

Treasures of the Cathedral of Mexico.

The largest, most elegant, most costly, and in every way the finest church building on the American continent is the Cathedral of Mexico. It is three hundred years since this immense building was begun, and more than two hundred years since it was finished; yet it does not bear the appearance of old age, although nearly all the material in it, except the imported metals and precious stones, were centuries old when Columbus first sailed across the Atlantic, for it was largely built of the stones of the Aztec temple that stood upon precisely the same site, and which was destroyed by Cortez.

Sixty-two life size statues serve as chandeliers, and everything else is in the same grand style. The choir is surrounded by a balustrade of gold, which was manufactured in China, and weighs more than twenty tons (not all gold). In the middle of the high altar is placed the tabernacle, supported by eight ranges of stucco colonnades. In the first two ranges of which stand the Apostles, Evangelists and principal Saints, and in the third rank a group of angels, among whom appears the Holy Virgin.

There are six chandeliers, and a cross, whose body and pedestal are inlaid with precious stones; a cross of gold filigree; six bouquets of precious stones; four more chandeliers, twenty chalices; six gold orna and stands; a pyx weighing 104 ounces of gold, covered with 1679 large diamonds, 132 rubies, 143 emeralds, the whole mounted on eighty-four ounces of gold; two golden censers, the principal one a yard high, ornamented with 5882 diamonds, and the other with 2,653,166 amethysts, 45 rubies and 8 sapphires, and containing 704 ounces of gold; 11 lustres of 24 branches each; 2 pairs of large chandeliers; 5 perfume pans, six feet high; 3 statues and a large number of gold and silver bouquets.

The statue of the Assumption, dating from 1510, and the most valuable piece in the Cathedral is now missing (without doubt it went to part of the expenses of some of the countless Mexican wars).

It was made of gold, and the ounce value of the gold, containing nothing for the workmanship, was \$1,086,504; it was covered from head to foot with precious stones. The large censer, and a large portion of the jewels were given to it.

The Cathedral was damaged by an earthquake in 1523, and a great gold lamp 23 feet high was sold to pay for the repairs. The lamp was 9 feet in diameter, had 64 branches, and cost \$71,343.

One of the builders of the Cathedral said to the architect: "Build us a church which will make posterity believe we were mad," and he did; but we prefer the higher and truer Catholic spirit in which they worked who put up our Old World sanctuaries of whom it is written: "They dreamed not of a perishable home who thus could build."—*The Lamp.*

Matches.

Rapid Progress Made Since the Days of Flint and Steel.

Few people who use half a box of matches a day are disposed to think much on the subject of their origin, and rest content with the fact that they exist. Fifty years have not yet passed since the most elementary match in its present form was invented, and in Vienna, the other day, they celebrated the fiftieth anniversary of their invention by three Austrians to whom, of course, that honor is assigned. In England, in 1832, matches had not reached their present shape, but had only reached the stage of "Lucifers." The modern generation has lost sight of all these gradual evolutions, and they are only known to those who have the misfortune to be survivors of those benighted and unenlightened days. In the time of Fox and Burke, and up to the beginning of the present century, the flint and steel and tinder stage had not been passed, though it is probable that Dr. Johnson and other scientists were more skillful than we moderns are at this intricate operation. About the beginning of the century, however, matters began to improve, and long brimstone matches came into use to supply the place of the tinder. These were pieces of wood about six inches long, tipped with sulphur, and caught fire easily from the spark of the flint. It would be a difficult task to obtain a specimen of them nowadays.

No museum seems to interest itself in preserving these little social curiosities; and it is only some fifty years hence that they will be looked upon as such, and sought after in some technical exhibition of the match trade. It was not, however, till 1824 that matters began to improve, when an elaborate apparatus called the "Epyron" came into use. This consisted of an open bottle containing sulphuric acid, soaked in fibrous asbestos, and the matches, which were about two inches long and sold at one shilling a box, were tipped with a chemical combination, of which chlorate of potash

was the principal ingredient. On putting the match into the bottle and rapidly withdrawing it a flame was produced, but as the acid was inconvenient and the matches liable to be spoiled by damp, the Epyron, being shown not to be the fittest, did not survive. Many inventions more ingenious than useful were successively tried,—the "pyrophus," the pneumatic tinder box, and the hydrogen lamp of Dohertmer, but it was not till 1832 that the first sign of a friction match was evolved, and was called a "Lucifer" by the joking generation. Lucifers were substantially the present match of to-day pulled through a piece of sand-paper.

