THE RUINS OF A COW

Cause Howard Fielding and His Better Half to Miss a Swell Wedding Down in Jersey.

HURDLE RACE BETWEEN TRAINS.

A South Jerseyman Who Knew it All Gets a Great Deal of Quiet Censure From the Travelers.

AN ADVENTURE ON A PICKET FENCE.

Congratulation by Mail Was All That Reached the Newly-Married Couple.

[WRITTEN FOR THE DISPATCH.]

If in this little narrative of hard facts I seem to speak of the N. J. & N. G. R. R. in a tone of flippant familiarity, believe me the offense is unintentional. In addressing a New Jersey railroad personally I always say your Majesty, for although I do not reside in the State I have made a careful study of her form of government and have had a personal acquaintance with some of her leading citizens. Nevertheless, the business which took me there last week was perfectly legitimate.

We went to attend a wedding, my wife and I. It was not a Camden wedding, either, but a premeditated affair with invitations. The bride once went to school with my wife, and they were dear friends. I knew her before my marriage and used to think a great deal of her, but when her father failed in business we somehow drifted apart. If I remember rightly my anchor dragged first. Later, however, the old man got upon his feet again; and now he has a fine residence in Yellowtown with sufficient land under cultivation to produce almost everything the family needs except quinine.

EXCITED THEIR CURIOSITY.

The wedding was to be very swell, with point lace and other expensive trimmings, and Maude wouldn't have missed the sight for anything. I, too, had a subdued and gentle interest in the performance. I wanted to see how large a check the old man would feel called upon to draw. It might have borne my name if a spirit of prophecy had dwelt in me three or four years ago, but it didn't, and I do not repine. There are some things which are better than money, as I intended to remark to my wife when we examined that check, and I thought that the opportunity ought to be worth a small percentage on the amount.

The wedding was to be at 4 o'clock, and we left New York at 9 in the morning. We were due in Yellowtown in time for luncheon. The express to Philadelphia took us over there in a little more than two hours, and we crossed the city by cable car without serious injury to ourselves or many pedestrians.

SOMETHING WENT WRONG.

Then we crossed the ferry to Camden and took the N. J. & N. G. R. R. for Yellowtown. The distance was 15 miles, and the running time not over an hour under ordinary circumstances. We escaped from Camden and its immediate suburbs at as good a pace as we

Maud Preparing to Fly.

could reasonably expect, but after we had traveled about six miles something went wrong. We stopped at North Sandbury station and waited half an hour. Then we crawled along to Sandbury and took another rest. Maude's impatience bordered on frenzy. She had learned from the conductor that there was a wreck on the track, and I could hardly restrain her from rushing up there to clear it off.

"If I were a man," said she, in a tone which made the gentleman in the seat before us haul his head down behind his coat collar. I asked her what she would do if she were a man, and she said that the least she would do was to go out and find what was the matter. I volunteered to do that part of it myself, but she wouldn't let me, because I would be sure to get left behind when the train started. Furthermore I didn't possess the high degree of intelligence necessary for such a task.

A COMPLIMENTARY COMPANION.

"When you want to find out anything," said she, "you always ask somebody who doesn't know."

By and by an express train that had left Camden some time behind us pulled up alongside, and there were rumors in the air that it would start before we did when the wreck should be cleared away. Maude heard the whisper, and it sounded to her impatience like the voice of hope.

"Why can't we change cars, Howdy?" said she; "we might save a lot of time. Of course they'll send the express ahead of this train."

"But we don't know whether it stops at Yellowtown," I suggested.

"I feel perfectly sure that it does," replied Maude, with an air of decision. I have known Maude to doubt the laws of nature and the reality of observed phenomena, but when she has feelings about the weather or the habitability of the planet Saturn or the destination of a train which she never heard of before, then she is sure of her conclusions and argument is futile. Information on a subject always confuses a woman.

We gathered up our few possessions hastily, because that delicate and infallible intuition peculiar to women told Maude that the other train was going to pull out very soon. There was a low fence between the two tracks, and after I had tumbled over it I assisted Maude to do so. Then we hurriedly got on board the other train and waited 20 minutes for something to happen. At the end of that time a brakeman came through the car, and I asked him if that train stopped at Yellowtown.

"Naw," said he, "that other one's the Yellowtown train, and you'd better get aboard lively, 'cause she's likely to pull out any minute."

"Oh, goodness, gracious me!" exclaimed Maude; and before I could catch her she was out of the car and scaling the fence. I suggested that we walk around the lower end of it, but Maude wouldn't hear of it. She accused me of plotting to miss the train because I didn't like weddings. This unkindness cut me so deeply that I neglected to assist her over the fence; and she got along much better than before, as is frequently the case.

INFORMATION VOLUNTEERED.

On the other side we met a South Jerseyman with whom I have an acquaintance.

"Hello," said he, "where are you going?"

I told him our destination.

"Come aboard the other train, then," said he; "that'll pull out ahead of this one."

"There, Howdy," said Maude, "didn't I tell you so?"

"But the brakeman said it didn't stop at Yellowtown," I said, by way of self-defense.

The South Jerseyman grinned.

"Of course he told you so," said he. "You don't suppose they want everybody to pile out of this train into the other one, do you? He was giving you guff. Oh, there's no hurry," he continued, for Maude had made another rush at the fence. "I just saw the conductor of that train sitting on the cow-catcher eating doughnuts, and he said that if he got anything else before supper time he would consider himself in luck."

A COW ON THE TRACK.

"I think he was simply awful," said Maude. "How can the conductor of a train sit down calmly and eat doughnuts when all these people are just dying of impatience?"

