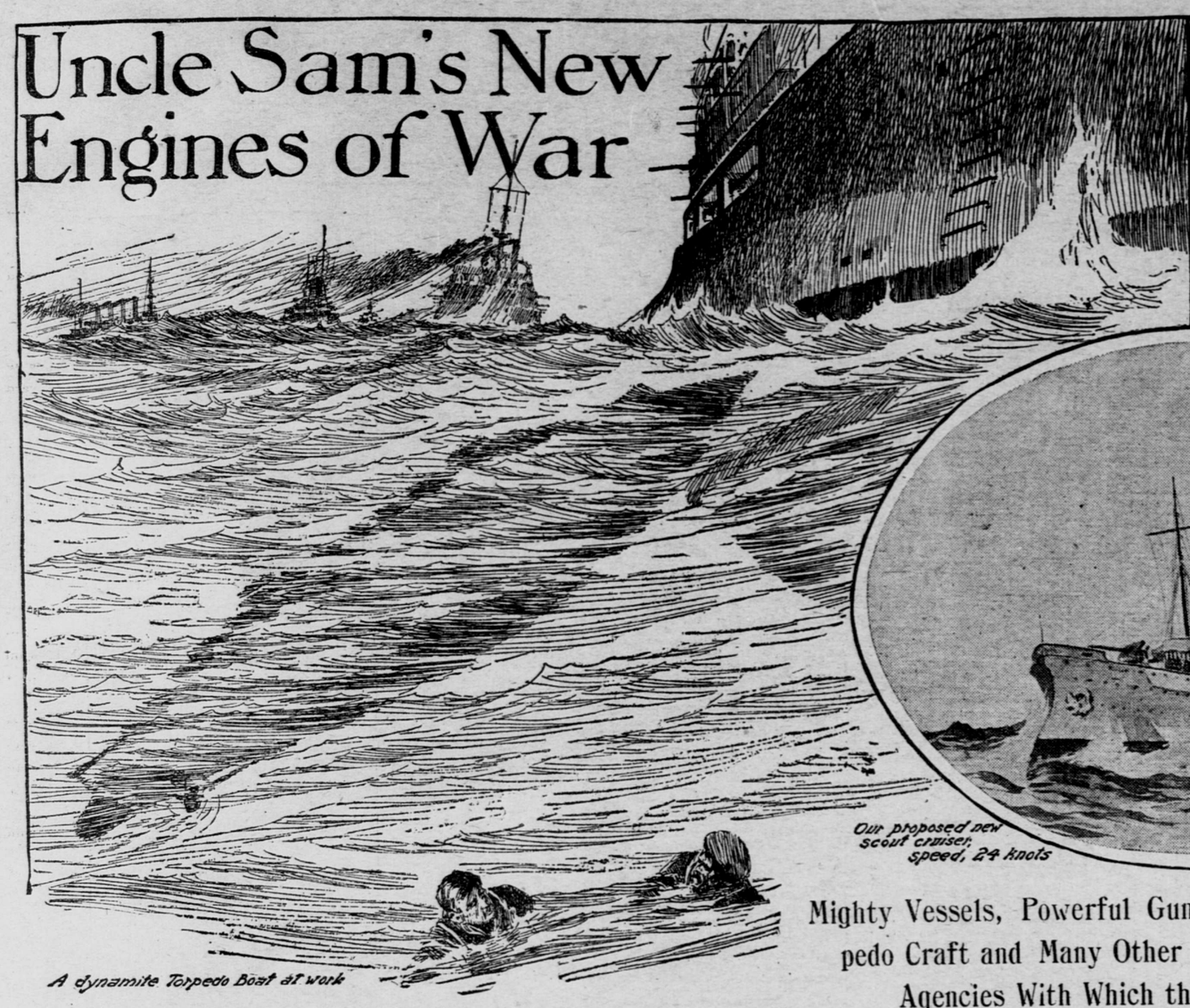
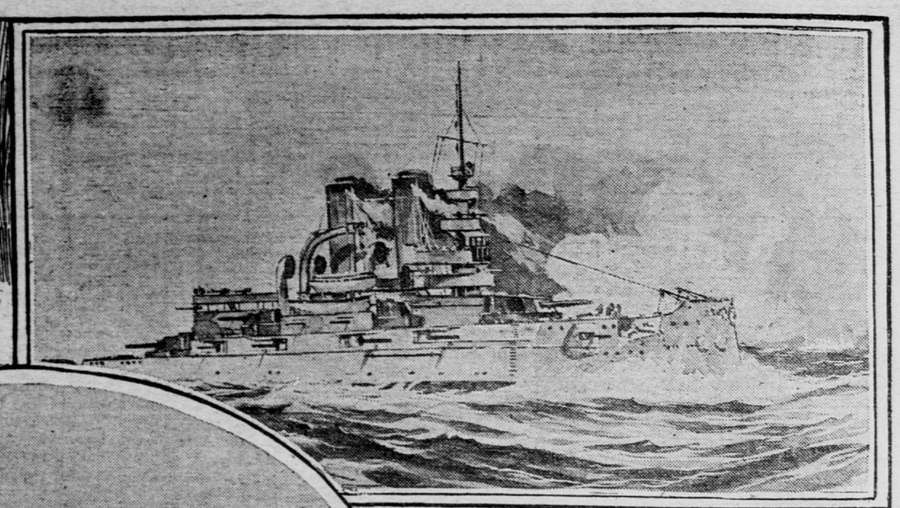
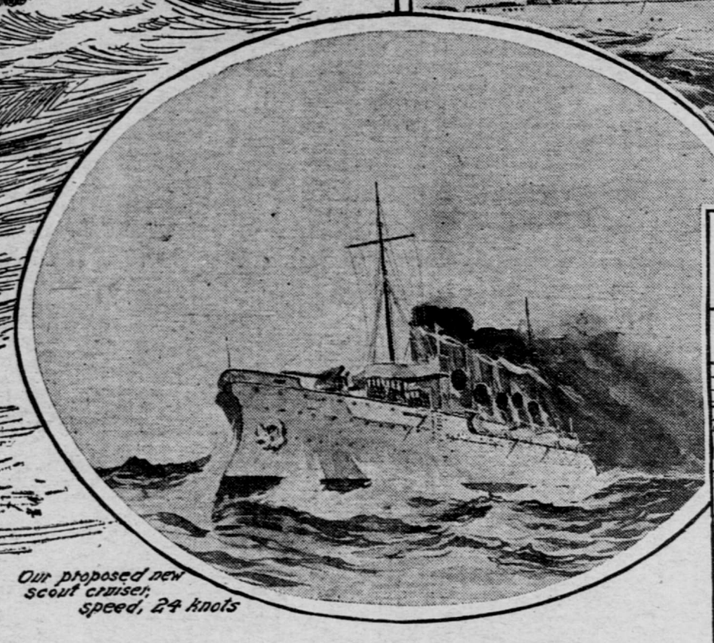
Uncle Sam's New Engines of War