The remembrance of such a contrivance is calculated to make us think less than we do of that dull time. But the country was waking up, and the congreve, which is the match of to-day, soon followed the Reform bill. Whether the congreve was called after the rocket of that name is a doubtful point. There is a story of its inventor which shows, if true, the value of attention on the part of schoolboys, and might be put up in all board schools. The real inventor, it is said—a village schoolmaster—explained it to his boys at school, and one more intelligent talked of it to his still more intelligent parent, who was a chemist, and who turned it to material advantage. Be that as it may, this was the same as the match of to-day; and it has since undergone few improvements, except one changing it from a silent to a noisy match. The silent match, which is so effected by burglars, and is necessary accompaniment to list slippers, consists in the omission of chlorate of potash in the composition which tips it, and which is the cause of the crackling noise which is liable to awake the intended victim. The last great invention was a safety match, which was patented by Bryant & May, in 1856.

The Law of Extradition.

A vexed question in international law of many years standing has just received learned discussion from Judge Hoffman, of California. It is: Whether a fugitive from justice brought back upon a charge of one crime can resist being tried on any other. One view has been that, although criminals ought not to be extradited except upon specific charges, and ought not to be put on trial on any other charge than the one mentioned in the proceedings, yet the culprit had no right to object. The question was only a diplomatic one between the two nations. When Winslow was demanded from Great Britain by the United States, Lord Derby, under an act of Parliament later than the treaty, claimed from Secretary Fish a stipulation that he should be tried only on the charge named; but our administration refused to give it, and there was long disagreement between the two nations over the question. In the noted case of Lagrave the New York Courts held that until some law or treaty limited the prosecution of returned offenders to the very crime specified, the Courts could not refuse to entertain any regularly made charges. Other jurists of high standing have thought it proper for a Court to entertain a prisoner's objection that he had been brought back unfairly; and of this opinion is Judge Hoffman. He argues that specifying in a treaty certain crimes as grounds of extradition implies that no others shall be allowed; and, further, that the treaty is a part of the law of the land, of which the prisoner is personally entitled to the benefit.

An Insect Carpet-Bagger.

An experimenter in Southern agriculture told the following histeriettes of Northern bees in the South. He took a colony of the little gratuitous honey-makers down to Florida. The first year they revealed, threw and stored honey nearly all the unvaried summer time. But the second year a few of the more reflective bees evidently turned the thing over in their minds thus: "This country has no winter to provide against; what is the use of laying up honey where the flowers blossom all the year round?" These bees exerted enough influence among their friends to keep a good many bees from laying by any sweet merchandise the second year of their exile. But the prudential instinct, so strong in the little insect, prevailed with the majority. They evidently said to themselves: "Perhaps this has been an exceptional year. Next season may bring cold and snow and dearth of flowers." So there was quite a stock of honey laid by on the second year in spite of a few strikers. But by the third year the conviction had evidently thoroughly penetrated the bee mind that it was foolish to lay up in a land of eternal blossom. They made just enough to last from day to day, abandoning themselves to living from hand to mouth as recklessly as does any tropic-born butterfly.

A backwoods shoemaker puts blue glass windows in the box toes of his client's boots to cure corns.

A Standing Army.

One Side of a Question.

The *bete noire* of the conservative mind in national politics is a standing army. They are in constant dread of the military encroachments upon the other arms of the government. The interference of the military in civil affairs is constantly harped upon, and they argue that this formidable element under the control of ambition, could be used as an effective engine in the prostration, if needs be, of the civil power in the State.

This from a liberal view is but the veriest of twaddle. There is no higher grade of discipline than that furnished by a military school, and as discipline underlies the entire political strata, it is quite plain that military discipline would advance the general discipline of the country if it should become, what it is in all well regulated nationalities, a complete social and educational circle in itself. Standing aloof from the noise of politics, independent of favor or hope of promotion, except for gallantry or other forms of meritorious service, there could not be found a wider or more elevated school for our advanced youth than the army.

When we say army, we mean an organization of from one hundred to two hundred thousand officers and men; regulars, whose efficiency in promptness and knowledge would command the respect of the world, and be recognized as a magical promoter of inter-state tranquility; not a few thousand troops scattered over thousands of miles of territory, having no experience in brigade or division movements.

But the most practical view of the question is the means it would furnish to absorb a large amount of our surplus physical force. Men out of work on the one hand, or dissipated on the other, could be transformed from consumers solely, to the more useful characters of assistant producers, inasmuch as they would be well fed and clothed, thus furnishing employment for the manufacturer and helping the producer to dispose of his surplus at remunerative prices, increasing as the strength of the great moral engine augmented. Thousands of berated creatures who roam our thoroughfares, chronic tramps, whose visages alarm our domestic circles from one end of the country to the other, could be changed to useful custodians of the law, rather than disturbers and breakers of the same.

