MAKING RAIN IN TEXAS.

GEN. DYRENFORTH TELLS OF HIS RECENT EXPERIMENTS.

He Considers Them Very Promising, and Claims to Have Made Not Only Rain, But Dew—What the Experiments Cost, and Other Interesting Facts About Them.

The recent experiments to make rain fall by means of explosives have attracted world-wide attention. In Texas, where these experiments have been carried on by the United States government, they have been successful to a remarkable degree. Gen. Dyrenforth, who conducted the experiments, has returned east from a rain making circuit of Texas, and gives some interesting facts about the work

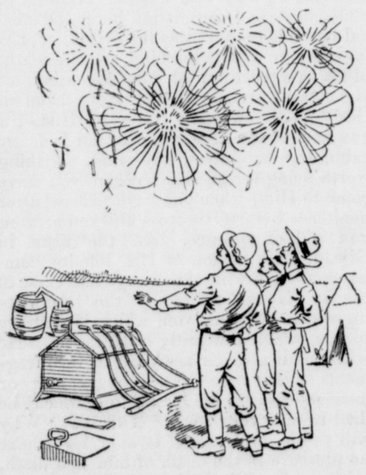
"Yes; our brother in the Lord Ruggles

GEN. R. C. DYRENFORTH.

has a device for producing rain by means of explosives discharged from a balloon," said the general. "It was patented before the government gave the idea a thought or a dollar. But I want it understood that I'm not exploiting his patent or anybody else's. His device is to produce rain by carrying up explosives—dynamite, nitro glycerine, what-not that makes a big report—and discharging them from a balloon, while I, to the same end, send up balloons and make the ascensional force of the balloon the explosive. His device may be a very good one. I have not tried it. But a balloon large enough to carry up any amount of explosive matter would be so costly as to render the experiment impossible to begin with.

"When I was finally persuaded to take hold of this matter, for various reasons, too technical to be popular, I was immediately satisfied in my mind that the elemental parts of a drop of water, hydrogen and oxygen, were the explosives we wanted to introduce into the atmosphere to get rain, if it could be got. I was not satisfied that it could be. I am an artilleryman myself, and during my service both in a military school in Germany, and in the civil war, the relation of rainfall following the discharge of heavy artillery, had excited my curiosity, and I had given the subject some study. When a Chicago man named Powers brought out a book that strove to establish connection between war and the weather, I was not interested in it as Senator Farwell and others were. All the data Powers set forth in his book only suggested to me the enormous task of searching out all the battles that have taken place, and were not followed by rainfall before one could reasonably be satisfied with the theory advanced.

"More than this, the theory demanded the expenditure of from $20,000 to $80,000 in experiments, which means, of course, $80,000 or none at all, since a thing can not be said to have succeeded or failed when anything remains possible to be done in the way of trying. When Senator Stanford cited the instance of rainfall following the blasting of rock in the arid districts of the Sierra Nevadas during the building of the Central Pacific, I began to think about the matter. I knew what the district is, and that it rain by any means had been precipitated there one might logically hope to bring about a thunder storm in hades, so I undertook the task—that is, I went to Texas and tried producing rain there.



THE EXPLOSIONS IN MID HEAVEN.

"I carried with me sixty balloons, each about ten feet in diameter when expanded; a hundred kites five feet tall, a carload of wooden mortars to fire bombs from, and many thousands of pounds of dynamite, gunpowder, nitro-gelatine, and other powerful agents for agitating the atmosphere.

"Each balloon holds 525 cubic feet of gas—a third oxygen and two-thirds hydrogen—and upon being inflated ascends under control of a double wire, which serves instead of a rope to hold it by. When it reaches the desired height the button of an electric instrument on the ground is touched, a spark ignites the fusee in the balloon, and the oxygen and hydrogen suddenly combine with a terrific explosion.

"Each kite is held by a double wire. Their tails carry dynamite and other explosives, which are set off in the same way by electric spark.

"The idea of this, you understand, is that just as water reduced below a certain temperature may hold ice in solution, and still ice will not form so long as the vessel containing the water remains perfectly quiescent, crystallization taking place only as the water is disturbed, so the air may hold moisture in solution, which will be precipitated by a violent concussion. The explosive power of hydrogen and oxygen is great. As soap bubble filled with a mixture of the gas, two parts of the former and one of the latter, explodes like the report of a pistol. With the explosion the gases mix and form a drop of water, so that by using this rather than any other explosive, we have produced in the atmosphere a nucleus which, according to the nebulæ theory that like gathers like, operates also to gather rain.

