

WISE WORDS.

A straight line is the shortest in morals, as in mathematics. Silence is the wit of fools and one of the virtues of the wise. Every man's ability may be strengthened or increased by culture. Until the vine-leaves of youth are faded, who knows their value of sweetness? What are the best days in memory? Those in which we met a companion who was truly such. The State needs citizens, but she needs, above all, self-supporting citizens. And that system of education is most politic and most perfect which best meets and fulfils the higher requirement. Wondrous, indeed, our human nature is. He has no right to think that he can enter hopefully on life who is not full of reverence before his own humanity; who does not deeply feel its wondrousness. Some favorable event raises your spirits, and you think good days are preparing for you. Do not believe it. Nothing can bring you peace but yourself. Nothing can bring you peace but the triumph of principles.

Making Ice in the Tropics.

In the tropical climate, far distant from high mountains, as neither natural snow nor ice can be obtained, recourse is had to the cold generated by evaporation and the comparative coolness of the air a little before daybreak to manufacture ice in large quantities, and thus to supply a most grateful luxury at a moderate price. Ice is thus simply manufactured in a large way at Benares, Allahabad and Calcutta, in the East Indies, where natural ice has never been seen. On a large, open plain an excavation is made about thirty feet square and two feet deep, on the bottom of which sugar cane or maize stems are evenly strewed to the height of about eight inches. On this bed are set rows of small, shallow, unglazed earthen pans, so porous that when filled with water the outsides are immediately covered with a thick dew oozing through them. Toward the dusk of the evening, the pans, previously smeared with butter, are filled with soft water, generally boiled, and let remain there during the night. In the morning, before sunrise, the ice makers attend and collect from each pan a crust of ice, more or less thick, that adheres to its inner side, and it is put into baskets and carried without loss of time to the common receptacle, which is a deep pit in a high, dry situation, lined first with straw and then with old blanketing, where it is beaten down and congeals into a solid mass. The crop of ice varies extremely, sometimes amounting to more than half the contents of the pan, at other times scarcely a pellicle. Clear and serene weather is the most favorable for its production, whatever may be the sensible heat of the atmosphere. The cold generated by the rapid evaporation round every part of the pan is the cause of this congelation. In this way ice is secured for the table, when the heat in the shade is very commonly above 100 degrees.

A King of the Cowboys.

An Ogalalla (Neb.) letter contains the following: The presiding genius of this town is Tucker, who runs a combination saloon and gambling-house. When any of the cowboys get hard up they go to see Tucker. He gives his money liberally and freely to his friends. Tucker is a tall, fine-looking man, with an intelligent countenance. He affects long hair, a la Buffalo Bill, and prides himself on his fighting abilities. If a drunken cowboy is disposed to have a shooting match or rough-and-tumble exercise he can always be accommodated by applying to Tucker, who guarantees to do up the anxious individual in short order. When any disturber of the peace tries to invade the sacred precincts of the Cowboy's Rest, as Tucker's saloon is affectionately called, the gentlemanly proprietor gives him his advice to either fight or have a drink. The festive and belligerent cowboy adores Tucker on account of his generosity and grit, and he would stand by this popular border gambler through thick and thin. Any other man than Tucker would be liable to have his saloon completely demolished two or three times a week, but he always remembers his friends; no hungry man was ever turned from his door, and the cowboys, who have had substantial evidences of his good-will, never forget the kindness. Tucker has many imitators, but he is the typical border paradox of gentleman and ruffian, and no man can compete with him in shrewdness or popularity.

Showers on Top.

It is generally believed that the discharge of artillery tends to dispel clouds and mists in the immediate neighborhood. A French electrician combats this theory, and maintains that the effect of a series of sufficiently violent detonations would be to compel the clouds to discharge their moisture. He even goes so far as to say that it would be perfectly possible to produce a fall of rain in this way. He suggests a method by which he believes this often highly desirable result might be brought about. His plan is to send up one or more balloons freighted with pneumatic or some other equally explosive compounds. They are to be connected with a battery on the ground by means of a fine wire, and when they attain the necessary altitude—that is, when they enter the cloud-zone—the spark is to be transmitted. The detonation will follow, and a refreshing shower will be the result. Farmers and others who suffer heavily from the effects of a prolonged drought will probably be anxious that the French savant's system should be given a trial, no method hitherto devised for obtaining rain having proved quite efficacious.

Bank Note Paper.

