

Labor of Original Thinking.

Sir Benjamin Brodie, in his work on "Mind and Matter," states that a man may be engaged in professional matters for twelve or fourteen hours daily, and suffer no very great inconvenience beyond that which may be traced to bodily fatigue. The greater part of what he has to do (at least it is so after a certain amount of experience) is nearly the same as that which he has done many times before, and becomes almost matter of course. He uses not only his previous knowledge of facts, or his simple experience, but his previous thoughts, and the conclusions at which he had arrived formerly; and it is only at intervals that he is called upon to make any considerable mental exertion. But at every step in the composition of his philosophical works Lord Bacon had to think; and no one can be engaged in that which requires a sustained effort of thought, for more than a very limited portion of the twenty-four hours. Such an amount of that kind of occupation must have been quite sufficient even for so powerful a mind as that of Lord Bacon. Mental relaxation after severe mental exertion is not less agreeable than bodily repose after bodily labor. A few hours of *bona fide* mental labor will exhaust the craving for active employment, and leave the mind in a state in which the subsequent leisure (which is not necessarily mere idleness) will be as agreeable as it would have been irksome and painful otherwise.

Mere attention is an act of volition. Thinking implies more than this, and a still greater and more constant exercise of volition. It is with the mind as it is with the body. When the volition is exercised, there is fatigue; there is none otherwise; and in proportion as the will is more exercised, so is the fatigue greater. The muscle of the heart acts sixty or seventy times in a minute, and the muscles of respiration act eighteen or twenty times in a minute, for seventy or eighty, or in some rare instances even for a hundred successive years; but there is no feeling of fatigue. The same amount of muscular exertion under the influence of volition induces fatigue in a few hours.

The Rhythm of Prose.

In every good prose writer there will be found a certain harmony of sentence, which cannot be displaced without injury to his meaning. His own ear has accustomed itself to regular measurements of time, to which his thoughts learn mechanically to regulate their march. And in prose, as in verse, it is the pause, be it long or short, which the mind is compelled to make, in order to accommodate its utterance to the ear, that serves to the completer formation of the ideas conveyed; for words, like waters, would run off to their own waste, were it not for the checks that compress them. Water-pipes can only convey their stream so long as they resist its pressure, and every skilled workman knows that he cannot expect them to last, unless he smooths, with care, the material with which they are composed. For reasons of its own, prose has, therefore, a rhythm of its own. But by rhythm is not necessarily meant the monotonous rise and fall of balanced periods, nor amplification of needless epithets, in order to close the cadence with a Johnsonian chime. Every style has its appropriate music; but without a music of some kind it is not style—it is scribbling.

Hints on Gathering Fruit.

The following useful hints are from the *Gardener's Weekly Magazine*.—

"Most people are disposed to gather the autumn fruits too soon. They hear the trees creaking in the wind, and they find the ground strewn with wind-falls; from these premises they jump at the conclusion that the fruit ought to be gathered. But a certain percentage of a crop may fall, from various causes, before the crop is ripe. The diseased portion will lose its hold, or the wind may dislodge what is sound, long before the portion which remains firm is fit to gather. A rule is generally adopted by gardeners, that if the pips of apples or pears are turning brown, the crop may be taken; but we should rather say that a decidedly dark and settled hue of the seed is a safer criterion. As to the objection that waiting late into the autumn causes a loss of the fruit by falling, it has little weight; because it is by this process that the weaker and less sound fruit is got

rid of, while the best remains. Taking the crop too early will not only injure the good fruit, by causing it to shrivel, but will also render frequent removals necessary, in order to separate from the stock the rotten ones, which would of themselves have fallen from the tree if more time had been given. A most important matter is gathering the fruit without bruising it in the slightest degree. Apples and pears bought in the market are generally much specked, by which their beauty is spoiled; and most of this is occasioned by blows received both in gathering and in rolling the fruit from one basket to another. This can scarcely be avoided when orcharding is carried on largely; but amateur gardeners cannot well give too much attention to gathering their fruit. Any falling should be obviated, and what does fall should be placed separately. A coat, with deep side pockets, is better than a basket hung to the ladder; and such receptacles, being quite under command, may be made to hold a good deal. The kind of weather during which the gathering is performed is a matter of importance. The trees should be thoroughly dry, and a windy day chosen if possible.

A French Ice Machine.

