless you like Rebecca, Rachel and Leah."

Despite pinching poverty and its endless attending train of evils, which include all that externally bemeans and belittles, there is about these people, in their wretched houses, the night that the Jewish Sabbath is ushered in, an innate distinction and dignity which reminds one of Emerson's assertion that a sanctified soul is always elegant. The solicitous, anxious insistence of the street vendor falls away from the father of the family, and he becomes the patriarch, teaching his family the fine poetic truths voiced by the prophets of old. And the mother, also just returned from the temple, is at this time raised above her mean surroundings by a certain spiritual exaltation which is not of the ephemeral, emotional sort, but which inspires her to bear without complaint her hard lot, and yet honor the law by greeting each Sabbath with a clean house in as near holiday attire as she is able to command. In some of these poor houses the strenuous effort to honor the sacred day is, indeed, touching.

When the evening meal is over the children gather about their parents and the father reads to them, first of all, from the Talmud, and it is upon such literature as the following that the children here, who are, indeed, a mighty company—the average is ten in a family—who have little to eat and less to wear, are nourished:

The olive then its oil will yield,
When in the olive press;
So from his sins is Israel healed
Through suffering and distress.

God extends His hand of mercy,
From beneath the angels' wings,
To receive, unseen by justice,
Whomsoe'er repentance brings.

O let respect be daily shown
To him that's old and feeble grown,
Whose store of learning, nobly won,
Now haplessly from him has gone!
The sacred tables, hewn of stone,
Within the ark lay not alone,
For side by side with them we find
The broken tablets lay enshrined.

God makes those high who humbly go
The self-exalted God brings low.

It is the custom for all the children of a household to be at home, whether they live at home or not, on Friday evening, and it is an unwritten law among this people, whose lives are in so many respects like a strong, strange current from remote antiquity, that all differences, whether between parents and children, or brothers and sisters, shall be considered as if they never had been, when the blessing of Jacob has been pronounced. This undoubtedly accounts, in part at least, for the strong and loyal regard which invariably exists between the different members of families among this people, and the unvarying considerate affection and respect with which children regard their parents.

It is also a rule from which there seems to be no deviation among these strenuous religionists, that whatever betide, the parents instruct their children most carefully in the tenets of their religion. At one time, at the social settlement house in this vicinity, classes were formed by some young ladies from one of the fashionable South side synagogues, for the purpose of teaching the children here in regard to religious matters. To the astonishment of these refined, highly edcuated philanthropic young women they discovered that these poor, undernourished, ragged children knew more about the old testament scriptures than they, and were constantly propounding questions which they were quite unable to answer.

Parents are supposed to be responsible for their children until they are 13 years of age, and it is then expected that they have been so instructed that they can answer for themselves. The boys at this age are given a "tephillim," which is a small leathern case containing four verses from the Pentateuch, which is bound on the head, in accordance with the scriptural command, while the wearer, with his face turned to the east, says his morning prayer. The girls are not so provided, neither are they, or the women, permitted to occupy the same part of the temple as the men, but have a place provided apart as in olden times. This separation of the sexes is also carefully observed in the home. It matters not how small the room, how poor the occupants, some sort of a division is managed, and the boys are separate from the girls of a family when they sleep.

TRAITS OF THE PEOPLE.

In studying the lives of this unique people in our midst, and yet no more of us than are the people of the South Sea islands, one finds some peculiar phases of human character and extraordinary facts in regard to how people are able to live. For instance, one day a teacher, who has among her pupils two little girls, the children of a Russian Jew, observed they did not go home at noon. She inquired the reason, and after some hesitation was told that they did not have any lunch for that day nor any fire. She investigated the matter and found that the father was an invalid and was in the country, where he was barely able to earn his board, and that the family of three—the mother and two children—were and had been for a long time living on 12 cents a day, which the mother earned by finishing slippers. When the work was not forthcoming, as sometimes happened, even this small sum could not be expended, and then there was no lunch or fire. Yet this woman would not accept charity, declaring firmly that she was not a pauper. When later the eldest of the girls stated that she must leave the training school for two or three weeks until she could earn enough money for a jacket and was offered one that she might not leave the school and so lose her place in her classes her mother refused to let her accept the garment, saying she would rather she should lost her place in the school than take the first step in dependence, for the first step taken the second would be easy. This sort of moral fiber is quite consistent with the persistent tenacity in the matter of religious faith which brought these people exiles to our shores and keeps them steadfast in holding their Sabbath sacred, and while it cannot be said to be general it is quite common among them.

