

INVENTIONS TO HELP FIREMEN.

Helmet to Which is Attached Air Tube and Telephone.

A novel fire-engine has recently been constructed for the fire department of Manchester, England, which contains, in addition to the usual features of an ordinary steam fire-engine, a number of additions designed to facilitate the operations of the firemen and to provide increased safety.

The first of these is an air-pump, connected by gearing with the crank shaft of the engine, which furnishes air through flexible metallic hose to men working in dense smoke, or places where they are subject to gas fumes of acids or other chemicals. This flexible hose is connected with a protective helmet worn by the fireman, which is made of heavy leather extending down over the shoulders and supplied with an opening for the eyes and upper part of the face. The air enters at the back of the helmet and flows around the face, passing out of this opening, keeping the eyes and nose free from smoke. The helmet contains a telephone receiver and transmitter, whereby communication can be maintained with the officer at the fire-engine, and by means of a switchboard, if necessary, with a chief official. The engine has a small dynamo, located over the front wheels, and connected with the fly-wheel by means of a belt. This furnishes a current for eight 32-candlepower incandescent lamps through a flexible cable, so that, provided with a hand lamp, a fireman can penetrate dark and smoky apartment, where it is necessary often to cut off gas or oil supply.

The entire equipment, including the protective helmet for the firemen, is stowed in the forward part of the fire-engine, which is of the usual English pattern, and adds comparatively little to its weight.—Harper's Weekly.

An Idea in Billboards.

An American or Englishman looks in vain on the streets in Freiburg for any of the huge advertising billboards that disfigure to such a great extent his home cities. Flashing electric signs that blaze over half the heaven by night and demand in green and red and blue letters that one use "Brown's pure rye" or somebody else's "little liver pills" are also absent. In place of these necessities of the nineteenth century commercialism Freiburg has established a system of municipal bulletin boards and columns. There are fifty of these display places in the city, situated where they will attract the most attention without injuring in any way the appearance of the street as a whole. A person having something to announce to the city hall with his bills, pays his fee, which is 25 cents per square foot for the first day, and 10 cents for each succeeding day, with liberal reductions for long periods, and goes out. On his way home he will see the poster already sticking up his notice.—Pilgrim.

Japanese Emperor's Expenses.

The Japanese Emperor's yearly expense of living is limited. For this purpose he draws \$2,000,000 from the national treasury. His personal wealth is not to be spent on his own living, so that \$2,000,000 is really his salary as manager of the country. He is required to pay out of it some thousand employes. The Emperor's daily fare is Japanese. He is perfectly satisfied for breakfast with a bowl of bean soup and a few other dishes. But his dinner usually appears in splendid style, in some twenty courses, although he always denounces it as a useless extravagance. When any official feast is held—the cherry blossom viewing party at the Kioskikawa botanical garden or the chrysanthemum party at the Alaska palace, for instance—he will not spare any expense in preparing an elegant European banquet.

Brain Work and Longevity.

A medical man who gave evidence in a Chancery Division case testified as to the connection between brain work and longevity in a way that charmed the lawyers and will charm other brain workers. One-third of the laborers in rural districts, he is reported as saying, die of brain-softening, and the average vegetative rural laborer dies much earlier than the hard-thinking lawyer, simply because his brain rusts from lack of exercise. "The use of the brain prolongs life." There is much in this, no doubt, and we believe that thorough statistics as to lunacy would astonish those who imagine that it is the wear and tear of high-pressure thinking and excitement that more than anything else sends men mad. But some discount, surely, must be allowed, in the case of lawyers, for instance, for the fact that the workdays are killed or frightened off early, while in the country air even a man of poor stamina and insufficiently fed can vegetate for a long time. Also, worry must be reckoned with; if hard brain exercise does not kill, chronic brain worry will, and the two are too often associated nowadays.—London Pall Mall Gazette.

Cotton in England.

"The cotton factories of Lancashire, England," says Edward Irving, "at present spin about 155,000,000 miles of thread a day, so that in six seconds they make enough to go around the earth. In one month they spin enough to reach from here to the moon. The production of eighteen days would reach from the sun to Neptune. Counting 310 working days in a year, it would take them, at this rate, 500 years to spin enough thread to reach to the nearest star."

COBRA CHARMED BY MUSIC.

Capturing of These Reptiles is a Dangerous Profession in India.

The death-dealing cobra is passionately fond of music, and it is through this means that its capture is often accomplished.

