THE FIELD OF ELECTRICITY

Inventor Edison's Experiments With and Views on Wireless Telegraphy.

DISCUSSES SOME FUTURE POSSIBILITIES

Expinantion of the Sextuplex System Invented by a Kentnekinn... Anterican Electrical Skill Appreciated Abroad.

Thomas A. Edison commends the work of William Marconi, the young Italian electrician who has made much progress in the development of wireless telegraphy.

That lad is smart," he said to a repreactialive of the New York Herald. "He will get there in time. Of course he has not achieved an entirely original luca, but he has made valuable improvements. In 1884 the only hope for a sexuplex was and 1885 I made experiments in wireless telegraphy. In some respects my method was bester than his. In other respects his be better than mine. I think the right rewill will be reached by a union of the two methods

"I shandoned my experiments," he continued, "after I had reached a pertain measure of success, because I saw to great practical use for a wireless telegraph in these days of the telephone and the highly effective wire and cable telegraph.

Beas: If you will of the nineteenth century

and of the chormous strides forward that we have made," said Mr. Edison with a fine burst of scorn. Why, we are mere ignoramuses still. We are morely grouping in the early down. We are at the cook error of ivilization. People laugh at this or that idea as chimerical as impossible. But the impossible of today will be the accomplished fact of immorrow. Men move blindly to achieve a certain result for centuries. Along comes a fellow with some new idea, which fire exactly into the old workings—which furnishes the missing link—and all difficulties are mastered. We never know what the morrow may bring forth. I think young Marconi has hit upon just such as idea. He is entitled to all the credit of his discovery. He has succeeded in sending the electrical waves further through space than they have ever been sent. His invention may lead to great results. Yet, I still fall to see where the commercial value of the invention

Marconi," interjected the reporter alms that his invention would be warfare in communicating messages where here were no wires, and especially at sea in prevent collisions and to communicate messages from ship to ship." Is to the value of the invention in

war," replied Mr. Edison, "I do not agree with Marconi unless the war be conducted in a wilderness or a savage country. As to the possible communication of news from years its vessel, there is something in that indeed, such communication could be in-definitely extended. One vessel, for exam-tio, within a twelve-mile radius of another night receive such a message and retransnit into space to whatever vessel might be ithin its own radius and so on ad in-trium. But the expense of establishing a receiving and transmitting apparatus or every vessel would be considerable. Still more considerable would be the expense of keeping a relay of men in continuous attendance on the apparatus to make sure that

every message would be received and re-transmitted. No. I think the chief use of darcent's instrument, for the present at east, would be in the case of archipelagon dands not more than a dozen miles apart which have no cable communication. Here it might be worth while to its operations the receiving stations in every island. MESSAGES FROM TRAINS.

There is another use to which wireless elegraphy might be, and indeed has been out, and that is in transmitting messages from a train in motion to the wires along the lines of the road. I must experiments of this sort in 1884 and invented an apparatus, which is still in use, I believe, on

"An ordinary battery, a couple of tele-phone receivers, an induction call with vi-bratur and a Morse key constitute the detall of the apparatus. The induction coil into one of swiftest alternating properties which produces a like current in neighbor ng wires. The humming sound called forth is changed, through the medium of the key, into the familiar dots and dashes of the Morse system. The roofs of the cars are rendered available by the attachment wire connected with one another and with the ruments These in their turn are linked with the earth through the car wheels and There is very little difficulty making the message jump the necessary 50 feet, the distance between the cars and the overhead wires. I believe the instrument has been found useful in minimizing the danger of collisions, in intercepting crimimala who have escaped from trains and is ommunicating with the world he has left

success of these machines prompted me to make some further experiments in direless telegraphy. I sent Mr. W. ose. He succeeded in sending telegrams brough the air from Tottenville to a sta-ion about nine or ten miles off. I've forgotton the name of the latter station. all events, he outcomeded nobly in the first efforts. But when it came to sending telegrams from the other station back to Tot-tenville he made a complete failure. The cville he made a complete fallure. thing would only work one way. Then he e a brilliant suggestion.
The only remedy I have in my mind.

he said, 'is to put Sixten Island on pivots and swing her round."