Small machines have lately been made and sold in Paris, for making ice. A late number of *L'Illustration Universelle* gives an illustrated description of one. A cylinder of sheet tin, with a movable cover at one end, to be kept tightly in its place by a screw when shut, with two openings, one at each end, to receive through two funnels the materials used, and a discharge cock at one end to discharge the contents when the cylinder is to be emptied, are all the apparatus required. This cylinder, when properly charged, is placed on a pair of rockers, to convert five hundred French grammes of water into ice (each gramme being nearly seventeen grains avoirdupois) it is necessary to place in this cylinder or well, twelve hundred grammes of sulphate of soda and eight hundred grammes of hydrochloride or muriatic acid. Into this preparation or bath, says the inventor, place a form or vessel containing the water to be frozen. Close the cover fast, and then for seven or eight minutes give the cylinder a see-saw motion on its cradle, and you obtain the desired result. A solid block of ice of five hundred grammes may be produced by this operation.

It is well known that ice may be thus produced, by the use of refrigerating mixtures; but at a cost apparently greater than is charged for ice in New York, even at its present exorbitant price. But in warm climates, where ice has to be imported from great distances, a good ice machine may be of great importance. A French ice machine was illustrated on page 256, Vol. V., (new series), *SCIENTIFIC AMERICAN*, and an English one on page 72, same volume. This latter machine is the most complete for the purpose, although expensive, that has yet been devised. It was invented in Geelong, Victoria, and large blocks of ice have been made by it.

Home-brewed Ale.

G. Burton, in the *Rural New Yorker*, gives his method of making home-brewed ale, as follows:—"The art of brewing is very easy to be understood, for it is exactly similar to the process of making tea. Put a handful of malt into a tea-pot; then fill it with water—the first time rather under boiling heat. After it has stood some time, pour off the liquor just as you would tea, and fill up the pot again with boiling water. In a similar manner pour that off, and so go on filling up and pouring off till the malt in the pot is tasteless, which will be the case when all its virtue is extracted. The liquor or malt tea must then be boiled with a few hops in it, and when it becomes cool enough—that is, about blood heat—add a little yeast to ferment it, and the thing is done. This is the whole art and process of brewing; and to brew a large quantity requires just the same mode of proceeding as it would to make a tea breakfast for a regiment of soldiers. A peck of malt and four ounces of hops will produce ten quarts of ale, and of better quality than can usually be purchased."

The Merrimac and Massachusetts corporations at Lowell, have each been erecting large buildings, the former one 286 by 72 feet, two stories high, and the latter one 100 by 60 feet and six stories high. The two corporations are at present highly prosperous.

MISCELLANEOUS SUMMARY.

A TELEGRAPHIC CIRCLE ROUND THE WORLD.—A Saint Petersburg journal mentions that an American, named Perry Collins, has presented to the authorities a petition for the construction of a telegraph from Nicolaevsky, on the Amoor, to San Francisco. It will cross Behring's Straits, and pass through Sitka, in Russian America. Since then, we learn the petition has been granted, and we may hope soon to hear of the union of two continents, otherwise than by a sub-Atlantic cable.

Mr. Collins is one of those rare and restless North Americans, who cannot die till he has done something for the glory of his native land. We first heard of him in the State of Mississippi; then in California; again as American consular agent at Petropaulovsky, on the Amoor, and last, we see his name blended with those of Kirk, Winans and Harrison—Americans who have done much for Russia.

A BARBAROUS ENGLISH BULLET.—In the skirmishing which preceded the evacuation of Jackson, Miss., the rebels used an explosive musket ball of the most destructive and barbarous character. These balls are of the Minie pattern, 69 calibre, hollow, and filled with fulminating powder, covered at the base with a cap. On striking any object they explode with terrible effect. One of these terrible missiles struck one of our men in the leg, shattering the bone into nineteen pieces. The effect of the wound of a simple Minie ball is always considered of a dangerous character, but the new ball above described is positively barbarous. They are of English fabrication, and have been recently introduced into Johnson's army.