It is rarely we hear of grave offenses being perpetrated by an old soldier; his years of devotion to the commands of discipline have educated him to the value of subordination to military law, and the sequence is a natural, seemingly, conformation to the demands of the civil law. He is easily resolved into good citizenship, and through the rigid and inflexible schooling of the camp and field, he is an example of subordination to the powers that be, and exercises a salutary influence upon the disturbed elements of society, in teaching by precept as well as practice the value of discipline, which is the only remedy for the disorders of society. As a social element, the army has a peculiar value in presenting a wide field for the amenities of life, hedged in by a code of honor, manly bearing and courteous demeanor; as we find that good soldiers, as a rule, are gentlemen, gentle as well as brave. As a whole, we believe a standing army of fair proportions, would be a national benefice.—*Phila. Thoroughbred Stock Journal.*

New Method of Bleaching.

The *Textile Manufacturer* describes a new method of bleaching manufactured cottons, especially cotton on bobbins. The plan consists in placing the cotton in a closed reservoir lined with lead, this reservoir being some 10 feet long, 7 feet broad and 5 feet deep, and capable of holding 300 pounds of cotton. A rubber tube connects the reservoir with an apparatus in which about three cubic yards of chloroform vapor are set free by using sulphuric acid in a mixture consisting of one part quicklime, one part chloride of lime, one part spirits of wine or acetic acid and four parts water. The vapor is conducted into the reservoir, where for about two hours a pressure of two atmospheres is put on the cotton, after which the bleaching is accomplished. Afterward a mixture of hydrogen, carbonic and sulphuric ether, produced in a Wolff bottle, is passed over the cotton, and in the space of about fifteen minutes all smell is found to have left the bobbins. This process is found to possess some valuable advantages over the ordinary method.

For day weddings or receptions the frock or cutaway coat and light trousers are the correct thing for gentlemen. Gloves are again in vogue, and no gentleman will appear "bare fisted."

Sorghum seed of the amber-cane variety is sold readily at 65 cents per bushel, and at this price it will pay all expenses of the crop. It weighs nearly or quite sixty pounds per bushel.

Popular Science.

In June, 1783, Stephen and Joseph Montgolfier sent up the first balloon. An experiment is soon to be made in New Orleans to adapt mo-quito wood, a native of Texas, very durable and nearly as hard as iron, for street-paving purposes.

Good yeast may be kept in excellent condition if it is twice well washed with ice-cold hard spring water and then dried and well-pressed. This mass is afterward to be well mixed with malt dust and stored in closed jars in ice cellars.

Four German expeditions are now prosecuting their researches in Africa, two from the east and two from the west side of that continent. Very interesting and accurate reports of the several journeys are looked for after the explorers have revised their journals.

A French chemist has analyzed the juice of the so-called milk tree of Central America—to the nutritive qualities of which attention was first drawn by Humboldt—and has found that the vegetable product really possesses many of the characteristics of cow's milk.

Professor Bruns, of Tubingen, has made some experiments on dogs which he regards as proving that bone marrow, completely separated from the bone, may be transplanted under the skin of the same animal at a remote part of the body, with the result of giving rise to the formation of bone and cartilage.

Among recent boiler curiosities was the discovery of a piece of a plate covering a space of about six inches square, full of fine cracks. These cracks had evidently come from defect in the iron in the first instance, but the boiler had been run for two years at from eighty to ninety pounds pressure, and the boiler inspectors had just pronounced it perfectly safe for one hundred pounds.—*Iron.*

These are the conclusions of Professor E. Wolny on the physical properties of the soil in a dense and a loose state. When it is desired to increase the proportion of water in a soil density is to be aimed at, but a loose condition should be maintained when the contrary state is found needful. The more densely the particles of the soil are packed together the more such soil will vary in temperature.

Dull gold may be cleaned in this way: Take 80 grams calcium hypochlorite, 80 sodium bicarbonate and 20 sodium chloride, and treat the mixture with 3 litres of distilled water. It must be kept for use in well corked bottles. Goods to be cleaned are put in a basin and covered with the mixture. After some time they are taken out, washed, rinsed in alcohol and dried in sawdust. The articles then have the same appearance as if new.

—*The American Naturalist:* Mammals, which have been so long looked for in vain in Laramie beds, have at length been found. Mr. J. L. Wortman, who was sent to explore this formation of the past season, was instructed to look especially for mammalian remains. He now states that he has found them in place and mingled with the remains of sinosaurians in such a manner as to leave no doubt that they were of the same period.

