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DR. J. C. AYER, Lowell, Mass.

How a Dynamite Gun is Made.

The newest type of dynamite gun consists of two tubes placed directly one above the other, whereas in the old type there are three tubes placed side by side in the same horizontal plane. The elimination of the third tube means a great saving in the weight of the gun and at the same time it es claimed its effectiveness is increased. It is said that the gun can be fired at least five times two minutes.

Of the tubes the upper is several feet firing. The pulling the lanyard explodes the smokeless powder, which compresses the air in the tube, and this, passing cept at rare intervals. into the upper tube through the port. exerts there as pressure of 3,000 pounds to the square inch. This pressure expels the projectile. The air forms a cushion that protects the walls of the shell from shock, and it is claimed obviates the danger which would follow from the concussion of the powder were it exploded directly behind the projec-

The entire length of the projectile used is thirty-four inches. This includes a tail piece about ten inches in length and fitted with a vane set at an angle that insures slow rotation. The body of the shell is a brass cylinder having a conical head containing a fuse. The main body of the shell contains usually a charge of explosive gelatine, tho' gun cotton or any other explosive may be used. The ignition is effected by means of a mechanical fuse, and it is so arranged that the explosion can immediately follow upon impact or may be delayed for as much as six seconds around us. A shadow from these hills thereafter. When the shell strikes the seemed to be reflected back across the water or any other object, a small steel ball, acting as a hammer, is driven forward by the sudden retardation of the flight of the shell and strikes one or more percussion caps, causing a deto-nation. This ignites a tube of powder communicating with the fulminate of mercury and so explodes successively the gun cotton and the main explosive. The fuse embedies a device which renders the shell inactive until is has traveled 300 feet from the gun. This device is very ingenious. There is attached to the head of the fuse a little vane or windmill, which is fastened to a threaded rod running back into the head of the fuse far enough to press on the small steel ball mentioned and hold it in place. As the projectile passes three air the biades revolve and, in revolving, unscrew the threaded rod, and thus release the small steel ball, which now ready to run forward and ex-

The subject of a young lady's essay. who was graduated from a high school in an Ohio town, was "Hawthorne,"in her essay she said, "at the age of thirty-nine Hawthorne married and took his wife to the old manse." The day after the commencement, one of the village maidens called on Miss E. and in talking the affair over, remark ed: "Wasn't it awful that Maude should say such a thing in her essay?" Miss E. inquired what she alluded to. "Why she said at the age of thirty-nine, Hawthorne married and took his wife to the old man's. Why didn't she say to his father-in-law's?"

plode the primers.

"Dusty, what stopped you from asking for food? Because I have a faint idea that

the man in there is strong."
"What gave you that idea?" "Because I heard his wife tell hin she thought it about time he picked up

Smith-Hallo, old man! Thought you were going to die. What saved you? Jones-The doctors gave me up.

Editor-Good morning. Anything new this morning?

Humorist-Yes, all my jokes.

"There is something about Scribbler's works that simply carries me away. "The train of thought, I suppose."

A FILIBUSTER'S STORY.

(W. H. Hawley in the Globe-Democrat.) There were nine of us, I mean nine white men-Americans, the captain and erew of the ocean tug Roger," said an old sailor, who was talking of the Cuban war on the South street pler. "Of course, the hold was full of dagoes-Cubans, I mean-thirty of them all

told, and we were filibusters.
"It was the first year of the Cuban revolution. The Rover had been run-ning light for a month, picking up a tow here and there, and failing to make expenses. She was a strong boat and could do twelve knots an hour only pressure. Dan Brech was captain, pilot and part owner.

'One day the captain received an offer from the Cuban agents to take a cargo of guns and ammunition to the insurgents. There was big money in it for all hands provided we landed the stuff and got away safe. The owners left the matter to Breen, and the cap-tan called the crew into the cabin and asked them if they would go. There was double pay, and a share of the profits for every man of us, and we all

colunteered at once "Next day the Rover called for a southern port to bring back a tow, and we got out beyond Sandy Hook without being followed by a revenue cutter. When night came we stood in toward the Long Island shore, and about midnight ran alongside a schooner anchored off one of the covers down there.