The men of India who can effect the capture of these deadly reptiles must be possessed of remarkable skill or their lives are forfeited. When the cobra takes up its abode in the neighborhood of a dwelling-house it is customary to send for the professional snake charmer. One of them strikes up a tune near the place where the snake is supposed to be located. No matter what the creature may be doing it is at once attracted by the sound of music. It emerges slowly from its hiding place and strikes an attitude in front of the performer. There it is kept engaged with the music while the other man creeps up behind it with a handful of dust. At a convenient moment, when the cobra is standing motionless, this man suddenly throws the dust over the head and eyes of the snake. Immediately the cobra falls its length upon the ground and remains there for one short second—but the second is enough. With a movement like lightning the man seizes the body of the prostrate serpent just below the head.

In great anger the cobra winds itself round and round the arm of its captor, but to no purpose, for its cannot turn its head and bite. If the fangs are to be extracted at once the captor presses his thumb on the throat of the cobra and thus compels it to open its mouth. The fangs are then drawn with a pair of pliers. If, however, he wishes to keep the snake intact for the present the musician comes to help him and forcibly unwinds the coils and places the body in a basket, all but the head, which is firmly held by the other man. He presses down the lid to prevent the cobra from escaping, and suddenly the captor thrusts the head in and bangs the lid.

A very expert performer can capture the snake single handed, though it is highly dangerous. While playing with one hand he throws the dust sideways with the other, and captures the snake with the same hand. The whole action must be like a flash of lightning, for a half second's delay or the merest bungling in throwing the dust or catching the snake would prove fatal to the operator.

New Treatment of Lumber.

A novel method for increasing the usefulness of lumber has been perfected in England. The method consists, in brief, in replacing the air in wood with a solution of beet sugar and removing the excess of water by a subsequent drying. The inventor of the process, Mr. Powell, attains his object by using a large boiler in which the timber to be treated is placed and the beet-sugar solution pumped in. After the air has all been replaced by the solution the wood is kiln dried. Examination of the wood seems to show that the sugar is absorbed into the fibre of the woody tissue and is not simply held in the interstitial spaces. It is claimed that timber treated in this way is no longer porous, will not shrink or warp, and is stronger, heavier, and more durable. Moreover, it is said that this wood is not liable to rot; it is hoped that by mixing the proper poisons with the sugar bath the wood will be made resistant to the attacks of fungi and insects.

Fortunes Lost on Kites.

The Japanese Times of Tokio says: That grown-up people may be seen flying kites is true of Nagasaki, where kite flying has been developed into a science and an art. Instances are cited there of even fortunes being squandered away on the game.

Craze for the Country.

It is astonishing what a craze Londoners have of late years developed for the country, says the Sketch. The papers are full of advertisements for eligible sites or ideal properties, while, on the other hand, opulently proportioned town mansions stand untenanted.

Trees in Wireless Telegraphy.

One of the most interesting suggestions made recently in connection with wireless telegraphy is that of Major G. O. Squier, of the United States Army Signal Corps, who believes that for short-distance transmission trees can be used as substitutes for the aerial wires usually employed. Major Squier's plan is to connect the apparatus by wires to iron nails driven in the base of the tree from which the radiations would be emitted. While the tree would hardly be as satisfactory as a more permanent arrangement of wires, yet in a military campaign it might answer for many purposes where the distances were comparatively short.

This, of course, involves a difficulty where the army is operating in a country barren of trees, but here a return may be made to the older method of employing jointed poles or kites or balloons to raise the wires. In connection with Major Squier's suggestion the point has been made that the difficulties of wireless telegraphy in transmitting messages overland would be increased by the presence of an intervening forest, and should this be the case the operation or wireless telegraphy may be restricted greatly.—Harper's Weekly.

The British postoffice, which manages the telegraph business of the country, has adopted the word "radio" as the designation for a wireless telegraph.

VOYAGES IN SMALL VESSELS

Daring Seamen Who Have Ventured Long Cruises in Catboats.

Upward of a hundred men have ventured on long cruises in boats from twelve to forty feet in length. Captain Joshua Slocum is perhaps the best known of these voyagers.

The feat which he has accomplished is certainly the most daring which has been brought to a successful finish. With a forty-foot yawl called the Spray, Captain Slocum started from Boston in April, 1902, to circumnavigate the world. He arrived at Gibraltar a month later and set sail for Pernambuco, on the coast of South America. From there he set sail for Rio de Janeiro to Buenos Ayres, through the straits of Magellan to the island of Juan Fernandez, made famous by Defoe's Robinson Crusoe. The Spray then headed for the Samoan islands, making the 6,000 miles after a run of sixty-two days. Sydney, in New South Wales, was the next stop; then down to Tasmania, returning up the coast to Queensland and through the Torres Straits into the Indian Ocean and Mauritius. He next sailed to Cape Town and was at last in the Atlantic Ocean. He returned home by way of St. Helena and Grenada, having covered a distance of 46,000 miles.