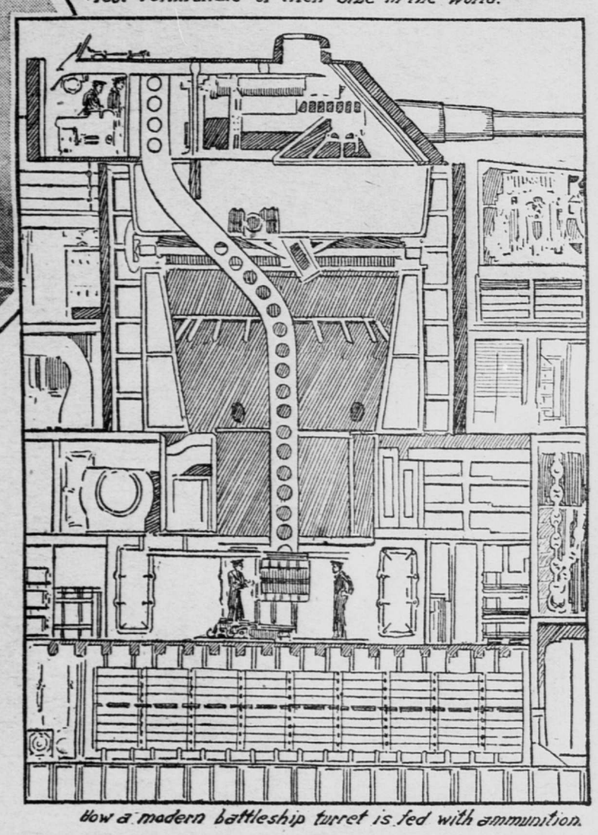
A dynamite Torpedo Boat at work



Battleships 'Idaho' and 'Mississippi' now building. Most formidable of their size in the world.



Our proposed new scout cruiser; speed, 24 knots



How a modern battleship turret is fed with ammunition.

