

Scientific.

INTERESTING FACT IN CHEMISTRY.

By looking down on the top of a wax candle, a little cup full of melted wax may be seen just around the wick. The cool air keeps the outside hard so that a rim is formed which prevents the melted wax from running down the side. The wax in the little cup goes up through the wick to be burned, just as oil does in the wick of a lamp. It goes up through the little passage in the cotton wick, because very small channels or pores, have the power in themselves of sucking up liquids. The power is called capillary attraction.

When the candle is blown out, a smoke arises from the wick. If a bit of lighted paper be held in this smoke, the candle will light again without touching the flame to the wick. This shows that the melted wax sucked up through the wick is turned into vapor which burns and communicates fire to the wick.

When the candle is lighted, the heat of the burning vapor keeps on melting more wax, and that is sucked up within the flame, where it is turned into vapor and burned; and this process is continued until the wax is all used up, and the candle is gone, or burned up, as it is termed.

Notwithstanding the flame of the candle looks flat, it is both round and hollow, and runs up to a point. It is thus drawn up by the hot air. Hot air always rises, and that is the way smoke is taken up a chimney. It goes up with the current of heated air.

The bright flame of a heated candle is often no thicker than a sheet of paper; it does not even touch the wick. That the flame is hollow may be seen by taking a piece of white paper and holding it for a second or two down upon the candle flame keeping the flame steady. When the black from the smoke has been rubbed off, it will be seen that the paper is scorched in the shape of a ring, while inside of the ring it is only soiled, and not scarcely singed at all.

Inside of this hollow flame is the vapor spoken of just now. By putting one end of a bent tube into the middle of the flame, and the other end in a bottle, the vapor or gas from the candle will mix with the air in the bottle. If fire be set to this mixture of air and gas, it will explode with a report.

The flame of the candle, then, is a little shining case with gas inside of it, and air on the outside, so that the case of flame is between the gas and the air. The gas keeps going into the flame to burn, and, when the candle burns properly, none of it passes out through the flame, and none of the air gets through the flame to the gas. The greatest heat of the candle is in the case of flame.

A candle will not burn without air. If it has not enough air it goes out or burns badly, so that some of the vapor inside of the flame comes out in the form of smoke. A candle smokes because the wick is so large that in burning it makes too much fuel, or vapor, in proportion to the air that can get to it; consequently some of the vapor must escape in the form of smoke.

The smoke that comes out of a candle is what burns and makes the light. This smoke is a cloud of small dust or bits of charcoal, or carbon. These are made in the flame, and burned by it, and while burning make the flame bright. They are burned the moment they are made, and the flame goes on making more of them, and that is how the flame keeps bright.

How Cities Exhaust the Fertility of Land.

There has been enough of the element of bread and meat, wool and cotton, drawn from the surface of the earth, sent to London and buried in the ground or washed into the Thames, to feed and clothe the entire population of the world for a century, under a wise system of Agriculture and Horticulture.—Down to this day, great cities have ever been the worst desolators of the earth. It is for this that they have been so frequently buried many feet beneath the rubbish of their idols of brick, stone and mortar, to be exhumed in after years by some antiquarian Layard. Their inhabitants violated the laws of Nature, which govern the health of man and secure the enduring productiveness of the soil.—How few comprehend the fact that it is only the elements of bread and meat, evolved during the decomposition of some vegetable or animal substance, that poisons the air taken into human lungs, and the water that enters the human system, in daily food and drink! These generate pestilence, and bring millions prematurely to their graves.

Why should the precious atoms of potash, which organized the starch in all the flour, meal, and potatoes consumed in the cities of the United States in the year 1850, be lost forever to the world? Can a man create a new atom of potash or of phosphorus when the supply fails in the soil, as fail it must under our present system of farm economy? Many a broad desert in Eastern Asia once gladdened the husbandman with golden harvests. While America is the only country on the globe where every human being has enough to eat, and millions are coming here for bread, how long shall we continue to impoverish 99 acres in a hundred of all that we cultivate? Both pestilence and famine are the offspring of ignorance. Rural science is not a mere plaything for the amusement of growing up children. It is a new revelation of the wisdom and goodness of Providence, a humanizing power which is destined to elevate man an immeasurable distance above his present condition. To achieve this result, the light of science must not be confined to colleges; it must enter and illuminate the dwelling of every farmer and mechanic. The knowledge of the few, no matter how profound, nor how brilliant, can never compensate for the loss sustained by neglecting to develop the intellect of the many.

No government should be wanting in sympathy with the people, whether the object be the prevention of disease, the improvement of land, or the education of the masses. One per cent. of the money now annually lost by reason of popular ignorance, would suffice to remove that ignorance.

Yakutsk in Siberia.