"But I don't imagine we're waiting for him, my dear," said I.

"No," said the South Jerseyman. "There's a freight train and cow in collision

The South Jerseyman Waves Adieu.

at East Sandbury. Nobody was hurt except the cow."

"I have heard a great deal about Jersey cows," said I, "but I didn't suppose that the ruins of one of them could block traffic for half a day."

Meanwhile we were walking around the end of the fence, and up the other side. We were just boarding a car when the bell on the engine of the other train began to ring.

"By George!" howled the South Jerseyman, "they're going to pull the local out first," and he made a dash for the fence. Maude was already there. I gave her such assistance as I could, and she beat the South Jerseyman by a fraction of a second.

IMPALED ON A PICKET.

Then I made a dash for it; got one of the pickets up my pantaloons' leg, and fell over on my head with the leg suspended in midair. Maude was weeping with excitement. She seized one of my hands; the South Jerseyman grabbed the other, and they straightened me out like a string. It was a question which would give out first—the picket, the pantaloons or my connective tissue. But the picket finally yielded, and we all scrambled aboard the train.

"Maude," said I, examining my torn pantaloons, "what does the Bible say about the man who had not on a wedding garment?"

"It says that he did not get there," said she, impatiently, "and I guess it's the truth. Oh, why does not this train start!"

The engine bell was still ringing, but it seemed to be getting more and more remote. I went to the door of the car and took an observation. In the distance I saw the engine and baggage car of our train. The latter was being switched upon a side track. We waited about two hours. It was after 3 o'clock. Maude was getting the South Jerseyman's opinion of the efficacy of telling the conductor that we would bring suit against the company if he did not start. The South Jerseyman nodded sleepily. I was getting fearfully hungry, and I suggested that Maude should threaten the suit and then offer to compromise it for a few of the dougnuts which the conductor had been detected in the act of eating.

OVER THE FENCE AGAIN.

Suddenly the South Jerseyman waked up with a start, and pointed wildly out of the window. Men could be seen hastily boarding the other train.

"They're going to start her sure, this time," he cried, and made a break for the door. Maude and I followed him. As we attacked the fence, the train began to move. We tumbled over, pell mell, but the cars had gained too much headway. It would have been dangerous to attempt to board them. The South Jerseyman swore in a firm but respectful manner; Maude sat down on a blind switch and wept; I looked around for an employe of the railroad and a club. Finally Maude uncovered her eyes and looked severely at the South Jerseyman. He shivered and tried to get behind me.

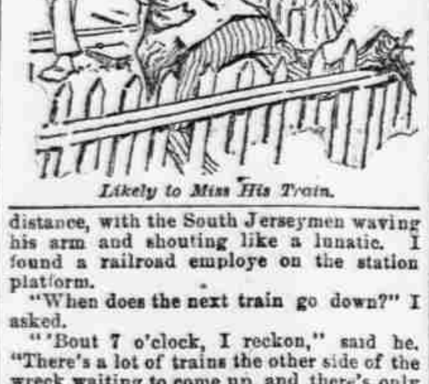
"I knew we ought to have staid here before," she said, "but I am easily persuaded by people who think they know something. There is nothing to do now but get aboard the other train."

MISSED BY HALF A SECOND.

The South Jerseyman had already climbed the fence.

"Hurry up," he shouted; "she is pulling out."

We started another hurdle race and lost it by half a second. The train vanished in the



Likely to Miss His Train.

distance, with the South Jerseymen waving his arm and shouting like a lunatic. I found a railroad employe on the station platform.

"When does the next train go down?" I asked.

"'Bout 7 o'clock, I reckon," said he. "There's a lot of trains the other side of the wreck waiting to come up, and there's only one track open. The up trains will be coming through now for two or three hours."

"Howdy," said Maude, "we don't want to make ourselves ridiculous by getting to Yellowtown after it's all over. Let's take one of those up trains and go home. We'll write some sort of an excuse, and if that South Jerseyman tells anybody the truth about it I'll pursue him to his grave."

HOWARD FIELDING.

What Wealth Cannot Buy.

Ella Higginson in West Shore.]

A man may have honor, and wealth, and power; woman may smile upon him, and men may flatter him; his slightest wish may be law, and his every word a command that must be obeyed; the whole world may envy him the gifts that the gods have given him—yet, with all these, he may not have one real friend, and he may grudge the commonest laborer the kiss of pure affection which cannot be bought.

Culinary Transformation.

West Shore.]

Snodgrass—It is queer how one kind of cake will turn into another.

Snively—I don't understand.

Snodgrass—Well, I've known pound cake to develop into stomach cake.

CURRENT MEASURING

Principles Upon Which the Ammeter and Voltmeter Depends.

ELECTRICITY AND MAGNETISM

So Intimately Associated That They Determine Each Other.

HOW TO GET AT THE PRESSURE

[WRITTEN FOR THE DISPATCH.]

As has been frequently stated, electricity is not a thing that we can see, handle, touch or weigh, but it is a condition of things capable of doing work—a condition of things that can be changed, and when the change is made, work is done. Electricity is therefore a condition of things that will produce effects, and, not being able to see or handle electricity, we recognize its presence by its known effects, and not only this, but we also measure it by its comparative effects under varied circumstances.

For example, if we wish to measure the pressure of the atmosphere, we balance its pressure against the pressure of a column of mercury, as in the barometer, and by noting the effect we are able to say that the pressure of the atmosphere is greater or less one day than another. If we have a fire that will melt iron, we call the heat great, that is, it is great compared with the heat of a fire that will but just melt lead. We thus not only recognize the pressure of heat, but we also make comparative measurements of its intensity by its effects under varied circumstances. It is in this way that we measure the electric current, that is, by its comparative effects under varied conditions.

