

Scientific.

SOUNDS DURING THE NIGHT.

A great audibility of sounds during the night is a phenomenon of considerable interest, and one which had been observed even by the ancients. In crowded cities, or in their vicinity, the effect was generally ascribed to the rest of animated beings, while in localities where such an explanation was inapplicable, it was supposed to arise from a favorable direction of the prevailing wind. Baron Humboldt was particularly struck with this phenomenon when he first heard the rushing of the great currents of the Orinoco in the plain which surrounds the mission of the Apures. These sounds he regarded as three times louder during the night than during the day. Some authors ascribed the fact to the cessation of the humming of insects, the singing of birds, and the action of the wind on the leaves of the trees, but M. Humboldt justly maintains that this cannot be the cause of it on the Orinoco, where the buzz of insects is much louder in night than in the day, and where the breeze never rises till after sunset. Hence he was led to ascribe the phenomenon to the perfect transparency and uniform destiny of the air, which can exist only at night after the heat of the ground has been uniformly diffused through the atmosphere. When the rays of the sun have been beating on the ground during the day, currents of hot air of different temperatures, and consequently of different densities, are constantly ascending from the ground, and mixing with the cold air above. The air thus ceases to be a homogeneous medium, and every person must have observed the effects of it upon objects seen through it which are very indistinctly visible, and have a tremulous motion, as if they were dancing in the air. The very same effect is perceived when we look at objects through spirits and water that are not perfectly mixed, or when we view distant objects over a red-hot poker or over a flame. In all these cases the light suffers refraction in passing from a medium of one density, into a medium of another density, and the refracted rays are constantly changing their direction as the different currents rise in succession. Analogous effects are produced when sound passes through a mixed medium, whether it consists of two different mediums or of one medium where portions of it have different densities. As sound moves with different velocities through media of different densities, the wave which produces sound will be partly reflected in passing from one medium to the other, and the direction of the transmitted wave changed; and hence in passing through such media, different portions of the wave will reach the ear at different times, and thus destroy the sharpness and distinctness of the sound. This may be proved by many striking facts. If we put a bell in a receiver, containing a mixture of hydrogen gas and atmospheric air, the sound of the bell can scarcely be heard. During a shower of rain or snow, noises are generally deadened, and when a sound is transmitted along an iron wire or an iron pipe of sufficient length, we actually hear two sounds, one transmitted more rapidly through the solid and the other more slowly through the air; the same property is well illustrated by an elegant and easily repeated experiment of Chladni's. When sparkling champagne is poured into a tall glass till it is half full, the glass loses its power of ringing by a stroke upon its edge, and emits only a disagreeable puffy sound. This effect will continue while the wine is filled with bubbles of air, or as long as the effervescence lasts; but when the effervescence begins to subside, the sound becomes clearer and clearer, and the glass rings as usual when the air-bubbles have vanished. If we reproduce the effervescence by stirring the champagne with a piece of bread, the glass will again cease to ring. The same experiment will succeed with other effervescing fluids.—*Mechanic's Magazine.*

SLEEP.

No person of active mind should try to prevent sleep, which, in such persons, only comes when rest is indispensable to the continuance of health. In fact, sleep once in twenty-four hours is as essential to the existence of man as the momentary respiration of fresh air. The most unfavorable condition for sleep cannot prevent its approach. Coachmen slumber on their coaches, and couriers on their horses, whilst soldiers fall asleep on the field of battle, amidst all the noise of artillery and the tumult of war. During the retreat of Sir John Moore, several of the British soldiers were

reported to have fallen asleep upon the march, and yet they continued walking onward. The most violent passion and excitement of mind cannot preserve even powerful minds from sleep; thus Alexander the Great slept on the field of Arbela, and Napoleon on that of Austerlitz. Even stripes and torture cannot keep off sleep as criminals have been known to sleep on the rack. Noises which serve at first to drive away sleep, soon become indispensable to its existence; thus a stage coach stopping to change horses, wakes all the passengers. The proprietor of an iron forge, who slept close to the din of hammers, forges, and blast furnaces, would awake if there was any interruption to them during the night; and a sick miller, who had his mill stopped on that account, passed sleepless nights until the mill resumed its usual noise. Homer, in the *Iliad*, elegantly represents sleep as overcoming all men, and even the gods, excepting Jupiter alone.

