

Scientific Notes.

Japan is discussing a patent law which proposes to give the introducer of any device new in Japan a patent, in order to encourage the importation of machines.

The Scientific American prints an interesting article on old inventions in ordinance which should not be missed by anyone interested in the subject.

The Quincy Market Cold Storage Company, of Boston, are said to have the largest refrigerating building in the world. It is of stone and brick, 160 by 80 feet in size, and 70 feet in height.

The world's product of lead last year is estimated by Herr Landsberg at 444,000 tons. China and Japan are not included as producers of this metal, although the probability is that their output of lead is very large every year.

The United States fish commission have been distributing large numbers of young carp for stocking ponds. Over 40,000 were sent out during the first ten days of November, and from 50,000 to 60,000 more were waiting distribution. Among the earlier shipments were 1000 to Pennsylvania, 2000 to New York, 6000 to the New England States, 1200 to Ohio, 12,400 to Kentucky, 1600 to Virginia and 16,000 to Iowa and Minnesota. In reply to inquiries Professor Baird says that from 12,000 to 15,000 carp ponds in all have been stocked since the work began. New applications were constantly received at the rate of fifty to 100 a day, in addition to 10,000 on file. The capacity is 800,000 cubic feet, the cost \$300,000, and the ice chamber holds 900,000 tons of ice. It will be used for storing dressed beef and mutton. The Chicago refrigerating cars unload at the door.

The manufacture of carbons free from ash can be accomplished, according to Jaquelain in Comptes Rendus (xciv. 837), by passing dry chlorine gas over pulverized coal or coke heated to a bright redness. All of the silica, alumina and magnesia, as well as alkalies and metallic oxides, would be converted into volatile chlorides and expelled; even the hydrogen is driven off as hydrochloric acid.

M. Tiesanier, the French aeronaut, is projecting the manufacture of an elliptical balloon, which is to be driven by a dynamo machine and storage batteries. The balloon will be 131 feet long, and will have a capacity of more than 100,000 cubic feet. It is calculated to give a lifting power of three and one-half tons which will, when the machinery is in place, allow for a ton of passengers and ballast.

The board of commissioners of the proposed national exposition of railway appliances have issued a circular announcing that they have secured for the purposes of the exhibition the Inter-State Exposition Buildings, in Chicago; and that their intention is to hold the exhibition during June and the fore part of July, 1883. A large guarantee fund has already been raised in Chicago. Applications for space should be made early to the secretary, Mr. E. H. Talbot, Grand Pacific Hotel, Chicago, Ill.

A new test for gold leaf was accidentally discovered at the Farrell Venetian Art Glass Manufacturing Company's works in Brooklyn. By the Farrell process the leaf is placed on the incandescent glass which is then blown. The expansion splits the leaf into beautiful and fantastic forms, and the object is then fired, covering the glass with the vitreous material. In using a guaranteed .999 quality of gold leaf, the workmen found that the expansion separated the gold from the copper alloy, and the object was ornamented with gold and a handsome green, the latter color being due to the oxidation of the copper.

It is stated that a good test for lubricating oils is to place single drops of the different kinds to be compared in line across the end of a piece of plate glass about twenty-four inches long one end being six or eight inches higher than the other, to form an inclined plane. The drops of oil run down this smooth plane in a race with each other. The quality of the oils for lubricating purposes is shown by the distances traveled and the trace left by the drops. Thus, on the first day sperm oil will be found in the rear, but it will in time overtake the rest, and retain its power of motion after most other oils have dried up.

It is when our budding hopes are nipped beyond recovery by some rough wind that we are the most disposed to picture to ourselves what flowers they might have borne if they had flourished.—[Dickens.]

A Vermontier has invented a water telescope with which he claims he can see a five-cent piece in forty feet of water. But the blasted telescope does not bring coin up; so seeing it is only an aggravation, and we don't want any such instrument.—Boston Post.

THE QUARREL OF THE WHEELS.