Although the faith of their fathers is carefully and consistently instilled in the minds of their children, and, for the most part, successfully, by these most orthodox of Jews, still the children do not escape the trend of the times nor fail to see that they must in part yield to the customs of the country in which they live. At the training school they are instructed in practical handicraft, which makes them capable of bread-winning in any one of several different lines. When they have completed the course there they realize that there is open to them independence, comfort, respectability on the one hand and poverty, dependence, deprivation, and keeping the Jewish Sabbath on the other. They make their choice, and a large number of them are now supporting their families, for they are faithful to their faith in all but the Sabbath observance, and especially are they loyal to that part of it which commands filial devotion. The young men and women who are taking this stand indicate the change which, when the present generation shall have passed away, will take place in this Ghetto. In the meantime it is a strange anomaly that these people who like Paul, the chiefest of the apostles, are Pharisees, and, in a way, believe in a future life, still, when questioned, will affirm that an after life is something of which they cannot know, but for which they hope. It is this hope that leads them on—that they may cherish it with as much certainty as possible they forego everything which would enrich the present.

You can't make a new arm with Salvation Oil, but you can cure the bruise with it. 25c.

INDIVIDUAL POINTS OF VIEW.

How Personal Interests Color Expressions of Opinion.

A man absorbed in his own trade or profession often views all other subjects through a medium colored by it, says Youth's Companion. A shrewd young New Yorker was in North Carolina when Fort Sumter was fired upon. His father excitedly telegraphed to him, "Civil war has begun."

"Then," calmly said the youth, "turpentine will go up." He spent all of his money in the purchase of turpentine, sent what he bought north, kept it for two years, and laid the foundation of a successful business career.

Beau Brummell is said to have met the duke of Wellington just after that hero returned victorious from Spain, the idol of the English people. Brummell regarded him coolly and remarked, "There is something lacking in a man who can wear a coat like that."

An enthusiastic horticulturist, when he heard of the massacre of the English missionaries in China, wrote in his farm journal: "While we deplore bloodshed, it must be confessed that the English and American missionaries are a selfish lot, lacking in patriotism. They never have sent a seed of the famous melons of Asia back to their own country."

A canny publisher in New York when the labor strikes of two years ago began said: "Hard times and trouble of all kinds are upon us. The public will want books to make them laugh." He acted upon the idea, and his books of gay romance and fun had a ready sale in spite of the scarcity of money.

Perhaps no subject is tinged in our minds so strongly with our own personal idiosyncracies as that of a future life. "Do I believe in immortality?" said the great German physician Knope. "Do you think I shall not be here because a valve in my heart will not open?"

A faithful negro nurse traveling in Italy with her mistress objected to the robes of the angels in a famous picture by Correggio, which time had yellowed. "De saints," she said, "is de last folk to put bad laundry work out ob dere hands," in which she stumbled on a great truth, though in homely guise.

A great comedian, whose character has endeared him to many who care nothing for his art, was once talking of the mystery of death.

"The Great Manager is right," he said reverently. "Who would give any heed to the play if we could see behind the curtain?"

Not a few who read what Mr. Robert Rowls, of Hollands, Va., has to say below, will remember their own experience under like circumstances: "Last winter I had la grippe which left me in a low state of health. I tried numerous remedies, none of which did me any good, until I was induced to try a bottle of Chamberlain's Cough Remedy. The first bottle of it so far relieved me that I was enabled to attend to my work, and the second bottle effected a cure." For sale at 25 and 50 cents per bottle by druggists.

THE ARMY RIFLE A TERROR

Phenomenal Destructive Powers Shown by Recent Tests.

THE FLIGHT OF ITS PROJECTILES

Bone Crushing and Explosive Force of the Bullets—Every Soldier His Own Surgeon—An Alarming Problem.

A very short time ago, when most of the nations of the earth were going about with chips on their shoulders, imploring some one to knock them off, the medical men of the various countries began wondering what would be the effect on the soldiers of the possible enemy should the arms now adopted by the various countries be used in actual warfare. These medical gentlemen, says the New York Herald, made their reports to their governments, and, needless to say, the findings of the scientists after their experiments were not made public. There were some things, it was found, that in order to retain even an ordinary degree of patriotism it was well to conceal from the possible soldier.