The *American Miller* gives the following rule for computing the contents of a hopper, the rule apparently relating to the lower square or rectangular conical portion only: Multiply the length by the breadth in inches, and this product by one-third of the depth, measuring to the point. Divide the last product by 2150—the number of cubic inches in a bushel—and the quotient thus obtained will be the contents of the hopper in bushels.

When the supply of coal gets short elsewhere, the world can turn to China for "black diamonds." Baron Richthofen shows that in that country the supply of anthracite coal is not less than 630,000,000 of tons, and the bituminous coal area is just as large. The Baron thinks that, taking what is left in other parts of the world with the Chinese coal area we need not fear a fuel famine. He thinks that the supply in the Chinese province of Shanai alone will last the world about 4300 years.

Dr. H. P. Sharus, of the Hariford (Ct.) Retreat for the Insane, accounts for the increased amount of disease of the nervous system observed of late years by reference to the larger part of the twenty-four hours which the masses of the people spend within doors. A far greater part of the population than used to be employed in counting-houses, business offices, stores and factories, inhaling a heated and contaminating atmosphere, the effect of which upon the delicate structure of the brain cannot but be most unfavorable.

Mr. F. A. Rollo Russell, an English sanitary engineer, has come to the conclusion that the upper parts of buildings are by far the most healthy, and that even second stories possess decided advantages over ground floors. He finds that the climate undergoes

less variation on hills and on the tops of lofty buildings, being cooler in the summer and warmer in the winter than on the surface of the earth. It has been observed that frost strikes the valleys first and that in cold weather the thermometer on the hill tops does not fall as low as in the valleys.

It is contended by M. P. de Tchitcheff that the great deserts of Asia and Africa are not sea-beds recently made dry, but that they had been raised at remote geological epochs, and that their sand is not of marine origin but is the product of rock disintegrated by the winds, changes of temperature and other similar sub-aerial causes. He says that the Sahara is much more modern than the deserts of Asia. He makes the statement that on May 16th a temperature of 22° Fahrenheit and snow two yards in depth had been found in the Gobi at a point having the same latitude as Palermo.

It is estimated that nearly 2,000,000,000 pounds of paper are produced annually, one-half of which is for printing, a sixth for writing and the remainder coarse paper for packing and other purposes. The United States alone produce yearly 300,000 tons of paper, averaging seventeen pounds per head; the educated German takes eight pounds, the Frenchman seven pounds, the Italian, Spaniard and Russian takes, respectively, three pounds, one and a half pounds and one pound annually, the consumption of paper being roughly in proportion to the education and intellectual activity of the people.

Value of Asses' Milk for Children.

In the Paris Academy of Medicine, M. Parrott recently called attention to some remarkable results obtained in the Hospital des Enfants Assistees, of Paris, in feeding delicate infants with asses' milk. Many of the infants brought to that hospital have diseases which forbid their being suckled by nurses, whom they would soon infect. Hence the feeding-bottle was formerly used for them. But, in spite of great care, the effort to foster the small vital forces of these children was of little avail. Direct application to the udder of an animal was then tried. At first the infants were thus fed with goats' milk, but it was soon found that asses' milk was greatly preferable, and all are now fed with that—one, two, sometimes even three infants being held to the animal's udders at once. The nurses do this with ease. The results of the treatment appear well from the figures cited. During six months eighty-six infants having congenital and contagious diseases have been treated in the hospital nursery. Of the first six fed with cows' milk in feeding-bottles only one was cured. Of forty-two fed at the goat's udder eight were cured, while thirty-four died. Of thirty-eight fed at the ass' udder twenty-eight have been cured, while six have died.

The virtues of asses' milk have been appreciated some time in France. For many years Paris and the large towns have been visited every morning with troops of the asses' brought in to supply their milk for invalids. It is said that the use of the milk was introduced by Francis I, who, reduced to a very weak state and a despair to physicians, was induced by a Jew from Constantinople to take asses' milk, and thereby got well again. This milk has much less of plastic matters and butter than goat's or cow's milk, and is easily digested. M. Parrott notices the practical advantage in the case of suckling from the ass in that the animal is so easily fed; it is content with the poorest fodder. The goat suffers from a diet that lacks variety, and in the city its milk is not what it is in the country. The asses kept at the hospital referred to are in stables adjoining a field, in which they generally pass part of the day. It may be mentioned, in fine, that weekly statistics for Paris have lately presented the unwonted fact of an excess of 200 and 240 births over the deaths.

Idaho Meanness.