I sat within my wagon on a heaviest summer day. And watched my horse's flinging feet devour the dusty way; When suddenly a voice below shrieked out, it seemed to me: "You're bigger, but you cannot go one-half so fast as we!" I looked around, but no one there my straining vision caught; We were alone upon the road—I must have dreamed, I thought; Then almost at my feet I heard, distinct, a voice's sound: "You'll never overtake us, though you twice go o'er the ground!" It puzzled me at first, but soon the fact upon me broke: The fore-wheels of the wagon had thus to the hind-wheels spoke. I listened to the answer, and it came in accents low: "You're no farther now before us than you were an hour ago!" I awaited the rejoinder, but no further answer came; The fore-wheels were too busy, and the hind-wheels were the same; And though I strained my hearing much, deprecating so in my head, By fore-wheels or by hind-wheels not another word was said. The matter seems thinking how in life one often knows Of bitter controversies with the words absurd as those; How many claim as merit what is after all but late, With success that others make for them exultingly elate. Your wise and mighty statesman just before me fell into a trap, as he thought, to find the journey ended, his position just the same. The patient toiler struggles, but no inch beyond is gained; And he grumbles that, despite him, one position is maintained. Not reflecting that the owner, who can everything control, Bade him over as the hindmost, for a sitting purpose roll. Still speeds along the wagon o'er the steady roadway drawn, Till ends the weary journey, and the light of day has gone; And all the rivalries of men, the quiet thinker feels, Are idle as the quarrels of the fore and hinder wheels.

Legitimate Dealings in Futures.

What, really, are futures? How have they grown up, and what practical effects, good or evil, have they produced or are likely to produce? The interests they involve are so vital to the whole business of the community that they ought to be thoroughly understood by every one. Yet a large part of the testimony taken by our Legislative Investigating Committee only serves to befuddle the subject. The public has, indeed, obtained rather a kaleidoscopic view of the matter from the various witnesses examined, many of whom have been more concerned to guard their own private interests than to elucidate the questions under investigation. Here is an actual transaction which took place twenty-five years ago, long before the business of arrivals, as they are called, or of futures, had been introduced into the methods of commerce. A Chinese merchant asked A. & Co., an American firm in Canton, to contract to deliver to him 300 bales of cotton cloth per month, at a given price, for ten succeeding months. A. & Co.'s Boston agent offered the contract to a Lowell cotton mill. The mill's agent got his cotton buyer in the South to contract for the future delivery of the raw material, as wanted, at a fixed price. The contract was carried out to the end, and yet when the agreement was made not a yard of cloth was in existence, and most of the raw cotton was still in the field. From the Chinamen to the Southern planter, however, every party to the transaction knew just what would be his profit, and was insured against any changes in value or price. The gist of the whole business of futures, legitimately used, was in that transaction of a quarter of a century ago, before the time of ocean cables and when steam transportation, both by land and sea, was employed to a comparatively moderate degree. Since that day the methods of commerce have been developed by the use of steam and electricity at a rapid rate, but not faster than the requirements of the world have demanded. The selling of merchandise only on the spot ceased to be the rule when samples and mail advices arrived days, weeks or months perhaps, before the actual consignment. Then it became not only desirable but often necessary, also in a business sense, to sell to arrive—to sell goods or crops in advance of their arrival. In this way the risks of change were reduced to a minimum. The seller was not obliged to store his goods while awaiting a purchaser, but delivered them directly from the car or vessel to the customer who had contracted to take them. The seller, therefore, could enter with safety into new engagements, and the buyer, purchasing at favorable moments ahead of his wants, could yet so time the arrivals as to meet his regular requirements. That is what "arrivals" are in the phraseology of modern commerce. They are still in use to a considerable extent in all the principal markets.

The main portion of the business of the world in the staples furnished by this country is done under the contract system in one shape or another. Italy, France, Austria and Spain, for instance, for the past twenty-five years at least, have contracted for their tobacco in the United States months before it came to market, and Spain for even two and three years supply ahead. The whole tendency of trade in these days is to distribute crops as rapidly as possible and equalize prices throughout the world.

The uncertainty as to the time the buyer would receive his merchandise and the circumstance that it often arrived in a damaged condition were, however, continual sources of anxiety, and made the opening for present methods easy. The enormous increase in the volume of trade and the necessity for a quick release from responsibility on any one transaction aided the movement; and when commercial correspondence came to be done almost exclusively, in large affairs, by telegraph, the Exchanges were forced to adopt what is known as the future contract system—that is, the futures, so called, which are now under investigation.

Daily and hourly reports from every market in Europe and America are posted in the Exchange rooms, so that superior information is almost a thing of the past, and the man of moderate means has a chance with the capitalist.