One of the governments which made these interesting investigations sent its report to the surgeon general of the United States, with the warning that it was not intended for the public. On the contrary, it was printed for the benefit of the surgeons of the army, and should be kept from the rank and file, as the result of the promulgation of the facts mentioned in the report might interfere seriously with the personnel of the army.

SOME EXPERIMENTS WITH THE GUN.

It is rather singular that at just about the same time, if not a little before this official inquiry was made, Dr. John H. Girdner of New York City began some experiments on his own account with the new rifle adopted by the United States army and now in the possession of the regular troops, with the gun factories hard at work turning out sufficient to supply an army of war strength. Dr. Girdner made his experiments and drew a number of deductions, which have been published in a weekly newspaper, but these remarks of the experimenter merely skimmed the surface, and the complete results of the surgeon's experiments will not be known until he makes them public in a scientific periodical of repute.

From the experiments made by experts not alone in firearms and dynamics, but by surgeons of renown, the weapon adopted by the United States army, the Krag-Jorgensen rifle, is one of the most brutally effective weapons which has ever been invented. It was regarded as humane, inasmuch as the wounds it made would be clean and the passage of the projectile so rapid that there would be almost no splintering of the bone or tearing of tissues. Instead of this, except within a certain very limited range, the effect of the bullet is explosive, and it not alone tears and mutilates in a terrible fashion, but it crushes the bone into a pulp and increases the percentage of fatalities to a very material extent.

When the military arms having small caliber and using a bullet of a diameter much less than the old rifles were adopted by the European armies, the representation made was that the change was in the interest of humanity and that the small caliber bullet could not make so severe a wound as the heavy projectile of the old weapon. The experiments were made at certain well-defined distances at which armies would be likely to do battle. But the effect of the missiles at other distances, especially up to 400 yards and beyond 1,500 yards, was not determined. It was presumed that if the wounds were clean and free from excessive laceration at the distances experimented with, they must bear, necessarily, the same general appearances at other distances.

IT WAS HOPED TO DISABLE, NOT KILL.

With this general result the examining boards were content and the public generally was informed and thoroughly convinced that even though the new arms adopted were much more precise in action and had an enormously increased carrying and penetrative power, they were adopted because the chief object of warfare was not to kill an enemy but to disable him, and that the wounds inflicted by the new weapons would be of a character which could be treated successfully and that recovery from them would be rapid.

The same condition of things which induced the acceptance of the guns in Europe existed here. This government had its humane inclinations played upon and the experimenters were shown how straight was the trajectory and how clean was the track of the projectile, until there seemed to be a decided demand for the gun because the person hit with its missile might be knocked over and made helpless for a time, but that he could be fixed up with great promptitude and dispatch after the battle.

Dr. Girdner, in his article, describes the flight of the bullet as in three divisions. The first is from the muzzle of the gun to the end of 400 yards, the second is from 400 yards to 1,500 yards and the third is from 1,500 yards to the limit of flight—two miles. The first of these may be described as the destructive division of the flight. Anything struck within this range is splintered and torn as though by an explosion. The mark of the missile in an oak board is irregular, and the effect of the projectile striking anything having the same resisting power as flesh is explosive, the bullet tearing the mark to pieces.

ENORMOUS VELOCITY OF THE BULLET.

It should be remembered in considering the power of the flight of the bullet from this new gun that the muzzle velocity is 2,000 feet a second, and that its course is almost resistless. It is not like the Minie ball of the civil war—merely lead, which is itself flattened and torn in its course—but it is conical, and the lead core is first covered with steel and then plated with German silver. It was sent through sixty inches of pine board without disturbing the jacket of the bullet in the slightest. This was calculated to have the effect in gunshot wounds of doing away with the severe laceration inevitable from the course of a missile discharged from one of the old army rifles, when the bullet spread at the point of impact. At the distance described, between 400 and 1,500 yards, the advantage is very marked, and is likely to make this limit known as the humane limit. Here the wounds inflicted by the rifle are remarkably clean and the punctures of the bone appear as though they had been carefully drilled. The appearance of the flesh wounds is equally clean and without laceration, and if there was a certainty that every person shot and not killed outright would be within the humane limits and would recover from his injuries the gun would seem to make warfare a sport rather than a hardship.

An experiment was made in Germany with the army rifle with which our army is equipped, and seven dead bodies were placed in Indian file to receive the bullets. The rifle was discharged at a distance of 550 yards and the missile passed through all of the subjects and was never found. This was at 550 yards. Had the bullet been discharged at 350 yards there would have been plenty to add. The conditions then may be imagined when an experiment recently made with a human skull is related.

