

HOW IRON BRIDGES ARE BUILT.

Charles Buxton Going, in The Engineering Magazine for April.

The American bridge engineer of to-day has few of the difficulties that were overcome by the early designers of iron bridges. The mathematics of simple forms of bridges was understood in 1870, but the proportioning of details had to be worked out by each man for himself. Every new span was a new problem.

Now the proportions of lengths of span to height, and the length of panels, have been fixed by practice. Connections have become so far standardized that the duplication of parts can be carried to its fullest extent. The proper spacing of rivets is now better understood. Designs are so made that machine tools can make every part. Great accuracy is attained and the sizes of parts have increased. The bridge is never assembled [fitted together] until it reaches the staging or false works, and it comes together like the parts of a clock. Much of it is fastened together by power riveters.

Except in a few instances the American bridge builders know that the designs of the engineer of the purchaser will be similar to those that he has been in the habit of working under, and no abnormal features will be embodied. Everybody now knows what everyone else is doing.

THE POPE'S INTEREST IN THE UNITED STATES.

According to the Catholic papers there is considerable comment in Vatican circles over the Pope's decision that Cardinal Marinelli shall remain in Washington until 1902. The invariable practice has been to recall the chief within a month of his elevation to the Sacred College. This is the first time in Papal history that a cardinal has remained in charge of an apostolic delegation.

Cardinal Rampolla, the Papal secretary of state, says the Pope desires thus to emphasize the extraordinary importance which he attaches to maintaining the best possible relations with the United States government, and his special interest in the growing Catholic population of the republic.

WHAT PROTECTION HAS COST THE UNITED STATES.

Edward Atkinson, in The Engineering Magazine for April.

The real effect of the duties on iron imposed by the United States during ten years from 1880 to 1890 was to protect the metal workers of Europe in their control of all other markets, in the supply of machinery, tools, engines, and even in part meeting the demand of the United States, at the same time building up the great fortunes of American iron and steel makers.

The increase in the price of crude iron to the metal users of the United States, as compared to the price charged to the consumers of British iron, was \$7 per ton, on an average consumption of iron in the United States of 10,000,000 tons a year. The cost of protection to iron in the ten years was \$700,000,000—a bounty more than equal to the value of all the iron furnaces, rolling mills and steel works in the United States in 1891.

What shall be done with Aguinaldo? Here is Dewey's opinion: "Well, it seems to me as good a thing as could be done for the present would be to send him to Guam. It is the same climate as the Philippines, and there will be no hardship in the change and there would be no chance to pose."

Nebraska is sickle. Only a few years ago the state went wild to Populism. Now the Republican legislature has elected two banker United States senators.

NEW ESTRAY LAW.

A legacy left by the late legislature was a new estray law. Men who do not comply with it are liable to a fine of \$10 to \$100. Except breachy or vicious animals, which may be seized at any time, estrays can only be taken up from May to November, inclusive. Three notices must be conspicuously posted, and within ten days the owner must recover his animal by the payment of a fee of \$1 and a reasonable charge for keeping.

After ten days the county clerk must be notified and the animal be appraised and sold. If the appraised value is \$15, the animal must be advertised in a newspaper by the clerk.

Salem cannot raise enough money by ordinary taxation to meet the interest on bonded indebtedness, and ordinary expenses. It is proposed to license all kinds of business in order to raise more money. The licenses proposed will raise about five thousand dollars a year. The city got too frisky during boom times, and, as a result, all property therein is virtually mortgaged, and must remain so for years. Often people and communities get ahead faster by going slow. Salem sorrowfully realizes the point of the trite old saying.

Surveys for the building of large reservoirs to store water for the reclamation of desert lands of Nevada and parts of Eastern California are to be commenced at once. The Truckee, Carson and Walker rivers are the ones to be mainly utilized. It is estimated that ten years will be required for the work and that it will cost ten million dollars. The lands when supplied with water are exceedingly productive.

Mrs George M Pullman, widow of the late palace car magnate, of Chicago, is sought in marriage by an English lord. The peer's proposal was by cablegram the other day, and with it came \$25 to pay for the lady's answer. The cablegram was nearly one hundred and fifty words long and it explained why the name of the nobleman was not subscribed, saying it would be

The deadly cigarette has received another body blow. Minnesota has passed a law prohibiting the sale of cigarettes or cigarette paper in that state. Generally employers are doing most, though, to discourage use of the lung and nerve enemy. Business men as a rule object to their employees smoking cigarettes, while many railroads and large corporations absolutely prohibit it while the employee is on duty.