SORGHUM SUGAR CULTURE.—A very large amount of sugar cane—Chinese, Iniphee and Otaheltan—has been planted in Illinois this year. In a few districts along the Central Railway there are not less than twenty-three hundred acres occupied with sugar cane. The drought, however, has injured the crop, which will only be a medium one. As regards the preparation for making sugar, the *Chicago Tribune* says: "O. M. Brainard & Co. are putting up mills and evaporators at Pera, Onarga, Clifton, Kankakee and Bourbonnais Grove, with a combined capacity of expressing and boiling about 72,000 gallons of juice per day, and they will all be ready for service by the 1st of September."

REMEDY FOR THE BITE OF POISONOUS FLIES.—The venom of fly bites proceeds from the virus the flies absorb in feeding upon putrescent animal matter. Make a poultice of bread, softened with a strong decoction of mallows, and when it is ready to put upon the bite, pour on it two teaspoonfuls of the *oxychloride of sodium*, and apply immediately. The cure is effectual.

It is a noticeable fact that there is not a single copper-smelting establishment in New York. In Boston, there are a few works, which were erected for the smelting of the Lake Superior ore, and have monopolized this business, which has proved one of profit. The works are expensive, but the percentage, where sufficient ore is had to keep engaged, is very great.

AEROPATHY.—We all know about allopathy, homeopathy, hydropathy, and other *pathies*; but *air-cure* is a new *pathy*, lately promulgated by Dr. Jourdanet, who discovered it in the mountains of Mexico. The air-cure may be good; the water-cure is better; but we think the hard-work cure the best of the *pathies* or therapeutic agents.

A desperate effort was made a few days ago, by the rebels at Key West, to blow up the U. S. Sloop-of-war *Dale*, by drifting an infernal machine under the bows of the vessel. The machine was secured, but not till three men belonging to the *Dale* were killed and two wounded.

DURING the bombardment of Port Hudson, three Confederate soldiers were killed by a shell from the mortar boats. These men were buried, and a few days afterward another shell from the mortar boats penetrated their graves and exploded among their coffins. They literally found no rest, not even in the grave.

A CORRESPONDENT wishes to know how long it takes to bore a 24-pounder howitzer, leaving a standing core. Can any of our readers inform him.

Our Debts and Our Resources.

The national debt on the 1st of July was \$1,007,274,366, subject to an annual interest of \$42,205,001. By this time the debt may possibly have increased to eleven hundred and fifty millions of dollars, with corresponding increase of interest. This sounds large, but what are the national resources? By referring to the able report of Mr. Kennedy, the superintendent of the last census (1860) we find that in the ten years between 1850 and 1860, the population increased thirty-five per cent; more than 50,000,000 acres of fresh land were brought into cultivation; the produce of manufactures increased from £1,000,000,000 to \$1,900,000,000; the banking capital from \$227,000,000 to \$421,000,000; insurance to \$314,000,000. Railroads increased in ten years 22,000 miles, and the capital from \$296,000,000 to \$1,150,000,000; telegraph lines spread a complete network over the whole country; and an army of emigrants from Europe within the last ten years has marched mainly into the North-west, numbering two million five hundred thousand souls. Iron produced, \$41,000,000; agricultural implements increased from \$6,000,000 to \$17,000,000; machinery from \$27,000,000 to \$47,000,000; coal from \$7,000,000 to \$19,000,000; printing from \$11,000,000 to \$39,000,000; lumber from \$58,000,000 to \$59,000,000; flour and grist mills increased product from \$65,000,000 to \$115,000,000; woolen manufactures from \$45,000,000 to \$68,000,000; leather \$37,000,000, in 1850 to \$63,000,000 in 1860. Manufactures of boots and shoes \$54,000,000; India rubber \$5,500,040; gas \$13,000,000; wheat 17,000,000 bushels; cotton 5,196,000 bales; butter 460,000,000 pounds; cheese 195,000,000 pounds, (45,000,000 exported); slaughtered animals \$212,000,000; tobacco 429,000,000 pounds; of which was produced 3,500,000 pounds in Ohio, 35,500,000 pounds in New York, 5,500,000 in Massachusetts, and little Connecticut 6,000,000 (!) of pounds; wine 1,800,000 gallons; hay 19,000,000 tons, valued at \$20 per ton, \$380,000,000. Orchard products \$19,500,000. Total amount, 5,500,000 tons, worth \$221,000,000, and so on. If we should draw a line across the continent from Norfolk to the Pacific, the United States, even above that line, under the protection of the stars and stripes, could easier pay within a century \$5,000,000,000 principal and interest than any nation in Europe could pay its interest alone. The continual improvements in agricultural machinery, much of it steam (economising manual labor) is lifting almost by magic the enormous products of food from the Western prairies; while the great suction pipes, the grand railroad trunks, now numbering eight or ten, are sweeping it with lightning speed to the great city centers on the Atlantic, from whence it is wafted to feed all Europe. We are rapidly approaching the time when, by the mechanical aids in agriculture, we shall be able with the almost spontaneous productions of the rich alluvials of the prairies, to furnish Europe food at cheaper prices than that at which she can raise it with her best crops. It is such facts as these that stiffen confidence in our Government securities, and make the demand for them keep pace with the current wants of the treasury. Interest being paid now in gold is increased by just so much as the premium it bears as compared with currency, and when the day of specie payments shall return, and other values shall be shrinking from those current during a season of expansion and inflation, the Government issues will be recognized as standing on a broader and sounder basis, and gain more in appreciation of the capital than they will lose in the specie premium on their interest.—*Legal and Insurance Reporter.*