Mr. Edison laughed heartly at the re-

membrance of this sally. "But I didn't see the possibility of sur " he resumed, "so I gave up the State teland job We had, however, arrived a the conclusion that if the conducting surface could be elevated a mile in the shr the message could be sent very much further through the air. We transferred our field of experiment to Menla park. Balloone co ered with tin foll were anchored at lor deciances apart. But the results did no dened the experiments. I have never done anything further in this line. But if it ever happens that communication between vessels at con in clamored for with a load voice I shall be the first to jump into the swim. Other things of more pressing and vital importance have occupied my time since 1885. For the moment I have abanloned everything to take up the work at

SIX MESSAGES ON A WIRE. Thomas Burton Dixon, the inventor of the extuplex system of telegraphing tested in Boston during the past week, is from Hen-derson, Ky. His right sleeve hangs empty at his side as a result of triffing with a Christ gan in beyhood. He is 32 years old though. The

he looks much younger. plex telegraphy, and for four or five years has devoted all his attention to it. He is as devoted all his attention to it. He is rests. At the other end this lever raises a st even a practical telegraph operator, but plug from the mouth of a pipe, causing any is defi exact touch in the difficult adjust- liquid with which the vase may be charged ment of the delicate instruments betokens the enthosiast. Being asked by the New in tanguage stripped on far as pus-

constrained to see streether to produce a sextuplex system as the next step in the direction of increasing the capacity of telegraph lines for carrying messages. The difficulties which have existed in the working of the quadruplex since it became a practical apparatus way stations which will upon the insertion have been due mainly to the fact that its theory calls for a division of the current at a handle-relief. But in various continental ash end of the line into two parts. This towns drinks of centre is a reduction of the working mar-the same way. what is known as the polar or first side has a working current of only about one third of the total current employed. The neutral or second side has a similar reduc-

great, owing to its prolongation by the electrostatic capacity of the line and the low working margin of the instrument affeeted by it that the limitations in length of line over which it is feasible to work quadruples have been reached soon as com-pared with the single wire and duplex sys-All further attempts to divide the current so as to produce a sextuplex and send three messages each way over one wire have been, according to the general verdict of experie, unsuccessful. The methnos suggested invariably give the sextuplex a much lower margin and a greatly increased tendency to inistierence between the different sides due to the kick of sev-eral instruments as araimst that of one in the quadruples. As the difficulties of the quadruples have become generally recog-tisted by practical telegraphers as entirely equate to tax to the utmost the skill of best men. It is not stronge that they we learned to regard any attempt to go

Living.

beyond the quad as visionary and im-practicable. Their conclusion regarding attempts to build, as it were, upon the present quadruples is perfectly correct IMPROVING THE QUADRUPLEX. "It occurred to me after arriving at an understanding of the conditions involved that first set a quadruplex which would be operative under the conditions of practical service, set on a given potential would have the same margins as the single wire and polar duplex system. This result I attained by devising a quadruplex system which would operate upon a single potential without division of the current at each end of the line. By this means I have been alice to

operate a quadruples, other things being equal, on less than two-thirds of the current required by the old quadrupler system, and o the entire current strength, while on the stral side I got the same margin as would result from the same current on an ordinary single wire, and at the same time to reduce the 'Rick' or tendency to interference be "As a matter of fact one-third of the cur-

rent in the quadruplex systems to use is entirely wasted. In my quadruplex there is to waste of current. Hence I am emplied to nuadruplex systems is wasted, to send an additional message each way. My quadru plex sy tem has been fully demonstrated to be operative upon lines more than 1 000 miles in length, a kine 1,300 miles long having been worked quadruplex without inter-This line was a loop over separate pole lines from Boston to Buffalo, back to Boston, from Boston to New Haven and back to Boston again, a total distance of more

"By taking the potential regulred to operate my quadruplex over this extreme length of wire and dividing it, so as to get two strengths of current in the line. I have been able to operate a sexceptex satisfactorily over line, between 300 and 400 miles in length, and to demonstrate that with operly constructed and proportioned in-ruments. I can operate a line sextuples the same potential over about one-third

I am entirely satisfied from my experi operative over substantially all lines now operated as quadruplexes, and that my quadruplex will prove to be operative over lines now restricted to duplex working great advantage must result from working only long lines quadruples without the seaters divolve complication, delay and great expense. With my system lines between with my system thes accepted on the operated on York and Chicago can be operated astroplex direct and by interposing remaining the operated sextuplex. The comislen resulting from facts thus far demot-ated in that the substitution by my quadruplex and sextuplex systems for the duplex and quadruplex strends snow operated double the carrying capacity of the

ADVANCING AMERICAN SKILL. The London underground electric rallway which has found it advantageous to come to the United States for an equipment, i laid in two deep tunnels, eighty-five feet below the surface. At rposent the length f single track is thirteen and a half miles. but the system will be extended. The cur-rent is taken from a third rail. There will be thirty-five locomotives each hauling neven cars scating 330 persons. At the stations forty-nine high speed electric elevators of American design and make will be installed each able to carry 100 passenmere per trip at a speed of 150 feet per minute. The fare will be four cents and the estimate of passengers is 48,000,000 per annum. The American electrical apparatus has been found essential in this enterprise and is a great triumph for this country. EXTENDING THE SYSTEM.