"The stuff we were to carry was on the schooner, and it took two hours, the Cubans helping, to get the cargo aboard the tug. Daylight found us steaming down the Jersey coast at ten knots an hour. We had taken the thirty Cubans off the schooner and whenever there was another vessel in sight we were careful to keep them below deck, where they chattered in Spanish all day and most of the night. The voyage down was without incident, because we had good weather all the

According to the plans of the Cubans who hired the boat, we were to land our cargo and passengers at the head of a little bay, near the extreme end of the island, a few miles north of Cape Mais. A company of insurgents was to be waiting for us, and assist in the unloading. We went down through the Bahama channel, keeping outside the three-miles limit, until we were within thiry miles of our destination. The captain had so timed the voyage that we were to make the last lap after dark. We had a Cuban on board who knew every foot of the coast down there, and was to act as pilot when we made the run for shore,
"The sun went down in a clear sky,

with a light breeze blowing from the southeast. Every man on board had supper between sundown and dark and he captain warned them to eat plenty, because there would be work to do before morning.

"As soon as it was dark the Cuban pilot went up and took his position alongside Captain Breen at the wheel. The engineer and fireman had their orders, which were to get every bit of speed possible. The Cubans came up and lay about the deck, talking in whispers. Then the Rover was headed for the coast and went ahead at full speed, The full moon rose an hour after dark, which was in our favor, because it en-abled the pilot to make out certain

to steer. "The scene, as we paced down the the longer and is smooth bore, to the ceives the projective, and the material used in its construction is either brass used in its construction is either brass mooth sea stretched away to the hormand under the clear moonlight it Within the lower tube there is an inner tube, which in turn opens into the upper looked like a great lobe of solid silver. tube through a port immediately be-hind the projectile. When the projectile of life, and we seemed to be flying is placed in the upper tube and the through the smooth water. Lookouts blank cartridge in the lower, the breech-es are closed and the gun is ready for watch for Spanish gunboats, although the Cubans had assurances that this

"It was nearly 10 o'clock when we entered a narrow channel between the main land of Cuba and a low reef or key. For a few miles the vision of moonlit water was broken, and at times we were plowing along in the very shadow of the trees on shore. According to our charts and pilot we pass a narrow inlet at the end of this channel, and five miles beyond would enter the bay where we were to land the expedition. The Cubans assured us that if we got out of the narrow and dangerous channel safely we would have nothing to fear.

"We were an hour making this inshore tack to avoid the greater distance around the reef and when w the open again the wind had freshened, and there was a long rolling swell coming toward the shore. To the right, beyond the inlet we had to cross, a To the right, range of low hills formed a dark and gruesome background to the picture seemed to be reflected back across the

water by the moonlight. When we were half way across the inlet I heard the Cuban pilot talking to the captain in a wildly excited manner, Before I could gather what about the captain called down to me from the pilot house:

" 'Jack see that all the lights are put out and then come up here.' We carried only one light on deck. put that out and ran up to the pilot

"'What is it?" I asked. " Look over to your right there, away up in the shaded part of the inlet, and ee if you can make out anything," said

the captain. I looked in the direction indicated and saw what appeared to be a dark object on the water fully a mile away, and moving in our direction. 'There seems to be something there,

captain. What do you make it?" Before he could reply there was a flash from the dark object, followed a moment later by the sharp report of a small rifled canon, and then we heard the splash of the ball as it struck

the water, 300 yards short and 100 yards 'A Spanish gunboat! We've got to run for it? said the captain, and whistling down the tube he ordered the en-

gineer to let out another notch "There was no use turning back, benarrow channel through which we had passed as the Rover. The Cuban pilot, who kept his head fair's well, assured the captain that if he kept straight shead to the point of land then visible and rounded, that he would be in the entrance to the bay, where we were to land, and once in the shallow there

ould give the enemy the slip.
"Acting on the suggestion, we forged ahead, and the old tug went faster than she had ever gone before. By this time the stokers knew that a Spanish boat was after us, and they kept the boilers red hot. The gunboat fired a score of shots after us, but none of them came closer than 100 years, and it was soon evident that she was not more than ten-knot boat, and that we could

outrun her. We rounded the point that marked the entrance to the bay, with the Spanish gunboat nearly three miles astern, and were beginning to breathe easy, when a series of yells from the Cubans on deck startled everybody. They were prossing themselves and pointing off the

port bow. I looked in that direction, and I'll confess I felt a bit shaky for a time, because I saw two more boats heading right into the bay, as if to cut