Turpentine and Rosin Manufacture in California.

The Marysville *Appeal* says:—"Since June 5th, John Hart, of this city, has made 1,040 gallons of turpentine, and 125 barrels of rosin. J. W. Jacobson, also of Marysville, has manufactured up to the 22nd of July over 1,000 barrels of rosin. Mr. Jacobson is the pioneer in this business, and was the first to produce the amount required to entitle him to the premium offered by the State, for the first 1,000 gallons of turpentine, and 100 barrels of rosin. He first began the business at Placerville over a year ago. This interesting manufacture, now fairly initiated in Yuba county, is paying its way handsomely, and al-

ready employs fifty or sixty men, most of whom are gathering pitch in Yuba and Butte counties, as we have heretofore described. Mr. Hart has two stills running constantly; Mr. Jacobson has one, and J. L. Gibson is about to start another at Forbestown. The turpentine and rosin find a market at good prices, with the large dealers in Marysville. They are of superior quality. The business of manufacturing them will be extended from time to time, and will soon be one of the most important industrial interests of this section. In connection with the above, it is proper to state, that the first ten barrels of pitch were made by Messrs. Hucks & Lambert, of this city, for which they are entitled to the State's bounty.

Preserving Railway Sleepers by Coal Tar.

On the Reading, Pa., railway, sleepers are being now prepared as follows: The wood is stripped off the bark, and then notched by machinery, to receive the rail with a fair smooth bearing. The sleepers are then placed in drying kilns and kept for 48 hours at as high a heat as they will bear without ignition, the smoke and gases of the heating fires being passed directly through the kilns and among the timber. They are then taken out and while hot their ends are dipped into hot coal tar, after which they are piled away to dry in the sun until wanted for use.

The coal tar is used just as it comes from the gas works. A portion of oil of tar was formerly added, which being found to take the skin off the hands and faces of the workmen, was abandoned.

The kilns are heated, and the boiler, for the engine which drives the notching machinery, is fed with the bark and chips which come off in the work. Each sleeper absorbs about one-third of a gallon of tar by immersion of the ends only, and the whole cost is from 5 to 6 cents a sleeper, depending on the weather and the regularity of the operation.

After heating for 48 hours there is still some sap left in the sleepers, hence they are dipped only at their ends, as it would not do to seal up this sap in the tubes.

The engineer of the road, J. Dutton Steele, Esq., says:

"I do not pretend that this is the very best mode of preserving sills from decay, but I claim that they are more benefited by this process than any other I know of for the same cost.

"We bark them, dry them, and smoke them, all of which is good; we then dip their ends in coal tar, which is also good; and we notch them by machinery, which is of great importance, as the rails have thus a fair bearing provided for them, and one which secures the flat tread of the wheel on their heads, which prolongs their wear. We use no other than hard wood, such as the oaks, as I find soft woods wear out too fast. The wear of the rail into an oak sill is about one eighth of an inch each year under a heavy trade. So there are other destroying influences besides decay to which sills are subject, and it will be observed that our process hardens them, and in that way does good."

Ocean Calms.