The important announcement is made by the New York, New Haven and Hartfor railroad that in consequence of the efficient and economical results of electric traction. they have in contemplation the application electric power to several branch times of their system. The statement is the outcome of the Nautasket Beach equipment, which has been in successful operation for two years. This line is a branch of the raiload named, seven miles long, all double track. The cars are operated from an overhead trolley wire, suspended from posts placed between the tracks. The motor are provided with powerful motors, and the trains weigh sixty-two tons when empty and beyenty-seven ions when loaded. The regular schedule calls for an average speed of eighteen niles an hour, including fourteen stops. The maximum speed during this service, which with its extension extends over ten and one-half miles, is forty miles an hour. An actual measured speed of seventy miles an hour is said to have been attained. The operation of this line has been intently watched by steam road ficials, many of whom are convinced that they will have to rely upon electricity for the solution of many problems in heavy traction work, the construction of which can not much longer be deferred. It may be stated that this crucical issue will be further and powerfully influenced by developments of a radical nature which are now in progress.

SLOT MACHINE 2,000 YEARS OLD. Another Verification of King Solo-

mon's Dietum. If any one were inclined to throw a doubt pon that oft-quoted distum of King Solomon the effect that "there is nothing new

the penny-in-the-slot machine. There is very good evidence, however, that a coin-actuated machine was invented, if not actually in use, more than 2,000 years ago, says the London Dally Mail.

Now this writer, according to his own time showing treats of many inventions and da-aban-coveries which had been handed down by others, so that it is quite possible that this particular penny-in-the-slot machine may be considerably more than 2,000 years old. But even if we assign this remote date to it, must come as a surprise to many that a actually contrived before the time of

this side as a result of triling with a carried as a result of thought about on a result of triling with a carried as a result of thought about on the readily under-The last nine years he has spent in work upon electrical inventions his first effort stood by reference to the drawing. A coin being devoted to a system of sustamatic railistood by reference to the drawing. A coin drapped into the slit at the top of the base depresses a lever, which has at its end a conditional processes a lever, which has at its end a conditional processes a lever, which has at its end a conditional processes a lever which has at its end a conditional processes a lever which has at its end a conditional processes a lever which has at its end a conditional processes a lever which has at its end a conditional processes a lever which has at its end a conditional processes a lever which has at its end a conditional processes and the conditional processes and the conditional processes are conditional processes.

flow out at the side. Whether the vase was filled with holwater or what part it took in the religious coremonial of the time corner be gathered The description of the duplex and ing and description of the apparatus, which as will be seen to a penny-in-the-slot de-

No man or women can only life or accepted to a study introduced which tends to mutilate the signals, and in telegraph parlance is from a torpid liver. DeWit's Little Early of the first crusade, and the book oreated to a study termed the 'bick.'

Hiers, the pile that cleanse that organ, sensation by reason of the manner in which he tore away the veilings of romance and

THREE GERMAN HISTORIANS

Von Sybel, Ernst Curtius and Hemrich Von Treitschke.

THE OLD SCHOOL OF HISTORY WRITING

Literary Labors and Characteristics. of Authors Distinguished by Birth and Achievements-Their Souble Works.

Counters von Krockow contributes to the New York Independent a review of the life | Hving last year-Von Sybel Ernst Curitue god Heinrich von Trebunkke.

admitted in the same rank where their stood among contemporary writers of history. and it is a singular fact that all three abould have died within so short a time of one another, and that with them the old achooof history writing came to its end in Germany. The new, under Prof Lamprecht, is of another sort. It is genetic, and takes account of the tremendous importance of the ruptable power that makes for evulution in ustoms and common laws. The style which Sybel and Trettschke still used is aristocratic, ones. reathing of the boudoir, the council cham er and the library. Individuals are gos siped about almost exclusively, with every sible air of dignity, of eloquence or of oust common sense, to be sure, but s if taken for granted, it was they and the buildes they brought on, or the councils they esided over, or the actions they set of