"After the experience in Texas, I think the venture unquestionably promises success. The cost has not been enormous. All, or all but some inconsiderable parts of my apparatus, is manufactured, and I have spent less than one-half the government's appropriation, $7,000. Every natural condition was against me. We went to a quarter of Texas where the wind blows at such a rate that operating our balloons was like reasoning with a lunatic or arguing with a bucking bronco. We had to build tanks in which to form the gas, and after doing this one of them burst and had to be rebuilt.

"It has been said that atmospheric conditions worked with us. This is directly opposite to the truth. All but four of our first experiments were made with rising barometer. The cowboys, who know ten times more about the subject than those special advisory agents of providence or weather matters, our bureau officials, to a man declared for fair weather. The night of our last experiment the weather was so pronouncedly fixed to be fair that one cowboy took me aside as a friend and urged me not to try that night. He said I had done so well up to the present time, it was a pity to dim the lustre of my glory with a final failure, and he thought I would better just declare the date postponed. But for all this friendly counsel I went ahead. We fired from 8 to 11 o'clock that night, and at 4 o'clock in the morning I arose from the floor, where I was sleeping on camp feathers, in response to a clap of thunder. The storm was on us and the rain fall great.

"I have been given the lie for saying that those rains were the first to fall in that country for three years. That is because every reporter I have talked to has seen fit to neglect to quote me as saying the first *grass* rain. By grass rain I mean a continued rain that makes the grass grow. Besides this, we have made dew, something unknown there. Go out in the early morning, your boots are covered with dust. The ground is so red hot, the moisture in the air does not condense upon it any more

FIRING THE MORTARS.

than it does upon a cook stove. On the contrary, a body of hot air is constantly arising to repel the clouds that may approach. After the ground was thoroughly cooled by the rain, dew formed, and I am satisfied that it is only a question of time when we shall transform these arid plains into wet regions. The operation should be carried out by the government, and some statutory measures adopted to prevent everybody bringing on rain to please himself Regular stations should be established, and, in accord with providential intent rain be caused to fall on the just and the unjust alike."

Editor (wildly)—"I am ruined—teetotally ruined!" Foreman—"What's the matter now?" Editor—"What's the matter? Why, in my notice of Col. Jones' marriage I plainly wrote: 'The ready and waiting bride advanced to the altar, hung with lilies and rose leaves,' and, confound you! here's the way it reads in the paper: 'The wretched and weary bride danced to halter, hung with liars and horse thieves.' Go off in the woods and hang yourself. I don't want to waste buckshot on you."—Atlantic Constitution.

Dont Kill The Old Hens.

When hens are shedding feathers they often stop laying and grow fat. Most people consider fat, a sign of health. The fattening of moulting hens however as with some people produces debility rather than health. Many of the worst cases of croup are contracted, while the hens are moulting.

The food of moulting hens, if largely vegetable is fat-forming, and not required for growing feathers. Therefore corn-fed hens get very fat. They need more nitrogen and phosphate elements in there food when moulting which if not supplied they stop laying, because the growing feathers have used all, and left no nitrogenous matter to form eggs. At this season, killing old hens and relying on young pullets is a great mistake; where people have a few hens and late pullets. Because, if properly fed the hens will have their new plumage and lay well all winter; while the pullets unless specially treated may not commence laying until spring, when high prices for eggs have fallen one-half. Again an old hen's egg will hatch a more vigorous chicken than a pullet's egg.

John R. Jones, Suffield, Conn., a breeder of prize winning mottled Javas, says;

"I find Sheridan's Condition Powder fed once daily in the food, very valuable for moulting hens. I have used it two years for exhibition birds. It assists in growing new feathers, makes the combs a bright red, and gives a rich gloss to the plumage. It will also make hens lay and the eggs hatch well. I find when other egg-foods are used in quantities to force egg production the eggs do not hatch."

The above is the experience of many people in using Sheridan's Powder. If fed to young pullets now as directed, they will begin to lay before six months old. Commence at once using Sheridan's Powder. It helps old hens through moulting, and gets the pullets in laying trim before the season of high prices. Eggs will sell very high this fall and winter. Therefore be ready to get all you can.

I. S. Johnson & Co., 22 Custom House St., Boston Mass., sole makers of Sheridan's Condition Powder to make hens lay, will send to any address for one two cent stamp, testimonials with full information how to make a few hens pay well; also how to obtain Sheridan's powder.

THE MOON ON THE STAGE.

HOW THE EFFECT IS PRODUCED IN DIFFERENT SCENES.

Mr. Chidley Writes of More Mysteries of the Stage, and Tells Some Amusing Incidents That Have Resulted From Them—Something About the Twinkling Stars.