"Don't yer go there!" he said, as he turned around on the passenger who announced that he was going through to Idaho. "They are the most selfish people you ever saw." "How?" "Well, take my case. I ran a wildcat under a school-house and discovered a rich mine, and yet they wouldn't let me do any blasting under there during school hours for fear of disturbing the children. I had to work at nights altogether, and they even charged me thirty cents for breaking the windows." "Indeed!" "And in another case, where I staked out a claim and three men jumped it, the Governor refused to issue ammunition or let the Sheriff move; and do you know what I had to do? I had to dig a canal from the river, three miles away, and let the water in to drive the jumpers out, and even then the Coroner who sat on the bodies made me pay for the coffins and charred me twelve dollars for a funeral sermon only seven minutes long! Don't go beyond Colorado if you want to be well used."

The Virtues of Coffee.

Its Exhilarating Effects Upon the System and Benefits in a Medicinal Way.

It is getting to be the fashion now for people to say that coffee is injurious to the health and many persons are giving it up regretfully. Perhaps coffee is very injurious in some cases, but of all beverages it is contended that it is the least injurious. Coffee-drinkers are generally cheerful, strong persevering. The eminent Dr. Book, of Leipzig, says: "The nervousness and peevishness of the times are chiefly attributable to tea and coffee." He says that "the digestive organs of confirmed coffee-drinkers are in a state of chronic derangement, which rests on the brain, produces fretful and lachrymose moods." "I cannot agree," says Dr. Henry Segur of Paris, "that the nervousness and peevishness of the present times are to be attributed to the use of coffee. If people are more nervous or in worse humor than formerly, we may find other causes arising from the customs and habits of society much more likely to produce such a state of things than the use of this particular article of diet."

Let us examine the effects of coffee on the economy. Taken in moderation it is a mental and bodily stimulant of a most agreeable nature, and followed by no harmful reaction, it produces contentment of mind, allays hunger and bodily weakness, increases the incentive and capacity for work, makes man forget his misfortunes, and enables those who use it to remain a long time without food or sleep, to endure unusual fatigue and preserve their cheerfulness and contentment. Jomand says: "An infusion made with ten ounces of coffee enables me to live without other food for five consecutive days without lessening my ordinary occupations and to use more and more prolonged muscular exercise than I was accustomed to without any other physical injury than a slight degree of fatigue and a little loss of flesh."

The mental exhilaration, physical activity and wakefulness it causes explains the fondness for it which has been shown by so many men of science, poets, scholars and others devoted to thinking. It has, indeed, been called the intellectual beverage. It supported the old age of Voltaire and enabled Fontenella to pass his hundred years.

The action of coffee is directed chiefly to the nervous system. It produces a warming, cordial impression on the stomach, quickly followed by a diffused agreeable and nervous excitement, which extends itself to the cerebral functions, giving rise to increased vigor of imagination and intellect, without any subsequent confusion or stupor, such as are characteristic of narcotics. Coffee contains essential principles of nutrition far exceeding in importance its exhilarating properties and is one of the most desirable articles for sustaining the system in certain prostrating diseases. As compared with the nutrition to be derived from the best of soups, coffee has decidedly the advantage, and is to be preferred in many instances. The medicinal effects of coffee are very great. In intermittent fever, it has been used by eminent physicians, with the happiest effect, in cutting short the attack, and if properly managed is better in many cases than the sulphate of quinine. In that low state of intermittent as found on the banks of the Mississippi river and other malarial districts, accompanied with enlarged spleen and torpid liver, when judiciously administered it is one of the best remedies.

In yellow fever it has been used by physicians, and with some it is their main reliance after other necessary remedies have been administered; it retains tissue change, and thus becomes a conservator of force in that state in which the nervous system tends to collapse, because the blood has become impure; it sustains the nervous power until the duration and reorganization of the blood are accomplished, and has the advantage over other stimulants in inducing no injurious secondary effects. In spasmodic asthma its utility is well established, as in whooping cough, stupor, lethargy and such troubles. In hysterical attacks, for which in many cases a physician can form no diagnosis, coffee is a great help.

Coffee is opposed to malaria, to all noxious vapors. As a disinfectant it has wonderful powers. As an instantaneous deodorizer it has no equal for the sick room, as all exhalations are immediately neutralized by simply passing a chafing dish with burning coffee grains through the room. It may be urged that an article possessing such powers and capacity for such energetic action must be injurious as an article of diet of habitual employment and not without deleterious properties; but no corresponding nervous derangements have been observed after its effects had disappeared, as are seen in narcotics and other stimulants. The action imparted to the nerves is natural and healthy. Habitual coffee drinkers generally enjoy good health. Some of the oldest people have used coffee from earliest infancy without feeling any depressing reaction, such as is produced by alcoholic stimulants.