But while all three authors were preminently descriptive historians, in temrament, they were altogether different, and writings are various. Prof. von Sybel appears in his books a marter-of-fact, plain moderate and widely gifted man, somewhat like Horace Greery. Herr von Trouschk-on the contrary, butdoes every historian we know of in partisan passionateness; while frof Erist Curtius, the tutor once of the Crown Prince Friedrich William inflorward Emperor Frederick III.) excels in a refined idity of insight, sentiment and lelsurely anner of expression which suit admirably e classic themes to which his pen was dicated. All three, finally, to finish the and of these general resemblances, were consors at the University of Berlin, withno possessing, however, any of the exclusive we and but few of the habits of clostered alls and the minimal oil. All three-ight more, were utimate with the countries od familiar with the people they wrote alisar or with such peoples' descendants. And, finally, all three were of respectable or desinguished birth. PROF CURTIUS.

The eldest of the trio Prof. Ernst Curtius. the Chothe was the son of a patrician In his old age he seldom showed much animation; and as this period of his life covered, in his case, a great many years, insemuch as he lived to be 82, some of my readers, perhaps who may have seen him in Berlin may have formed a potion his having been a silent and retired man nature. If you spoke to him he gave u fo response, but went on brooding for welf, till you were about relinquishing hope of an answer, when at last, after very long interval indeed, it finally came is thought that his slience in respec-antagonistic views on the part of other cologies was the cause of deeper entity the sharpest rebutial could have ght forth. His air, both in life and ught forth n letters was that of an absoled infallible man, and instilled offense. His drift of mind had been turned early in life, by August Bocky, Welcker and Ottfried Muller They housed together, these Lachmannites and Curtius, and Curtius beard and read himself attacked sharply and inconstantly; he went on his quiet way wrapped in the comfortable self-assurance that noody knew Greece, and all things pertaining

thereto, as he himself did.
In Greece he had lived, as I wish it had been the privilege of our own Prof. Gil-dersieeve, for many years, while still in the hugh of impressible youth; first with Otifried Muller, his teacher, and then by him-self. His earliest important work was a geographical historical study of the penin-nula of Pelaponnesus, with which to his own nind there was somehow no coming to an end. It was largely an endeavor to show the connection between the topography the country and its peculiar history, an en iton of Curlins's, but which turned out skill-fully performed. Curtius, as we apprehend is denounced chiefly by the specialists. He was a constant reproof to them in still being an all-round man an archeologist, philologist Lopographist and social historian in one.

PROF. VON SYBEL. As for Prof. von Sybel, he was of the selfrestricting school of Ranke—the cleverest writer, perhaps, that has grown out of that school. To him the official, visible, working departments of the government compose the tate, and in his eyes the things which the which a given epoch of time is to be measured for its relative value in the history f civilization. In order to arrive at a knowl edge of these achievements, documentary evi-dence is to be resorted to, he believes, and ocumentary evidence exclusively. here is no parchiment to confirm a thing. the thirg is not. In short, Syles was an archive-worm. The latter part of his life duty of writers who retain their common seemed need set on them.

sense in the face of no matter what ulcases. "Well, I could see that she was gettin" ander the sun," he would probably feel whether from scholars or opinion, to thrust bound to make an exception in the case of the penny-in-the-slet muchine.

There is very good evidence, however, that a coin-actuated machine was invented if not aged honcelly at all times. The directors are stored for matter what alkages "Well, I could see that she was getting been at secret had not the baffied bandis been a secret had not the baffied bandis been a secret had not the baffied bandis been at secret had not the baffied bandis.

It is a dangerous thing to run by a stop when they was oround but, Lord, it didn't make no difference, and that Miss Alignod and the wisdom of the engineer's action was not questioned, so far as we know, by any aged believing at all times. The discount of the an-ecdotes prove which go the rounds of courts circles. Only last winter a prince of the royal bouse died, for instance whereupon royal house died for instance whereuson his correspondence was transferred in a mess as is usual, within a sealed basket to the head director of the archives, "for the purpose of being sifted." In this process certain papers got into the hands of edified members of the court, but not into the archival Kammer. I remember reading something similar in an article, some years ago, of the Saturday Review, in respect of a portion of the British archives. For all he plain man knows, precisely as much or as little gets into these temples where Ranke and like historians expect us to worship as within a shrice of truth, as influencial To swear by persons may choose to decide. To swear by archival documents, therefore, is to swear sometimes by foxes and jackals, which is to say by wary statesmen and courtly, obedient lord directors. Men there must be at the head of affairs of state who are too slover to let certain matters get upon paper d all, or, at any rate, accounts of them as hey actually occurred. If the wording of tisnearch's king's reply to the French ambas-1870 cannot be proved beyond ad contradiction by the so-much stiguided archival documentary method, how