" Boat off the starboard, sir! shouled one of the crew on watch. "Two boats astern, sirl cried the

"For answer, the captain began to swear like a pirate as he rang the bell to slow dewn. "'Post dead shead, sir! Three beats off the port bow, sir!' cried the for-

ward watch. "By this time the Cubans were in a complete panic. Some were crossing themselves, some praying and others swearing. The men of the crew were badly scared, but kept their wits well enough to obey orders

"The situation was certainly alarm-We were now well into the mouth of the little bay, and, looking around, we could see three boats on each side of us, two dead ahead and two astern between the tug and the gunboat that

had been shooting at us. The strangest feature of the situation was that not one of the vessels showed a light, they had not fired a shot at us and all of them were apparently regulating their movements by ours. When the Rover slowed down they reduced speed. For five minutes we went ahead at half speed, and there was no hostile move on the part of the

ten boats that surrounded us.
"'Maybe they are for us, suggested
the Cuban pilot. 'See, they have no

"'Oh, --- It!" said Captain Breen, 'Here goes to settle the business.' "With that he gave the wheel a turn and rang the bell for full speed ahead, and, reaching for the whistle cord, he blew the siren such a blast as I never heard before. A thousand echoes of that blast seemed to come back from the hills on either side, until it sounded as if a great fleet of boats was playing

a concert in that dark Cuban bay 'A few moments later a bright blaze of fire flashed up out of the forest at the head of the bay. "That is the signal of our people.

They heard your whistle! said the Cu-The Rover was now plunging ahead at full speed, and the boats around us were doing the same. I looked aft for the Spaniard that had been shooting at

us. He had been frightened off and was

heading out to sea at full speed. "Another wild cry from the Cubans on deck was the next startling demonstraiton, and, looking around, we saw that the boats that a moment before had surrounded us had vanished completely. There was not a shadow left and not a ripple on the smooth water of the bay to show where they had

"Again the Cubans fell on their knees, crossed themselves and prayed. The

captain merely said, '---"Half an hour later we dropped anchor in a little cove at the head of the bay. We were within 100 yards of the shore, and in a few minutes a boat load of Cuban soldiers were along side the They had been walting for us for a week, and no time was lost in getting our cargo ashore.

While unloading the Cubans who went down with us told those from the shore about the mysterious fleet through which we had passed, and the mystery of the affair was quickly explained. It seems that at a certain hour on a moonlight night there is a sort of double or triple reflection on the surface of the bay, caused by the shadows from the hills on each side, and a vessel passing in or out is mirrored in these shadows until it becomes a small fleet. The mirage disappears at a certain point as sudenly as it came into

"We landed our cargo safely, got our pay and were safely out to sea before daylight. We were not pursued again the gunboat or the shadow fili-

With Wakening Spring.

(Helen Wilmans in "Freedom.") seems to me that almost every thing I look at holds an interest for me that calls out feelings of happiness. that the earth is becoming heaven. look across the boulevard to where my neighbor is building an addition to m house, and my heart warms with the thought of how pretty it will look when completed, and how much the family will appreciate it, and with what pleasure they will ornament and furnish it I am finding out how much and what constant happiness one may have from

small things if he will only live out in the world of effects and uses. In coming out from breakfast this morning I met a caterpillar; it was the first I had seen this spring; and actually the little thing was feeling so good

could not behave himself; he was turning somersaults in the road and sometimes springing entirely off the ground. And all the time I was watching him a sense of his happiness kept going through me until I was about as happy as he was.

So I just walked on to where there is a rose bed made on scientific prin-It was dug out eighteen inches and lined with plaster so solidly that the roots of the trees and grass cannot get in to steal the fertilizer water we put in it. In this bed the roses are always in bloom so profusely that it

does one good to look at them.