It is not probable that Aguinaldo will meet with any punishment worthy of the name. The administration cannot but have a secret feeling that the man was fighting for his country. Washington was a rebel once. Jeff Davis would have been a patriot had the Confederacy succeeded. Nothing succeeds like success.

learned by application to a firm of London solicitors, should Mrs Pullman signify to them her intention of seriously considering the proposal. It also announced his intention of making a quick passage of the Atlantic to prosecute his suit. The lady is not falling over herself in haste to accept the offer.

The Buenos Ayres (Argentine) chamber of commerce is authority for the statement that the foot and mouth disease and inundations caused the loss of fourteen million sheep during the last year, including almost all the increase for 1900. Cattle suffered, but less than sheep.

The Philippine Commission paid an official visit to the Sultan of the Sulu the other day. They politely informed the old Mormon that the United States had no intention of interfering with the habits, customs and religion of his people. And thus we have "imperium in imperio"—a government within a government.

BARKER.

One of our competitors says that they haven't changed the construction of their crank hangers for 14 years, and points to it as a matter of merit. Now a concern that can't make an improvement in 14 years is a daisy. You all know the difference in a bicycle built now and 14 years ago, yet he admits that they are 14 years behind the times and is proud of the fact. Well we don't want to be proud that way. This same man says he has been selling the same wheel 4 years and other people change every once in a while, inferring that there is none good unless the style has not been changed for 14 years. Well, we don't think so. In fact, we think we know a thing or two about bicycles. In fact, the people know that we could not repair bicycles of all makes for 13 to 16 years and not know something about them—that our shop is the acknowledged peer of any shop in the Pacific Northwest is evidence that we know something about bicycles. The best informed men who travel out of Portland, and the dealers both told when there, that there was no question but the Barker Gun Works was the best equipped repair shop in the whole northwest, and it is considered phenomenal by them how any one could build up such a business in a country town of 5000 people when no one had been successful in the same line in Portland, Seattle or Spokane or the northwest. These facts are some proof that we know a little about bicycles. We claim, and without reservation, we sell the best bicycle for the money of anyone in town, if not in the whole northwest. Our bicycles are not sold on commission, and we don't have to sell for what they offer. We buy the bicycles and sell them at 10 or 20 per cent less than the commission agent sells his, for quality for quality. Anyone knows that the man who sells on commission must pay more for his goods, and he also sells them for more and the buyer pays from \$3 to \$5 more on a bicycle of the same quality. We buy the best that is possible to get for our money and we sell it as low as possible. These are facts, and that is one thing that has built the business up to the high standard. Over 900 bicycles have been sold by us and have given most excellent satisfaction. Over 2000 guns have been sold by us and we sell every day. We have sold over 200 sewing machines without a complaint.

We endeavor to do right, our business proves we do right. It's actions and not words that count. I advertise myself as the greatest liar on earth. All the other fellows pass as honest Johns. Are they? I leave that for you to judge. I wanted to do different from the rest, and I did it. I startled some people and some people startled me; so we are even.

Barker and Snell bicycles are the best you can get; time will prove these statements. Come and examine our goods. If you can't see the merit in them, ask us, we are here to answer questions. We will tell you, show you, and warrant and guarantee the goods, and besides that, we live up to our guarantee; that's more than some people do. Wishing you a prosperous spring and a glorious Fourth of July, I have the honor to most solemnly remain

Your servant,
M S BARKER,
Sole owner of Barker Gun Works.

For Sale Cheap.

A complete set of Encyclopedia Britannica for sale, at most reasonable terms, if taken at once. The set consists of 28 volumes, sheep bound, and runs down to 1892, including the ninth edition.

I have also for sale the New National Dictionary, Encyclopedia and Atlas, revised down to 1898, consisting of 18 volumes. This set is new, and will be sold on reasonable terms.

Apply at residence, corner Seventh and Monroe streets.

J F AMIS.

Roseburg Review: F D and J E Wheeler and F P Phillips, of Cottage Grove, were here this morning attending to business matters. They had some rich specimens of ore from Bohemia, which were full of wire gold and estimated to be worth from \$5 to \$10 per pound. A number of rich strikes have been made in that district recently and a strong effort will be made to secure the erection of a smelter during the present year.

Junction Times: Mrs J J Butler and daughter Mrs McClaren left Thursday for Belleville, Ohio, where Mrs Butler hopes to secure relief from a noted cancer specialist. The cancerous growth which is at the side and below the left eye, is growing and is now about the size of a hen's egg. She suffers but little pain but proximity to the eye makes an operation exceedingly dangerous.

