

OLD BRIDGES IN CHINA.

The most remarkable evidence of the mechanical skill and science of the Chinese at an early period, is to be found in their suspension bridges, the invention of which is assigned to the Han dynasty. According to the concurrent testimony of all their historical and geographical writers, Sangleang, the commander of the army under Kiao-ton, the first of the Han, undertook and completed the formation of roads through the mountainous province of the Shera to the west of the capital. Hitherto, its lofty hills and deep valleys had rendered communication difficult and circuitous. With a body of 100,000 laborers he cut passages over the mountains, throwing the removed soil into the valleys, and where this was not sufficient to raise the road to the required height he constructed bridges, which rested on pillars or abutments. In another place he conceived and accomplished the daring project of suspending a bridge from one mountain to another over a deep chasm. The bridges, which are called by the Chinese *Waters*, were very appropriately, flying bridges, and are represented to be numerous at the present day, are sometimes so high that they cannot be traversed without alarm. One still exists in Shenas, stretching 400 feet from mountain to mountain over a chasm of over 500 feet. Most of these flying bridges are so wide that four horsemen can ride on them abreast, and balustrades are placed on each side to protect travelers. It is by no means improbable (as Mr. Pauthier is suggested) that as the missionaries to China made known the fact over a century and a-half ago that the Chinese had suspension bridges and that many of them were made of iron, the hint may have been taken from thence for similar construction by European engineers.

THE FUTURE OF THE ENGINEERS.—At a meeting of the Liverpool Engineering Society, December 19th, Mr. Graham Smith, gave an address on the "Status and Prospects of Engineers." The speaker said that the remains of canals, aqueducts, reservoirs and other works are to be found in Egypt, India, China, and, in fact, all over the world, clearly denoting that the ancients possessed men answering the description and filling the position which the engineer of the present day occupies. He said the works of the ancients were held in estimation by their kings and rulers, for among the titles of the god, Val, were those of "Lord of Canals," and "The Establisher of Irrigation Works." At the present time the profession was little recognized, and titles were scarcely distributed to the leaders of the profession, but an engineer ought to care little about them, as by his own work he may gain more distinction and honor than it was in the power of all the crowned heads of Europe to bestow. To succeed as an engineer, a man must have ability and training to do his work, and he must love it, or the disappointments and hardships encountered during the earlier part of his professional career will positively cause him to underestimate his capacities, and render him wanting in self-reliance and decision of character. Nevertheless, trials are almost necessary to the proper development of an engineer, just as iron must pass through the fire before it is converted into steel. The difficulties facing a young man about to enter upon a private practice he thought greater than those experienced in other professions, and remarked in conclusion that magnificent works yet remained to be carried out which would immortalize the names of the engineers.

MATHEMATICS AND MEDICINE.—Mark Twain, in *Atlantic* for November, says: Among other talks to-day, it came out that whale ships carry no doctors. The Captain adds the doctorship to his own duties. He not only gives medicines, but sets broken limbs after notions of his own, or saws them off and sears the stump when amputation seems best. The Captain is provided with a medicine chest, with the medicines numbered instead of named. A book of directions goes with this. It describes diseases and symptoms, and says: "Give a teaspoonful of No. 9 once an hour," or, "Give 10 grains of No. 12 every half hour," etc. One of our sea captains came across a skipper in the North Pacific, who was in a state of great surprise and perplexity. Said he: "There's something rotten about this medicine-chest business. One of my men was sick—nothing much the matter. I looked in the book; it said give him a teaspoonful of No. 15. I went to the medicine chest and I saw I was out of No. 15. I judged I'd get to get up a combination somehow, that would fill the bill, so I hove into the fellow half a teaspoonful of No. 8 and half a teaspoonful of No. 7, and I'll be hanged if it didn't kill him in 15 minutes! There's something about this medicine chest system that's too many for me!"

Hudson River Tunnel.—Work has been suspended until spring on the tunnel under the Hudson river, New York. Two shafts will be sunk, one in Jersey City, the other in New York, near Morton street. Then the excavation of the tunnel can be begun underneath the river, two bodies of men being at work. The ground on which the Hoboken (Jersey City) shaft is being sunk is made ground, and great precaution is necessary to guard against the possible caving in of the sides. A circular brick shell was first built. As fast as the earth was excavated from under it the wall sunk, while a gang of workmen kept piling more brick at the top, and in this manner the shaft has reached its present depth of 30 feet. It is to be 70 feet deep when finished. The tunnel will be 58 feet feet wide, 24 feet high, and, if the enterprise is profitable, it will be carried under New York and the East river, it is stated, to Brooklyn.