As I was watching my rose bed there was a chorus of voices close by whose meaning I would gladly ignore if I only could. I did not want to go back to the hotel for cabbage leaves, nor to the store for nuts, and yet there were Guinea pigs watching me through the iron wire netting that encloses the space where they live, and telling me unmistakable language what I was do. So back I went, and brought that they wanted-another evidence of the power of desire. In this cage, which is so large that the inhabitants don't know that it is a cage, there are several squirrels, a number of white rabbits and the Guinea pigs. Beautiful creatures all of them, and so badly spoiled by the lavish indulgence of visitors they are just like naughty, per-sistent children, always thinking they want something, and declaring that they will have it whether they no or not; and getting it, too, is obedience to the law of desire.

For an interesting example of the cost of maintaining a battleship in time of peace, when war is not even threatening. I have procured from the records of the war department the cost of maintaining the New York, the most expensive ship in our navy. The cost for the last year was \$391.065.60 or an average of \$1,086.29 per day. The various items that gos to make up this total annual cost will apply for the resent purpose to our armored cruisers and battleships, though, of course, arying according to constantly changing circumstances, and now being in-creased by the war footing on which our navy rests. Of the \$391.065.60 spent by the New ork in 1897, \$237,"62.76 was for the pay of officers, crew and mariners; rations cost \$35,542,60; equipment, \$6,835.21; navigation,\$3,216,58; ord-\$14,743.70; construction and repair, \$9,163.05; steam engineering, \$28,-Then there were incidental expenses, navy yard repairs, medicine and surgery and similar items.

HOW SHELLS ARE EXPLODED.

When Senator Tillman, speaking on the senate resolution on Friday last, said, "My people are today a unit since the fuse which exploded the mine un-der the Maine flared and sizzled," his remarks might have been regarded as rhetorical pyrotechnics or as voicing ignorance as to the manner in which modern military infernal machines are touched off. It is quite possible that the picture of a firecracker, splutter-ing and flaming under water, which enator Tillman's words call up, could be entertained by many citizens with-out any disturbing thoughts as to its accuracy. But the picture, nevertheless, is rather remote from the truth of the mines. Your modern submarine mine is exploded by electricity, which goes about its business without flaring

and sizzling. The facts about the explosion of other destroying engines of warfare, which fly through the air, have a little better reason for not being known. It is more or less of a popular mystery as to how a shell seems to know just when to blow up and do the mischief for which it was intended. This accuracy of conduct has only been attained after years of experiments, and today a shell can be fired with pretty full confidence in good results if the gun has been well

The fuses now in use are called combination time and percussion fuses, Speaking generally a time fuse is one that ignites at a prearranged time after the projectile, either shell or shrapnel, leaves the gun, and a percussion fuse is one that ignites by the impact of the projectile. The combination time fuses for the projectiles of breech-load-ing rifles is known as the boxer, which

generally used for shrapnel. This fuse consists of a wooden stock, the fuse composition and an igniter The fuse composition in a paper case, is contained in the center of the stock, which has also two side channels filled with loose powder. On the outside of the fuse strips of paper are pasted over the side channels, one of which has full seconds up to eleven marked on it and the other half seconds.

The fuse composition is connected with the side channels by boring holes through the graduation, which marks the times for which the fuse is to be set. If the fuse has not been bored through to the side channel the flame will not enter the side channel until the end of the composition is reached, where there are permanent communications to the side channels. It is impossible for the flame to pass directly from the fuse composition to the bursting charge of the projectile, because the bottom of the stock is solid except for the side communications to the chan-

The igniter is a little brass cylinder, which has a nipple on the inside of the lower part to receive a percussion cap is a brass plunger above this cap, held in its place by a wire. The process of ignition is set up by the shock of the discharge, which breaks the wire and drives the plunger on the cap. The explosion fires the fuse and the fuse flame passes down till it reaches the hole bored in through the side channel. Then the flame dashes out into the channel and down the channel to the bursting charge of the projectile,

which it explodes. A typical percussion fuse Schenkl. This fuse is fitted into the nose of the projectile, and consists of a metal stock containing a steel cylinder plunger, and above the plunger a cap, and below it a magazine for the fuse powder. The plunger fits loosely into the stock and is held in its upper part by a small brass screw, which is brittle, and breaks off at the shock of the discharge and releases the plunger. The screw cap of the fuse screws into the upper end of the stock.