The earth has no spot upon its surface, at the present day, either inhabited or otherwise, which is so cold as Yakutsk, a paltry, yet principal town of Eastern Siberia, where a few wooden houses are intermixed with numerous huts plated over with cow dung, and windowed with ice. In this dreary and remote region, the earth is always frozen—the Summer thaw never reaching below three feet from the surface, the subterranean ice having a computed depth of two hundred yards! Yet man lives here, and eternal snow, which seems to set at defiance the notions of sundry modern philosophers, that tropical fruits can, or will in time be made to luxuriate even at the North Pole! At all events, the researches of science have brought to light some of the wonders of creation, even in desolate Siberia, in respect to the fossilized remains of animals, which cannot, by the laws of nature, exist in any other than the torrid zone. But whether our earth has shifted its position, (according to some,) or whether man, by his departure from the laws of nature, has caused dreariness and desolation to a vast portion of the globe, is a problem which has yet to be solved.

Hydrophobia.

The following is said to be a preventive of hydrophobia, discovered by a French physician, M. Cossor: Take two table-spoonfuls of fresh chloride of lime, in powder—mix it with half a pint of water, and with this wash keep the wound constantly bathed, and frequently renewed. The chlorine gas possesses the power of decomposing this tremendous poison, and renders mild and harmless that venom against whose resistless attack the artillery of medical science has been so long directed in vain. It is necessary to add, that this wash should be applied as soon as possible after the infliction of the bite. The following are the results of treatment:—From 1810 to 1824, the number of persons admitted into Breslau Hospital, 174; of whom only two died. From 1783 to 1834, into the Hospital at Zurich, 223 persons, bitten by different animals, (182 by dogs,) of whom only four died.

The Wonders of Electro Magnetism.

We spent a very pleasant hour on Saturday, at the room of Dr. Beynton, in witnessing several interesting and novel experiments in electro-magnetism. For instance, we saw a piece of iron weighing some four or six ounces, suspended in the air, resting upon nothing either above or below, or on either side, and depending for its position solely upon a current of electricity. In another experiment, a smaller body was suspended in like manner, and while thus detached from all visible influences, performed four thousand rotary movements per minute. They were entirely new to the company, and the latter is claimed to be new to the scientific public.—Syracuse Star.

The Farm.

FARM WORK FOR JULY.

Our Saxon fathers did full rightly call This month of July, 'Hay-month,' when all The verdure of the full-clothed fields we mow, And turn, and rake, and carry off; and so We build it up in large and solid mows. If it be good, as everybody knows, [choose To 'make hay while the sun shines,' we should Right 'times for all things,' and no time abuse.]

July is usually a hot month. The sun has attained its extreme of splendor and heat; under its influence the buds and blossoms are developed into foliage and flowers, and captivate our senses by their exquisite structure, and delicious fragrance. The seed so lately cast into the ground has sprung into beautiful living plants, covering the earth with verdure and the promise of coming crops. Small as they then were, they now have produced plants weighing many ounces, and filled with life and beauty the open, barren plank of spring. None can have failed to observe this wonderful change, and lift the heart in gratitude to Him whose constant care is over all.

LATE SOWING.—There is still something to be done in committing seeds to the ground. Cabbage and cucumbers may now be sowed for late pickling. Turnip seed scattered among the corn often produces a fine crop without material injury to the corn. Sow during or immediately after a gentle rain, and cover with a hand rake.

Grounds which it is desired to appropriate to grass may be conveniently laid down at the last hoeing by keeping the surface level, and sowing and raking in the seed as the hoeing is performed, while the most earth is near the surface. Be liberal with the grass seed; every year's experience strengthens our convictions that the farmer is just about as wise in stinting his grass seeds as the commander of an ocean steamer would be in laying in a hundred tons less coal than necessary to take his ship to Liverpool.

If the grasses you wish to cultivate do not occupy the ground, others that you do not fancy so well will. There is no surer way to drive out white weed, sorrel, chicory, dock and mallows, than to supply the grass seeds so liberally as to cover the entire surface with their stools. Three pecks or a bushel of red top and twelve quarts of herd's grass to the acre is little enough. Six or eight pounds of clover seed may be sown upon the snow in March.

WEEDS.—Ah! here are our old friends again. But we cannot afford to keep them, though there is not a world of beauty in each. Like all living things, they seek to perpetuate their kind, and will deposit countless thousands of their minute seeds to make sure a future crop. Faithful, constant hoeing only will prevent their being in the ascendant; and this continued for two or three years, dressing in the mean time with well composted manures, will eradicate them so that they will annoy little afterwards. The garden that has been tended with care must not be neglected now that haying and other duties press upon the strength and time.

