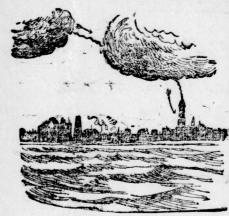
LESSONS FROM

Ontario's Recent Exhibition of Atmospheric Electricity.

Lightning and Its Tricks-Heavy Rainfalls Due to the Electrification of Clouds-Storms That Are Dangerous and Those Which Are Not-The Nature of Lightning.

The people of the Province of Ontarie, as well as these living further afield, have during August this year experienced electrical sterms that presented excellent object lessons of the terrific force of atmospheric electricity. Fortunately there have not been many deaths to record as the results of its vagaries, but very many of our farmers have felt its dire effects in the loss of their barns and season's crops from the resultant fires that followed its too close contact with these comparatively isolated structures. These storms following as they did the remarkable period of sultry weather of the last of July, strengly suggested that such weather was in some way due to the presence of this Abnormally changed atmosphere.

On this point scientists are still at Variance, but the belief of the experts en the subject is that atmospheric electricity

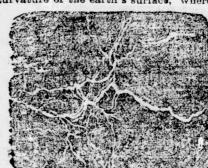


will be found to have a very much greater influence upon meteorological conditions than at present supposed. Many laboratory experiments have been made which confirm this belief, showing an evident connection between the electrification of the atmosphere and the phenomena that accompany thunder storms.

One of the most striking was devised by the late Robert Ven Hemholtz, ene of the greatest scientists of the age. He showed that a cloud of visible steam escaping from an orifice was darkened and rendered opaque by the discharge of electricity into it from a point. The ex. periment was exhibited several times in public by him, and it was exceedingly striking to see the light, fleecy steam change into a dark, lurid cloud the in. stant it was electrified. The peculiarly actly reproduced by this experiment, and it is impossible not to suppose the two things connected, although the precise cause of the extra opacity is not especially

The heavy rainfall usually accompanying thunder storms is now believed to be due in some manner to the electrification of clouds so formed, and the precipitation of the moisture in the characteristically large drops are phenomena likewise attributed to electrification of a dust and

moisture-laden atmosphere. One of the lessons taught by the recent storms, if taken to heart, would greatly lessen the fears of the many who are afraid of lightning. Such people confuse storms such as that of the 16th and 17th of August, which were central over much of Ontario, with storms that are miles and miles away from them. To determine whether a storm is central or far away is a very simple problem. It is a well-established fact that sound never travels more than about 1,100 feet a second, whereas light, the lightning flash included, travels at a speed of about 225 .. 000 miles a second. Consequently, no matter how far away, the lightning may be, it is seen at the same instant by every eye within the radius of vision, due to the curvature of the earth's surface, whereas



A FLASH OF LIGHTNING.

the thunder, which is produced simultaneously with the flash and is supposed to be due to the noise caused by the air rushing in to fill the partial vacuum caused by the passage of the electric discharge, is heard by people at different distances from the storm centre at intervals proportionate to their distance from 1t. This distance can be roughly determined by watching the flashes and counting the seconds that clapse before the thunder is heard. During the storms



FOR BILIOUS AND NERVOUS DISORDERS such as Wind and Pain in the Stomach, Giddiness, Fulness after meals, Headache, Dizziness, Prowsiness, Flushings of Heat, Loss of Appetite, Costiveness, Blotches on the Skin, Cold Chills, Disturbed Sleep, Frightful Dreams and all Nervous and Trembling Sensations, THE FIRST DOSE WILL GIVE RELIEF IN TWENTY MINUTES. Every sufferer will acknowledge them to be

A WONDERFUL MEDICINE. BEECHAM'S PILLS, taken as direct-

ed, will quickly restore Females to com-plete health. They promptly remove obstructions or irregularities of the sys-tem and cure Sick Headache. For a Weak Stomach Impaired Digestion Disordered Liver

IN MEN, WOMEN OR CHILDREN Beecham's Pills are Without a Rival LARCEST SALE of any Patent Medicine in the World. second elapsed between them, showing that the discharge between the clouds and the earth had taken place within a short distance. Such a storm is exceedingly dangerous, and during one people should shut down all windows, shut off eleptric fans and keep out of draughts and away from windows. These precautions are necessary from the fact that a column of air in motion is a compara-tively good conductor of electricity, and electric discharges invariably take the

path of least resistance. When the thunder follows the lightning at long intervals, of from 10 to 15 seconds, etc., there is comparatively little dauger. Moreover, it should be borne in mind that a flash once seen, the danger from it has passed, and it is too late to

In the open country it is best during a severe thunder storm. by which is meant a local storm, not to seek shelter under a tree, but rather to take the wetting Trees, owing to their height, are prominent terminal points for lightning discharges, just as high steeples and towers are in the city, offering, as they do, a path of small electric resistance.

