in Cyclone Caves



ORNADOES-what people in the West have been cutting up strange freaks lately. But that is a way they have. Science has for a long time been very anxious to discover reasons for the vagaries of wonderful storms, but as vet the laws controling them remain a great extent unknown. They have come to be

recognized as among the most destrue of natural phenomena, so that companies are now many insurance making it a part of their business to underwrite property against them. It has been estimated that, taking an average, each tornado costa one life.

No subject in the science of meteorelogy is of mich absorbing interest as that of ternadoes. Their performances, says the Washington Star, are so amazing and the manifestations by which they are accompanied are terrifying that the mind has difficulty in grasping the matter understand-As a rule they give fair warnof their approach. The air is neurlly very still and sultry. People feel depressed without knowing why. Dark and threatening clouds appear on the western horizon and the sky from west to south takes on a peculiar lural or greenish tinge. The "torbural or greenish tinge. The "tor-nado sky" is a characteristic feature. THE PUNNEL-SHAPED CLOUD.

From the suspended masses of vapor a sort of tail is seen to project itself Cownward. It gradually assumes, while approaching, the aspect of a gignatic funnel, with the small end toward the ground. This funnel moves with enormous rapidity, its speed being rarely under forty miles an hour and sometimes as much as eighty miles an bonr. As it comes nearer an indescribable roar is heard, which has been likened to the bellowing of a militor mad bulls or the rumbling of 10,000 trains of cars over as many bridges.

Still the great cloud advances, black as night, somewhat resembling an immense balloon, sweeping its neek round and round with terrible fury and destroying everything in its path. It whirls with almost incredible velocity. sometimes leaving the earth for a mo-ment, then bounding back to continue its dire havoe. The whole period of destruction may occupy only three or four minutes, but in that time towns are wiped out and fields are laid waste. A few minutes later the blue sky appears, the wind turns to the south and all quiets down. No one would sup-pose that a terrible catastrophe had occurred, save for the devastation that is all about and the cries of the unfortunates.

It often happens that the funnelshaped monster is preceded by a great cloud of dust, produced by an outrush of sir before the storm, so that the approaching danger is not seen until is immediately at hand. The mighty



BALLOON CLOUD AT NORTH VERNON, IND. JUNE 10, 1893.

balloon of vapor travels twice as fast as the tempest out of which it is engendered. It is frequently accom-panied by a vivid display of lightning. The width of the destructive path is rarely over 300 feet. In the central line all trees are strewn in the same direction, as though a mighty river hal passed and left them behind. Just after the tornalo usually come torrents of rain, which has caused these phenomena to be called "cloud-On one occasion hail was reported as having fallen to a depth of

four feet. CAUSES WHICH PRODUCE TORNADOES.

The causes which produce tornadoes are pretty well un lerstood. They are found very often in the Mississippi Valley, which, as is well known, is a region particularly liable to such atmospheric disturbances. Suppose that the day is warm and sultry and the stratum of heated air near the earth is full of vapor. A current of cold air flows in above. There you have a sit-uation which is calculated to make trouble. The cold air being much heavier than the warm, the natural place for it to occupy is the bottom layer, with the warm stratum on top of it. So there is a tendency for the two to change places. A meteorological squabble ensues, which produces

what is called a storm Presently the cold layer of air aloft finds a place in the warm layer below it, through which it can make its way

around in obedience to the same law which causes a stream of water pouring through a hole in the bottom of a



STONE COLLEGE BUILDING, ORINNELL, TOWN

Incidentally an bowl to revolve. enormous energy is developed. balloon of vapor goes sweeping along with a tremendous roar and an accompanying electrical display. It is nothing more nor less than a highly exaggerated thunder storm. Thunder storms are brought about in exactly the same way, save that the cold stratum above and the warm stratum below are mingled more gradually, producing less violent symptoms and forming no whirling funnel.