THE MAGNETIC FIELD.

In previous articles we have studied the lines of force of a magnet and the effect that they have on a compass or magnetized needle free to move in all directions. We have also shown that these lines of force have closed circuits. Now an electric current will also generate lines of force similar in character to those of a magnet. To illustrate this fact, take a wire with a current of electricity flowing through it and pass it vertically through a smooth piece of cardboard, or better, a flat piece of glass, held in a horizontal position. Then if fine iron filings are sifted on to the surface of the cardboard or glass it will be noticed that the filings will arrange themselves in concentric circles around the wire.

These circles are closed lines of force and do not represent any flowing motion, as of a current, but they have direction and they influence a magnetic needle, free to move in all directions, just as magnetic lines of force do. The space occupied by lines of force is called a "field of force" or "magnetic field" or often simply "field," for short. We have in a previous article shown how, by exploring the field of a magnet, we can determine and locate the poles of a magnet. We can now also, in a similar way, explore the field of an electric current and determine not only the direction of the current, but also its strength, as compared with some other current.

A COMPASS IN THE FIELD.

If on the glass plate and close to the wire we place a compass, the compass needle will at first vibrate rapidly and finally come to rest in a position tangent to the rings or lines of force. If the direction of the current is reversed, the compass needle will run through 180°; that is, it will still hold its tangent position, but reverse the direction of its poles, thus showing that the lines of force generated by the current have changed their direction. If the current is flowing up through the glass plate, the lines of force will have a direction opposite to that of the hands of a clock; that is, looking down on the plate, the direction will be from right to left. If the current flows down through the plate, the direction of the lines of force will be reversed.

Now the direction of the lines of force of a compass needle is from or out of the North Pole and into the South Pole, and as the lines of force of the compass and electric current must have the same direction, it is a simple matter to determine the direction of an electric current. For example, if the current is flowing up through the glass plate, its lines of force will be from right to left, and the north pole of the compass will point in that direction. We thus have the following rule for determining the direction of an electric current. Place a portion of the wire in a horizontal position and a compass under it, face up; the needle will then place itself in a position at right angles to the wire, and if we look at the needle from its south pole toward its north the current will be flowing from left to right. A few practical applications of this rule will enable the observer to quickly detect the direction of an electric current without stopping to think of the rule or place himself in the above mentioned positions.

MEASURING THE STRENGTH.

We have thus seen how by the effect of an electric current on a magnetic needle we can determine the direction of the current. But this is not all, for we can also determine its comparative strength. For example, let us again imagine the current flowing through a wire piercing a glass plate as before and again place the compass on the plate near the wire. If now we fasten a permanent magnet near the compass, the compass needle will struggle to point in two different directions at the same time, that is in one direction toward the permanent magnet, and in another direction, as we have above seen, due to the lines of force generated by the electric current. In other words, we now have two forces pulling the compass needle, and if one of these is constant like the permanent magnet and the other variable as the electric current can be made, the direction of the compass needle will vary with the variable force acting on it, which, in this case, is the current.

That is to say, if there is no current in wire, the compass needle will point toward the permanent magnet; if there is a small current flowing through the wire, the needle will be turned away from the magnet a little, and if the current is increased the needle will turn still more, and thus the position of the compass will determine the relative amount of current flowing through the wire. But to make this compass needle a practical instrument for measuring the strength of electric currents, it must be enclosed in a suitable box or case with a permanent magnet attached and then properly calibrated in the following manner:

GRADUATING THE INSTRUMENT.

Fix the instrument firmly with regard to the electric wire; pass a known current through the wire, say one ampere, and mark the position of the needle on a suitable dial with the figure 1. Then increase the current to, say two amperes, and mark the new position of the needle with the figure 2, and so on. If then, at any future time, we have an unknown current and wish to determine its strength, the determination is readily made by noting the deflection of the needle and taking the reading off the scale. Of course the position which the needle occupies when there is no current flowing indicates the zero point—or point indicating that there is no current flowing.

The sensitiveness of the instrument is greatly increased by making many turns of the electric wire around the compass needle case. This coil can then be cut loose from the circuit, and if the ends are provided with binding posts, the instrument is at once portable and can be used to measure the strength of any other electric current. It is thus by the external effect of the current that we are enabled to determine both its direction and its intensity.

ANOTHER SIMPLE DEVICE.

There are, however, other methods than the above described, some of which are more practical than others, according to circumstances. A very common form of the current or ammeter is that in which a current, flowing through a solenaid, is made to draw an iron core into its interior. If from a spiral spring we suspend a core of iron about the size of a short lead pencil, in such a way that its lower end is just entering the upper end of a solenaid (a solenaid is simply a spool of insolated wire, having a hole through it like a spool of thread) and then allow a current to flow through the convolutions of the solenaid, the iron core will be drawn or "sucked" down, so to speak. And the stronger the current, so much the further will the core be drawn down. If the current is turned off the core will be pulled back to its original position by the force of the spiral spring. If now we put a pointer on the upper end of the core we can make a scale as before, by using known currents, so that at any future time we can determine the strength of an unknown current by noting the position of the pointer on the scale.

MEASURING THE PRESSURE.

We have thus shown how the quantity of current can be determined. The pressure is, however, also determined by its effect. For example, if we take a straight piece of very fine platinum wire and connect its ends by copper wires to the poles of a dynamo, the platinum wire will expand and contract, by the heat generated, according to the current flowing through it, and this current in amperes is directly proportional to the pressure in volts at the dynamo.