Mighty Vessels, Powerful Guns, Ingenious Torpedo Craft and Many Other Death-Dealing Agencies With Which the Fighting Force is to be Equipped

ALL the great nations are feverishly adding to their already immense war equipment. Each strives to outdo the others in providing the most modern and terrible engines of destruction.

In this race the United States is well to the front. For ingenuity of design and effectiveness, its latest decth-dealing armament surpasses that of any other country.

It is building new battleships that will ride the waves without a peer; swift scout cruisers that will overhaul any greyhound of the seas.

There are in course of construction new 12-inch naval guns, far more powerful than any now in use, and a distinct improvement, both as to range and efficiency, over the 13-inch monsters with which the Oregon halted and shattered the Spanish fleet at Santiago.

More deadly torpedoes than any now known are being provided. One of the Herreshoffs has designed a high-speed torpedo boat which is in itself a torpedo, the bow being filled with high explosives in quantities sufficient to blow the bottom out of the largest warship afloat.

A New York millionaire has invented what he contends is an impregnable floating steel fort, and it has greatly impressed army and naval officers. This and the Herreshoff craft, however, have not yet been adopted by the United States Government.

DESPITE the advance of skill in the construction of submarine boats, and the increasing effectiveness of the deadly self-operating torpedo, world nations are rapidly adding to their fleets of battleships.

Lessons of the present war in the East, following similar impressions of the Spanish-American conflict, seem to have convinced naval constructors that the powerful fighting battleship must be the chief reliance of any nation afloat.

Those recently launched and others in course of construction by the United States represent the highest type of such vessels. They may be matched with confidence against any craft of the class that is afloat to-day or is likely to ride the waters during the next five years.

Upon two of these especially—the Idaho and Mississippi, now building by the Cramps—the ripest thought of the day is being expended. The result will be a pair of marine bulldogs whose teeth may well be feared by the boldest and bravest of adversaries.

While these two vessels will not be as large as the 16,000-ton ships of the Connecticut class—being of 13,000 tons each—it is considered that they will be fully the equal of any of the largest foreign battleships now being built.

For their size they will be the most effective fighters in the United States Navy, and that means that they will lead their class in the world.

Although somewhat smaller than the giants of the Connecticut class, the new ships will be dangerous to a degree; more so, perhaps, than their heavier sisters.

POTENTIAL DEATH-DEALING ENGINES

The seeming loss of 3000 tons is largely in extra steel masts, freeboard and other features that will not affect their fighting potentiality.

Their length is to be 375 feet, their beam 77 feet, and their ponderous bulk will be driven by engines of 16,000 horse power. Carrying a maximum of 1750 tons of coal, their steaming radius will be 5775 miles at the leisurely rate of ten knots an hour. The speed of the vessels will be seventeen knots.

A battleship depends for defense upon its armor, and for offensive potentiality upon the range and power of its battery.

The barbette armor of these new vessels consists of cemented Krupp steel from six to ten inches thick, and the turret armor is from eight to twelve inches. The central broadside battery is protected by seven inches of armor, and the ships have at the waterline a belt ranging from seven to nine inches in thickness.

Batteries of the Idaho and Mississippi will consist, each, of four 12-inch guns, eight 8-inch guns, eight 7-inch, twelve 3-inch, twelve three-pounders, eight one-pounders, two 3 inch field guns, two machine guns and six Colt automatic guns—a respectable aggregation of aggressiveness when all death-dealing weapons are in action.

Two 18-inch Whitehead torpedo discharge tubes complete the armament of these very formidable vessels.

It is upon the range and power of its big guns that a battleship most largely depends.

The enormous 13-inch guns with which the Kentucky and the Kearsarge started their careers afloat will not be duplicated in the American Navy. They proved a disappointment.

Instead, ordnance makers have gone back to the 12-inch bore, and, while producing a lighter weapon, have evolved one of greater power.

GUNS LIGHTER, BUT MORE EFFECTIVE

This new gun, which is in use on several of the latest ships, is some eight tons less of weight than the largest of the 13-inch rifles. It outpoints its older rival in everything but the weight of shot it throws, which is 250 pounds lighter.

Even this, it has proved, is a gain, for less powder is required to propel the shot, and the saving thus made in the individual weight of ammunition permits more rounds to be carried for each gun.

As it is, with the lighter projectile, the new 12-inch gun is able to send its capped missile, undeformed, through no less than twenty-one inches of hard Krupp steel at a distance of 1000 yards, while the 12-inch gun, firing a 1100-pound shot, similarly capped, could vanquish only 16.7 inches of like material at the same distance.