The length of time passed in sleep is not the same for all men; it varies in different individuals and at different ages; but it cannot be determined from the time passed in sleep, relative to the strength or energy of the functions of the body or mind. From six to nine hours is the average proportion, yet the Roman Emperor, Caligula, slept only three hours, Frederick of Prussia and Dr. John Hunter, consumed only four or five hours in repose, while the great Scipio slept during eight. A rich and lazy citizen will slumber from ten to twelve hours daily. It is during infancy that sleep is longest and most profound. Women also sleep longer than men, and young men longer than old. Sleep is driven away during convalescence, after a long sickness, by a long fasting and abuse of coffee. The sleepless nights of old age are almost proverbial. It would appear that canorous animals sleep in general longer than the herbivorous, as the superior activity of the muscles and senses of the former seem more especially to require repair.—*Scientific American.*

The Farm.

HARVEST HYMN.

O Thou, whose wisdom decks the sod,
And loads with fruit the bough!
We thank Thee that the farmer's God
Peculiarly art Thou.

Thine are the seasons as they roll;
Thy years, how dread they seem!
From age to age is Thy control,
Deific and supreme.

When vernal skies and southern airs
Make green the sunny slope,
We turn the glebe with gleaming shares
And cast the seed in hope.

When Autumn pours her solemn light
Upon the fading fields,
Our garner filled to crowning height,
Show what Thy bounty yields.

Do Thou to us Thy grace impart,
Who on that bounty live;
The incense of a grateful heart
Is all that we can give.

Gill, Mass.

FARMING.

If one-half the zeal, energy and expense that blot so many gazettes with low and coarse abuse, setting the whole community by the ears for the vain and paltry purpose of a few demagogues and office seekers, were bestowed on the advancement of agriculture; if the people were half as ambitious to improve and beautify their fields, as they are to settle the affairs of the nation; and half as angry with thistles, thorns and poor fences, as they are with their political opponents, who probably wish as well to the country as they, we should have more productive fields, less complaints of poverty, more ability to be charitable and magnificent, and abundantly more good feelings. From Pittsburg to New Orleans the son plows as his father did before him, and the great mass of farmers are as stationary in theory as they are in practice. Nine in ten at this moment, think that book farming is the mere useless, visionary dreaming of men that know nothing about practical agriculture.

We would tell them that England is the garden of Europe simply because almost every acre of the land is cultivated scientifically, and on principles which have brought to the test of the most rigid and exact experiment. We would tell them that New England, of whose

soil and climate they are accustomed to think as consigned, by Providence, to sterility and inclemency, is the garden of the United States, only because the industrious and calculating people do not throw away their efforts in the exertion of mere brute strength—but bring mind, pain, system and experience to bear upon their naturally hard and thankless soil.

On every side the passing traveller sees verdure, grass and orchards in the small and frequent enclosures of imperishable rock, and remarks fertility won from the opposition of the elements and nature. After an absence of ten years, on our return to our country, we were struck with this proud and noble triumph conspicuous over the whole region.

The real benefactors of mankind, as St. Pierre so beautifully said, are those who cause two blades of wheat to mature where one did before. The fields ought to be the morning and evening themes of Americans that love their country. To fertilize and improve his farm, ought to be the main object of the owner of the substantial soil. All national aggrandizement, power and wealth may be traced to agriculture, as its ultimate source. Commerce and manufactures are only subordinate results of this main spring.

We consider agriculture as very subsidiary not only to abundance, industry, comfort and health, but to good morals and ultimately even to religion. We shall always say and sing, "Speed the plow."—*Rev. T. Flint.*

Feed Cattle Regularly.

We find that very many of our farmers feed their cattle more than they require, to keep them in good condition, particularly oxen which do not work, and horses that stand in the stable most of the time, except occasionally, when the owner takes him out to go a short trip, or to do a light job. "Keep Dobbin eating," says the father, and the boys follow his injunctions implicitly, and his rack is replenished with hay as often as the father or sons pass by his stall, till he thinks it is a matter of course to have an additional amount of feed placed before him every time he hears any one in the barn, and if not attended too, he gives them a call to quicken their memory. Much hay in this way is wasted—the horse selecting only a little of the most tempting, after his appetite is satisfied, and either pulling the remainder through the rack, under his feet, or else breathing on it so much as to render it unpalatable to him. Stock of all kinds should have their regular meals, at fixed hours, as much as a man, and be allowed to masticate and digest what they have eaten in the intervals. If they are continually fed at all hours and times, they will be continually expecting something, and consequently kept uneasy. They will thrive better, on a less amount of hay and grain, by the first method of feeding them than by the last, and with less labor of attendance from the keeper.—*Middlesex Farmer.*

Sound Maxims in Farming.

[The following remarks are from an old pamphlet. They are well worth remembering.]