The voyages of Andrew and Lawler are still remembered, though they were made as far back as 1878. Andrews had hard luck from the start, for he was captured five times and was at last taken on board a passing vessel more dead than alive. Lawler, however, reached the Lizard after a more or less exciting trip. Later Andrews proposed another trip, and the two started from Boston. Andrews succeeded in reaching the coast of Portugal after a trying voyage of thirty-one days, but Lawler was never seen or heard of again.

St. Helena's Trade Needs.

The historic island of St. Helena, offers a market for a limited amount of American goods. Consequent upon the rise in price of flour in South Australia (the source from which St. Helena draws its breadstuff and grain supplies), resulting from severe drought, a considerable quantity of American flour is being imported by steamers via England, figuring under the head of imports from the United Kingdom; this also applies to kerosene, lumber, provisions, cattle feed, etc., which have their origin in the United States. There is certainly an opening at St. Helena for at least two trading schooners a year, with assorted cargoes of American goods. The alleged drawback is the absence of return cargoes; yet many sailing vessels go to South and West Africa, and on discharge of their cargoes proceed in ballast to the West Indies and South American ports and pick up cargoes for Europe and the United States.

Tear Prodigal Housekeeper.

At the Tsar's court the sums spent in eating, drinking and for servants are colossal. The kitchen is French in all its details and more than one eminent Parisian restaurateur has made a fortune in the Tsar's employ before he started in business at home. The heads of these household departments rapidly become wealthy men, says the Cleveland Plain Dealer.

The kitchen, pantry and housekeeping arrangements are all under the charge of the court marshal, Count Henckendorff, but the real general in command is a court "forager," as he is called, once a chef, now an official with the rank of colonel, with a court uniform, a cocked hat, spurs, sword etc., while his breast is decorated with stars and orders. He takes a special oath to guard against the Tsar being poisoned. He has twelve secretaries and four under foragers, twenty-four lackeys, eighteen under lackeys and fifty-four lackey assistants.

Experiment in Blasting Trees.

Some interesting experiments in blasting tree butts with gellinite—a safety explosive—have recently been carried out at Lord Leigh's Stoneleigh Abbey estate, near Kenilworth, England. The usual boring was made and filled with the explosive. An electric detonator was used, which enabled the operator to retire under cover at a safe distance. The butts operated on were of various sizes and species, but in each case the method was found to give satisfactory results. It also claimed to combine efficiency with economy.

It is said that every night from Boston the American Express Company takes a carload of liquors, valued at \$1,000, into Maine, to say nothing of what other express companies, railroads and steamships bring in. Yet every now and then we hear about immense sums contributed by Boston liquor dealers to be used toward repealing the Prohibition law.—Lewiston (Me.) Journal.

Canada buys more from the United States than from Britain. This is natural, because trade follows the dollar. York county sells more to Toronto than to all the world, but the trade theorists have not yet learned that this is trade.—Toronto Globe.

St. Catherine's lighthouse, Isle of Wight, has been fitted with a flashlight of 15,000,000 candlepower, replacing one of 3,000,000.

It appears that eggs are sent from Austria to Ireland and thence to England, where they are sold as fresh "Irish eggs."

The world's total lead output in 1903 was 910,000 tons.

THE SUPERNATURAL IN WAR.

Russians and Japs Had Great Faith in Their Gods.

A great deal has been said about Russian superstition in the war in the east, as expressed in the blessing and forwarding to the front of icons, or sacred pictures, which, by the common soldiers at least, were expected to bring victory to the Russian arms. No one knows just how many Russians with the least education believe in the miraculous powers of these icons—or how many did believe in them before the defeat of the Russians in every engagement, on sea or land, operated to destroy what confidence any one had in them. But there can be no doubt that the Japanese from high to low, have been sustained and soothed by certain beliefs that would certainly be regarded as superstitions in this part of the world.

The idea was further developed by Admiral Togo in his message to the mikado. He said that the spirits of that sovereign's imperial ancestors had helped him in the battle. This, too, the admiral really believed. There are no firmer spiritualists in the world than the Japanese, unless it is the American Indians, whom physically, and in many of their customs, they much resemble. They people the world with the spirits of the dead. After each of the great land battles in Manchuria the Japanese erected altars and conducted services in honor of the spirits of their dead soldiers.—New York Mail.