Now, the present dealing in futures simply covers all the points of safety made in the illustration we have given of the contract of the Chinese merchant and the Southern planter through its various stages. The future, in fine, is a contract on paper for the future delivery and receipt, within a specified time, of a specified quantity of merchandise, at a specified price. The actual merchandise may not be delivered on that contract, however, for futures are used as a means of insuring actual transactions as well as carrying them out. For instance, the man who receives an order to buy or sell may not be able for various reasons to make the transaction at the moment, though the price may be at or below his limit. The exact goods he wants, in the exact quantity, may not be available at the moment. He therefore buys or sells a future contract for a like amount. As soon as he has afterward carried out his order in the "spot" market—that is, by buying or selling the actual merchandise, he closes out his future contract, and the transaction is completed. He has in fine, used the future simply as an insurance against possible or probable fluctuations in the market while he was executing his order.

There are other uses of futures as a method of insurance against loss. For instance, a commission merchant has advanced on a quantity of wheat 90 per cent. of its New York value. He sees the market declining and his margin disappearing. He must then, to save himself, sell out the wheat at current prices, get more margin from the consignor, or sell a future for the same amount at the ruling price. He may be unable to at once close out the wheat, and the extra margin may be forthcoming. If he sells a future, however, his advances are rendered secure. He is insured. By that means, too, the interests of the consignor are protected. He may also thus gain time to make up the extra margin, and so be able to get the advantage of a possible rise by carrying his wheat as he originally intended.

The farmer or planter may make the profit on his crop certain before it is harvested by selling a future contract which his crop will meet. He can thus secure himself. For instance, cotton planters this year have sold futures on their crops at perhaps 1 1/2 cents a pound, giving them nearly a cent and a half above the present prices. The same thing is still more true of our cereal crops, though small farmers must sell their product for what it will bring at the nearest market.

The miller and manufacturer can with perfect safety make engagements for their product, weeks and months ahead, for they know exactly the price of their raw material. They can assure themselves by buying futures. The sales of futures based on actual transactions even may, however, largely exceed the volume of a crop, for the same commodity is sold over and over again. They may be said to represent, not the volume of the crop, but the number of hands through which the crop has passed, that is to say, the various transactions in it. Legitimately used, as a means of insurance, futures are, therefore, of unquestionable benefit all around. They are simple means of eliminating every possible speculative risk in carrying out orders for the buying and selling of our crops. Our fathers were often ruined through doing a spot business on a comparatively moderate scale, because they were utterly unable to realize on their merchandise until a decline in price had used up their capital and credit.—N. Y. Sun.

He who says all he likes will often hear what he does not like.

The Dispensary.

BILIOUSNESS.—Bad blood, too much blood, giving headache, a bad taste in the mouth in the mornings, variable appetite, sickness at stomach, chilliness, cold feet, and great susceptibility to taking cold. One or more of these symptoms is always present. Sometimes a bilious person has a yellow tinge about the face and eyes, because the bile, which is yellow, is not withdrawn from the blood; it is the business of the liver to do that, but when it does not do it, it is said to be lazy, does not work, and the physician begins at once to use remedies which are said to "promote the action of the liver."

It has been discovered within a few years that acids "act on the liver," such as nitric acid, elixir of vitriol, and vinegar; but these are artificial acids, and do not have the uniform good effect of natural acids, which are found in fruit and berries.

THE BEST STIMULANT.—The best possible thing for a man to do when he feels too weak to carry anything through, is to go to bed and sleep for a week if he can. This is the only recuperation of the brain power, the only actual recuperation of the brain force, because during sleep the brain is in a state of rest, in a condition to receive and appropriate particles of nutriment from the blood, which take the place of those which have been consumed by or in previous labor; since the very act of thinking consumes or burns solid particles, just as every turn of the screw of the splendid steamer is the result of the consumption by fire of the fuel in the furnace. The supply of the consumed brain substance can only be had from the nutritive particles in the blood, which were obtained from the food eaten previously, and the brain is so constituted that it can best receive and appropriate to itself those nutritive particles during a state of rest, of the quiet and stillness of sleep. Mere stimulants supply nothing in themselves, as they goad the brain, and force it to a greater consumption of its substance, until that substance has been so exhausted that there is not enough power left to receive a supply, just as men are so near death by thirst and starvation, that there is not power enough left to swallow anything, and all is over.

Almost all persons become bilious as the warm weather comes on; nine times out of ten nature calls for her own cure, as witness the almost universal avidity for "greens," and for "spinach," in the early spring, these being eaten with vinegar; and soon after the delicious strawberry, comes the raspberry, the blackberry, the whortleberry; even the cherries the peaches and apples, carrying us into the fall of the year, when the atmosphere is so pure and bracing that there is general good health everywhere.