The gentleman of fortune, whose farm is his amusement, may wait years for his reward. The common farmer wants his pay down. Plans of improvement have been recommended, practicable indeed to the man of wealth, but wholly uninteresting to the mass of farmers because beyond their means. They can adopt no system which the farm itself will not support. It is a maxim in husbandry, that no mode of management is worth pursuing, that will not give a profit; and that is the best which will afford the greatest profit with the least and labor expense. Great crops may be obtained at great expense; but if the labor and expense is not remunerated, the crops themselves will be ruinous. The question is, not how a great crop can be obtained? But how can it be obtained in a manner to pay? It is not a valuable improvement in husbandry to increase your productions, if your expense is proportionably increased. The great object is, to increase the productiveness of a farm, so that the expense may bear a less ratio to the increase. By purchasing more land, you impose a burden on yourself difficult to sustain. Many have been impoverished, and not a few have been ruined, by possessing themselves of land for which they could not pay. The intelligent farmer, before he plunges into debt, will not fail to attend to this plain question. Will the income of the intended purchase more than repay the interest, the labor and the taxes? If not, you are better without the land. The professor of more land than

can be improved is a tax upon the owner.—*Rev. Dr. Eaton's address, Oct. 1822, to the Farmers of Essex.*

From the New England Farmer.
Great Yield of Carrots.

GENT.:—I wish to call your attention to the statement of Dr. Cook, of Wendell, in relation to his manner of raising carrots. He stated to me when sowing them that he should do great things in the carrot line, but I had entirely forgotten what he said, until I saw his statement in the *Republic*. We do not consider the town of Wendell one of our best towns for good land, by any means; on the contrary, we regard it as a rough, hilly town with a good deal of poor land.

LUCIUS COOK'S STATEMENT.

The subscriber, a member of the Franklin County Agricultural Society, submits the following statements relative to the cultivation of a patch of carrots raised by him the current year.

Said carrots were raised on Wendell Hill, in said county, on the place whereon said applicant now lives. The exact quantity of land was three-fourths of an acre, and the number of bushels, or baskets, six hundred and fifty-one; and the number of tons sixteen. This number of tons was ascertained by weighing four or five loads on the hay scales, as they were drawn from the field, and dividing the sum of their weight by the number of bushels or baskets, and finding them to average fifty pounds.

The land on which these carrots were raised had been mowed for eight years prior to 1850, when it was planted with potatoes, nearly all of which were destroyed by the disease, and were not worth half the cost of harvesting.

In 1851 the land was planted with corn, which was much damaged by worms, and afterwards set out to *Ruta Bogas*, which grew well and yielded a fine crop, but having no animals that would eat them except horses, they were kept through the winter in a cellar, and then thrown out for manure—the entire crops on the land not paying the expense of cultivation by one-half. On or about the 20th of May, 1852, the land was sowed in drills 18 inches apart to carrots, by a machine bought of Mr. Wm. Elliot, for the sum of three dollars and twenty-five cents, the land being first prepared by deep plowing with a common plow, then raked and levelled—about thirty loads of horse manure being spread on the land before plowing. The labor of preparing the land, sowing the seeds cultivating and harvesting the crop, I contracted for at the commencement, for the sum of seventy-five dollars, which seemed to me and others as an extravagant price, but as some stone were to be removed in the job, I consoled myself with the belief that I might stand it "just this once." The crop has just been harvested.

As to the value of the carrots I have always believed them worth as much as oats, by the bushel, to feed horses, which are the only animals I keep. Four or five tons of them I have sold at from \$12 to \$15 per ton; at \$12 I could sell them all any day, and the sum would amount to \$192. Add to this four dollars, a sum for which I sold the tops as they lay in the field, and four more dollars which I hope to get as premium, and the sum would amount to \$200. Deduct from this \$75 paid for labor, and \$25 more for the cost of seed and my own care and skill—the last being a charge I make from habit—and it will leave \$100 as the net income from three-fourths of an acre.—*Wendell Nov. 15, 1852* L. COOKE.

ERICSSON'S CALORIC ENGINE SUCCESSFUL.—The new principle of propelling steamships, known as the Ericsson, in which hot air is used instead of steam, to which we have often before directed attention, has been tried in New York with great success. The speed attained was eleven miles an hour, under by no means favorable circumstances. Experiments are to be tried every day to test this principle, and there can be very little doubt but that it will be brought into general use as a propelling principle. When will wonders cease?—*Quebec Gazette.*

THE CALORIC SHIP ERICSSON.—A despatch to the evening papers states that the Caloric steam ship Ericsson went on her trial trip in New York harbour yesterday morning. She started off at fine speed, making 12 knots with the wind and tide.—*Boston Daily Advertiser, Jan. 5.*

NEW YEAR'S PRESENT TO REV. DR. LYMAN BEECHER.—Some of the friends of the venerable Dr. Beecher, have purchased an annuity of five hundred dollars a year, and presented it to him on New Year's day, as a token of respect for his long and faithful services in the cause of religion and good morals.—*ib.*