It was Benjamin Franklin with his historic kite who first demonstrated, in 1751, the indentity of electric discharges and lightning flashes, which were previously regarded with superstitions awe. As soon as the nature of lightning was

it were immediately devised and fatali. ties lessened. It is curious in the light of present day knowledge to learn that the use of lightning rods at first was prohibited as heretical in the extreme and a defiance of the Almighty. As above stated the atmospheric electricity collects upon clouds until its pressure or tension is so great as to overcome the resistance offered by the path through the air and other objects to earth, seeking out that path which has the least effective resistance. These discharges are nothing more than huge electric sparks passing between two

The path of the discharge is not zigzag, as was supposed for many centuries, the first photograph of a lightning flash dis-posing of the idea and showing the sinuous form of our illustration, which is the reproduction of a photograph of an actual flash. Photographs of lightning flashes taken in all parts of the earth invariably show this sinuous form. The lightning may be a single sinuous flash or it may branch out in the manner shown. Or it may meander about the sky in a very remarkable manner, resembling nothing so much as a piece of soft string carelessly thrown upon a table, having the twists and turns and crossing its path again and again. Such a discharge is known as a meandering discharge, and many such were observed on the 16th of August in the track of the storm through the prov-

After one is familiar with the sinuous form of lightning it is very easy to verify it by the naked eye. The path of least effective resistance between the charged cloud and the earth may be from one cloud to another and from this one to the earth. The origin of the electric charges of the clouds is still a matter of speculation, although the consensus of opinion ds to the belief that they are pr by the friction of clouds of mist driven by the winds along the earth's surface. A lightning flash is, therefore, a spark discharge between cloud and earth, which are two oppositely electrified surfaces, as indicated in our diagram, representing the discharge from cloud to cloud and thence to earth. The positive charges are indicated by plus signs and the negative charges by a minus sign, the conventional

signs for opposite electrifications. Lightning flashes are known to be oscillatory in character, and hence they are subject to the laws of alternating or oscillatory currents, so that the path of least ohmic resistance is not necessarily the path followed, the impedence due to the choking effect of coils being an important function of the circuit. This fact is taken advantage of in the construction of arresters for the protection of electrical machinery which would be often seriously damaged in regions of heavy thunderstorms, as in some of the mountainous regions of West and South Africa. However, every station is nowadays provided with lightning arresters, all railway lines, lighting plants, telephone and telegraph circuits, etc. When a lightning flash, or, in fact, any electric current, passes in the neighborhood of a conduc. I walked one day, a long, long way, tor, it induces in such conductor a current, and it is these induced currents that are destructive to electrical machin-

The long copper lines, forming the best of conductors, have induced in them by lightning discharges electrical currents of abnormal strength, and these, following the circuit back to the central station, are choked off by means of coils of the magnets used in almost all electrical machinery. This choking effect produces a disruptive discharge, breaking down the insulation and thus causing consider. able damage, rendering the machine or instrument inoperative. By inserting impedence for the disruptive discharges, these currents are diverted or shunted away from the machinery, and thus safe-

ly conducted to earth. Science affords much consolation to those unfortunate individuals who are afraid of lightning. Large office buildings, owing to steel skeleton structure, are excellent places to lodge during heavy thunderstorms, as they form huge lightn. ing rods which conduct the discharges safely to earth. Trolley cars also are safe places during a storm, for, if the line should be struck, the discharge would, following the conducting paths of the trolley circuit, be directed through the motors and controlling apparatus, perhaps burning these out, but nevertheless directing it from the car bodies. The network of wires and conductors and tracks form such excellent paths for the discharge that the car body would go unharmed under every circumstance.

The statistics of lightning fatalities are also very encouraging. The Electrical Engineer some time ago published full and complete statistics of the subject of accidental deaths for New York City, which does not differ particularly from any other large city or town. These figures proved conclusively, by records extending over long periods, that a person in a large city is very much more apt to be killed by a brick falling upon his naturally made up her mind that the head, or by being kicked to death or run man in the pulpit had things to sell. over by a horse, than of being killed by lightning. The probabilities are also greater that he will be drowned than killed by lightning. As many people have no fears whatever for the first two dangers, and few for the latter, there is her into silence, which lasted till the much comfort to be derived from these "round up" came upon the "secondly." figures. It is also stated to be safer to when with all her soul excited by the live in town than in the country as repulpit thunder of the preacher she gards danger from lightning. This would seem to be borne out by the experience of this province this summer.

of this province this summer. Woman is heaven's best gift to man, and it is a burning shame that sixt frequently has to chase him up and make him take her

PICKEDUPIN PASSING \$250

+0+0+0+0+0+0+0+0+0+0+0+0+0+ A Song of the Camp.