Standing as this 12-inch gun does without its peer among naval ordnance the world over, one might reasonably have expected a halt here.

But no, the desire for still greater power has grown, and a mightier weapon of the same calibre is now being fashioned at the naval gun factory at Washington. It is with this latest gun that the Idaho and Mississippi will be equipped.

This new gun is known as the "twelve-forty-five," which, in common terms, means that it is a 12-inch rifle of forty-five calibre—that is, forty-five times as long as the diameter of its bore.

The layman wonders how two guns of like calibre can differ so much in destructive might.

Briefly, it is possible, with every foot added to the length of a modern gun and using suitably designed smokeless powder, to get greater and longer continued development of propulsive gases. As a result, the projectile leaves the muzzle with higher velocity.

It has been asserted that the finest guns in the world are made at the naval gun factory in Washington. Of the 3000 or more emp[illegible] there most are highly trained and skilled craftsmen.

The building of the navy's guns has been evolved from modest beginnings, and the perfection of that work is the outcome of twenty years of constant progression and the upbuilding of a skilled personnel peculiarly fitted to that work.

That infinite patience and care are necessary is shown by the fact that it takes about eight months to build a 12-inch gun, not counting the mount.

To the seeker after figures it may be interesting information that this wonderful weapon of destruction when finished, but not mounted, represents an outlay of $40,000, and that the mounting costs $30,000 more.

The cost of firing one of these guns with an armor-piercing shell is no less than $455. It is easy to understand why perfection is aimed at, so that the largest possible percentage of shots shall be hits.

It is not alone, however, in the efficiency and power of its latest battleships that the progress of the United States in advanced methods of sea fighting is astonishing other nations.

Battleships are to do the fighting—the rough and tumble hand-to-hand work of conflict. Every navy, in addition, must have quick-moving and far-seeing eyes.

The eyes of a navy are its scout ships.

During the war with Spain, the fast cruisers Columbia and Minneapolis, together with the several converted liners of the St. Paul class, performed scouting duty.

As it happened, there was little use for them, but the fact that they were ranging the seas was a great comfort, especially during the disquieting weeks when Cervera was sailing westward and his destination was unknown.

Appreciating the value of these flyers, Congress has ordered the construction of some extra fast warships for scout duty. These will be marvels of endurance and have a speed of twenty-four knots an hour.

They will not be armed for aggressive operations, except to prey upon commerce, but will be winged messengers to watch for the approach of enemies and to patrol dangerous seas at a high rate of speed.

They will also be equipped with torpedo tubes, so that, should the occasion present, they may attack much stronger vessels by means of submarine explosives, relying upon their speed to approach an enemy with success or retire from a dangerous zone.

Torpedoes with which United States warships will be armed in the future will be of a far more menacing type than those of the present.

All last fall secret experiments were made off the New England coast with an improved and enlarged edition of the Whitehead torpedo, and the result is an engine of warfare that is without parallel in destructive qualities.

The new torpedo is larger than the old and—which is far more important—contains an improved steering arrangement that insures much greater accuracy of aim.

It has a range of 2500 yards, with a speed of thirty-two knots an hour, which is five knots greater than the speed of the present weapons.

That a considerable advance has been made is indicated by the fact that these new torpedoes will cost $4000 each, while the present Whiteheads cost $2000.

No other nation can secure these new submarine devices, as the American Government will control their output.

But even surpassing these in destructive possibilities is the new engine for dealing death wholesale that is being perfected by Francis Herreshoff, nephew of Captain Nat Herreshoff, the widely known builder of defenders of the America's Cup.

This newest contrivance for the destruction of battleships and cruisers and the killing and maiming of their crews is nothing more nor less than a high-speed torpedo boat, which in itself is a torpedo, the bow being filled with high explosives, which will do their work upon contact.

Many torpedoes when launched on their sinister way miss their mark, either because of some deviation of the steering gear, or because the quarry is nimble enough to get out of the way.

When a torpedo of the usual type is launched it goes straight along the path it has been aimed.

This new torpedo will carry a crew of two men, who must take their chances of escape.

They must steer their death-dealing craft so close to an enemy's ship that it cannot miss striking.

Then the crew will lock the steering gear, and, with life belts buckled about them, leap overboard, taking their chances of being picked up.

The immense torpedo, left to itself, but so close to the enemy that it cannot miss, will rush in alone at terrific speed and blow itself and the other ship to pieces.