It is then obvious that the change in the length of the wire can, by means of a suitable mechanical device, be made to move a pointer over a scale, and then, if this instrument is calibrated with known pressures, other unknown pressures may easily be determined as before described in the current indicating instruments. The current indicating instruments are called ammeters, the pressure indicating instruments voltmeters.

SCIRI FACIAS.

THE ELECTRIC WORLD.

Possibilities of the New Welding Process and Other Applications.

[WRITTEN FOR THE DISPATCH.]

One of the most striking things in connection with the recent visit ot the British Iron and Steel Institute to New York, was the fact that so large a proportion of the time of the association was occupied with papers and discussions on electrical topics. One of the most important papers was that on electrical work in mining operations, in which it was shown that a large variety of work was now being done in our mining fields. Several papers treated on magnetic processes for the separation of metal from crushed ore, and the extent to which the work has been carried on may be inferred from the statement of one author, to the effect that from a mine in the Lake Superior region 11,000 tons of cencentrates had been shipped. Perhaps the most interesting papers was that by Prof. Elihu Thomson, on welding by electricity, in which he called attention to the variety and behavior of different metals under the welding process.

He adverted, moreover, to some new developments of the most important nature. Thus, for instance, the electric welding method is already largely used for making joints at the ends of wires. An apparatus has, in fact, been specially devised so that the lineman can make a weld joint while up a pole. In the manufacture of pipes a machine has been built which welds sections of six-inch heavy pipe. There is thus no limitation as to the length of pipe which can be welded. Another novelty is the manufacture of armor-piercing shells from sections of varied grades of steel, and without screw joints. Considerable attention has also been given to the department of machinery for chain work, and a working apparatus has been made which takes wire from a reel and turns out lengths of chain with electrically-welded links, the operation being automatic throughout. Another very interesting departure is that of heating rivets in plates by currents passed through them and welding them while hot. In numerous trials it has been proved that short straight sections may thus be used as rivets and both welds formed simultaneously, either as projecting welds or as countersunk. Yet other departures are an electrical brazing machine regularly in use in bicycle construction and the application of electrical methods to many tin-silvering processes.

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As affording a contrast to the general upward tendency in the price of materials of nearly every description, the late reduction in the price of incandescent lamps is somewhat remarkable. When the incandescent lamp was first introduced, its price was fixed and remained for many years at $1. A reduction was presently made which brought down the cost to 85 cents. Last year a further reduction to 75 cents was made, and it is now announced that the selling price of the 16 candle-power incandescent lamp will in future be 44 cents.

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THE signs that a good time is coming for the storage battery car are increasing. Recently compiled figures show that there are as many storage cars running to-day as there were of the overhead system only two short years ago. One of the cities in which the storage car has achieved one of its greatest triumphs is New Orleans, where it is the only substitute for horses. Accounts from England go to show that the English electricians are pressing closely on the heels of Americans in the development of "the system of the future for city car traction." The practicability of working electric trains by means of the storage batteries at present available still remains an open question. Some continuous trials have, however, been recently made with results of a satisfactory character. On one track four cars have been operated during the last four months with cells of a special railroad type. The road has numerous curves, and grades as heavy as 5½ per cent. These have taxed the cells to their utmost, the 100 cells on each car frequently being discharged at the rate of 45 electrical horse power. In one month these cars carried 59,000 passengers, with frequent loads of 100 passengers on a car. The batteries have made several runs of 63 miles with a single charge under these conditions, thus giving a good indication of their increased efficiency where the conditions are more favorable as to grades and curves.

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SOME idea of the almost unlimited field which electricians now find before them may be gathered from the advice given by Instructor Shepardson, of the electrical engineering department of Cornell University, to the senior electrical association, on "Opportunities Open to a Technical Graduate." He recommended graduates of electrical schools not to immediately enter some large construction shop, but rather to strike out in some undeveloped field. Among such fields of work he mentioned the following: Electric metallurgy, electroplating appliances, electricity as applied to chemistry, the simplification of the dynamo, electricity from heat, improvement of the arc lamp as to carbon efficiency, electric car lighting, decrease of weight of storage batteries, far-seeing by electricity, the telephone, the electrical utilization of the energy of the tides, animalism electricity or personal magnetism, "electro-therapeutics, utilization of atmospheric electricity and earth currents, improvement of gaslighting apparatus, a constant current dynamo regulator, an electric car truck in which the armatures may revolve whether the car is running or standing still, thus allowing the car to stop promptly when going down hill, as well as to start easily; a method of connecting the armature to the wheels, so as to dispense with gears and allow the armature to revolve in the same direction, whichever way the car is running; a trolley wheel combining good lubrication with conductivity, the reduction of loss of energy when going around curves, lightning arresters for cars and the getting rid of magnetism within electric cars.

People Who Don't Count.

Boston Herald.]

The people who don't count in this country number somewhere about 3,000,000, as near as we can calculate from a perusal of Mr. Porter's census schedules.

A CHAMPAGNE PANIC.

Big Scare Over the Ravages of the Phylloxera Vastatrix.

THE WORLD MAY GO THIRSTY.

Observers Stationed in Balloons Can See the Ocean Bottom.

DISEASE DUE TO USING TOMATOES

[WRITTEN FOR THE DISPATCH.]