A LONG ESTATE.—It is stated (with how much truth we do not know), says the *American Manufacturer*, that the oil producers have secured the actual ownership of a strip of ground extending from the oil region to the seaboard and of a width of one rod, through which to lay their proposed pipeline. If one or more pipelines are laid to the seaboard, it will of course have the effect to diminish the number of inland refineries and build up refineries at the eastern terminus of the line, or lines.

"NOTHING BUT A FARMER."

"He's nothing but a farmer," said a little miss, a few evenings since, as she accidentally curled her pretty lip, on being introduced to a fine, generous, open-hearted fellow, whose broad and expansive forehead was the symbol of his broad acres. "He's nothing but a farmer." And who was she that looked thus disdainfully on one of God's noble men? She was the daughter of a broken merchant, whose fortune had been ruined by the extravagance of a wife and foolishly proud daughter. Though her father's hour had been coming, she was prepared for criminals—his daughter had not yet learned the difference between pride and worth, extravagance and wealth. The noble man, who ate the bread of industry and looked every man in the face with an independence which said, "I owe you nothing," was in her estimation "only a farmer."

Did these foolish persons ever read their Bibles, they would find that God himself has selected His prophets and kings from among a vineyard. Noah was a husbandman and planted a vineyard. Abraham was rich in cattle and Lot had flocks and herds—inasmuch that there was not pasture for both and they divided the country. Lot selected the plain of Jordan and Abraham took the hilly country of Canaan.

Jacob was a great cattle grower, as he presented Esau with several hundred cattle. Moses was a wool grower and Gideon was taken from his threshing floor. Saul was a herdsman, even while he was king. David was a shepherd and was taken from that occupation to be king of Israel, and the ancestor, according to the flesh, of the Messiah. Uriah was a soldier, Elisha was plowing, with 12 yoke of oxen before him, when Elijah cast his mantle on him and called him to be a prophet of the Most High.

And yet, though God has honored the husbandman—selected his kings and prophets from among the farmers—there are some so foolish as to cry out, "O, he's nothing but a farmer!"

A SLEEPING CAR EPILOGUE.—Only a few nights ago an accident occurred, says the *Nashville American*, on the Northwestern road in which a sleeping coach was turned over on its side. As the car went over a lady in a berth on the opposite side was hurled out and landed in the berth of a gentleman whose weight was about 250 pounds. She was sound asleep at the time of the accident, and so was he. Both awoke, startled at the sudden turning of the car, and scarcely knowing whether they would be hurried into eternity or not. The clothing had fallen out of the lady's berth and was almost suffocating the gentleman. She heard his deep breathing for a moment; then it suddenly ceased, and the horrible thought passed through her mind that he had been smothered to death. He recovered himself, however, to find that his nose was flattened against the cold glass window. Not knowing what manner of person had fallen upon him, he held the lady up off his head, and at this juncture, when the conductor asked if any one was hurt, he cried out breathlessly: "Nobody's hurt, but I wish you'd come and take this fellow off my head." The lady attempted to move, but found she could not. Lights were soon produced and both passengers were relieved of their awkward dilemma.

REFRIGERATE PASSAGE TO A DRUNKEN MAN.—In a recent case the Indiana Supreme Court holds: A railroad company is not bound to receive any person as a passenger who is drunk to such a degree as to be disgusting, offensive, disagreeable or annoying; and a person so drunk as to be likely to violate the common prudence, civilities and decencies of life has no right to passage while in that condition. The comfort and convenience of passengers generally must be protected, their opinions and feelings regarded, and a proper decorum observed. Although in a railroad passenger car neither the highest breeding of the drawing-room nor the fastidious delicacy of the parlor is required, yet the behavior of all persons therein should be becoming the place and the general character of the passengers. Slight intoxication, such as would not be likely to seriously affect the conduct of the person intoxicated, would not be sufficient ground to refuse passage in a public car, although the person's behavior might not be in all respects strictly becoming.