Mr. Herreshoff contends that by the use of a human directing agency up to a point within a few hundred feet of an enemy's warship, the uncertainty that has attended the use of the torpedo will be done away with, and naval warfare will have to be conducted on new lines.

The cold-blooded business proposition involved is that it will pay any nation at war to destroy a torpedo boat costing a few thousand dollars, and to risk the lives of two men for the certainty of destroying a battleship or cruiser which cost millions, and blowing out the lives of hundreds of the enemy at the same time.

Anson Phelps Stokes, former vice commodore of the New York Yacht Club, and a millionaire, has devised a floating fortress, the merits of which he is bringing to the attention of government authorities.

It consists of a semi-globular structure—a veritable defensive island—of steel, equipped with guns of great destructive power.

One such battery, he contends, could defend or blockade an important strait; could protect the mouth of a transcontinental canal, or dominate almost any large seaport, and could safely resist more than a dozen of the largest battleships.

It may be towed from place to place along the coast, placed at some distance from the mouth of a harbor, and be more efficient in offensive worth, it is claimed, than the most powerful land battery.

Such floating fortresses, Mr. Stokes contends, will be needed in the future, when America may be called upon to defend keys to the Caribbean Sea and the Panama Canal.

Scenery for the Most Gigantic Show Ever Produced

THINK of the scenery in the biggest theatre you ever saw, and then imagine it four times as large, and you will have a fairly good idea of the stage settings for the great Hippodrome shortly to be opened in New York.

In the Hippodrome stage hands will not, by pulling ropes, shift the canvases and properties. They could not if they tried. Electric cranes, each capable of lifting more than twenty tons, on runways, have been constructed to do the work. An idea of the size and weight of the pieces to be shifted may be gained from the fact that in one scene they aggregate in weight 150,000 pounds.

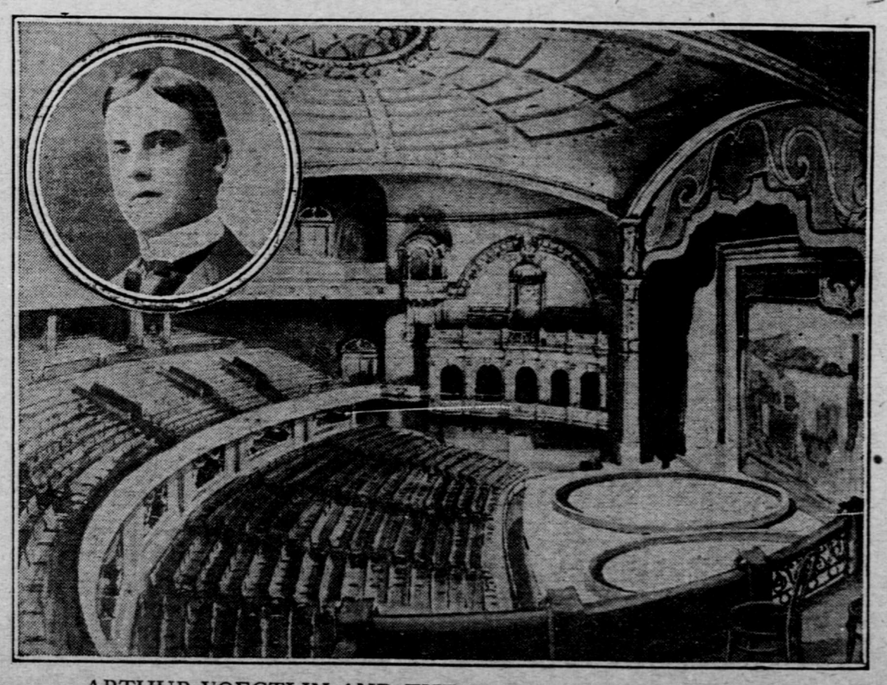
All of the stage settings were made under the direction of one man, and a young man at that—Arthur Voegtlin.

"The opening scene of the Hippodrome production," explained Mr. Voegtlin a few days ago, "is the view outside of a circus tent in a country town.

"There are the side shows, ticket booths, 'barker' stands, and all the other accessories, while the circus tent itself is presented on the biggest drop that ever has been painted. Its dimensions are 85 by 200 feet, and twelve of my most speedy scenic artists worked almost two months to complete it.

"Comparisons are probably more telling than figures, and a better idea can be gained, perhaps, of its enormous size when I say that the ground row and back drop of the usual theatre is about 24 by 36 feet.