The most beneficial anti-bilious method of using fruit and berries as health promoters, is to take them at dessert, after breakfast in their natural, raw, ripe, fresh state, without cream or sugar, or anything else besides the fruit itself. Half a lemon eaten every morning on rising, and on retiring, is often efficacious in removing a bilious condition of the system, giving a good appetite and greater general health.—Home and Health.

Something in the Bed.

Judge Pitman has a habit of slipping his watch under his pillow when he goes to bed. One night somehow it slipped down, and as the judge was restless it worked its way down towards the foot of the bed. After a bit, while he was lying awake, his foot touched it; it felt very cold; he was surprised, scared, and jumping from the bed he said: "My gracious, Maria, there's a toad or something under the covers. I touched it with my foot."

Mrs. Pitman gave a loud scream and was on the floor in an instant. "Now, don't go hollering and waking up the neighborhood," said the Judge. "You get a broom or something, and we'll fix the thing, mighty quick."

Mrs. Pitman got the broom and gave it to the Judge with the remark that she felt as though snakes were creeping up and down her legs and back. "Oh, nonsense, Maria! Now, turn down the covers slowly while I hold the broom and bang it. Put a bucket of water alongside of the bed so that we can shove it in and drown it." Mrs. Pitman fixed the bucket and gently removed the covers. The judge held the broom uplifted, and as the black ribbon of the silver watch was revealed, he cracked away at it three or four times with the broom, then he pushed the thing off into the bucket. Then they took the light to investigate the matter. When the Judge saw what it was, he said: "I might have known; it's just like you women to go screeching and fussing about nothing. It's utterly ruined." "It was you that made the fuss, not me," said Mrs. Pitman. "You needn't try to put the blame on me." Then the Judge turned in and groined at Maria until he fell asleep.

Kitchen Interests.

PUFFS.—One quart flour, one pint milk, two eggs; beat well; butter size of an egg, three tablespoonfuls each of sugar and baking-powder; roll out and bake in a quick oven.

LEMON PUDDING.—Mix well two cups of sugar with half a cup of butter; add two grated lemons, five eggs. Line a deep dish with paste and pour in the mixture; bake thirty minutes.

QUINCE JELLY.—Cover the fruit with water and boil one hour. Then strain through crash; strain twice if not clear; add equal quantities of juice and sugar and boil steadily twenty minutes. Let the jars stand one week before sealing.

SODA BISCUIT.—One quart of flour, two teaspoonfuls of cream-tartar, one of soda, butter the size of an egg, one and one-half cups of sweet milk; mix with flour, roll out and bake in a quick oven ten minutes.

BAKED ONIONS.—Wash and boil one hour, change the water twice in that time, drain on a cloth and roll each in buttered tissue paper twisted at the top; bake one hour in a slow oven. Peel and brown them and serve with melted butter.

YEAST.—Grate two large, raw potatoes. Add one teaspoon of white sugar, one teaspoon of salt, a half teaspoon of ginger. Pour over this mixture a cup of boiling water in which a tablespoonful of hops has been boiled. Save half a cup each time to start anew.

CRUMPETS.—Take two pounds of bread dough and mix with three eggs, well beaten; gradually add warm water until the batter is the consistency of buckwheat cakes; beat it well and let it rise. Have the griddle hot and well greased; pour on the batter in small cakes and bake a light brown.

HOW TO COOK RICE.—To know how to cook rice so that it will be dry and each kernel keep its proper shape is very simple. The first thing to be done is to buy a farina kettle, or to have made at a tin shop two stout tin pails, one several sizes smaller than the other. In the outer pail put as much boiling water as it will hold without running over when the smaller pail is set within it; look over and wash the rice, then put it in the smaller pail, and put in enough boiling water to cover it (observe, the rice is not to be soaked and the water is to be boiling); then put the cover of the inner pail on—the outer has no cover; the rice will be cooked tender in from fifteen to twenty minutes if you have a fire hot enough to keep the water boiling. The rice, when turned out, will be dry, and each kernel will be distinct from every other. Sometimes the condition of the atmosphere is such that water evaporates rapidly, and then boiling water must be kept in the teakettle so that the outer pail may be supplied from it. It may also be necessary to add a little to the rice. One important consideration to bear in mind is that the rice must not be stirred at all. Stirring will spoil the shape of the kernels. In India the rice is boiled and served with meat and the favorite curry, and the dish is then called "curry." A recipe for making the curry powder is here given: To three parts turmeric add two parts black pepper, three-fourths of a part of cayenne pepper, half a part of ginger root, four parts cummin seeds, six parts of coriander seeds, a quarter of a part each of nutmeg, cloves and cinnamon. The imported curry powder, which can be bought at almost all large groceries, is a very satisfactory preparation. But the cook must remember that it is dangerous to put in much at a time, as the full flavor of the powder is not developed until it has been wet some little time—say three or four minutes.