The Poets.

Give us a song!" the soldiers cried, The outer trenches guarding, When the heated guns of the camp al-Grew weary of bombarding.

The dark Redan, in silent scoff, Lay grim and threatening under; And the tawny mound of the Malakoff No longer belched its thunder.

There was a pause. A guardsman said: "We storm the forts tomorrow: Sing while we may; another day Will bring enough of sorrow." They lay along the battery's side,

Brave hearts from Severn and from And from the banks of Shannon. They sang of love and not of fame,

Below the smoking cannon-

Forgot was Britain's glory; Each heart recalled a different name, But all sang "Annie Laurie." Voice after voice caught up the song, Until its tender passion Rose like an anthem rich and strong,

Their battle-eve confession. understood methods for protection against Deargirl! her name he dared not speak But as the song grew louder, Something upon the soldier's cheek

Washed off the stains of powder. Beyond the darkening ocean burned The sunset's bloody embers, While the Crimean valleys learned

How English love remembers. And once again a fire of heli Rained on the Russian quarters, With scream of shot and burst of shell,

And bellowing of the mortars! And Irish Nora's eyes are din For a singer dumb and gory; And English Mary mourns for nim Who sang of "Annie Laurie."

Sleep, soldiers! still in honored rest Your truth and valor wearing; The bravest are the tenderest, The loving are the daring.

-Bayard Taylor. In Shadow.

God sets some souls in shade, alone; They have no daylight of their own, Only in lives of happier ones They see the shine of distant suns.

God knows. Content thee with thy night, Thy greater heaven hath grander light, Today is close. The hours are small, Thou sit'st afar, and hast them all.

Lose the best joy, that doth but blind; Reach forth a larger bliss to find. Today is brief; the inclusive spheres Rain raptures of a thousand years. -A. D. T. Whitney.

Persian Love Song.

As a cloud to the wind I am docile to thee: would I be, And deep in thy thought as a pearl in

the sea. Thou art gone-falls the dark! Thou art here-breaks the morn! sunlight without thee seems brilliance forlorn; And this world's a dead king, of all

royalty shorn. What is love but a bird that would touch the blue sky? What is love but a viol-string pitched far too high?

What is love but the heart's unappeasable cry? I wait thee, heart's dearest-let life be the grove Where I long for and meet thee, and

> stars above! -London Spectator.

green lawns for carpet, the white

Boys and Girls. 6<0<0<0<0<0<0<0<0<0<0

walk with my love-

The Nobody Man.

Down to Topsy-Turvey Town, Where it's day all night, and it's night In the land of Upside Down. And who do you think was walking

round? Imagine it if you can: In the land of Upside Down I found The Nobody man!

His head was bowed, and he groaned aloud, With the burden that he bore: Misdeeds and mishaps, a wonderful

crowd. Till there seemed no room for more. "And why are you so heavily tasked, On such an unequal plan?" As I sat on a wayside seat, I asked The Nobody man.

He sat him night with a doleful sigh, And he said: "It needs must be; What 'Nobody' does at home so sly Is shouldered here by me. The slips and mishaps that are, soon

or late,
Denied by the careless clan,
In the land of Upside Down all wait
The Nobody Man,"

He passed along with a doleful song, This overburdened wight, And, bowed with the weight of other

He hobbled out of sight; And I don't understand how it all can Or why he should bear that ban, But-well, 'twas a wonderful thing to

The Nobody Man!. -St. Nicholas.

Lucy's Estimate of the Sermen.

Lucy had never been to church, but

yielding to the persuasions of the parson her father thought it worth while to "see how she would behave." was too young to "catch on" to the theme of the sermon, and never having heard any one before shouting of crying out with unusual stress except the street vendors, She kept very quiet until he had reached a climax in his "firstly," and then joining in her apparent excitement she shouted at the top of her little voice, "Wipe Stwabewwies." Astonished and chagrined her papa "shoo'ed'

her that people in the pews were not strongly recommend it. expected to say what they thought of the sermon; and that even though the GEO. HOUGH, delivery might remind them of the "old clo" man, it was not considered polite to let that be known

The young Queen of the Netherlands will formally assume the reins of government at 6:30 p.m. on August 31, that being the hour of her birth. Senator Cox, of Toronto, has given the Countess of Aberdeen a residence on Somerset street, Ottawa, as the headquarters for the Victorian Order

Lord Dufferin, who is now over 70 years old, has lately set about the acquisition of a knowledge of the Persian language, thereby rivating his Queen, who, at nearly the same age, began to study Hindostanee.