One end of this cap is plane or flat and the other hollowed out, and until is kept inside or over the plunger, so that if the plunger should get loose the cap on top of it would fit into the hollow and not be exploded. The plunger itself is filled with quickburning powder, on the forward or upper end of which is a nipple for a perussion cap. The fuse is made ready for use by unscrewing the screw or fuse cap, reversing it so that the flat end is inside, and screwing it on again.

Then when the gun is discharged, the plunger is freed by the breaking of the little screw and forced to the bottom of the stock. On impact the plunger is driven sharply forward and the per-cussion cap on it strikes the flat end of the screw cap and explodes, igniting the powder in the plunger, which sets off the powder in the magazine, which in turn explodes the bursting charge of the projectile.

There are also percussion base fuses, those which fit into the base of the projectile and explode the bursting charge through the nose of the fuse, or the nose fuse expledes the charge through its base. The general construction and action of the base fuses is similar to that of the nose fuses. They consist of a stock, a magazine plunger and firing cap. The plunger is held in place by wires, which are broken after the discharge, so that the plunger, which is then set free, flies forward on impact, strikes a cap in the forward end of the fuse with its point, igniting the fuse and exploding the shell.

The Schenkl and other percussion fuses are now being supplanted in our service by the Hotchkiss nose and base fuses. The nose fuses are used for land service and in the navy for calibers under four inches. The base fuses are used for all large caliber guns, those which are mounted chieffy on vessels or on the sea coast. The Hotshkiss nose fuse does not vary greatly from the types described; not sufficiently so to deserve extended analysis here.

The chief improvement which shey introduce is a safety plug, or lead stop-per, which holds in place wires that themselves hold in place the magazine plunger. The plunger forces the plug to the rear on the discharge of the gun, and on impact the plunger is driven forward, striking a steel point on the head of the fuse, which explodes a fulminated cap in the end of the plunger, firing the magazine and then the bursting charge.

The Hotchkiss base fuse has a solid plunger, the magazine of the fuse being contained in the detonating cup at the head of the stock.

One other percussion fuse, the Driggs, leparts from the common fuse type in the method of freeing the plunger. This held fixed by spring arms until the time of discharge, when the rotary motion imparted by the rifling to the shell wrenches the arm clear and leaves the plunger free to explode the caps.

The Boxer fuse for shrapnel is also being replaced by the point time fuse. The features of this fuse are similar to those of the time and percussion fuses. It consists of a metal stock, a plunger and wires, but the fuse is so arranged that the shock of discharge not only fires the plunger, but explodes cap and ignites the fuse. This fuse graduated up to fifteen seconds and s set by boring a hole through the central cavity at the proper graduation to time train, which is ignited through the hole by flame from the central cavty and explodes the bursting charge.

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Dean Howells on Literature.

"America is rich in material which needs only skilled workmen. It is admitted that our genius for short story telling is equal to that of the French, who were long supposed to be the best writers of the 'conte.' We have done ome work that will bear comparison with that of Daudet, Coppee, or De Maupassant. I do not know if there vill be a well-defined school of American writers. There is room for a num-ber of such schools. Our country is so xtensive and our national life verse that the writers of each section ould form a school for the portrayal of its characteristic social traits. field is already occupied by a large umber of meritorious workers. night seem invidious to single out one r two, but I may mention such writers

as Fuller, who wrote 'The Chif Dwell-ers,' Owen Wister, who is doing excelent work in the west; Cahan, who has written so instructively and apprecia-tively of the east-side life in this city, and Allen, Fox, Page and Harris, who are utilizing some of the exhaustless treasures of the southern field. Many will follow, and I see no reason for doubting that in fiction America will have as rich a literature as any country in the world,

I shall ad another novel to my list next year. It will be published in serial form, and I am now engaged on it. This method of publication makes a writer seem much more prolific than he is. The book I consider as probably my best has also been the most popular one—'A Hazard of New Fortunes.' I strove hard over that story, and felt that I was doing as good work as I was capable of, but the public received it when it was coming out as a serial When it ap with quiet indifference. peared in book form, I felt that it would all still-born, but it soon became popular, and twice as many copies of have been sold as of any one of my other novels."

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Rounder-Well, the barefoot dance seems to be a step in that direction.

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