According to the sensational statements which have recently been freely propagated, the champagne vineyards are on the eve of being destroyed by the phylloxera vastatrix, and in another year or two there will be no champagne. A writer on the subject gives some perfectly reliable facts and figures, which throw a somewhat reassuring light on the matter. The champagne vineyards yield on an average nearly 10,000,000 gallons of wine every year. Only a portion of this is converted into sparkling wine, the inferior growths supplying ordinary table wine for the inhabitants of the district, except in years of great scarcity, when they are utilized by some of the shippers. At the present time there are about 75,000,000 bottles of sparkling champagne in the cellars of the shipping houses who, moreover, hold a stock of over 4,000,000 gallons of wine in cask. The annual sales, however, average 20,000,000 bottles, so that the stocks in hand, large as they seem, represent only between four and five years' consumption. If, therefore, the champagne vineyards were on the point of being annihilated the wine might become altogether unobtainable, either for love or money, before the close of the century.

But it is by no means certain that the vineyards are about to be destroyed. No one can deny the serious ravages of the phylloxera in the Charente vineyards, but the latter have been largely replanted, and are now steadily recovering, for during the past few years they have yielded at each vintage an average of 44,000,000 gallons of wine, the whole of which has been converted into brandy. The real champagne districts, however, are confined to the Department of the Marne, and so far the phylloxera has not been found in any of them. It has, however, been detected in Treloup, in the Aisne, within 500 yards of the border of the Marne, and it is this which has caused the panic. It is thought that some of the young vines which have been purchased at Treloup during the last 12 months may have spread the disease through the localities whence the best varieties of raw champagne are derived. If such prove the case, the situation will be very serious; but at present it is impossible to arrive at any certainty on the point.

The phylloxera virtually disappears during the autumn and winter months, and no one will know until next May whether it has really penetrated the champagne vineyards or not. Meantime all precautionary measures are likely to be carried out, all the remedies indicated by the scientific research of recent years will be brought into play, and a large fund will be subscribed. If the champagne growers and shippers are only in earnest, they may succeed in annihilating the scourge even more promptly than did their confreres in the Medoc. The burning of contaminated vineyards, and the saturation of the soil with the most approved chemical preparations, may do much to check further invasion. The situation at the present time is certainly a threatening one, but is clearly a little too early to assert that there is to be no more champagne.

Balloons for Naval Purposes.

Some experiments have lately been conducted by the French navy which will have an important influence on the future use of the balloon in time of war. A balloon was constructed with a capacity of 11,300 feet, especially for experimental purposes. It was inflated with hydrogen, which was carried in reservoirs under a pressure of 100 atmospheres. A tail rope 130 feet long, served to connect the balloon with a ship of the fleet, when the balloon was required to be kept captive for reconnoitering purposes. It was found that on a clear day all important objects within a radius of 18 to 24 miles were clearly distinguished. Another very important point was that the waters of the sea, when observed from a considerable altitude, were found to be singularly clear, and the details of the bottom were in one of the ascents perfectly distinguishable, even at a depth of 80 feet. This peculiarity allowed an observer in the balloon to follow the movements of the submarine boat Gymnote, during its recent trials, without losing sight of it for a single moment, whatever its depth of immersion. The balloon used on this occasion was very stoutly constructed, having been a short time before towed at a speed of 10¾ knots an hour for a distance of 21 knots, by a torpedo boat, without being any the worse. Germany has now adopted balloons for naval purposes, and during the recent manœuvres at Wilhelmshaven, one of these was used from a warship of the fleet for reconnoitering.

Preserve the Health.

Dr. William Pepper has been giving some useful hints to those who are willing to expend a little care and common sense on the preservation of their health. He is of the opinion that our object should be not merely to be free from disease, but to fully enjoy the blessings of perfect health. He emphasized the influence of heredity and environment upon the constitution in general and the effects of personal habits—cleanliness, the proper manner of eating, and sufficient rest—as particularly referring to the majority of ailments by which people are afflicted. He said that hereditary tendencies and unhealthful surroundings might be very largely overcome by proper care of the skin, by taking cool baths daily and inducing friction afterward; by care in the matter of diet, eating slowly and avoiding the inclination to swallow insufficiently masticated food, and, above all, by giving body and mind proper rest. Dr. Pepper thinks, as do many who are unable to carry out his prescription, that people should have plenty of holidays during the year—not for the sake of idleness, but to effect improved conditions of health.

Champagne in Forty Hours.

The discovery of electrical tanning which reduces the time of the process from many months to a few days has its counterpart in the alleged discovery of a process by which the time of the manufacture of champagne is reduced from eight months to 40 hours. It is claimed that no foreign or deleterious substances whatever are added to clarify the wine, or to give it the genuine and delicate champagne color, but that these are simply the result of the natural fermentation of the germs and the sugar contained in the preparation.

To Make Tobacco Harmless.

A physician, in commenting on the fact that few smokers realize the extent of the harm done to the mouth, heart and nerves by tobacco, mentions a simple and effective method of rendering tobacco utterly harmless, without destroying the aroma. This consists of a small piece of ordinary cotton wool steeped in a 5 or 10 per cent solution of pyrogallic acid inserted in the pipe or cigar-holder. This will neutralize any possible ill effects of the nicotine.

Tomato Poisoning.

A singular disease has just been called to notice by a prominent physician. It is a form of recession of the gums of the superior molars, which is said to be due to the use of tomatoes as food. Great sensitiveness is manifested along the line of recession, similar to that of an exposed nerve. The only remedy has been found to be abstinence from tomatoes. If the disease continues the teeth fall out; not usually more than one being lost in a season.

Accumulator Explosion.