FLATULENT DYSPEPSIA.—At a recent meeting of the Paris Academy of Medicine, M. Leven read a paper on the gases of the stomach and flatulent dyspepsia. He is of opinion, says the *Journal of Chemistry* that food does not produce gas, and that the gases which are found in the digestive tube proceed from the external air, the blood and fecal matter. These gases are continually put in motion by the pathological contractions of the muscular fibers of the intestines. Expelled by the mouth they are constantly renewed, and their production may be as incessant in a starving man as in one who is well fed. This symptom of production of gas, therefore, signifies an irritation of the stomach, which is always consecutive to a long-standing gastric dyspepsia. The progress of the disease and the treatment to be adopted for its cure confirm these data of clinical observation. There is no need to seek for any therapeutic agent to combat these gases.

BISMUTH.—No country is so rich in bismuth ore as Bolivia. The mines which yield the largest amounts are those of Tama, Chorolque, Oruro, and some others in the neighborhood of Guana-Potosi, Sorata, etc. The bismuth is usually accompanied by tin, frequently by gold and silver. The presence of bismuth has been discovered in several localities of Peru and Chile, but in quantities comparatively very limited.

LOST FREIGHT.—The item of lost freight in railroad affairs amounts to a good deal in the course of a year. The Pittsburg, Fort Wayne and Chicago road employs four clerks to look after lost freight. Much of it is found and restored to owners, but the losses in one year to the road amount to about \$20,000. This includes goods of all kinds, principally boots, shoes, and the finer grades of dry goods.

SOUPS.

The delicate and proper blending of savors, writes a housewife to the *German Town Telegraph*, the chief art of good soup making. Be sure and skim the grease of the soup when a first boil, or it will not become clear. Throw in a little salt to bring up the scum. Remove all the grease. Be sure and simmer softly, and never let a soup boil hard. Put the meat into cold water, and let it grow warm slowly. This dissolves the gelatine, allows the albumen to disengage, and the scum to rise, and diffuses the savory part of the meat. But if the soup is over a hot fire, the albumen coagulates and hardens the meat, prevents the water from penetrating, and the savory part from disengaging itself. Thus the broth will be without flavor, and the meat tough. Allow about two tablespoonfuls of salt to four quarts of soup, where there are many vegetables, and one and a-half where there are few. Be sure not to leave any fat floating on the surface. A quart of water, or a little less, to a pound of meat, is a good rule. Soup made of unskinned meat is as good the second day, if heated to the boiling point. If more water is needed, use boiling hot water, as cold or lukewarm water spoils the soup. It is thought that potato water is unhealthy, and therefore do not boil potatoes in soup, but boil elsewhere, and add them when nearly cooked. Keep the vessel tight in which you boil soup, that the flavor be not lost. Never leave soup in metal pots, as sometimes a family is thus poisoned. Thickened soups require more seasoning, nearly double the quantity used for thin soups.

SEASONING FOOD.—Many people have the idea that a finely flavored dish must cost a great deal. That is a mistake; if you have untaunted meat, or sound vegetables, or even Indian meal, to begin with, you can make it delicious with proper seasoning. One reason why French cooking is so much nicer than any other is that it is seasoned with a great variety of herbs and spices. These cost very little. If you would buy a few cents worth at a time you would soon have a good assortment. The best kinds are sage, thyme, sweet marjoram, tarragon, mint, sweet basil, parsley, bay leaves, cloves, mace, celery seed and onions. When you buy a bunch of dried herbs rub the leaves through a sieve, and bottle them tightly till you need them; tie the stalks together and save them until you want to make what the French call a bouquet, for a soup or stew. A bouquet of herbs is made by tying together a few sprigs of parsley, thyme and two bay leaves. The bay leaves, which have the flavor of laurel, can be bought at any grocery or drug store, enough to last a long time for five cents.

ABOUT VEGETABLES.—Don't wash your vegetables, says the *Phrenological Journal*, until just before you are ready to cook them. At least one-quarter of the sweetness, vivacity and aromatic element is lost by the too common practice of having washed clean of the natural earth adhering to its fibers and surface during the growth, and which, when roughly dug, is put into the cellar or pit of the countryman's garden, or the city dweller's back yard. Such best, carrots, potatoes, etc., as is generally practiced for sale by the dealer, and by the consumer desired, he would never be able to keep his produce a single month. The receiver of a clean washed vegetable, according to the newly established law of refinement, never yet ate of a good natural flavor, and thus same people, if once they leave their city homes and go into the country farm-house, rarely fail to notice the superiority of the vegetables. It is not because of the better knowledge of cooking, but it is from the fact that the earth is a preservative and absorbent of the volatile element of the root, which, as soon as washed, evaporates rapidly into the air and is lost.

