

(For the Scientific American.)
Influence of Lunar Light

My attention has been drawn to Lunar influences by an article on the subject, in a recent No. of the SCIENTIFIC AMERICAN, reviewing one in the *New-York Quarterly*.

Your closing remark—"The question is not settled yet; there is still room for close observation and investigation." From careful and close observation, I am led to believe that almost all vegetable and animal nature are affected to some extent by the moon.—First, as to timber. On the full moon, from May until September of every year, the bark of almost all kinds of trees and shrubs, will peel off by the knife or axe, without any difficulty; when upon the change of the moon, the bark will adhere to the wood and cannot be separated from it. That is as uniformly the case as the moon's changes, through the warm and growing season. And why is it so? It will be perceived on repeated, careful and proper examination, that it is a necessary order of nature to promote the uniform growth of everything—trees, shrubs, grain, &c. The rising and falling of the sap of trees is necessary to the support and expansion of the trunk and branches of the tree; the flood of sap (as the flood-tides of the ocean) occur on the full moon, gradually increasing from the change to the full. As the moon enlarges her power, it is increased in proportion, and increases the volume of sap, which flood of sap gradually increased, swells the bark of the tree and disengages it from the wood at the flood-tide of sap; (then it is, that the bark peels so easily from the wood) and this is a necessary provision of nature—that the trunk and branches of the tree or plant may expand or enlarge. On the wane of the moon, the nutritious properties and gases of the flood being deposited, enlarges the trunk or branch to the swollen bark, and the excrecence returns to the earth, forming the pores during the wane, and the bark cleaves to the wood again, and so alternates monthly.

I have observed, time and again, during long rainy periods, that all vegetation would assume a light-pale green color when the rays of the sun and moon were intercepted by clouds; and when at the time that grain was blooming or filling, the grain was small and inferior, and more particularly so if such rainy or cloudy period occurred near the full moon—the time most important for the expansion of the bloom and grain.

It is admitted that the moon has an influence upon the tides of the ocean, and consequently upon water. If the moon has an influence upon water, why not to a corresponding extent upon all matter that contains water or gases, in proportion to the water gas or moisture contained? It is agreed by all that ever tried the experiment, that moonshine will spoil fish in less time than the sun, or any other position that fish can be placed in. And why so? Fish is of the water and contains more water and its gases, perhaps, than flesh; the eye of fish is larger, generally, in proportion to its body than of animals—the eye contains a fluid or water that spoils first—the moon has the greater influence upon the eye by reason of the focus; but pull the eye out or cut the head off, and the fish will keep much longer.

If the moon has an influence upon the tide, fish, and timber or trees, which I do not doubt, why not upon all animals, &c., through the moisture and gases necessary to their constitution and support. I have been a strict observer of nature, and necessarily so having been reared on the frontier.

EBENEZER FORD.

Spring Cottage, Miss., June 12, 1855.

Gumming Saws.

MESSRS EDITORS—In No. 41 I noticed an article on gumming saws with a sheet iron buzz Parsons, the inventor of his celebrated shearing machines, informed me, more than twenty years ago, that at that time the mill saws in Hoosac were gummed by a smooth sheet iron buzz going at a great velocity, and yet our country millers, for the want of reading your valuable paper, and getting this useful time-saving information,

will continue to gum their saws in the old-fashioned way till they die.

(For the Scientific American.)
Sulphur for Trees.

Eight years ago last spring the "borer" attacked several locust trees, which were backward and sickly. I set to work and immediately trimmed them, shaved off the rough outer bark from the ground to a short distance above the first limb, and then scraped and washed the branches with an alkaline lye to remove the scurf, destroy the larvæ of insects, and promote a more free contact with the atmosphere. I then took a sharp bit and bored a hole in each tree close to the ground, and extending to the center of each trunk. These I filled with common flour of sulphur, closing them with thin wooden disks, and sealing them over with wax to exclude the air. The effect of this treatment was magical. The borer disappeared: the foliage soon expanded, and assumed a deep rich color, and during the season there was an unusual deposit or increase of woody matter. Sulphur, I believe, is but one of many other agents which might be applied with success in agriculture and horticulture. We want more experiments of this character, in order to extend our knowledge, for, in my opinion, there is a remedy for every disease, if we but knew where to find it, both for the vegetable and animal kingdoms. The sulphur placed in the trees was no doubt taken up by the sap, and distributed through all their cells. It is necessary that a sharp bit should be employed for boring the holes, so as to cut clean through the minute tubes, and not bruise them, in order to allow the sap to flow freely, which it otherwise would not if a dull tool were used, because it would squeeze and close up the minute tubes or pores of the trees in the same manner that a dull knife makes a wound more difficult to heal than a sharp one.

H. W. CHAMBERLAIN.

New York, June 25th. 1855.