SMASHED A SKULL TO PIECES.

The experimenter secured a skull and filled the interior with potato, which has about the same consistency as the brain matter. One of the new United States army rifles was discharged at the skull at a distance of 400 yards and the skull was literally smashed by the force of the impact. The contents were strewn for half a dozen yards about. Had this been tried within the humane limit the bullet would have passed through the skull, leaving a tiny hole behind it.

The same experimenter had occasion to shoot a rabid dog while using the army rifle, and thought that the use of the weapon would be about as humane a method of killing the brute as could be devised. What was his astonishment when the bullet struck the unfortunate animal to see it practically burst the fore part of the trunk open, quite as though the animal had been killed with an explosive bullet. This would be undoubtedly the result of a wound in a human body, in case the range was within the limit which may be described as brutal.

The physicians who have followed the experiments say that the effect of the bullet striking a thigh or an arm bone would be, unless the person was within the area of 400 to 1,500 yards, to reduce the bone almost to a pulp. Setting or saving the limb would be impossible. The amputation would have to be prompt and complete. Death would probably result from such a wound.

There has been, of course, a great deal of curiosity expressed among scientific men to account for this phenomenon of shattering by a projectile traveling at such an enormous rate of speed as 2,000 feet a second. But none of the explanations seem to be as satisfactory or as simple as the one offered by Dr. Girdner. He instances a boy's humming top, and calls attention to the fact that at the beginning of the spin the toy whirls at an extreme point of its velocity and that it wabbles for a time, for the rapidity of its motion has not yet overcome the laws of gravitation. Then there is a period when the top appears to be perfectly still and yet is revolving at an enormous rate.

A third period ensues when the toy becomes uncertain again and again begins to wabble. These three stages of the spinning of a top explain, according to Dr. Girdner, the three points of the flight of the projectile. He believes that as the bullet leaves the muzzle of the rifle it is given a twist which improves its accuracy, of course, but makes its penetrative course decidedly unsteady. The quiver which accompanies this early flight of the bullet is the thing which does the business with human flesh and bone. When the 400 yards mark is reached the bullet's flight becomes steady, and its penetrative power is of course concentrated. At the 1,500 yards limit the top begins to be tired of spinning and the bullet shows increasing indications of unsteadiness until the end of its flight. It is during the periods when the course of the projectile is not perfectly straight and true that the great damage is done by the bullet.

SURGEONS ARE COMPILING STATISTICS.

The medical corps of the army is compiling a series of tables based upon the medical reports of the casualties during the civil war, with the object of showing how destructive the present rifle will be in actual warfare. From what is known at present concerning the results of these experiments, they will show that because of the practical absence of trajectory in the flight of the projectile of the new rifle the chance of escape while charging will be reduced to the minimum. There can be no longer any charges across country. The charging force would be wiped out before it reached its enemy. The straightness of the flight of the bullet has entirely done away with the chance that the enemy will fire over your head. All he has to do is to hold his rifle straight and blaze away and kill something. Besides, there will be no longer any advantage in fighting in the woods from behind trees and the like. The experiments have shown that the bullet passes with the utmost readiness through trees three feet in diameter, and any person standing behind would be killed inevitably. The absence of trajectory has increased to an alarming degree the area in a field of battle within vances could be made over intervening spaces with comparative immunity. Now, nothing is safe within two miles of the gun.

An exceedingly alarming problem is confronting the authorities in regard to the safety of the sanitary corps or any person not combatants. They will be practically wiped out should they attempt to save the wounded on the field. They could scarcely avoid being wounded, and another corps would have to be employed to aid them, and so on ad infinitum. Now it is proposed to teach every soldier the principles of first aid to the injured, so that they may dress their own and their comrades' wounds. They will be taught especially how to stop hemorrhages and each man will be provided with a little package of antiseptics sewed to his uniform and freed from all possible infection. Then when they receive wounds they may aid each other and not await the ambulance corps.

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STOCKHOLDERS' MEETING.

Notice is hereby given that the regular annual meeting of the stockholders of the South Platte Land company will be held at the office of said company, in Lincoln, Nebraska, at 10 o'clock a. m., on the first Wednesday in March, 1896, being the fourth day of the month.