NITRATE OF LEAD AS A DEODORIZER.—A correspondent of the *London Lancet* recommends nitrate of lead as a most effective deodorizer. Bad smells, he says, from whatever cause they may arise, are removed as if by magic by its use; it is also remarkably inexpensive, a pound of the material costing less than a shilling, and in combination with common salt, furnishing sufficient to make nearly 400 gallons of the fluid. To prepare it for use, it is simply necessary to take, for ordinary purposes, half a dram of nitrate of lead, dissolve it in a pint or more of boiling water, dissolve about two drams of common salt in a pint of water, pour the two solutions together and allow the sediment to settle. All that is required in order to immediately purify and sweeten a fetid atmosphere, however originated, is to dip a cloth in the liquid and hang it up in the apartment.

THE SUZ CANAL.—Mr. Consul Perceval, in his annual report to the foreign office on the trade of Port Said, shows that the depression in trade has affected the traffic through the Suez canal, but he adds: "Notwithstanding the decrease in the total number of ships, 1,092 vessels under the British flag, amounting to nearly 75% of the whole traffic, with a tonnage of 1,578,238 tons net, passed through the canal during the year, being an increase both in British ships and tonnage of 31 in the former, and 100,492 in the latter. The canal has been kept in good working order, and the requisite depth of water maintained, with the usual amount of dredging, and the company have faced the banks in various places with stone to prevent the sand falling in."

PROGRESS ON THE BROOKLYN BRIDGE.—The *Iron Age*, learns from Engineer Faine, of the East River Bridge company, that the close of the old year was signalized by finishing eight strands of the 19 which will form each of the four great cables. The cable work, therefore, is well-nigh completed, and the whole will be finished next summer. Work is going forward satisfactorily, with no delay from any cause other than that occasioned by short days.

IRON BRIDGE IN JAPAN.—A massive iron railway bridge over the Rokkiko river, constructed for the use of the Tokio and Yokohama line, at an estimated cost of \$320,000, was opened for traffic on November 27th.

RECENT PATENTS.

Through Dewey & Co's Patent Agency, San Francisco, we receive the following list of U. S. Patents granted to Pacific Coast inventors, viz.: For the week ending December 11th, 1877.—Henry H. Holt, Kalama, W. T., books for carrying fishing flies; Alvah C. Austin, Oakland, Cal., piston water meter; N. W. Green, G. W. Hoag, of San Jacinto, and T. P. Cleveland of Mountain House, Cal., railway air-brakes; E. G. Hall, Healdsburg, Cal., ore roasting furnace; R. H. Lander, Turlock, Cal., windmill; A. D. Laday, S. F., Cal., light weight rope; Sam'l. Spencer, Turlock, Cal., harvester; W. F. Vaughn and S. Jackson, Stockton, Cal., well boring machine; J. R. Ward, S. F., Cal., combined railway and conduit; V. Kingwell, S. F., Cal., garden-valve; (trade-marks) Haas Bros., S. F. and N. Y., oysters; Chas. J. Hawley, S. F., Cal., pulverized sugar; J. O. Nanthorn, Astoria, Ogn., packed and preserved fish and meats.

For the week ending December 11th, 1877.—J. Bennerseid, Anaheim, Cal., well boring machinery; W. A. L. Miller, San Francisco, the manufacture of cabinet jewelry; F. Whelan, San Francisco, braiding machines; H. D. Rock, Newark, N. Y., nut locks; E. T. Barlow, San Francisco, screw wrenches; S. J. Corbett, Los Angeles, Cal., means for removing and destroying sewer gases; G. R. Evans and W. P. Prescott, Carson City, Nev., shaft furnaces for smelting tailings and condensing mercury; G. R. Evans and W. P. Prescott, Carson City, Nev., fire brick compounds; Henry S. Flood, San Francisco, overalls; F. Gutzon, San Francisco, the manufacture of soda from its sulphate; F. Jensen, Seattle, W. T., bed lounges; P. Lytleton, Austin, Nev., live stock register; E. T. Street, San Francisco, pipe coupling and joint; F. Woodward, Sacramento, Cal., clothes clamps for bedsteads; reissues: H. Skinner and R. Bonnet, San Francisco, concrete pavements; R. Skinner and R. Bonnet, San Francisco, concrete pavements; trademarks—Anson P. Hotelling, San Francisco, whisky.