Quite a sensation has been caused in England by the recent explosion on board Earl Poulett's steam yacht. The vessel is lighted throughout with the electric light. Formerly the accumulators were stowed in the coal bunkers, but for convenience they had been removed to the deck, encased in lead, and covered with teak. The dynamo was worked by a small boiler in the engine room, which also heated the water for the general supply throughout the vessel. During a violent storm of rain Lord Poulett had occasion to go to the dynamo. As it was dark he struck a wax match, and immediately a terrific explosion took place, the yacht being shaken from stem to stern. It was found that the whole of the accumulators on deck had exploded, blowing the teak cases to pieces, and sending the glass fragments and splinters into the air. The dynamo was running at the time, and only ten minutes previously the engineer had examined the cells and found them all right. Each cell had a vent hole on the top for escape of air and for ventilation.

Electricians declare it to be one of the extraordinary things in their experience, and can in no way account for it, as it has hitherto been thought that under no circumstances could gas be generated in accumulators. The disquiet of the English public, which has, of late, been taking quite kindly to electric launches, at this occurrence, has been somewhat allayed by a theory which indicates that the mishap need in no way be attributed to the use of accumulators especially, as it appears they were properly ventilated. The latest supposition is that, during the violent storm of rain, water must have collected somewhere near the main conductors, or some uninsulated portion of the system, and have been decomposing, liberating hydrogen. A sufficient quantity of this gas, in conjunction with the atmospheric air, would naturally immediately explode on a light being struck.

Hypnotism Not Reliable.

Hypnotism seems to be generally regarded by English medical men as a neurotic epidemic. Its possible value as an aid in the cure of drunkards has done as much as anything else to attract favorable attention to it; but Dr. Norman Kerr, whose experience in the treatment of inebriates is extensive, has given his testimony against it. Since he discussed the subject some time ago before the British Medical Association, in a paper entitled "Should Hypnotism Have a Recognized Place in Ordinary Therapeutics?" he has been confirmed in his distrust of the alleged hypnotic cure. In republishing his paper he says his own experience, with that of his professional colleagues, who, like himself, would have been glad to find in hypnotism a safe and reliable remedy, has shown him that hypnosis is not reliable, and is, especially from its possible after consequences, unsafe. He says he keeps his mind open for further evidence, but in the meantime he regards the alleged advantages of hypnotism as far outweighed by its disadvantages and dangers.

Epidemics Among Animals.

The epidemics which show themselves at certain intervals in cattle and other domesticated animals have recently been the subjects of many reports and discussions. Among these diseases none has attracted more attention than that which has recently decimated canaries and other cage birds. Not very long ago upward of 1,800 canaries died in one year at Norwich, England, and occasioned a loss to the owners estimated at $5,000. A medical man is now stated to be hard at work inquiring as to the true cause of the disease, which at present is thought to partake of the character of diphtheria. The subject is an important one, as the transmission of diphtheria to children from domestic animals has come to be not only frequent, but occasionally most serious in effects.

Firing Great Guns.

On the assumption that the rapid heating of the interior shell, while the outer shell is comparatively cool, is the chief cause of the bursting of great guns, an inventor proposes to cool the gun after each discharge by the rapid introduction of liquified carbonic acid gas. He claims that his special mode of doing this, used in connection with a peculiar arrangement of the powder chamber, by which it is much contracted in area at the front end, can be utilized in discharging high explosives. His theory is that the released gas goes out between the projectile and the bore, and keeps the former from heating. Whatever may be the merit of this theory, there seeems to be no authentic record of its having been put into practice.

The Conduit System.

There are many signs which point to the fact that the improvements which have been made in the conduit system for street car work have raised it very much in popular estimation. Before long this system will be in actual operation on an existing horse road. The system appears to be the ideal one to many who object to overhead lines, and the first one proved to be a practical success will reap a rich reward. A successful closed conduit system would be gladly welcomed in many towns and cities which are now waiting for electric traction, but are not willing to accept the responsibilities and incur the inconveniences of overhead lines.

Revolution in Diamond Mining.

A writer on the subject of the diamond supply of the world, which is steadily increasing, and which can be regarded as an index of how much of its surplus earnings it can afford to spend yearly in this particular form of luxury, says that the romance of diamond mining is all gone. It is now a matter of excavating vast beds of blue clay by machinery, washing it and sifting out the diamonds, which, after being roughly sorted for size, are sold in bulk by weight. The men who do the work are mere laborers and their pay is proportionately small.

Creosoted Wood for Mining.

In all European countries creosoted wood is used, wherever possible, on account of its lasting so long. The process of creosoting is not an expensive one, and in view of the excessive use of wood in mines, it is suggested that it would be economy for all collieries to use only creosoted timber in permanent haulage roads, shaftways, stairways, etc., and in the case of the larger companies it would pay to secure the right and erect creosoting works of their own.

Poisonous Fungi.

The Berlin police have issued a "caution" against the indiscriminate consumption of dried mushrooms, which are largely used in soups, stews, etc. It is asserted that packets of these dried mushrooms frequently contain poisonous fungi, and the public are warned that edible mushrooms when dried remain white, whereas the poisonous species acquire a bluish tint.

New Idea in Jewelry.

A new idea in jewelry is the imitation of grapes, both green and purple, in sardonyx submitted to different degrees of heat until it takes on the different hues of green and ripe fruit. These grapes are mounted on sleeve links, with a gold chain connecting the fruit, or set in diamond hoop, or with diamond tendrils, for brooches.

New Torpedo Net.

An English wire worker, now naturalized in this country, has invented a torpedo net which is soon to be submitted to an official test, and which is said to possess points of considerable merit. The net is constructed of interlocking steel rings.

Parsimonious Christians.

Indianapolis Ram's Horn.]

What wonderful things would happen in the church, if so many people who ought to bring oxen to the altar wouldn't try to get off with pigeons!

OWLS ON THE PERCH.

They Sit With the Middle Toes in Front and the Others Back.

THEIR THUMBS WORK BOTH WAYS.