Salem Journal: At Eugene a creamery is to be established, and at Salem and Canby one each has been abandoned.

TAPPING THE SUN'S POWER.

Process by Which Old Sol's Energy Can Be Utilized For Power.

The problem of tapping the giant strength of the sun, and of controlling some given to man, has been passed from the hands of the moderns through the hands of the ancients to the hands of the future. The Greek Archimedes, the Englishman, and the Frenchman, were among the last to seek the solution, and both succeeded in making the sun operate small motors. Nothing more was done until Dr. William Calver of Washington invented the pan-heliometer and can now control a greater degree of heat than man ever operated before.

The first degree of heat that any one has hitherto been able to make is the 6,000 degrees that has been registered in the electric arc. Dr. Calver is able to generate 24,000 degrees of heat. Of this he is able to control 10,000 degrees with absolute safety, while he is at present at work constructing an apparatus which will easily give him the mastery over the full amount of heat that he generates.

With his invention, which briefly consists of an arrangement of mirrors to reflect the sun's rays upon a focusing spot, Dr. Calver could burn down a rocky mountain and reduce it to a level plane without as much as lighting a match. Russian iron, of the kind so unburnable that it extinguishes the fire in the hottest furnaces melts under the heat at his control as a wax match melted by the flame. Tough silver coils or stout glass tumblers become in a moment running liquid in the heat of the focused rays, while with his apparatus he will perforate a soaking wet plank of wood with a dozen holes in as many seconds.—Pearson's Magazine.

The Dispenser.

We have no barmaids in this country, but women in general must be interested to learn that "bartender" is no longer the proper term, but "dispenser." Invitations sent out to the house warming of a new cafe last week bore in large type a name with "proprietor" underneath and in smaller type three other names followed by the word "dispensers." Philologically the new word is not so good, because not so truthful as of old. Ethically it sounds better. "Dispenser" has quite the air of a rise in the social scale—almost making a bid for respectability. It deserves high rank in that list of like titles, including, among others, "demonstrators," as the agents of various firms call themselves at food shows; Brooklyn's name for her undertakers, "morticians," and "healers"—not ward, but Christian Science.—New York Sun.

New Form of Phonograph.

Among the exhibits at the Paris exposition was a phonograph invented by Valdemar Poulsen, a Danish engineer, which uses a wire wound instead of a wax covered cylinder. The wire is of steel and over it in place of the usual stylus passes a small electromagnet connected with a telephone transmitter and battery. The sound waves cause a variation in the intensity of the electromagnet, and the magnet, acting upon the wire passing beneath it, leaves a permanent impression upon the latter. Upon reversing the action the wire reacts on the magnet, and corresponding sounds are transmitted by the telephone. In order to obliterate the magnetic trace on the cylinder it is only necessary to revolve it under the magnet while this is subjected to a continuous current.

The Yellow Peril.

The real "yellow peril" will be present when the Chinese are awakened to the full knowledge of the resources of their empire and have their attention strongly directed to manufacturing. What the civilized world has most to fear is the arousing of China from her present lethargic condition to a realization of the possibilities within her reach. The Chinese are industrious and thrifty. They are willing to work and to work for small wages. They can easily be taught to do almost anything. They quickly become expert operatives in cotton factories, and it would not be difficult to teach them to be skillful workmen in all kinds of manufacturing.—Savannah News.

A Big Tunnel Project.

M. Berlier, a French engineer, has for some years past been engaged on a gigantic project for a railway tunnel from the south of Spain to the African coast, a distance of about 250 miles. The French foreign office have up to the present declined to seriously consider M. Berlier's scheme, and he is now on his way to Fez with a view to securing the co-operation of the sultan of Morocco. M. Berlier considers that the construction of this tunnel would lead to great commercial developments in Morocco.

Learning Dutch to Please a Queen.

There is one man in the world who is learning Dutch just now with all his might, for he has wooed and won a queen whose native tongue it is. No body would learn Dutch for the mere sake of learning it, and it is not surprising that Duke Henry does not know it. But, says The King, anybody would learn it to sit beside a queen on her throne, and it is not surprising that Duke Henry is learning it as fast as he can.—London Express.

THE INAUGURATION.

It May Be Made an Occasion of Unprecedented Display.

The people of Washington are in favor of making the inauguration next March an occasion of unprecedented display. They would celebrate the grandeur of the nation, the progress and prosperity of the people and the election of a president. No plans have as yet been formed. According to custom, Mr. Hanna, chairman of the national committee of the successful party, will designate some citizen of appropriate character and distinction to take the lead in making arrangements.