> CHARACTERISTICS OF HIS WORK. Sybel can, at any rate, be relied on not to romanticize. What his inventive talent might have been we have no chance to judge His sources of information, unlike those of Curilies, were ready at hand and enormous number and bulk, tnasmuch as his chit work was on events of modern history. His task was to select and arrange. That he performed this, in respect to German his tory, as a national liberal, he himself confesses, although to his way of thinking was not a confession so much as an avoyal sure to win attention and respect. Or other subjects he was a realist. His earli-

haze of poerry that had gathered around the men who followed the batter of the cross. In freating of the French revolution be bore down, in a similar spirit, upon the ejudices which his conservative country entertain against its borroes by show-that the excesses of 1785 and 1782-93 the whirlwind harvest of a wind that was sown by indulgence and tyranny in high places for a century long. The hisorian e great work, however, had his own ounity and times for its theme, and hereby e is commonly judged, the "Establishment the New German Empire Under William" being the most widely known of his

Now, curiously enough, like Treitschke, the other historian of the Hohangollerna. Sybal was not a Prussian by burit or training. His family, which belonged to the utper middle class of society, were Rheinlander and were attached by many traditions to both Catholicism and France. The and labors of three German Bistorians whose Rhine provinces had been French for a local names were crased from the tablets of the time so the inhabitants were level to French of the Pressure. How Trainslike came to take sides against them for Pressu can Few names, writes the countries could be be explained only by his character and energy and enterprise and by real ized that Prissin embodied these qualities. His candid graff turn of mind made him impatient with the unthrifty remarkation t would oling either to Catholic France Catholic Austria out of piety. He, for nart, worked with both word and pen for a unity of the states under the leader-ship of Protestant practical Process, and when this leadership was actabilished, he bewrite the history of the movement to the end. In every respect he was practical and his literary undertakings were successful

VON TREITSCHKE'S LABORS.

The life work of you Treitschke was the same subject as his. But Treitschke left is German History a totso his robust life riends forces with bitterness of soul; for, on the patriotic Princian Treitschie's is the of, which were the important agents of book of books, the micror, the defense and ification of the Prussian race. and even more of a repegate in his fellow countrymen's eyes than you Sybel; for the Thinelander had no specific reason for hat-Prussia, while Saxony had suffered iniry and less unbearable from nors and Prussian annexations. Herr von citschie explains; however, in the first eriment is little better than a privy council, the members of which are scians of a few intriguiting families, who rule the king and the people in their interests, so that no love is deserved by it. There is an exaggination of continent in Trelianke. He is more majority of patriotic natives themselves. And all the haters of Prussia's autago-nist Austria, he was the most cliquent and your the necessity of thoroughness in what this would have produced a hymnal bleor such a thing; he had the true bardie out and the resonance of sentiment. As wan, this phantom of thoroughness init a cluich on him sufficient his enthusiesm. put us end to his very life! It drove him is write a bistory so circumstantial that 6.000 pages are but as a prelude and a frag-

CAUSE OF HIS WIFE'S DEATH.

Reason as He Gave It on Her Tombstone May Not Have Been Correct. "Talking of curious epitaphs," said th man who was traveling for an eastern marble company, "I saw one in a cemetery n Illinois near Boulder that discounted any-

thing I ever came upon before for originality away from pedsmile engressiment in the of expression, and while I was studying it words of classic texts to their living spirit, so that I could remember it afterward I and that drift became a current which nothing, not even the genuity of Lachmann age, what I was about He took many the course of the studying me to orious disciples, could turn saids for an in- was the widower, and as he heaved a great sigh I asked him if he missed the wife whose name was recorded on the stone. 'Miss her, you bet I miss her,' he said

in a hard peevish voice; she might have been living now if it hadn't been for a lot 'Tell me about her.' I said in my most empathetic manner, although the case

of apparently one to demand sympathy-at east for the living.
"Well, you see, my wife Alice—that's her name on the stone—she was kind of soft-poken and the women tolks liked her, and ney used to run in and set around and ilk, talk till everything was blue. She midn't get no work done to sp -x on, and ter they went home sheld have to fly

me, can she knowed how it riled me so panions. the meals weren't on time, an jest as as as not she'd get a hard spell of coughin' and couldn't eat no dinner herself. And it as the proper place to rob the train, as all the fault of them visitin' women. AMATEURS WITH SIGNAL But, surely, that wasn't what killed