The tornado is precisely the same thing as a water spout at sea. Water spouts have often been dissipated by the firing of cannon, and it has been suggested that the explosions of dynamite might produce the same effect on the terrestrial phenomenon. The difficulty would be to get near enough, and nobody who could run away would care to stand his ground and for scientific purposes experiment with explosives on the sus-ceptibility of a "cyclone." Data respecting tornadoes are unsatisfactory, because those who have an opportunity to observe them are in such fear of their lives that their accounts are not apt to be reliable. No photograph of one of these whirling funnel clouds has ever been secured, though many bogus ones have been manufactured dak fiend, whom nothing can terrify, ported by heavy timbers and arched is abroad in the land, it may be ex-

matters declare that no structure can be raised by man above the surface of the earth which will resist the violence of this sort of storm. Not even massive a pile as the treasury building could withstand a first-class tornado. In the great "cyclone" at Grinnell, Iowa, a few years ago, which destroyed many lives and a vast amount of property, one of the buildings reduced to complete rain was a solid edifice of stone and brick used for a public school. The tornado tore it to pieces sensol. The tornado tore it to pieces as easily as if it had been so much lath and plaster.

On the contrary, a building of brick or stone is a more unsafe refuge from a tornado than a frame dwelling, because, if destroyed, it tumbles in and buries people in the ruins. When the famous "eyclone" of 1890 struck Louisville forty-four persons were killed in the wreck of the Falls City Hall. That storm wiped out seventy-six lives and \$2,250,000 worth of property in Louisville, and in other towns fifty-nine lives and \$1,000,000 in property. The whirling cloud, which was described as shaped like a turnip, struck Louisville at about 7.45 in the evening. The noise it made was com-pared to the passage of a heavy train of cars over a bridge a thousand times intensified. All the gas jets in the city went out or were nearly extinguished, and the crash of falling buildings added to the appalling rumpus, while a terrific electrical display served as an ac-companiment, balls of fire playing about. Apparently the lower end of the funnel did not touch the ground. the destruction being confined to the

upper stories of the houses. The only place where safety can be found against a tornado is under ground. In the region where storms of this type are frequent prudent people construct what they call "cyclone cellars." This is usually an excavation made through the west wall of the house outward, so that no part of it is beneath the dwelling. west side is chosen because the danger always comes from that direction, and, if the house is demolished, the ruins will be thrown away from the "cave." The floor of the latter is made level with the floor of the cellar, However, now that the ko-, and the earth roof of the cave is supwith masonry of brick or stone. These



AN APPROACHING TORNADO.

shots will be obtained. TRICKS TRIED WITH STORMS.

Men have stood within 150 feet of tornadoes on the north side, which is the safe side, without being injured. All sorts of foolish tricks have been tried with these storms. A Kansas man tried to drive across the path of one with a team and wagon, thinking that he could get over in time and be ing in a harry to deliver some lumber. The consequence was that he and the horses were killed and badly mangled, the cart being reduced to a wreck and the lumber scattered over several square miles of territory in the shape of kindling wood. People have actually refused to run away from a tornado with similar consequences. Others have made the mistake of running in front of it, thinking to outstrip it in the race. But it is a fact that anybody who has once encount-

It is not possible to determine with accuracy the path of a tornado until it is too near to be comfortable, save that its track is always from southwest to northeast. The question as to which way to run may have to be decided on instant. Supposing the danger imminent the proper way to do is to run either north or south, but never the east or northeast, because that is the direction in which the storm is moving. If it is only a mile away and coming directly toward the observer the latter has just about one minute to get out of the way. If he does not start wrong the chances are that he will excape. If in doubt strike for the north, for, as has been said, that is the safe side of a tornado.

ered a "cyclone" is always more than

his hole.

ready afterward to promptly "hunt



THE COLLEGE AFTER THE CYCLONE.

Happily, in the east such phenomena are comparatively infrequent, but there is not a State between the 100th meridian and the Atlantic Ocean in which they do not occur. Accordingly, nobody can be sure that he may not at some time have to tackle a tornado, and these rules, if not worth pasting in one's hat, should be at least remem-bered. As for seeking shelter from

pected that sooner or later some snap | are precautions against damage by the falling of heavy masses of debris. Sometimes a cave is dug apart from the house, but close by it, on the west side. It is made big enough to accommodate all the inmates of the

dwelling. Such a resort is a means of absolute safety. Fortunately, as has been said, the approach of a tornado is advertised in advance by umnistakable premonitory symptoms. The householder has simply to convey his family to the "eyelone cellar," close the entrance by a strong door provided for the purpose and await the passing of the danger. If a person finds himself in the path of the whirling monster him to do is to throw himself face



downward, with his head to the east and his arms over his head to protect If near a large stone or stump he should he down with his head toward the object, embracing it. If compelled to remain in a building he should go to the west room on the ground floor and stand in the center of it. It often happens that half of a house is torn away, the other half remaining uninjured. By seeking the west side one is more likely to escape being struck by debris.