The bank note paper on which American legal tender, national bank note currency and government bonds are printed is made entirely at Dalton, Mass. If you should happen to stop at the paper mill, with proper introduction and credentials, you may perhaps be allowed to handle a sheet of crisp paper, where, as the wet, grayish pulp is pressed between heavy iron cylinders, bits of blue and red silk are scattered over its face and silken ribs laid on its service. You may go beyond into the counting room, where each sheet, as it comes from the drying room, is carefully examined, counted, and then returned to the paper cutter to be divided into smaller sheets. If you trace this paper still further, you will find that from the cutter's hands it passes again into the counting room, and is separated into packages containing 1,000 sheets each, the amount recorded in a register and then packed in bundles and stored in fire and burglar proof vaults to await shipment to the United States Treasury. From the pulp room to the vault the precious paper is watched and guarded as carefully as though each sheet were an ounce of gold. Its manufacture is one of the greatest secrets connected with the government's money making. From the vaults of the paper mill at Dalton to the guarded store rooms of the treasury at Washington is a journey of several hundred miles. In the capacious vaults of the treasury building among gold, silver, copper and nickel coins, bullion, paper currency and official records you will find thousands of packages of the bank note paper made at Dalton. It comes in little iron safes, such as are used by the Adams Express company, and each package and every sheet is carefully counted before the manufacturer and express company are relieved of further responsibility. The paper that arrives to-day may lie in the treasury store room for years, or it may be sent to the bureau of engraving and printing to-morrow, to return in the course of a month's time a legal tender or bank note.

Funny Little Ones.

A father found his son playing on the front steps. "Edward," he said, "what do I see? Are you not disobeying your grandmother, who just told you not to jump down these steps?" "No," said Edward, "no, indeed; grandma didn't tell us not to, papa! She only came down to the door and said, 'I wouldn't jump down these steps, boys,' and I shouldn't think she would—an old lady like her!" "Oh, mamma," said little Julia on her return one day from school, "I'm in the sequel to Germany!" "The sequel?" asked her puzzled mamma. "Yes, 'em, the sequel," said Julia, opening her geography to confirm her assertion by pointing to a division in her text book, entitled "The Sequel to Germany."

"Arise with the lark, and with the lark to bed," read a little boy from his First Reader; then he stopped a moment and contemplated the picture of a lark at the head of the lesson. "Mamma," he said, "that lark's toenails are so long I'd be afraid to go to bed with him."

A little miss asked her father when he was writing a sermon: "Papa, does God tell you what to write in a sermon?" After a little consideration the parent returned an affirmative answer, but he was completely nonplussed by the further question: "Then why do you scratch it out?"

There was a great parade of soldiers, and little Mary, aged eight years, went to the door with her pet dog, Gyp, to see the procession move by. Like all little dogs, Gyp was saucy and began to bark. Mary ran upstairs to her mother, exclaiming: "Oh, mamma, come downstairs; I'm afraid Gyp will bite the army."

A Horrible Catastrophe.

Probably the most horrible catastrophe ever precipitated by an earthquake was that of Lisbon, on November 1, 1755. The inhabitants first experienced a slight rumbling, something like that heard after the firing of heavy artillery. They started up in alarm all over the great city, but before many could reach the doors there came a terrific shock that hurled the largest and strongest buildings to the ground, killing those in the street that had escaped the first shock. The effect of the disturbance was noticed in a remarkable way on the water. Almost immediately the sea withdrew, leaving the large harbor dry; then in a wall of sixty or seventy feet it came rushing in with tremendous force. Combing and roaring it dashed upon the ruins and terrified crowds, and in a few moments over 60,000 bodies were carried out to sea or left lifeless among the ruins. Many more were drowned in the lower part of the city, that had settled so that houses were covered permanently with over 600 feet of water. This earthquake was felt over the entire continent of Europe, and the tidal waves that it caused swept across the Atlantic in a few hours to the West Indies, occasioning damage on those shores. Careful calculation has shown that the area affected by the disturbance equaled 175,000,000 cubic miles.

M. De Lesseps commends the Frenchman for living on cereals, eight pounds of which cost no more than one pound of the Englishman's roast beef, and for buying American cottonseed oil at three cents a pound, purifying it and selling it back to America as olive oil at \$3 a gallon.

SCIENTIFIC AND INDUSTRIAL.

Yellow pine, hard finished in oil, rivals in beauty any wood that grows, is as susceptible of as high a degree of polish, and is almost as indestructible. Even hot grease will leave no stain upon it. The probability is that it will be more and more used for decorative purposes.