A Young Bird That Swallowed So Many Mice the Tails Stuck Out.

WHY THEY SHOULD BE PROTECTED

Much may be learned, says the London *Saturday Review*, from a visit to the "owls cages" at the Zoo. For example, it is hardly a matter of common knowledge that the barn owl, the commonest and best known of our British species, has practically a world-wide range, the countries in which it is not found being very few. Yet that it is widely distributed will be palpable to any one who notices that two birds of this species, the one from the "British Islands," the other from Chili, are confined in the same cage.

Again, how many people are aware that owls, when perched, sit with two toes in front of their perch and two behind? This piece of knowledge has most certainly been acquired by very few bird-stuffers, and apparently is not possessed by many writers on birds, or the artists who illustrate their books (curiously enough, neither Yarrell nor his artist appear to have been acquainted with the fact), yet a visit to the Zoo will convince the most skeptical that this habit is possessed by the whole family.

CONSTRUCTION OF THE FOOT.

The construction of the owl's foot is peculiar; unlike the well-known foot of the parrot, which has two toes in front and two behind it, like that of the eagle, or—a more familiar example—the common sparrow, has one toe behind and three in front, but the first of these is capable of much lateral motion, while the fourth, or outer toe, is reversible, and when the bird perches is turned backward, so that the bird sits on its perch with the two middle toes in front and the two outer toes behind.

Owls are the farmer's friends, and are practically harmless to the game preserver.

The food of the owl can be determined with absolute certainty, as the bird swallows its prey, bones, fur, feathers and all, and afterward disgorges the indigestible parts in the shape of pellets, numbers of which can always be found near his haunts—a well-known fact, yet one of which neither the farmer nor the gamekeeper takes the slightest notice.

WHAT THE FACTS ARE.

Dr. Altum, a German naturalist, examined hundreds of pellets of the barn owl and the tawny owl, among other species, with the following remarkable results: 706 pellets of the barn owl yielded the remains of 16 bats, 3 rats, 2,520 mice of all sorts, including voles and shrews, 1 mole and 22 small birds; while 210 pellets of the tawny owl—a bird which, according to most gamekeepers, and even to many writers on game-preserving who should know better, is a most inveterate poacher—yielded 1 stoat, 6 rats, 371 mice, voles and shrews, 48 moles and 18 small birds, to say nothing of beetles and cockchafers; and we are quite sure that anyone trying the same expeiment as Dr. Altum will arrive at the same results. Naturalists have from time immemorial done their best for the owl by describing it in its true character as a mouser and a friend to the farmer, and it is therefore extraordinary that in these days of universal education the usefulness of the owl should still remain as a lesson to be learnt by those to whom it spends its existence in doing good. Yet so it is, and the unfortunate birds are still persistently destroyed.

GAMEKEEPERS POOR AUTHORITY.

That the gamekeeper should be an owl-slayer need, however, cause little wonder to those who are acquainted with him and his ways; for we venture to say that there are few people, with his opportunities, at all events, who are so singularly ignorant of natural history as the average gamekeeper. He lives on tradition and is hard to teach; owls were vermin to his forefathers, and this is sufficient for him, he would rather not argue the matter, vermin they are, and must, therefore, be destroyed. Unfortunately he is often encouraged in his senseless slaughter of these beautiful and harmless birds by his employer, who in many cases is more ignorant of everything connected with natural history than himself, and is willing to pay so much a head for all the "vermin" his keeper can procure.

But that farmers should join in the slaughter is curious and shows most lamentable ignorance; yet many of them will remorsely shoot an owl whenever they have an opportunity, under the mistaken idea that it will destroy their pigeons, and utterly regardless of the fact that it is doing its best to free their land of rats and mice.

AUTHORITY OF A LORD.

Under these circumstances we are pleased to find that so high an authority as Lord Lilford, the President of the British Ornithologists' Union, has taken up the cudgels in defence of the owl, and his remarks, which are to be found in a recent number of his Colored Figures of the Birds of the British Islands, are so trenchant and to the point that they should have the widest possible circulation, and, therefore, we make no apology for quoting them very fully; he says:

"The stolid and unenlightened gamekeeper may plead that owls do eat birds, and, as I have just stated, so they do; but if he allows his young hand-reared game birds to be out of their coops at the time that owls are abroad in search of food, surely the blame for losing them attaches justly to him and not to the tempted owl. I need hardly say that wild-bred game birds, while small enough to be attacked by the barn owl, are carefully stowed away under their mother's wings at the time when the 'bird of night' is on the quest of prey. I have examined hundreds of the pellets cast up by this species, in and under their nesting places, and never discovered either bones or feathers of any game bird, the castings consisting mainly of the fur and bones of small mammalia, with feathers and skulls of seed-eating birds, and occasionally a few bones and scales of small fishes."

SWALLOWED NINE MICE.

As showing the infinite amount of good done by the barn owl, he adds: "A young owl of this species, which I kept as a pet in my school days, on one occasion, when about half-grown, swallowed nine full-grown house mice in rapid succession till the tail of the ninth stuck out of his mouth, and he could do no more, but within three hours he was hungry again and was barely satisfied with four more of the little quadrupeds. With this appetite and capacity for stowage the number of four-footed vermin supplied by a pair of barn owls to a brood of six or seven ravening youngsters may well be imagined; I have seen an old pair bring food to their brood 17 times in half an hour from a rick yard near their nest."

Every right-minded man will sympathize with the writer in his concluding sentences, which are as follows: "A great number of these and other owls are massacred and sold to be made into fire-screens and plumes for ladies' hats, barbarities upon which I can hardly trust myself to enlarge. The bird-manglers who devote themselves to this branch of art almost invariably put glass eyes of the wrong color into the distorted faces of their victims, and in every way shock all the better feelings of our human nature."