The moon occupies an important place in stage effects, and when successful is undoubtedly pretty, especially when accompanied with the ripple effect. The usual method of accomplishing it when the moon is stationary in the scene, is by a circular hole in the drop representing the landscape covered either with pale yellow silk or yellow tissue paper. Behind this hole is placed the "moon box," very similar in size and shape to a cheese box, containing three or four gas jets. When the scene is supposed to be on a river or the sea, the ripple effect is very realistic. From the angle of incidence of the moon's rays down to the foreground, an irregular series of little slashes are made in the drop with a sharp knife. Behind these slits is placed the ripple machine, of which there are two or three patterns, but all on the same principle. One form is a large revolving cylinder the surface of which is also covered with slits at irregular intervals. This has gas jets inside. As it revolves and the slits in the cylinder coincide with those in the painting a spark of light is seen for an instant. The effect is sometimes quite illusory.

Some five years ago the artist, Goatcher, painted a view of the river Thames for the play of *Hoodman Blind*. By continuing the painted drop partly over the stage at an angle, the river appeared to be rolling with a fast tide.

The other machine is an endless jack towel on two rollers with a light inside. In amateur theatricals the effect may be obtained very fairly by hand, by moving a bull's eye lantern slowly about behind the drop.

Sometimes as Burns has it "the best laid plans of mice and men gang aft agee;" we find the moon box a fertile source of mishaps.

Not very long ago in a New York production the moon went out but the ripple went on serenely!

When there is an effect of a rising moon, it is done in two ways; one is by having the drop painted partly semi-transparent and the moonbox slowly lifted by means of a rope and kept steady in its course by wire guides. The other plan is to have two drops hung close together, the front one with a transparent slip, the width of the moon, in it, and the rear one having the moon box attached to it.

When *the Sea of Ice* was produced a few years ago, the wire guides were forgotten and the moon began to sway backwards and forwards, now appearing the size of a plate—the next moment as big as a cartwheel—a sensation of alarm of fire ran through the audience which the manager allayed and turned in laughter and applause by mendaciously declaring that he was showing the aurora borealis!

Occasionally in large theatres an electric arc light is used in the moon box instead of gas, but it is not reliable. On the first night of *Aida* at the Metropolitan opera house, New York, in the fourth act (the temple of Izis on the bank of the Nile) an interference with the current made the moon go suddenly out, and in five times during the act.

The sun is represented much in the same way, and when it is the setting sun there is but little difficulty about it. The rising sun is a different matter; it was said to have been done well by means of electric rays in the opera of *Moise* at the Grand opera house, but an attempt to produce it in New York by means of an enormous bull's eye lens and an electric light resulted in such a blinding glare that nobody could see anything—it was too realistic.

Perhaps one of the funniest incidents connected with stage moons happened in a provincial theatre. The transparency fell away from the hole in the drop during the act. An impulsive stage hand immediately got up a "boomerang" to fix it, forgetting that he could be seen. When his head was visible the laughter that greeted him excited his curiosity, and he made the matter worse by putting his head right through the drop to see what the fun was.

Stars are very effectively produced by small holes punched in the drop, and also by spangles sewn on to the drop.

Many of these special effects of the stage are very simple. The representation on the stage of a house on fire is probably not so dangerous as is an actor smoking a cigar. The leaping flames are flashes of lycopodium fired in a large tin torch; the burning rafters are a row of gas jets seen between an artfully arranged crack in the painted scenery; the ruddy glow is common red fire safely burnt in an iron pan, and the clouds are jets of steam. An awful conflagration that puts the ladies in a flutter in front of the house, behind the curtain is about as prosaic a business and as safe as shovelling coals in a wheelbarrow.

SYDNEY CHIDLEY.

Dinner Table Tricks.

A good dinner table trick is to make an egg force its way into an ordinary wine carafe, such as is found on all well regulated dinner tables. The other accessories are some paper and a medium hard boiled egg with the shell taken off. Drop the paper lighted into a wine bottle and get the interior well heated. This expands the air within and forces part of it out. While the interior is still hot stand the egg up on end in the neck of the bottle and let it rest there As the bottle cools off the egg will begin to force its way in, until it finally drops.

Another trick, which works on the same principle, is to make a banana peel itself. To do this all that is wanted is a wine bottle, a ripe banana and a bit of paper wet with alcohol. Light the paper and drop it into the bottle. When the air in the bottle is well heated set the banana on end on top and let it do the rest itself, as the air on the inside cools off and contracts the outside pressure, pushing the banana down into the bottle until it has pulled itself out of its skin.