The supply of trees which yield gutta percha has not kept pace with their destruction and some anxiety is felt upon the subject. There is a growing demand for the gum, as it is applied to an increasing number of purposes, and the attention of the authorities is called to the matter.

Brooklyn has the largest tin-box factory in the country. A feature is the manufacture of decorated tin-ware. This consists of tin plate on whose surface there is a picture or other design. The work is done by a tin-lithographing press similar to that employed upon paper. The decorated ware costs but a trifle more than the plain, and is in great demand.

An ingenious microscopist has been trying to compute the amount of infusorial life inhabiting the bricks of old buildings long exposed to the weather. The principal forms he has discovered consist of large bacilli and vibrios, some of the latter being peculiarly marked by longitudinal lines. He found myriads of these organisms in a single deep-seated microscopic cavity.

A leather dealer, who has been over and looked the thing up, says that French calfskin is better than ours chiefly because of a better method of skinning the animals. "Here we use knives. In France they make a hole in the skin, insert the nose of a bellows and actually blow the skin from the flesh. Consequently their skins never show a scratch and have no weak places. Of course, there is a good deal in the tanning, but not all."

Professor Douglas, of the Michigan State University, it is said, produces amateur cyclones at will. He does it by suspending a large copper plate by silken cords. This plate is charged heavily with electricity, which hangs down like a bag underneath, and is rendered visible by the use of arsenious acid gas, which gives it a green color. The formation is a miniature cyclone, as perfect as any started in the clouds. It is funnel-shaped and whirls around rapidly. Passing this plate over a table, the five-cent cyclone snatches up copper cents, pins, pith balls and other objects and scatters them on all sides.

Water Power in America.

The extraordinary development of water power for economic purposes is an American idea. In no other country has it been so extensively and so successfully utilized. This will be apparent by considering some of the rivers that have been dammed for the benefit of mankind, and the force which they furnished reduced to the standard of horse power: The Passaic at Paterson, N. J., 1,000 horse power; the Merrimac at Lowell, 10,000, the Mohawk at Cohoes, 14,990; the Androscoggin at Lewiston, 11,000; the Housatonic at Canaan Falls, 3,000; the Mississippi at the Falls of St. Anthony, 15,000; the Oswego at Oswego, 4,000. The sum total of these is 75,000 horse power, as estimated at a given point on each river. But this is used over again on an average of not less than three times. This would show a larger total of 225,000 horse-power. There are also very many smaller streams in all the hill sections of the country which are utilized and may furnish, used and unused, power equal to the last-named total of 225,000; thus giving a grand total of 500,000 horse-power, distributed over a wide extent of country and supplying, in their way, the wants of 60,000,000 people.

But these are only the minor powers, so to speak, of the hills and valleys. The grand dominating power that could absorb them all and still have room to give hospitable refuge to four times as many remains to be noticed. It is the Niagara river. From data furnished by the United States Lake survey bureau in 1875, it appears that the average flow of the river above the falls is 10,000,000 cubic feet per minute. Converting this into horse-power under a head of 200 feet and we have a grand aggregate of 3,000,000 horse-power—a mighty force that would supply the economic wants of 200,000,000 of people.—Industrial News.

An Interesting Comparison.

The fifteenth annual report of Colonel Carroll D. Wright, the chief of the Massachusetts bureau of statistics of labor, contains interesting figures concerning working people and their wages in the Bay State and in Great Britain. In Massachusetts it appears that the average number of working days in a year is 309.29. In Massachusetts the working hours per week are 80.17, but in Great Britain only 53.50. For comparisons in a general way, the following table is given of the general average weekly wages paid to all employes in each of the industries compared.

	Mass.	Great Britain.
Agricultural implements	\$10 25	\$8 80
Artisan's tools	11 83	4 89
Boots and shoes	11 63	4 37
Brick	8 63	4 16
Building trades	14 99	7 21
Carpeting	6 08	4 11
Carriages and wagons	13 80	4 89
Clothing	10 01	6 71
Cotton goods	6 45	4 66
Flax and jute goods	6 46	2 84
Food preparations	9 81	2 72
Furniture	11 04	7 95
Glass	12 28	6 94
Hats—fur, wool and silk	11 01	5 51
Hosiery	6 49	4 67
Liquors—malt and distilled	12 87	12 66
Machines and machinery	11 75	6 93
Metals and metallic goods	11 25	7 40
Printing and publishing	11 37	5 52
Printing, dyeing, etc., cotton textiles	8 67	4 94
Stones	14 39	8 59
Wooden goods	12 19	5 67
Woolen goods	6 00	4 86
Worsted goods	7 32	3 60