During the months of July and August, the winds on the Atlantic Ocean were more moderate than during any similar period within the memory of man. Never before have such quick passages been made across the ocean by steamers; one—the *Scotia*—having made the trip between Ireland and the coast of Newfoundland in about five days, and between Ireland and New York in eight days, two hours, including a detention of twenty-four hours in a fog. A Scottish paper, alluding to the calm on the Atlantic, says: "Late vessels arriving at Greenock report the sea to have been as smooth as a mill pond for days, without a breath of wind and scarcely any perceptible swell, and one ship was becalmed for fourteen days, about one hundred and fifty miles off the Irish coast; a remarkable occurrence in a quarter of the globe notorious for the opposite extreme of weather."

It has been assumed by some weather clerks that the quantity of heat, and wind, varies little during the entire year. A long period of calm is succeeded by an equal term of high winds; and a long season of heat by an equal period of cold. If this hypothesis is correct, we may look out for squalls next fall, and plenty of ice in winter.

The Main Buffalo Herd in Kansas.

To dwellers in those portions of the West where the Buffalo disappeared more than a generation ago, the reports of the immense herds still giving life to the plains beyond, seem almost fabulous. Several Eastern Artists of note are now on an expedition to the Rocky Mountains, and under the head of "Letters from Sundown," one of the party is contributing to the *New York Post*. He thus writes of the main Buffalo herd of Kansas:—

"The sight I saw there no money could buy from my memory. I always thought the Buffalo stories which we hear at the East, and the pictures which we see, must be greatly exaggerated. In truth they are underdrawn. For two miles on the table-land before me, and stretching sideways twice as far, the earth was overwhelmed with one deluge of stampeding buffaloes. It is literally accurate to assert that one could not see the ground between them. I could think of nothing but a black sea, with humps for billows, and the thunder of a shaking prairie for the music of its surge.

Out of every gully, from each side of me, poured in exhaustless streams the laggards of the herd. The Falstaff bulls, who carried years and abdomen; the yearlings, much like their cotemporaries among our own cattle in look and size; the cows, now galloping, now coming with an ungainly trot, followed by their little new-dropped calves—these rushed by, scarcely sheering as they saw me, mad to reach the main herd. I raised my field glass, and far beyond the stampede saw the broad plateaus towards the White Rock Creek covered with quietly feeding bisons, as thick as on the prairie right before me. Flies on the head of a leaking molasses barrel, ants on a hill, ducks on a Florida lagoon, all familiar symbols of multitude, gave hopelessly out before the task of representing that herd of buffaloes. I should like to have been accompanied by a man at home in Gunther, that I might have gained some faint expression for the number of millions between me and the horizon."

Piccalilli.

Piccalilli is a mixture of all kinds of pickles. Select pickles, from the salt brine, of a uniform size and of various colors; as small cucumbers, button onions, small bunches of cauliflowers, carrots cut in fanciful shape, radishes, radish-pods, bean-pods, Cayenne-pods, mace, ginger, olives, limes, grapes, strips of horse radish, &c.

Arrange your selection tastefully in glass jars, and pour over them a liquor prepared in the following manner: To one gallon of white wine vinegar add eight tablespoonfuls of salt, eight of mustard-flour, four of ground ginger, two of pepper, two of allspice, two of turmeric, and boil all together one minute; the mustard and turmeric must be mixed together by vinegar before they are put into the liquor; when the liquor has boiled, pour it into a pan, cover it closely, and when it has become cold, pour it into the jars containing the pickles; cover the jars with cork and bladder and let them stand six months, when they will contain good pickles.

Piccalilli is an excellent accompaniment to many highly-seasoned dishes; if well put up, it will keep for years. If you like oil in the piccalilli, it should be braided with the vinegar, and added with them to the boiling liquor.—*German Town Telegraph.*

The Exploration of Madagascar.

The Madagascar Company has dispatched an exploring mission, to investigate the agricultural, manufacturing and commercial resources of that magnificent island. The scientific men of the expedition will report on the capability of the production of cotton, cane, coffee, tobacco and indigo; on the flora and fauna of the country; on the general climate and hygienic conditions of particular districts; on the geology and mineralogy of the interior; and will give their views on the hydrography and topography of the island, with reference to commerce. Such is the vast field for the investigation of the explorers. A committee of scientific men, employed by the company, has provided everything necessary for the success of the expedition. Mr. Lambert, French commissioner, an old resident of Madagascar, heads the party, which started from Marseilles, to pass over Egypt and Suez, touch at Reunion, and reach Madagascar early in July.