A tornado struck the town of Morgan, Ohio, June 19, 1883. At 9.30 p. m. a householder, whose account is quoted, heard a roaring as of heavy thunder, which called him to the door. On opening it he immediately discovered a bright cloud, which had precisely the color of a glowing oven, apparently the size of a half scre of ground, moving rapidly in the direc-tion of his dwelling. The brightness of the cloud illuminated everything about. about. There was no lightning nor rain, but a continual and tremendous roar during the passage of the storm. The roaring of a tornado had been described as a combined woo-oo-oo and whir-r-r-r.

Tornadoes seldom occur singly. There are usually several of them in a line, which all run up the country toward the northeast. Frequently there are several lines, one following

no mfc in that. Experts in such meteorological distubance generates an immense amount electricity. Some of the things it does are such as, it would seem, could only be accomplished by electrical action. To this agency has been attributed the plucking of chickens, which is a common freak incidental to the passage of a cyclone. Fowls, without being hurt, are often divested completely of their feathers, and roosters are presently seen strutting about the stricken barnyard, crowing, though perfectly

POINTS IN DISPUTE.

There are many points about the tornado which are in dispute among meteorologists. Some of them are of the opinion that there is a partial vacuum in the middle of the whirling balloon cloud, and many witnesses speak of the manner in which the huge funnel sucks up everything in its path It is stated that the sucking sound is very distinctly heard as the monster rushes across the country. It certainly does take up water from streams, and one instance is recorded where a tornado completely emptied a well forty feet deep. Other authorities aver that in the midst of the revolving funnel there is a plenum, the reverse of s



IN THE PATH OF A TORNADO.

Some of the doings perpetrated by tornadoes are most astonishing. At Wallingford, Conn., August 9, 1878, a storm of this sort blew stone monu ments off their bases. It was estimated that the velocity of whirl required to accomplish this was 260 miles an hour. Children have frequently been lifted hundreds of feet into the air and laid down unhurt. It has been observed that objects uplifted by this agency do not drop with the ordinary force of falling bodies in many instances. whirling cloud at Pine Plains, N. Y., June 19, 1835, caught a man on a road with a team and wagon carrying a hogshead of sugar. The hogshead and contents weighed 1250 pounds. It, The hogshead and together with the horses and cart, was hurled over a stone wall. The man was blown in the opposite direction a distance of fifteen rods. Light objects are sometimes transported a distance of twenty miles. In one instance a horse was carried half a mile and put down uninjured.

People who are struck by tornadoes are commonly stripped entirely of their clothing, particularly women. In one recorded instance the trimming was taken off a dress as neatly as if it had been done by hand. Persons who meet with such a misfortune are apt to covered with mud, plentiful quantities of which seem ordinarily to be carried by the evelone. The hair women is tern from their heads and twisted into ropes sometimes. On one occasion a carpet, which had been securely tacked to a floor, was taken up and carried out of the house without being torn. Such freaks as the driving of a piece of scantling seven feet long and six inches square lengthunusual. Attempts have been made to refer the phenomena of tornadoes to spots on the sun, but it is not likely that any connection exists.

One Theory About Dyspepsia.

"Dyspeptics," affirms Doctor Austin well-known medical specialist, "are chiefly persons who eat regu-larly, restrict their diet to simple food in small quantities and constantly have their stomachs on their minds. I tell my patients to eat whenever they are hungry, even if it is just before going to bed-to eat as much as the appetite demands, to appease the thirst in the same way and live as sumptuously as possible. Gourmands may have gout they don't have dyspepsia.

George Washington's Cabin.

Half a mile from Berryville, in the Shenandoah Valley, stands to this day, though much dilapidated, an old log cabin which once sheltered George Washington when he was a surveyor. Thither he went directly from home



to begin surveying the estate of Lord Fairfax. At that time the country was wild and infested with Indians Washington's companion was George William Fairfax. Both were boys at the time, Washington being only teen, but tradition has it that they built the hut themselves. They used downward. It does so, and the perand these rules, if not worth pasting formance is exhibited to the eye of the observer by the appearance of a debered. As for seeking shelter from whirling funnels in quick succession. It whirls such a danger in a building, there is it is supposed that this form of miles away.—New York Recorder.