The Introduction of Lightning-Rods

As a matter of course, the new doctrine of Franklin and his allies was not received without considerable opposition. A sharp shock of an earthquake having been experienced in Massachusetts in 1755, this was forthwith attributed to the evil influences of Franklin's lightning-rods. A Boston clergyman preached against them in 1770 as "impious contrivances to prevent the execution of the wrath of heaven." Even as late as 1826, an engineer in the employment of the British government recommended that all lightning-rods should be removed from public buildings as dangerous expedients, and in 1838 the governor-general and council of the East India company ordered that all lightning-rods should be removed from public buildings, arsenals and powder-magazines throughout India, and only became reconciled to their restoration after a large magazine and corn-house, not furnished with a conductor, had been blown up during a storm.

Franklin was so much in earnest in reference to his invention that he sent a friend at his own charge through the principal towns of the New England colonies to make known the powers and virtues of the lightning-rod. In the "Poor Richard" for 1758, a kind of almanac or manual which he was at that time publishing, he gave specific instructions for the erection of his rods. The second conductor which he himself constructed was placed upon the house of Mr. West, a wealthy merchant of Philadelphia. A few months after this had been erected a storm burst over the town, and a flash of lightning was seen to strike the point of the conductor, and to spread itself out as a sheet of flame at its base. It was afterward found that about two inches and a half of the brass point had been dissipated into the air, and that immediately beneath the metal was melted into the form of an irregular blunt cap. The house, nevertheless, was quite uninjured. The sheet of flame seen at the base of the conductor Franklin correctly ascribed to the ground having been very dry, and to there not having been a sufficiently capacious earth contact under those circumstances. He nevertheless shrewdly, and quite justifiably, assumed that in this case nature had itself pronounced an unmistakable verdict in favor of his invention.—Popular Science Monthly.

Three Meals a Day.

An English writer gives some much-needed advice as to the times and frequency of meals. In his opinion the present usual practice of three meals a day has good reason, as well as custom, in its favor. When work of any kind is being done, whether mental or bodily, the intervals between taking food should not be so long as to entail demands on the system when its store of material for the generation of force is exhausted. An ordinary full meal, in the case of a healthy man, is generally considered to have been completely digested and to have passed out of the stomach in four hours. A period of rest should then be granted to the stomach. Assuming that two hours are allowed for this, the interval between one meal and another would be six hours; and this accords with the experience of most men. During rest and sleep there is less waste going on, and especially during sleep there is a greatly diminished activity of all the functions of the body. The interval, therefore, between the last meal of one day and the first of the next may be longer, as it generally is, than between the several day meals. Assuming that breakfast be taken about 8 or 9 o'clock, there should be a mid-day meal about 1 or 2. The character of this must depend on the nature of the day's occupation and the convenience of the individual. With women and children this is generally their hungry time, and the mid-day repast, whether called luncheon or dinner, is the chief meal. So it is with the middle and laboring classes, for the most part. But for merchants, professional men and others, whose occupation takes them from home all the day, this is inconvenient, and, moreover, it is not found conducive to health or comfort to take a full meal in the midst of a day's work. There can, however, be no doubt that much evil arises from attempting to go through the day without food, and then with exhausted powers sitting down to a hearty meal. Something of a light, easily digestible, but sustaining character should be taken toward 1 or 2 o'clock.

An Opium Joint at the Hub.

An opium joint has been discovered in Boston. It is managed by Americans, and is much more luxurious than those run by Chinamen, although not equaling in elaborate appointments the place in New York depicted so artistically in a recent paper in one of the magazines of that city. Men and women, some of comfortable social position, some long given to dissipation, here inhale the drug on couches and divans, there being several general rooms, and one floor devoted to private chambers, where sometimes one woman, sometimes two together, and occasionally a man and woman together, can indulge this dreadful appetite without being seen by others. One young woman is described who had quite lost her will power, and left her home for days together to smoke opium. The attendant said he did not see how the establishment could be interfered with; the authorities might shut it up as "a disorderly house"—"but that wouldn't be very true, would it?"

Venison was formerly so plenty in the San Francisco market that it sold for three to six cents per pound; now it costs from ten to fifteen.