Damages for Five Children Killed.

In May, 1881, five children of F. H. Nehras, of San Lorenzo, Alameda county, California, were returning home from a May-day picnic in a light wagon, and when they reached the crossing of the Central Pacific Railroad the vehicle was struck by a locomotive and all the inmates were killed. The father of the children sued the railroad company for damages. On the trial it was shown that the approaching train could not be seen from the highway until close to the crossing on account of a covered bridge and eucalyptus trees. It was also shown that the train was behind time, and running from thirty three to thirty-five miles an hour. The jury awarded \$10,800 damages to plaintiff, and defendant took an appeal. The Supreme Court has affirmed the judgment, holding that "in view of the rule of damages prevailing here we cannot be reasonably expected to hold that for such a loss as the plaintiff in this case sustained, the amount awarded him by the jury was excessive."

Cullings.

When a bald-headed man buys a duster, mohair would be most appropriate.

"My dear boy," wrote an Irishman to his son, "never put off till to-morrow what you have done to-day."

"It is not necessary for a man to be poor to be honest." Certainly not. But it seems sort of half way necessary for a man to be poor if he is honest.—Quis.

She Bridgeton (Me.) News calmly says: "The types last week made us say that 'The showers were not sufficient to meet the wants of milkmen,' etc., instead of 'milkmen.'"

An old citizen, returning to his home from a banquet, meets another old citizen coming from the opposite direction. "Is this the avenue?" asked No. 1. "How should I know? I wash at the banquet myself." An old miser, who was notorious for self-denial, was one day asked why he was so thin. "I do not know," said the miser. "I have tried various means of getting fatter, but without success." Have you tried victuals? Inquired a friend. "It's my last resort, my last resort," murmured a dejected looking individual as he traced himself against a lamppost last night. "What is that?" inquired a sympathetic bystander.—"Home," was the mournful reply. "Home, sweet home."

Sympathetic Justice.

A gentleman was arraigned before an Arkansas justice on a charge of obtaining money under false pretences. He had entered a store, pretending to be a customer, but proved to be a thief. "Your name is Jim Lockmore," said the justice. "Yes, sir." And you are charged with a crime that merits a long term in the penitentiary? "Yes, sir." "And you are guilty of the crime?" "I am." "And you ask for no mercy?" "No, sir." "You have had a great deal of trouble within the last two years?" "Yes, sir, I have." "You have often wished that you were dead?" "I have, please your Honor." "You wanted to steal money enough to take you away from Arkansas?" "You are right, Judge." "If a man had stepped up and shot you just as you entered the store you would have said: 'Thank you, sir.'" "Yes, sir, I would. But, Judge, how did you find out so much about me?" "Some time ago," said the Judge with a solemn air, "I was divorced from my wife. Shortly after you married her. The result is conclusive. I discharge you. Here, take this \$50 bill. You have suffered enough."

Rats and Mice.

A writer in the Scientific American says: "We cleared our premises of the detestable vermin, rats, by making whitewash yellow with coppera, and covered the stones and raters with it. In every crevice in which a rat may ro we put the crystals of the coppera, and scattered in the corner of the floor. The result was a perfect stampede of rats and mice. Since that time not a footprint of either rats or mice has been heard around the house. Every spring a coat of yellow-wash is given the cellar as a purifier, as a rat exterminator, and no typhoid, dysentery, or fever attacks the family. Many persons deliberately attract all the rats in the neighborhood by leaving the fruits and vegetables uncovered in the cellar, and sometimes even the soap is left open for their regalement. Cover up everything eatable in the cellar or pantry, and you will soon starve them out. These precautions, joined to the service of a good cat, will prove as good a rat exterminator as the chemist can provide. We never allow rats to be poisoned in our dwellings. They are apt to die between the walls, and produce much annoyance."

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