Four years ago Charles J. Bell, a banker, was the chairman and proved to be the most competent we have ever had. There would be universal satisfaction if Mr. Bell were again intrusted with the inauguration arrangements, although other gentlemen are more anxious to assume the responsibility than he, writes the Washington correspondent of the Cleveland Plain Dealer. The expenses of the inauguration are usually paid by the sale of tickets to a social function improperly called a "ball," for nobody was ever known to dance in recent years.

In olden times, when Washington was a small town and the difficulties of travel prevented a large attendance at inauguration ceremonies, it was customary to give a banquet in honor of the president elect and a ball in honor of his wife. The outgoing president would lead the cotillion with the wife of his successor, and the president elect would follow with the lady of the White House. Time and multitudes have changed this ceremony until now the president is only expected to walk through the rooms accompanied by his wife and other gentlemen and ladies of distinction.

For the last 20 years the assembly has been held in the brick paved court of the pension office, which in many respects is well adapted for the purpose, although it is so small that those who wish to attend cannot be comfortably accommodated. Four years ago there was such a crush that women fainted. Others had their gowns half torn off. In fact, nobody familiar with inauguration balls wears anything but old garments.

This year it is proposed to erect a special building for the ball or reception or whatever it may be called large enough to accommodate every person who desires to attend. It is also proposed to have a military parade unprecedented in numbers and in gorgeousness.

The New French Field Gun.

As for the new French fieldpiece, everybody knows that its superiority lies in the fact that the breech contains a brake which completely—indeed, mathematically—nullifies the effects of the recoil. There are not more than ten people in France, including officers and chiefs of government workshops, who know in all details the secrets of the hydro-pneumatic brake. The pieces of which it is composed are manufactured separately. When they are adjusted, there remains still another thing to be done which cannot be accomplished by means of a plan or any kind of document, because the feat requires a savoir faire or, rather, a tour de main which can only be acquired by experience. As soon as it is accomplished the brake is closed up in a steel case.—Statement of Staff Officer in Echo de Paris.

Paper Furniture.

For some time furniture made of paper, on account of its cheapness, has been very popular in English houses where there was a desire to be imposing, but where good solid furniture would be too costly. Now decorators of houses, even of those of wealthy people, employ compressed paper largely, especially for paneling work for halls, corridors, etc. Very fine balustrades are also made in imitation of mahogany. The houses of many artists are furnished throughout with paper mache with metal inlay. Even flower pots and vases which are generally taken for majolica ware and porcelain are composed of paper as well as the costly antique weapons with which the walls are hung.

A New Departure in Letter Heads.

The Boot and Shoe Recorder frequently finds curious specimens of business cards and letter heads, but one which was sent to us by the Wolfe Bros. Shoe company recently seems to be worthy of more than a passing notice. The letter reads:

WOOD RAINWATER,
Boss Jew,
The Wolfe Shoe Company, Columbus, O.:
Dear Sir—Inclosed please find check for \$1.50 in payment of invoice of 10-17.
Please place same to my credit, acknowledge receipt and oblige, yours truly,
WOOD RAINWATER.
—Boot and Shoe Recorder.

Coffee in Africa.

The coffee growing industry in tropical Africa is increasing. The seed was introduced into that country about five years ago by some English missionaries with the object of ascertaining whether the resources of Africa were favorable to the culture of the bean. The ground appears to be peculiarly adapted to the industry, as 100 tons of coffee were exported from Uganda alone last year. The result of this year's production will be even greater.

Nuremberg Eggs.

A statue of Peter Henlein, who is said to have invented the watch, toward the close of the fifteenth century, is to be erected in Nuremberg. Henlein's pocket timepieces were oval in shape and hence were known as "Nuremberg eggs." A model of the statue, which is of life size and was executed by the well known sculptor Moritz Schultz, was exhibited at the Paris exposition.

TRUE LOVE.

Alaric Leigh bore his fate like a man when he learned from the lips of Aurora Stanley that she was the promised wife of another. Aurora's betrothed husband was expected from Europe, and the preparations for the wedding had already begun. But one morning the thunderbolt fell.

Her father had speculated heavily and lost. Hoping to retrieve his losses, he had become an embittered and a forger, and his sin had found him out.

The dainty, spoiled child of luxury was forsaken by her butterfly friends and sneered down at the beggarly daughter of a fleeing criminal.