oman-an old maid. Miss Allgood, that ade me madder'n than any of 'em. She run in most every day and sort o oriend to belp Alice—as if one woman buildn't do the cooking for only half a dozen sided to many states of time talkin. Why that the state of time talkin when the state of time talkin why that the state of time talkin why the state of time talkin why that the state of time talkin which the state of time talkin which the state of time talkin when the state of time talkin which the state of time talkin when the state of the state of time talkin when the state of the state of time talkin when the state of the gosted a lot of time "talkin" oman was so lazy and shifficen she even of my wife inter the notion of seith down his whistle long and loud, ending wife the inter the notion of seith down his whistle long and loud, ending wife the two familiar "toot-toots." In the willing tobbers hasily put out the torif as the train came on, but instead of applying that she took length Alice could real as the train came on, but instead of applying that she took length Alice could real as the train came on, but instead of applying the shear of the train came on the could real as the train came on the country of the co archive-worm. The latter part of his life was spend among the archives of the Prussian tate, and much emphasis has been laid upon the fact, in order to impose his representation of events as authoritative and final. Formy part, if seems to me to have become a my part, if seems to me to have become a second dead set on them.

In the fact, in order to impose his representation of events as authoritative and final. Formy part, if seems to me to have become a woman her way in, and alice the fact, and opened up again. Before the bewildered robbers could realize what had he wildered robbers could realize what had her happened the train the speed of which had carried slickening by.

Just what had toen avoided by the sagactive of the daring engineer might have remained a secret had not the hadlest had to the proposed of the daring engineer might have remained a secret had not the hadlest had been avoided by the sagac-

just stayed and run things, and I must say she was a powerful good cook, best Alice all to finders. But how she go: such a hold on my wife I can't sense. Alice said to her jest afore she passed away. "Kins me and let me go to sleep," and the next th knowed she was gone, 'thout even sayin' goodby to me.

"You must have felt terribly," I sug-"Did. But I got even with them talkin" women, and everybody 'round the country can read what I writ on her tombatone. change one line there, the one that save first and last wife of Thomas Phillips. felt so powerful sorry for that Aligno woman, she mourned so for Alice, and

But, on second thoughts, I suppose you ided to remain single." Yo-e-s. You see that woman was so puffed up in her own goodness, that she'd got the notion that I wasn't good enough for her. She dign't refuse me, but her tem-per got the hetter of her and she told me never to darken her door again. I het she's been sorry for it, but she don't get the

for a speel longer. "I left him there admiring the epitaph he had designed, and without a suspicion in his mind that he alone had been responsible for his wife's taking off, and that I had copied the whole device without any ob-jection being raised in order to reproduce it

The epitaph was graven thus: "Kiss Me and I Will Go to Sleep."

ALICE
Pirst and Last Wife of
Thomas Philips
Talked to Death by Friends

The "Bicyclist's Best Priend" is a familiar other subjects he was a regist. His easist name for LeWitt's Witch Flare! Ealte, all shows were devoted to a study ways ready for emergencies. While a specific first crusside, and the book created to place it also including relieves and less of what the register might think accusation by reason of the manner in which curve curs bruites and released and about it it was a new friending right, and he care away the wellings of remance and all affections of the skin. It never falls

MALONEY'S SHOT AT SOLITUDE

Story of an Attempted Train Robbery and the Fruits Thereof.

THE ENGINEER'S BOOK OF RULES

Swore by It and Slept with 1; and It Saved Ris Life_Two Handy Tools in an Emergency.

(Copyright 1985, by Cy Warmen) When the Denver & Rio Grands rallroad was extended through the black capon of the Connison over Soldier summit and norow the Utah desert to the cury of Salt Lake, it opened a new and fruitful field for enterprising train tobbers. It brought bust news closing rapidly around them. ness to the very door, so to speak, of a band gatory range in Colorado and were new living a rather monotonous life in the Wab-stach mountains in Utah. By changing their atopped, but a precedent had been estabchanged their postoffice address and by re-this very adding the hight before, and had ceiving their mail anonymously, these been voted a great head; so Majoney only hunted criminals were able for a time to keep clear of the officers of the law, and to is why they had broken the switch bridle make organional sorties into the desert for and opened the switch at the far end of the purpose of flagging the midnight express. siding. Moloney half expected this, and the the most direct route, enjoyed the privilege of carrying the gold from the San Francisco mint to the treasury at Washington or the sub-treasury at New York, and this fast was arrong the many things known to the half-breed leader of the Wahsatch hand. These bandits were well mounted, having the pick of the thousands of spiendid horors that graze in the broad and beautiful plain that begins at Fruitville and ends at Ogden. The Mormons had or-ganized and hunted the rang, but with poor success. When they were in need of meat the outlaws would ride into the valley, rope and slaughter a steer or sheep, and long before daylight be sleeping in their moun-