For the week ending December 25th, 1877.—J. A. Hall, Oakland, Cal., excavator; A. K. Grim and J. R. Low, S. F., combined overflow and gas trap for stationary wash-basin; A. K. Grim and J. R. Low, S. F., stretch trap; G. Royal, Truckee, Cal., snow-plow; P. S. Buckminster, Belleville, Nev., clamps for rock drills; F. W. Volkman, S. F., Cal., stretch trap; Clara S. Bradley, S. F., Cal., underpants; W. W. Carline, Lone City, Cal., portable hoisting apparatus or wagon-derrick; Frank A. Hill, San Leandro, Cal., harrow; W. B. Rice, Modesto and J. C. Hoult, Stockton, Cal., harvester and thresher; J. Bachelder, Napa, Cal., wool washing machine; P. S. Buckminster, Belleville, Nev., chuck for rock drilling machines; S. W. Dennison and C. Simmons, Prescott, A. T., stop rock attachment; C. Hartman F. A. Fosse, S. F., swings; P. J. Pettit, S. F., Cal., bed bottom; C. H. Schumacher, Walls Walls, W. T., machine shuttle.

For the week ending January 1st, 1878.—William Benson, Battle Mountain, Nevada, car step registers; William Hotts, Petaluma, California, fruit and hop driers; Benton V. Crumrine, Yuba City, California, spark extinguishers; John Hay, Ellis California, harvester and thresher; Giovanni N. Miles, Stockton California, insect powder injectors; Peter Okerlund, San Francisco, California, fifth wheels for vehicles; Joseph Perkins, San Francisco, California, soluble ink pens; Robert R. Spedlin and Eugene Spedlin, Astoria, Oregon, rowlocks; John R. Ward, San Francisco, California, hot air engines; James Magers, Gervais, Oregon, bed bottoms; John Lemmon, San Francisco, California, harrows. Trade-mark—M. Ehrman & Co., San Francisco and New York, teas.

GOOD MANNERS AT HOME.—Shut every door after you, without slamming it.

Never stamp, jump, or run in the house.

Never call to a person up-stairs, or in the next room; if you wish to speak to them, go quietly where they are.

Always speak kindly and politely to the servants, if you would have them do the same to you.

When told to do, or not to do, a thing by either parent, never ask why you should or should not do it.

Tell of your own faults, not of those of your brothers and sisters.

Carefully clean the mud or snow from your boots or shoes before entering the house.

Be prompt at every meal.

Never sit down at the table or in the parlor with dirty hands or troubled hair.

Never interrupt any conversation, but wait patiently for your turn to speak.

Never reserve your good manner for strangers, but be equally polite at home and abroad.

Let your first, last, and best confidant be your mother.—*Olees Optic's Magazine.*

POSTAL NOTE.—"How much do you ask for twenty three-cent stamps I dunno?" Inquired Barney Drummage, at the post-office wicket. "Sixty cents," replied the clerk. "Don't yer make any reduction at all for buying them that way?" "No." "Say half a dollar, now." "I can't make any reduction." "I'll give you fifty-five cents." "If you don't want to buy stamps at the regular price, go away and make room for other people," said the official sagely. "Well, ye needn't get mad over it," said Barney, as he handed over the money. "Sure, it's mighty stiff and stuck-up like, post-office people are. Fair, now, as some av the people as av money wad start an opposition post-office av be more accommodatin' they'd take the left av the business away from them, so they wad."

"I wish I was short-sighted," said a little boy to his mother, the other day. "Why, my dear?" said the fond parent. "Because," replied the precocious six-year-old, "I should not then be blamed for always taking the largest plums off the dish; for, of course, I should not be able to see the small ones."

A WITNESS in a Western court was asked if the party to the suit was not a truthful man. "No," he answered; "he'd sooner lie at 60 days than tell the truth for cash."