EXTENT OF A POPULAR ERROR.

We have little doubt that the constant persecution suffered by these useful birds, and the constant diminution in their numbers, has much to do with the plague of rats and mice from which so many parts of the country are at present, and have long been, suffering. This is a plague which, if owls were encouraged instead of being destroyed, they would doubtless do much to mitigate; but at present the unfortunate birds have no chance, their very endeavor leading to their destruction.

For example, we [illegible] ld by a farmer in a highly-preserved district that his stacks, being attacked by numberless rats and mice, attracted, as he expressed it, all the owls in the neighborhood; the unfortunate birds, in their turn, attracted the keepers, and were everyone of them ruthlessly killed, to his great detriment, but to the benefit of the keepers, whose master paid a fixed sum per head for all "vermin" destroyed on his estate. In conclusion, we will only add that whatever may be said about other birds included in the gamekeeper's list of "vermin"—and much may be said for more than one of them—there can be no doubt that the owl should have no place there, but should instead become an object of preservation as one of the best bird friends that the farmer possesses.

RIVERS AND LAKES OF FIRE.

A Photographer Catches Realistic Views of a Hawaiian Volcano.

Paradise of the Pacific.]

Mr. J. J. Williams, the well-known photographer, who went forward, immediately, to the volcano on hearing of this latest outbreak returned this morning (October 21), and in conversation he stated that it was no use to try or attempt to describe the awful grandeur of this latest phase in the volcanic working.

"I have taken some good pictures," said the photographer, "and such as no one else is liable to run the risk or have the appliances to obtain. The courtesy of the managers of Wilder's Steamship Company and the Volcano House helped me to obtain views that I never could have, nor any else, obtained alone; the guides were detailed to assist and they did.

"Do you see that," said Mr. Williams, holding up a negative which looked like a storm at sea, "now, that is something for you to describe if you can. Those seething waves are waves, but waves of fire, red-hot, unadulterated volcanic fire. This smooth, lake-like looking picture," holding up another negative, "is a lake of solid fire. The changes are constant and grand and beyond the power of artist to depict or writer to describe. Tourists there now are in ecstacies and pay visits daily to the fiery furnace, and each time are enthralled with new changes in the volcanic pictures."

WAGING WAR BY WIRE.

Pride, Pomp and Circumstance No Longer Figure in Glorious War.

Milwaukee Wisconsin.]

"The great General of the future," said a prominent military critic not long ago, "will be a quiet man at the end of a telegraph wire." To a certain extent this description applied to Field Marshal Von Moltke. But it will be still truer of the successful leader in the next European war. A dispatch from London shows how England is preparing for the change. It says:

An elaborate system of war telegraphing has been arranged between the Admiralty Department and the Postoffice. It is now possible by this arrangement, upon short notice, to connect every telegraph station on the coast directly with the Admiralty office.

Quite a contrast between the old picture of "the Duke of Wellington, riding about amid fire and cannon balls," and a military leader who does his work sitting at a desk in an office like a merchant, conning bulletins from his various subordinates as they come in on a "ticker," and dispatching orders not by aides de camp, but by telegraphic dispatch, just as a speculator wires his broker to "buy ten September!" There is nothing dramatic about that way of conducting a campaign. The picturesqueness of poetry are knocked out of war, and it has become a grim business even in its superficial aspects, as it always was in its underlying reality.

POOR LO'S BEST WEAPON

In the Struggle Against the Cupidity of the White Man.

The following is an extract from Governor Jones' recent message to the Choctaw Council:

"We are surrounded by the restless and jealous white race and are daily brought more into competition with its members. In this struggle we must be well armed to hold our own. Our best weapon, our surest defense, is education. We have done much in this direction, and the history of the world shows no such example of progress as has been made by our people in the last half century. Much yet remains to be achieved.

"There is a class of citizens among us who, while they have equal advantages with our Indian youth in the neighborhood schools, are yet comparatively neglected in the higher branches of education. I refer to our citizens of African descent. If not legally we are morally bound to give to the children of those citizens every possible educational advantage. It is, moreover, necessary to our safety as a nation."

In Praise of Hawaii.

Joe Barnet, in Paradise of the Pacific.]

There's a little Island Kingdom
In the dreamland of the West,
Resting like a jewelled necklace
On the Ocean's heaving breast;
Where the lavish hand of Nature
Doth her choicest favors bring,—
All the glories of the summer,
All the graces of the spring.

From the vale abloom with flowers,
To the glowing mountain height.
What a paradise of beauty,
What a world of life and light!
Night, a veil of shining silver;
Day, a mellow of golden glow;
Sky, a heaven of light above us,
Earth, a heaven of bloom below.

Over-Schooling Not Over-Education.

School Journal.]

Bismarck believes that there is such a thing as "over-education." There is such a thing as over-schooling; of that there is plenty of evidence. He makes a mistake in confounding things that differ. He says: "Over-education in Germany leads to much disappointment and dissatisfaction; in Russia, to disaffection and conspiracy. Ten times as many young people are educated there for the higher walks of life as there are places to give them, or opportunities for them, in the liberal professions, to earn a decent living—far less wealth and distinction."

Paid $9,000 for a Kiss.

Detroit Free Press.]

A German baker kissed his servant girl 22 years ago, and another German saw the transaction. He agreed to keep still for $8 per week, and for 22 years he has been paid that sum. The baker came to this country and settled in Chicago, but the blackmailer came also, and it was only the other day that the police broke him up.