they would enter one of the quiet Mormon villages, play drunk, shoot up the town and n the excitament help themselves and ride away, while the people peered after them, only too glad to let them go. An Indian chief, who had been a war-

his indian started for the hills to bunt the condus. All the people of the valley gave diven up against the furnare door. Wi aid to the Indians, thinking, perhaps, that it had been there a few seconds the shalever the result would be the loss to the lightled and instantly the whole interior church would be trifling. At the last little town near the foot of the flash came it showed Makeney for the range the red chief and his band were last with the two robbers. Ealing quick

given an evition, with red liquer on the side. Nothing can be worse for a community than the mixing of firewater, firearms and indians. RECEPTION OF THE SHERIFF.

The outlaws heard of the coming of the sheriff, and arranges a reception for

They had their biding place in a narrow canyon, that pinched out at the top so that a horseman could ride so far and no farther. The trail to his canyon led over a sweet barren rock, so that it was difficult to nt; while all the while the hymn in follow: But new, being actions to have the arriom browbest him into beginning by the canyon to the valley, turned and came back again, making a new pizin trail. Then, naryying their borses and other chaltels out had to sing was the victories of 1866 and over the bling trail, they established themevond where the canyon walls came to-

einer. The Indians soon found the trail, and, finished with firewater, they gave chase. In a few hours, and much sooner than they expected they came upon the old camp, and laws were pouring lead into them from the crags above.

or four of the lections fell at the first fire, and what added to the horror of the situation was that they were unable to re-turn the fire, so completely were the outlaws hidden in the larged rock. Panic stricken. bandits continued to shower the lead after them. The leader and two more of his men fell in the retreat, and that was the last time the Indians of Utah undertook to arrest

It was shortly after this fight that the railad was opened, and the gang determined enter upon the more romantic business train robbing.

first two or three attempts by the Utah gang to hold up the midnight press had resulted to their embarrasement. Once the air had falled to work, and at another time a desperate cowboy, who hap pened to be among the passengers, disputed the territory, and put the band to flight. other such water haul would bring about the leader's impeachment, and that distinguished endividual determined to reestablish himself in the confidence and esteem of his com-

Solitude, about as desolate a spot as there is on the American continent, was selected AMATEURS WITH SIGNALS.

There was not a house at that station only a solitary switch target at either end of a long and lonely sidetrack. A red cot-ton handkerchief soaked in bear's oil was set ablaze as the long train with two engines, came roaring down the desert. stead of swinging the torch steadily back and forth across the track, the amateur fingman allowed the light to bob about in

see that she took 'em. Alice could jest as ing the air which was his business the lead sell hev recoved for herself and had more ing engineer (some own). Why I've known het brake," and opened up again. Before the brake, and opened up again. Before the mained a secret had not the baffled bar not questioned, so far as we know, by any of the railway officials. Indeed, the same trick has been worked more than once since It was done very sucreesfully in the lor-cut on the Lake Shore road only a year of two ago, but it is not safe to try it too ofter

with the same gang.
That night when the band had retired to eafe place among the hills over against be range, they held an important neeting. te range, they held an important needing. Manifestly, the leader did not know his business and his resignation was called for refused to surrender and the rang vot to disband. He had been a poor provider The gang breakfasted lightly, lunche ter still, and in the twilight stole away Only one man remained loyal to the of leader and while the others headed for the hills these desperate desperados rode back bein alias full of sympathy. I kinder thought of lettin her take Alice's place.

At a flag station they robbed a section house, secured a red light and a spike must and determined to take one more fall out of the midnight express.