Sir Henry Hawkins, the sporting justice of the Queen's Bench, though he is 80 years of age, does not intend to write his memoirs. He says: "If you begin by saying what a splendid fellow you are, they call you egotistical; and as for saying anything against myself, I'll be hanged if I will. Would you?"

The latest convert to bicycling is said to be Prince Honenlohe, the elder-ly imperial chancellor, of Germany. The Bishop of Bath and Wells, in England, who is a confirmed wheelman, declares that bicycles are an auxiliary of Christian effort. The only difficulty ne finds is that in wheeling about his diocese, his clerical robes suffer a great deal from being crushed into a small space. He wishes that some clerical tailor would suggest a way of transporting a bishop's ropes on a wheel without injury to them. Here is a chance for an inventor.

While it is not always true that people give to the causes they believe in, it is generally the case that the causes they give to they believe in. To a man who had evidenced no interest in foreign missions, the following advice was proffered by an advocate of that cause: "Give a hundred dollars to missions, and if by that time you do not feel an interest in the cause, give two hundred; and if the interest still fails to come, give three hundred dollars, and so on!" All was have ever acted upon this advice have probably turned out to be warm advocates of world-

wide evangelization. Reciprocity seems to be the order of the day, in language as well as in commerce. For years there has been an incursion, or adoption, of French words and phrases into English speech Now there is a similar incorporation of English expressions into the current speech and literature of France. While we speak of "the beau monde," Parisians speak of "le high life;" as often as we mention a "soiree" or a "mat-inee," they tell of "une five o'clock tea;" and when we pronounce a thing "very chic," they respond that it is indeed "tres smart." Is this an indication that the universal language of the future is to be a polyglot?

A DREADED DISEASE

More People Are Tortured by the Pangs of Rheumatism Than by Any Other Cause-There Is a Cure for It.

From the Advertiser, Hartland, N.B. Mr. Richard Dixon, of Lower Brighton, is one of the most prosperous and to the nightingale sweet best known farmers of Carleton county, N. B. In June, 1897, Mr. Dixon tism, and for six weeks lay abed suffering all the tortures of this terrible disease. He grew so weak that he was unable to turn in bed, and his friends almost despaired of his recovery. At this stage, one of his friends, who had been cured of the same disease by the use of Dr. Williams' Pink Pills, urged Mr. Dixon to give them a trial, which day Mr. Dixon began the use of the pills an improvement was noted. Previously his appetite nad almost completely failed and the first sign of returning health was a frequent feeling of hunger. Then the pains began to leave him, and his strength gradually returned, and after using about a dozen boxes Mr. Dixon was as well as ever he had been. To a reporter of the Hartland Advertiser. Mr. Dixon said he had no doubt his present health was due entirely to the use of Dr. Williams' Pink Pills, and since his recovery he occasionally uses a box to ward off a possible recurrence of

the trouble. Dr. Williams' Pink Pils cure by maknew blood and invigorating the nerves. but you must get the genuine, always put up in boxes the wrapper around which bears the full trade mark name "Dr. Williams' Pink Pills for Pale People," Do not be persuaded to take, any of the pink colored imitations which some unscrupulous dealers say are "just the same." In case of doubt send direct to Dr. Williams' Medicine Company, Brockville, Ont., and the Pills will be mailed post paid at 50 cents a box or six boxes for \$2 50.

HOBSON A CHRISTIAN.

How proud the little village of Greenstoro, Ala., as the birthplace of young Lieut. Hobson, already distinguished for bravery almost without parallel. In the hour of her triumpn, what does his mother say of her boy? That "even as a child he looked upon life seriously, was religious, and duty ever his watchword. An earnest student, he economized time, was careful of his health, fond of athletic sports, and neither smoked nor drank. Methodical, he was exact in every detail, just as he was in the sinking of the Merrimac. For one so young, his life has been rounded and useful." What does he say of himself in a letter to his sister just before he left Key West? "Feeling that there has been earnestness of effort in my life, ready to accept the consequences, I hope to put aside every other thought, and bend entirely to the work in hand. To go into action without preoccupation, leaving all issues to the God who rules over all, to whom we must refer the mystery of life and the mystery of death. What wonder, that sustained by this calm beautiful trust,

"He faced the screaming shell, Faced it bravely, faced it well, Playing for a glorious stake, Risking all for country's sake."

This lesson to parents and children in true heroism, is too pointed to demand further comment or argument.

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