THE NATIONAL GAME.

HERRING has become Louisville's star Change, of Baltimore, is a railling good

Curcago has tried no less than eleven W. Brows has developed into Louisville's best butter.

BROWIERS, of Brooklyn, has yet to steal a

base this year.

KERLER, of Brooklyn, is very near the head in batting. Wann, of New York, struck out but once in seventy-two games.

Grasscook unquestionably strengthened the Pittsburg team. LATRAM captains the Cincinnatis in the

MULLANC, of Baltimore, pitches right-handed, but bats left-handed. GERMAN, of New York, is one of the best fielding pitchers in the profession.

Taylon and Reitz, of the Baltimores, can both catch behind the bat in an emergency, Turns are many who believe that bunting s the least interesting feature in ball playing. Theatway, of Baltimore, is undoubtedly the finest throwing outfielder in the League. Warn, of the New Yorks, never played better ball or hit harder in his life than this

McGann has been doing phenomenal work since he has been covering third base for Cleveland.

O'Cosxon, Dartmouth's pitcher, has signed contract to play with the Philadelphia League team.

Mone excursion trains are run to Cincin-nati to see ball games than in any other city in the League.

Owe of the silliest things a batsman can do is to change his position at the plate after three balls have been called. Execute has been by general consent chosen ing of League umpires. His work has

king of League umpires, overshadowed even Lynch's,

CATCHER GRIMS has had his salary in-creased by the Louisville Club and will do most of the catching hereafter.

Manager Basenory, of Cincinnati, has a notion, and declares it boldly, that "good fielding makes good pitching.

The signal to Hoy, the deaf mute out-fielder of Washington, is the right hand held up for strikes, and the left hand for balls.

Wise's work with the Washingtons is the curprise of the season. He is playing third lesse in Mulvey's absence, and seems perleetly at home there.

Tur New York Club has signed Pitcher Petty, of the Savannah Club. It purchased his release with the money obtained from Brooklyn for Kesler.

Sucarstor O Bourse, of the Louisvilles, can only talk in husky tones, on account of a blow he received in the throat some time age from a foul ball.

New York's great ambitton now is to beat Brooklyn out in the race. In fact, that and a place in the first division is all that is left for New York at this late day.

Nor for years has there been so much new blood infused at one time in the National League, to take the place of old-timers whose days on the diamond are numbered. MANAGER WARD, of the New York team

follows, until further notice: Baldwin and Doyle, Rusic and Milligan, German and Wilson, Davies and Keily. It is singular how quickly a man learns to play ball after he leaves New York. Keefe, Glasscock, Keeler, Boyle, Sharrott and Taylor are putting up a marvelous game this season, but while with the New Yorks they were indifferent.

The increase in batting under the five feet additional distance is aptly shown by the announcement that Thompson, of the Philadelphias, was the first National League player to make 100 base hits. This feat he accomplished during the second week in July. The 100 base hit mark heretofore has been reached about the last of August or the first of September

Base Ball Record. The following table shows the standing of

| the differe | nt | base | ball. | clubs up t | o d | ate | |
|--------------------------------------|----|------|-------|------------------------------------|-----|----------|----------------------|
| Boston Philadel'a | 64 | | .008 | Cincin'ti. | 42 | 47 | 9'et. 472 .456 |
| Fittsburg. Clevel'nd. New York | 56 | 37 | ,602 | Haltimore Chicago Louisy'te. | 39 | 51 54 | .433 .407 .305 |
| Brooklyn. | | | | Wash'n | | 58 | ,356 |

LATER NEWS WAIFS.

CHOLERA ADVICES

sum in silver.

Buchanest-Fourteen new cases of cholgraund six deaths were reported. Friday in Brahilov, 16 new cases and 11 deaths in Sooling, and 6 new cases and 1 death is Cerznawoda.

NAPLES-Ten new cases of cholera and 10 deaths were reported in this city on Friday.

In order to furnish the South with enough money to move the cotton crop, Secretary Carlisle will deposit currency in the sub treasury in New York and telegraph the New Orleans sub-treasury to pay out a like

Owing to the scarcity of \$5 and \$10 go. pieces, the Treasury has ordered the colnin or \$1,000,000 in eagles and half eagles at th Mint in Philadelphia.