THE QUEEREST OF METALS.

Interesting Facts About Platinum and Its Peculiarities.

A party of gentlemen were discussing the subject of assaying and refining the precious metals, says the New York Sun, when Mr. D. W. Baker, of Newark, gave some interesting facts about platinum. "Our firm," he said, "practically does all the platinum business of this country, and the demand for the material is so great that we never can get more than we want of it. The principal portion, or, in fact, nearly all of it, comes from the famous mines of the Demidoff family, who have the monopoly of the production in Russia. It is all refined and made into sheets of various thicknesses, and into wire of certain commercial sizes before it comes to us; but we have frequently to cut, roll and redraw it to new forms and sizes to meet the demands upon us. At one time it was coined in Russia, but it is no longer applied to that use. We have obtained some very good crude platinum ore from South America, and have refined it successfully, but the supply from that source is as yet very small. I am not aware that it has been found anywhere else than in Columbia, on that continent, but the explorations thus far made into the mineral resources of South America have been very meagre, and it is by no means improbable that platinum may yet be discovered there in quantities rivaling the supply of Russia.

"A popular error respecting platinum is that its intrinsic value is the same as that of gold. At one time it did approximate to gold in value, but never quite reached it, and is now worth only \$8 to \$12 an ounce, according to the work expended upon it in retting it into required forms and the amount of alloy it contains. The alloy used for it is iridium, which hardens it, and the more iridium it contains, the more difficult it is to work, and, consequently, the more expensive. When pure, platinum is as soft as silver, but by the addition of iridium it becomes the hardest of metals. The great difficulty of manipulating platinum is its excessive resistance to heat. A temperature that will make steel run like water and melt down fire-clay, has absolutely no effect upon it. You may put a piece of platinum no thicker than human hair into a blast furnace where ingots of steel are melting down all around it and the bit of wire will come out as absolutely unchanged as if it had been in an ice box all the time. No means have actually been discovered for accurately determining the melting temperature of platinum, but it must be enormous. And yet, if you put a bit of lead into the crucible with the platinum, both metals will melt down together at the low temperature that fuses the lead, and if you try to melt lead in a platinum crucible you will find that as soon as the lead melts the platinum with which it comes in contact also melts and your crucible is destroyed.

"A distinguishing characteristic of platinum is its extreme ductility. A wire can be made from it finer than from any other metal. I have a sample in my pocket, the gauge of which is only one two thousandth of an inch, and it is practicable to make it thinner. It has even been affirmed that platinum wire has been made so fine as to be invisible to the naked eye, but that I do not state as of my own knowledge. This wire my son made."

Mr. Baker exhibited the sample spoken of. It looked like a tress of silky hair, and had it not been shown upon a piece of black paper could hardly have been seen. He went on:

"The draw plates, by means of which these fine wires are made, are sapphires and rubies. You may fancy for yourselves how extremely delicate must be the work of making holes of such exceeding smallness to accurate gauge, too, in those very hard stones. I get all my draw plates from an old Swiss lady in New York, who makes them herself, to order. But, delicate as is the work of boring the holes, there is something still more delicate in the processes that produce such fine wire as this. That something is the filing of a long point on the wire to enable the poking of the end of it through the draw plate so that it can be caught by the nippers. Imagine yourself filing a long tapering point on the end of a wire only one-eighth-hundredth of an inch in diameter in order to get it through a draw plate that will bring it down to one-two-thousandth. My son does that without using a magnifying glass. I cannot say positively what uses this very thin wire is put to, but something in surgery, I believe, either for fastening together portions of bone or for operations. A newly invented instrument has been described to me, which, if it does what has been affirmed, is one of the greatest and most wonderful discoveries of modern science. A very thin platinum wire loop, brought to incandescence by the current from a battery—which, though of great power, is so small that it hangs from the lapel of the operator's coat—is used instead of the knife, for excisions and certain amputations. It sears as it cuts, prevents the loss of blood, and is absolutely painless—which is the most astonishing thing about it. I am assured that a large tumor has been cut from a child while the operation was being performed, and that without any anesthetic having been administered.

"Our greatest consumers of platinum are the electricians, particularly the incandescent light companies. I supply the platinum wire for both the Edison and the Maxim companies, and the quantity they require so constantly increases that the demand threatens to exceed the supply of the metal. Sheets of platinum are bought by chemists, who have them converted into crucibles and other forms."

Tea, says the Chinese, is a drink which relieves thirst and dissipates sorrow.