ARMED WITH GUN AND RULES. It was Ed Majoney's run out that night, nd when he armed himself with a brand new six-shooter the trainmaster gave him claugh. The trainmaster said something out locking an empty barn, but histoney took the gun, shoved it into the hosom of his ngine jacket, and pulled out for Gran-Junction. Almost every engineer has his hobby, and

Maloney's specialty was the book of fules, a small volume printed by the company for the guidance of its employes. If he wanted to clean a headlight or take a pill he would first consult the book, and, if he failed to find anything printed on that subject, he would then proceed, deliberately, to do the very beet he could without instructions. "It is much better," he used to may. "To rely on a good book that a tad memory. He had often declared to his fireman that he

However, upon this particular occasion h

expected that little look to save his life

it almost impossible to make running time The belper he had up the hill was a make-shift in the shape of a leaky old work en-gine, and they gained the summit thirty minutes late. Now, however, he had them on his side of the slope and was slamming them up against the curves where the road wound around among the sandhills in a way that convinced the passengers that he was

ot afraid of being flagged.

A number of the passengers had remaine in the smoking rooms of the sleeping cars determined to keep awake until they had passed the point where the train had been flagged the night before. The conductor had assured them that they would be able to see nothing but silence at Solitude, but they were curious, as most men are, and refused to go to bed.

Finally, there was a long mournful blasof the whistle, and when the sound has died away in the desert the conductor picker up his white light said "Solitude," and stepped out on the rear platform. Three of four men followed him, but all they could see was the dripping rafling the chair across the rear end of the car, the wet bel

of bandim who have been driven from Pur- their hair gray. H was a regulation red car hand, and Maloney determined names and whiskers as often as they listed An engineer had run past a signal at whistled, looked sharp and let them go. The rothers had expected this, and that This new and enterprising ratiroad being moment the headlight shope upon the lean ing target he shut off, reversed and the air brakes, full upon the whirring wheels THE GUN IN ACTION. A moment later the big, black engine shot

off in the desert, turned half over on her

to death. Maloney, thrown through the call window, floundered in the adobe mud f few seconds and was on his feet again. well had be performed his duty that all th mained upon the rail. The express car was high upon the mail car, which was restin on the tall of the tank. Malony, boll with rage, felt for his book of rules. tain caves again.

If they wanted something from a grocer was there all right, but there was no ligh rule to cover urgent emergencies, such as The only rule be could call to mind was the one at the bottom of the time card. "In doubt take the safe side." An Indian chief, who had been a warrior of some note in his time, offered, for
a considerable reward th capture or kill the
outhaws. With a dozen men, well mounted. were carried, had been larred loose wrecked engine cub was affame. face with the two robbers. Ealing quantil, the engineer raised his revolv blazed away at one of the men a robber objet was left without a f But, even as Maloney pressed the tri the desperado held his own gun close t engineer's breast and let go. The cond and passengers: who were now hurryin pointed straight at Malonev's heart and mo to doubt but that he would be dead instant. But when the gun went of the engineer only staggered, clapped his I band over his heart and blazed away at t rather. The specials of a mer shot inrote the heart still showing fight seemed to if the bandit with terror, and, being a coward as many of these fellows are he turned and dashed away into the darkness, while Malaney, still holding his hand to his left breast

> In the glare of the light Maloney opened his shirt to look for the bullet hole, and there was only a big red spot over his heart. Noting his shirt he examined his jumper, sulled his book of rules out and found a deep

> urrow plowed across the cover.
> "That did the business," maid the engineer as the conductor approached. "I told you that book would be the saving of my life ome day." And then they started to put out

Statistics on Woman's Work. States labor commissioner, offers some intoresting statistics on women's work. Between 1870 and 1890 the percentage of females in all occupations in the United States increased from 14.68 to 17.22, while the percentage of men in the same occupations dereased from 85.32 to 82.78. During the same period the proportion of women enpursuite increased from 6.47 per cent to 5.54 per cent. In strictly domestic work the percentage of women decreased from 42 o 28. The most startling example of surpation is shown by the figures derived from investigation in the factories. In this case the decrease in the number of men employed is almost taken up by the increase in the number of women, the per-centage for men decreasing from 85 to 79 centage for men decreasing from 85 to 79 and for women increasing from 14.44 to 20.18. About one-eight of the working women are married. Employers say they prefer women to men, because of their greater adaptability to work. It is also must be built at Port Arthur, nearest seaport prefer women to men, because of their greater adaptability to work. It is also said women are more reliable casier concured, neater, swifter, more industrious, more careful, politer, less liable to strike and readler to learn. The proportion of females employed in this country is steadily increasing. The Cigar Makers' union is the only labor organization mentioned in the report as opposing the employment of

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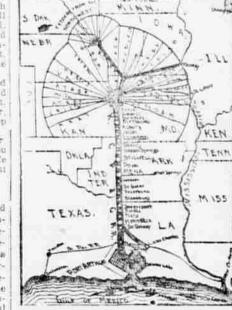
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