CRIMES AND PENALTIES.

At a revival near Oakland, Ill., a youn man named Alexander quarreled with sev eral others over a girl and shot three mer one fatally.

WEATHER

The great drouth in Ohio was broken by heavy showers throughout the northwestern part of the state on Saturday.

WORLD'S FAIR RATES. The Railroads Will Make No More

Changes in Fares.
A dispatch from Chicago says: Eastern roads are extremely anxious that it should be clearly understood that the action of the general managers at yesterday's meeting in regard to World's Fair rates and arrange ments is final. It is not subject to reconsideration or possible change. The roads have had prepared the following official statement.

From all seaboard cities eight trains per week are run at one fare for the round trip, tickets good for 10 days. These are special excursion 30-hour trains, taking passengers from all points east of the Niagara river. Pittsburg and Wheeling. The number of these trains will be increased whenever the business warrants. In the territory west of the Niagara frontier, Pittsburg and Wheeling, all roads run excursion trains at one fare the round trip and will continue to do so." From all seaboard cities eight trains per

Yellow Fever Quarantines. Orleans, Augusta Ga., Birmingham Ala., and Savannah, Ga., have declared quarantine against Pensacola, Fla., where

vellow fever exists. All trains leaving the

latter place are crowded with refugees. A Royal Betrothal.

The betrothal of Prince John, nephew of the King of Saxony, to Princess Maria, of Wurtemberg, was publicly announced at Berlin on Saturday.

COLUMBIAN FAIR NEWS ITEMS

FINANCES OF THE FAIR.

FINANCES OF THE FAIR.

THERE HAS BEEN PAID OUT TO DATE \$23,101, \$21 AND \$23,081,417 TAKEN TW-RECEIPTS NOW AVERAGING \$30,000 PER DAY.

More than \$23,001,000 has been expended on the Fair to date. Or, in exact figures and according to the report presented to the directors by Secretary Seeberger, up to and including August 19, the cost of crating and maintaining the Exposition was \$23, 101 321,16. This does not include the floating indebtedness, which amounts to a few hundred thousands. To offset this \$23, 630,417.37 has been collected from various sources. Treasurer Seeberger now has on hand cash to the amount of \$527,254.91. In addition to the figures for the total receipts and disbursements. Treasurer Seeberger showed the gate receipts to be \$3,803,310.81. From other concessions, \$2,235,930 has been collected. The gross daily receipts are now averaging \$80,000. The expenses are about \$17,000. Since August 1 an average of \$40,000 per day has been paid on account of floating indebtedness.

Mr. Seeberger incorporated in his reportly statement concerning the souvenir half dollars, showing that, while they have had a satisfactory sale since the opening of the Fair, the demand for them is increasing with every prospect that the entire issue will be exhausted. Several hundred thou sand of the coins were taken to Jackson Park a tew weeks are and there now remain in the vault in the Treasurer's office only 2,541 of that lot.

SUNDAY AT THE FAIR.

NO ATTRACTIONS AND NO CROWD SAVE IN THE PLAISANCE—OFFICIALS HOPE SUNDAY OPENING IS AT AN END.

ofeniso is at an end.

The Exposition was open Sunday, but the attendance was light. Visitors were allowed in all the buildings except that of the Government, but most of the exhibits were closed. The management of the Fair offered no attraction of any kind, nor were there any services in Festival hall to induce the people to come out to the park. As a result nearly all of the sightseers spent the day in the Flaisance, where the only life in the grounds was apparent.

The hope is strong among Exposition of ficials and employes that this will be the last open. Sunday, and that by next Tuesday the Clingman injunction forbidding the closing of the gases on the first day of the week will have been dissolved.

The attendance on Sunday was only 18, 1996.