SHORT PASTURE.—The weather favorable for haying is not likely to keep the pastures green and luxuriant. The milch cows, therefore, require attention. They must draw upon something more nutrient than the east wind or pasture browse in order to present you full udders night and morning. Until the "cow corn" is fit to cut, give them a daily feed of shorts or oil meal with cut hay, or mow the patches of grass in rich spots where it would be likely to lodge.

HAYING.—This is the prime work of the month, requires the closest application and taxes the health and strength severely. Let it be performed quietly and systematically, without hurry, confusion or noise; then it will be well done, and as you feed from your ample bays through the winter they will yield the fragrant perfumes of summer, and repay you in the fat ribs and glossy skins of your stock.

HEALTH.—Do not be tempted to over-exertion. It is not by a few surprising efforts that the steam engine penetrates the solid rock, or lifts enormous weights, but by quiet, unceasing application; and so must the farmer act in haying time—the more labor to be accomplished, the greater the necessity for system and carefulness. A sudden effort and haste often disables a hand for the whole season. Drink sparingly of cold water when heated—drink slowly, a swallow at a time, taking the glass away from the lips at each swallow. Retire early, and rise early, and while you labor in the cool of the morning, listen to the new voices about you; the bitter in the mea-

dow, calling to his faithful mate in notes not unlike the noise made by pumping; the lark, whistling on the topmast twig of the old apple tree, and the numerous other voices peculiar to the fresh and delightful hour. Man, only, perverts nature in transposing the order of time for rest; the birds and beasts retire and rise early—

"Night is the time for rest;  
How sweet, when labors close,  
To gather round the aching breast  
The curtain of repose,—  
Stretch the tired limbs, and lay the head  
Upon one's own delightful bed!"

Grass cut after the seeds are fairly formed is much more nutritious than when cut sooner.—Fields should be examined and a sound judgment exercised in regard to the proper time of cutting.

GRAIN.—This, too, will demand attention, and is better for being cut before the seeds are thoroughly ripe.

JULY is the commencement of the harvest of the year. Everything is in full vigor and activity.

"The vegetable world is all alive; [thorn,  
Green grows the gooseberry on its bush of  
The infant bees now swarm around the hive,  
And the sweet bean perfumes the lap of morn;  
Millions of embryos take the wing to fly,  
The young inherit, and the old ones die."

CABBAGES.—Of all green crops, this is the most valuable. It stands almost any frost. It is eatable from the time it is large enough to handle, until it has acquired a hard, close heart. It is a crop to put on every bit of otherwise idle ground; it can be planted between rows of any thing and every thing, either to be eaten as greens, when large enough, or left to cabbage on the coming off other crops. Nor is the use of this excellent vegetable over when the full-grown cabbage is cut, for the sprouts which follow are equally good. Planted out to cabbage, they should be eighteen inches apart in the rows, and the rows too feet asunder. When the best part of the cabbage is cut, other plants may be planted between the rows, the ground being first dug, and the stumps may be taken up and planted close together in some otherwise useless spot, and yield a mass of greens when scarcely any thing else is to be had. The seed is but little object; sowing, therefore, to provide at all times plants to put out, is a necessary precaution.

THE POTATOE TRANSPLANTED.—The public are indebted to Mr. E. H. Derby, of Salem, for some interesting experiments in the cultivation of this valuable esculent. His first experiment was to plant potatoes in a hot-bed on the 1st of April, from which he took plants twelve inches in height on the 24th of the same month. These plants, like those of lettuce or cabbage, he set out in drills, about nine inches apart, and from them obtained potatoes for the use of his family on the 30th of June. The potatoes from which these plants were taken, were as fair at the time of the separation, as when put into the ground; and this circumstance appears to have suggested to him the inquiry, whether several sets of plants might not be obtained from the same seed.

He tried a second experiment, and obtained four different sets of vines from the same potatoes, the first May 7th, the second May 21st, the third June 5th, and the fourth June 30th; and from each he raised a crop: from the last in October. He thinks that as many as six different crops may be obtained in this way from the same potatoes in one season. He separates the plants from the parent stock as soon as they are sufficiently rooted in the soil to derive their support from thence.

We have heard of raising the potatoe by planting the eyes; and this gentleman reports a very fine crop raised in this manner; also another raised from the sprouts. But we believe that his method of raising them from plants, transferred from the hot-bed to the well prepared soil, possesses great advantages where early new potatoes are desired, and when potatoes are scarce and high. It is worthy of the consideration of cultivators.

MINUTE PUDDING.—Put a pint and a half of milk on the fire; mix five large spoonfuls of flour with half a pint of milk, a little salt and nutmeg. When the milk boils, stir in the mixed flour and milk. Let the whole boil for one minute, stirring it constantly. Take it from the fire; let it set till luke-warm, then add three beaten eggs. Let it bake on the fire, and stir it constantly until it thickens. Take it from the fire as soon as it boils. To be eaten with nice sauce.