"At the close of this scene five airships, thirty feet in length, with big flapping wings, take up the circus with all its paraphernalia to the planet Mars, where the second scene opens



ARTHUR VOEGTLIN AND THE SCENE OF HIS GREAT WORK

"On that far-away planet the picture is to surpass anything that has ever been made in America. From a back drop, 85 feet high and 190 feet long, extending forward to the footlights, are a series of ground rows from 144 to 190 feet in length, outlining in perspective the yards of the royal palace on Mars. On one side of the scene a cascade has been built, the perspective of which will make it appear as big as Niagara and over which 3000 gallons of water will pour every minute.

"In this scene the centre piece is a monster arch formed by two rampant dragons, the opening being about 60 feet wide and 45 feet in height. The heads of these dragons alone are 16 by 14 feet and were made in the largest papier-mache mould that ever was constructed. Each weighs about 4000 pounds. Jeweled elephant heads also form part of the architectural decorations, and these measure from ear to ear 16 feet.

"The staging of 'Andersonville, or the Story of the Wilson Raiders,' which is the second act of the Hippodrome performance, was not quite such a difficult task, except for the very last scene. The opening picture is laid at West Point and shows the battlements of old Fort Clinton, the parade ground at the Military Academy, the Hudson river and the Crows' Nest in the background. The word to describe this scene perhaps is 'pretty,' for that is about all it is intended to be, although at the same time records for size have been shattered by it.

ANDERSONVILLE REPRODUCED

"A prison stockade at Andersonville comes next. It is a bit more elaborate, as a small stream of water runs through the stage. Following the stockade a pretty Southern plantation scene is presented. It is wonderful in that it contains an exact reproduction of the McLean house, where General Lee surrendered his shattered army to the Union forces. This house is four or five times as large as anything of its kind that has ever been put on the stage and is not built of mere canvas and wood, but is sufficiently solid to be moved out of doors and used as a residence.

"Surrounding the house are trees 45 feet in height, and a real river flows over the stage in the background.

"In my opinion, the battle scene, which follows in order, is the acme of stage setting, both as to scenery and people. Successions of ground rows, built solidly enough to hold six hundred men and one hundred and fifty horses, give a perspective view of a long line of Confederate earthworks and battlements mounted with cannon, while in the foreground is the raging Southern mountain stream crossed by a bridge at the foot of a precipitous waterfall, which is fed by pumps with a capacity of 4000 gallons a minute.

"In the battle which takes place between two bodies of cavalry the bridge is blown up and the men and horses are thrown into the water."

For more than five months—since early in September—no fewer than two hundred men have been busy six days a week making stage pieces for this gigantic theatre.

QUEER IDEAS, CUSTOMS AND SUPERSTITIONS

The marriage certificate is equally divided between husband and wife in Korea.

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In most of the smaller Russian hotels visitors are obliged to find their own bedclothes.

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When an unmarried woman dies in Brazil the coffin, hearse and livery of the coachman are all scarlet.

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In nearly every street of the cities of Japan there is a public oven, where, for a small fee, people may have their dinners cooked.

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Among female Moors birthday celebrations are unknown. A Moorish woman considers it a point of honor to be absolutely ignorant of her age.

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In South Greenland the color of the hair-ribbon which a woman ties round her head denotes the social condition of the wearer—whether she be maid, wife or widow.

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Turkish women do not come into control of their private fortunes until after marriage. After that they can dispose of one-third of it without the husband's consent.

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In Abyssinia it is the law that the murderer be turned over to the relatives of the dead person, and, if they please, they may put him to death in the same manner in which the murdered person was killed.

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There is a Spanish proverb that "on Tuesday one should never travel or marry," and this superstition is so ingrained that even in Madrid there are never any weddings on Tuesdays, and trains are almost empty.

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Public story-tellers still earn a good livelihood in Japan. In Tokio alone 600 of them ply their trade, provided with a small table, a fan and a paper rapper to illustrate and emphasize the points of their tales.

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Upon the death of a person in Switzerland, the family inserts a black-edged announcement in the papers asking for sympathy, and stating that "the mourning urn" will be exhibited within certain hours on a special day. In front of the house where the person died there is placed a little black table, covered with a black cloth, on which stands a black jar. Into this the friends and acquaintances of the family drop small black-margined visiting cards, sometimes with a few words of sympathy on them. The urn is put on the table on the day of the funeral. [illegible] men go over to the church yard, and they generally follow the hearse on foot.