-Tue Executive Committee has accepted Theodore Thomas's resignation as musical director of the World's Fair and the free concerts in the big orchestra will be aban-

| MARKETS | 2 | - |
|--|--------------------------|--------------------------|
| | ٠. | - |
| PITTHBURG. THE WHOLESALE PRICES ARE | HVEN BE | LOW. |
| WHEAT NO 1 Ped | RED. | 8 62 |
| GRAIN, FLOUR AND P WHEAT—No. 1 Red | 59 51 48 | 60 52 49 |
| No. 2 Yellow Shelled Shelled Mixed. OATS—No. 1 White | 45 82 31 | 48 46 33 32 |
| OATS—No. 1 White No. 2 White No. 3 White Mixed | 31 | 32 31 |
| Mixed. RYE—No. 1 No. 2 Western, New. FLOUR—Fancy winter pat Fancy Spring patents. Fancy Straight winter. XXX Bakers. Rye Flour. HAY—Baled No. 1 Tim y. Baled No. 2 Timothy. Mixed Clover. Timothy from country. STRAW—Wheat. | 48 4 00 4 20 | 55 53 4 25 4 45 |
| Fancy Straight winter XXX Bakers Rye Flour | 3 65 3 00 3 50 | 3 90 3 25 |
| HAY—Baled No. 1 Tim'y Baled No. 2 Timothy Mixed Clover | 15 5 / 14 00 13 00 | 16 00 14 50 14 00 |
| STRAW — Wheat | 20 00 6 50 7 50 | 22 00 7 00 8 00 |
| Oats. FEED—No. 1 W'h Md ¥ T Brown Middlings Bran, bulk | 44 00 | 18 00 15 50 15 00 |
| BUTTER-Elgin Creamery | 198 | 27 |
| Fancy Creamery Fancy country roll Low grade & cooking CHEESE—Ohio fall make New York Goshen Wisconnis Sore | 25 22 18 10 | 23 20 12 |
| | | 15 |
| Limburger (Fall make) | 12 | 13 |
| Limburger (Fall mak*) PRUIT AND VEGETAL APPLES—Fancy, \$\begin{align*} Fair to choice, \$\beta\$ bbl PEACHES, per bul— PEARS per bbl. BEANS— N Y & M(new)Beans \$\beta\$ bbl. Lima Beans POTATOES— Fancy Rose | 2 50 2 00 1 25 | 3 00 2 50 1 50 |
| BEANS— NY & M(new)Beans ₩bbl | 2 00 | 5 50 2 10 |
| POTATOES— Fancy Rose | 2 90 | 3 25 |
| Fancy Rose. Choice Rose. Sweet, per bb. | 4 50 | 5 00 |
| DRESSED CHICKENS. | | 17 |
| Spring chickens # ib Dressed ducks # ib Dressed turkeys # ib LIVE CHICKENS— | 15 | 16 |
| Spring chickens Live chickens # pr Live Ducks # pr Live Turkeys # B. EGOS—Pa & Ohio fresh FFATHERS. | 30 70 45 | 50 75 50 |
| Live Turkeys \$\psi\$b EGGS—Pa & Ohio fresh FEATHERS— | 45 6 13 | 14 |
| Extra live Geese 9 B No 1 Extra live geese 9 B Mixed | 53 48 25 | 60 50 35 |
| MISCELLANIOUS | | |
| TALLOW—Country, & b City SEEDS—Clover | 8 25 | 8 50 |
| City SEEDS—Clover Timothy prime Blue grass RAGS—Country mixed HONEY—White clover | 2 10 1 40 1 | 2 20 1 70 |
| HONEY-White clover | 17 | 18 |

FLOUR-WHEAT-No. 2 Red..... RYE-No. 2 CORN-Mixed.... \$2 20@ \$3 10 55 56 49 50 44 45 24 25 OATS EGGS PHILADELPHIA FLOUR—
WHEAT—No. 2. Red....
CORN—No. 2. Mixed...
OATS—No. 2. White...
BUTTER—Creamery Extra.
EGGS—Pa., Firsts. \$2 70@ \$4 25 65 66 47 48 33 35 21 22 15 16 NEW YORK. FLOUR—Patents.
WHEAT—No 2 Red.
RYE—Western
CORN—No. 2
OATS—Mixed Western...

CINCINNATI,

MAPLE SYRUP, new crop CIDER—country sweet P bbi BERRIES—per quart

Blackberries

BUTTER—Creamery..... EGGS—State and Penn..... LIVE-STOCK REPORT.

EAST LIBERTY, PIPTSBURG STOCK YARDS.

CATTLE. 20 00 to 40 00

Prime 95 to 100-D sheep \$

Jood mixed. Jommon 70 to 75 lb sheep... Joice Lambs.