By order of the board of directors.
R. O. PHILLIPS, Secretary.
Lincoln, Nebraska, February 3, 1896.
E—Feb 4—M-29t

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Leaves Omaha	BURLINGTON & MO. RIVER. Union Depot, 10th & Mason Sts.	Arrives Omaha
8:30am	Denver Express	9:35am
4:35pm	Blk. Hills, Mont. & Puget Snd Ex.	4:05pm
4:35pm	Denver Express	4:05pm
7:05pm	Nebraska Local (except Sunday)	7:45pm
	Lincoln Local (except Sunday)	11:25am
2:45pm	Fast Mail (for Lincoln) daily	

Leaves Omaha	CHICAGO, BURLINGTON & Q. Union Depot, 10th & Mason Sts.	Arrives Omaha
5:00pm	Chicago Vestibule	8:00am
9:45am	Chicago Express	4:15pm
7:50pm	Chicago & St. Louis Express	8:00am
11:35am	Pacific Junction Local	5:30pm
	Fast Mail	2:40pm

Leaves Omaha	CHICAGO, MIL. & ST. PAUL. Union Depot, 10th & Mason Sts.	Arrives Omaha
6:00pm	Chicago Limited	8:05am
10:45am	Chicago Express (ex. Sunday)	3:25pm

Leaves Omaha	CHICAGO & NORTHWEST'N. Union Depot, 10th & Mason Sts.	Arrives Omaha
11:00am	Eastern Express	3:10pm
4:45pm	Vestibuled Limited	5:45pm
7:05am	Carroll Passenger	10:40pm
5:45pm	Omaha Chicago Special	8:00am
4:30pm	Boone Local	9:30am
	Missouri Valley Local	9:30am

Leaves Omaha	CHICAGO, R. I. & PACIFIC. Union Depot, 10th & Mason Sts.	Arrives Omaha
	EAST.	
10:40am	Atlantic Express (ex. Sunday)	5:35pm
6:25pm	Night Express	8:15am
4:50pm	Chicago Vestibuled Limited	1:35pm
4:50pm	St. Paul Vestibuled Limited	1:35pm
	WEST.	
6:45pm	Oklahoma & Texas Ex. (ex. Sun.)	10:35am
1:40pm	Colorado Limited	4:00pm

Leaves Omaha	C., ST. P., M. & O. Depot, 15th and Webster Sts.	Arrives Omaha
8:15am	Sioux City Accommodation	8:15pm
12:15pm	Sioux City Express (ex. Sun.)	11:55am
5:45pm	St. Paul Limited	9:10am

Leaves Omaha	F., E. & MO. VALLEY. Depot, 15th and Webster Sts.	Arrives Omaha
2:15pm	Fast Mail and Express	5:25pm
2:15pm	(ex. Sat.) Wyo. Ex. (ex. Mon.)	5:25pm
7:50am	Norfolk Express (ex. Sunday)	10:25am
5:45pm	St. Paul Express	9:10am

Leaves Omaha	K. C., ST. J. & C. B. Union Depot, 10th & Mason Sts.	Arrives Omaha
9:05am	Kansas City Day Express	5:30pm
9:45pm	K. C. Night Ex. Via U. P. Trans.	7:00am

Leaves Omaha	MISSOURI PACIFIC. Depot, 15th and Webster Sts.	Arrives Omaha
10:40am	St. Louis Express	6:00am
9:30pm	St. Louis Express	6:05pm
3:30pm	Nebraska Local (ex. Sun.)	9:00am

Leaves Omaha	SIOUX CITY & PACIFIC. Depot, 15th and Webster Sts.	Arrives Omaha
5:45pm	St. Paul Limited	9:10am

Leaves Omaha	SIOUX CITY & PACIFIC. Union Depot, 10th & Mason Sts.	Arrives Omaha
7:05am	Sioux City Passenger	10:40pm
5:45pm	St. Paul Limited	9:30am

Leaves Omaha	UNION PACIFIC. Union Depot, 10th & Mason Sts.	Arrives Omaha
9:30am	Kearney Express	4:10pm
8:20am	Overland Limited	4:45pm
2:20pm	Beat'ce & Stromsb'g Ex. (ex. Sun.)	4:10pm
5:45pm	Grand Island Express (ex. Sun.)	12:05pm
3:30pm	Fast Mail	8:40am

Leaves Omaha	WABASH RAILWAY. Union Depot, 10th & Mason Sts.	Arrives Omaha
4:30pm	St. Louis Cannon Ball	11:55am

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