"I am so glad Charles is rich," she thought. And for the first time since she knew him she thought of him with something like affection and yearned for his coming. "The steamer came in this morning, and in a few hours more he will be here to comfort me."

But before he came she had another guest. Looking from a window of the grand mansion that in another week would be her home no longer, she saw Alaric Leigh coming up the marble steps.

"Miss Stanley," he began gravely, "I have come on a most disagreeable errand. I am commissioned to inform you that your unhappy father has returned to the city and means to give himself up to justice."

"He must not!" she gasped.

"He has no means to do otherwise," answered the young man gravely. "He sent me to tell you that if you could dispose of your diamonds he might by the proceeds not only reach Europe in safety, but also establish some sort of business there by which he might some time regain an honorable name and place among his fellow men."

"Here they are," she said hurriedly, placing a heavy casket in his hands.

"Oh, Alaric, go quickly, and tell him I love his suffering daughter to never give himself up to a felon's punishment."

In her trouble she never thought to inquire how Alaric Leigh had become the confidant of her disgraced parent.

As she spoke the bell rang loudly.

"It is Charles!" she said gladly.

"One word more, Alaric, before I go," said Alaric. "If you ever feel that you need my friendship, do not hesitate to send for me."

The girl did not hear him. She only seemed to hear the firm, light footsteps on the threshold of the parlor door, and Alaric, passing out of a door opposite, looked back for a second and saw her spring into the embrace of Charles Buckingham.

"Oh, Charles! I am so glad you have come. I am in such trouble," said Aurora, clinging to his arm as she drew him to a seat.

"Indeed, my little goddess!" drawled the exultant. "What sort of trouble?"

"Oh, Charles, have you not heard of our terrible misfortune?" she asked. "I thought the whole city would babble it to you before you saw me."

"I have heard nothing," he returned, growing anxious.

And so she told him all, never heeding as she talked on with feverish rapidity that the face of the man who had pledged to her eternal love and constancy was assuming a smile of lofty and haughty indifference.

"And so the wedding can't be?" he observed in a tone that cut through her heart like a thrust of frosty steel. "Is that what you want to suggest, Miss Stanley? Well, you are quite right. Most girls under such circumstances would have held a poor fellow to his contract. But you are as wise as you are beautiful, and I honor you for it. Rory—pon my soul I do."

Aurora sprang to her feet, amazed and indignant at this unparalleled act of hypocrisy and his offensive familiarity.

"Thank God, I never loved you!" she cried, and, tearing the betrothal ring from her finger, she flung it at his feet. "Go, and leave me alone! In all the world I have not a friend—not one."

"In all the world I have not a friend—not one," was the burden of Aurora's sorrow for many a weary day.

One day Aunt Hetty, in her faded brogen silk and ancient bonnet, came for the unhappy girl.

"You must go home with me, Rory. It is a poor sort of place for a fine lady, but it is better than nothing, girlie."

So Aurora went, and when the summer came again Alaric Leigh came with it. If he still loved Aurora, however, betrayed the fact by any sign whatever, and perhaps that was why, with the inconsistency of girlhood, she began to think him a paragon among men. But he did love her still, and after a long, long time he told her so.

"An affection like mine, Aurora," he said, in his grave, strident, low voice, "never changes. I can give you a comfortable home, and if you will be my wife I shall be the happiest of husbands."

"I can't marry you for a home," she answered, and a tender quaver in her voice made his heart beat faster.

"Marry me for love, then, dear," he observed anxiously.

"Oh, blind Alaric! I have loved you always."

And that was the truth.

What a quiet little wedding it was! No satin and lace and orange blossoms; only a slim, beautiful form, robed, like the simplest village maid, in plain white muslin and crowned with white rosebuds.—Exchange.

Laid a Good Foundation.

"I never found out how wise my father was," said the robust, rosy faced man, "until I grew up. One of the things he did was to bunk me completely. It was as clean a case of swindle as one could hope for, but I never realized it until I grew up. There were four boys in our family, and we were all pretty healthy eaters, with a boy's natural love for jam, cakes, pies and other indigestible stuff. We had a table pretty well stocked with these things at home, and it was a rule that the boys were to have everything they wanted to eat. There was no restriction as to anything, and cake and jam were just as free as bread.

"There was only one proviso, and that was, 'If you eat rich things, you must lay a good foundation.' This foundation was a great big, thick slice of bread, with butter on it. We always eyed the good things longingly, laid the foundation and then somehow didn't care so much to stuff ourselves. As I say, I never found out how I was bunked until I grew up, but I think my good digestion is due to this wise provision."