LESS VIBRATION ON STEAMERS.

Simplicity of the Method Used Excites Surprises.

By means of a governor, which does not impair the efficiency of the engine because it does not throttle them, the steam supply for both engines is so coupled that neither will work more rapidly than the other.

The consensus of opinion in the Institution of Naval Architects, where the invention was described, is that absence of vibration will be readily secured if the engines are made to run at the same speed and in opposite phase, no matter how much the engines may be out of balance. The device consists of a set of differential bevel wheels or balance gear arrangement, one wheel being driven by the port engine and the other by the starboard, and these two wheels being mounted loosely on a shaft. Two pinions mesh with both wheels and are mounted on an axle keyed to the shaft.

As long as the two bevel wheels revolve at the same speed the shaft remains stationary, but if the speeds differ the movement of the pinions causes the shaft to rotate. This rotation works an eccentric mounted on the shaft, and the eccentric in turn actuates a small steam valve, by means of which high pressure steam is admitted to the low pressure cylinder of the engine working at the lower speed.—Chicago Tribune.

Dogs in the Ambulance Service.

Recently the Austro-Hungarian War Dogs Club held its first show of dogs for war and ambulance service. The highest officers in the army witnessed the performances of the dogs. Soldiers had dispersed all over the field of action, and were concealed behind hedges, among shrubs and bushes. These were supposed to be the wounded. The dogs found them all, and either stayed with them and barked if the trainers were near enough to hear them, or ran for the trainer when the distance was too long. Then they were sent with messages contained in a locket fastened to their collars, to which they had to bring answers.—New York World.

Queer Physical Facts.

The two sides of a person's face are never alike. The eyes are out of line in two cases out of five, and one eye is stronger than the other in seven persons out of ten. The right eye is also, as a rule, higher than the left. Only one person in 15 has perfect eyes, the largest percentage of defects prevailing among fair haired people. The smallest vibration of sound can be distinguished better with one ear than with both. The nails of two fingers never grow with the same rapidity, that of the middle finger growing the fastest, while that of the thumb grows slowest. In 54 cases out of 100 the left leg is shorter than the right.—Indianapolis News.

Admiral Togo's First Victory.

Admiral Togo Heihachiro is 47 years old. He is a samurai of the clan of Satsuma. His parents decided upon a martial career for him and when a boy he was sent abroad to study the science of war. He went to England and received his naval training on the Thames aboard the training ship Worcester. His opportunity for distinguished service came in 1894, when he was commander of the Naniwa. War had not been declared with China, but when Togo, sailing through the Yellow sea, saw Chinese cruisers escorting transports laden with Chinese soldiers, he took it as a declaration of war and fired upon them, even though they flew British flags.

Compressed Air Chimes.

The chimes of St. Patrick's Cathedral, in Fifth avenue, in New York, are rung by compressed air. Nineteen bells are in the spire. The heaviest weighs 6,000 pounds, the lightest 300 pounds. The keyboard of the chimes is in the sacristy. The operator presses a key corresponding to a bell in the spire. This establishes an electric connection, which opens a valve in the steeple, conducting compressed air to a piston with a clapper that strikes the bell. Electricity is the trigger and compressed air the motive power in playing the chimes. St. Patrick's was the first church to adopt the new system.

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Fruit Trees May be Saved. Prof. Surface's Method of Destroying San Jose Scale Had Been Tried and Found Efficacious.

Farmers and orchardists throughout the country will be pardoned if they shall believe that their fruit trees can be saved if they are sprayed according to the directions issued by State Economic Zoologist Surface and his assistants. Prof. Surface's method of destroying the San Jose scale has been tried and found efficacious, and this is a merit which tree growers are not slow to appreciate. All sorts of theories as to how to stop the ravages of the scale may be advanced, but the wise orchardist will accept the plan which he knows is practical in preference to untried suggestions. It is unfortunate that there should be any controversy over the important question of combating the activities of the San Jose scale. Dr. Groff is right in his assertion that fumigating nursery stock will prevent the spread of the scale, and Prof. Surface has proven that the only way in which the scale can be removed from growing trees is to spray them with the solution he recommends. As farmers are only interested at present in having their orchards saved they will be very foolish if they shall refuse to accept the remedy for scale offered to them by Prof. Surface.

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