The Mutation of Matter.

With a very near approach to truth, the human family inhabiting the earth has been estimated at 700,000,000; the annual loss by death is 18,000,000. Now the weight of the animal matter of this immense body cast in the grave, is no less than 624,400 tons, and by its decomposition produces 9,000,000,000,000 cubic feet of gaseous matter. The vegetable productions of the earth clear away from the atmosphere the gases thus generated, decomposing and assimilating them for their own increase. This cycle of changes has been going on ever since man became an occupier of the earth. He feeds on the lower animals and on the seeds of plants, which, in due time, become a part of himself. The lower animals feed upon the herbs and grasses, which, in their turn, become the animal; then, by its death, again pass into the atmosphere, and are ready once more to be assimilated by plants, the earthy or bony substance alone remaining where it is deposited; and not even these unless sufficiently deep in the soil, to be out of the absorbent reach of the roots of plants and trees. Nothing appears to me so cannibalizing as to see a flock of sheep grazing in a country churchyard, knowing it to be an undeniable fact that the grass they eat has been nurtured by the gaseous emanations from my immediate predecessors; then following up the fact that this said grass is actually assimilated by the animal, and becomes mutton, whereof I may perhaps dine next week. "Truth is stranger than fiction," and here is a truth that exemplifies the proverb. It is not at all difficult to prove that the elements of which the living bodies of the present generation are composed, have all passed through millions of mutations, and formed parts of all kinds of animal and vegetable bodies, in accordance with the unerring law of nature, and, consequently, we may say with truth that fractions of the elements of our ancestors form parts of ourselves. Some of the particles of Cicero's or Æsop's body, peradventure, wield this pen.

SEPTIMUS PIESSE.

London.

Steam Guns.

The present great war between the Allies (France and England) and the Russians, has excited great attention to bringing the most powerful engines of destruction to bear upon the destiny of the struggle. The Minié rifle, the Lancaster gun, and many other recently invented war implements, have all, for the first time, been brought into successful use on a grand scale. Still it appears to us that the Allies are far from employing the most destructive means known to accomplish their objects. Although great dependence was placed on the effects that were to be produced by the besiegers' artillery, it does not appear that these have effected much, although they have caused the greatest amount of labor in placing them in position, and the greatest waste of ammunition in sustaining them. If all stories are true, one of Perkins' steam guns must be as effective as a hundred cannons, and we understand that the son of old Jacob stands ready to prove this, if they will but employ him. The experiments made with this gun in 1826, before the Duke of Wellington, Sir H. Hardinge, and Lord Fitzroy Somerset (now Lord Raglan,) rather astonished those gentlemen. The following is an account of these experiments before those military worthies, and others, from the *London Times*:

"The discharge of steam now became almost incessant for two hours, during which its incalculable force, and astonishing rapidity in discharging balls, excited amazement and admiration in all present. At first, the balls were discharged at short intervals, in imitation of artillery, firing against an iron target at the distance of 35 yards. Such was the force with which they were driven, that they were completely shattered to atoms. In the next experiment the balls were discharged at a frame of wood, and they actually passed through eleven one-inch planks of the hardest deal, placed at the distance of an inch from each other. Afterwards they were propelled against an iron plate one fourth of an inch thick, and at the very first trial, the ball passed through it. On all hands, this was declared to be the utmost effort of force that gunpowder could exert.—Indeed, we understand that this plate had been brought especially from Woolwich, for the purpose of ascertaining the comparative force of steam and gunpowder. The pressure of steam employed to effect this wonderful force, we learnt on inquiry, did not at first exceed 65 atmospheres, or 900 lbs. to the square inch; and it was repeatedly stated by Mr. Perkins, that the pressure might be carried even to 200 atmospheres with perfect safety. Mr. Perkins then proceeded to demonstrate the rapidity with which musket balls might be projected by its agency. To effect this, he screwed on to the gun barrel a tube filled with balls, which, falling down by their own gravity into the barrel, were projected, one by one, with such extraordinary velocity as to demonstrate, that by means of a succession of tubes filled with balls, fixed in a wheel (a model of which was exhibited,) nearly one thousand balls per minute might be discharged. In subsequent discharges or volleys, the barrel, to which is attached a movable joint, was given a lateral direction, and the balls perforated a plank nearly twelve feet in length. Thus, if opposed to a regiment in line, the steam gun might be made to act from one of its extremities to the other. A similar plank was afterwards placed in a perpendicular position, and in like manner, there was a stream of shot holes from the top to the bottom. It is thus proved that the steam gun has not only the force of gunpowder, but also admits of any direction being given to it. But what seemed to create most surprise, was the effects of a volley of balls discharged against the brick wall by the side of the target.—They absolutely dug a hole of considerable dimensions in the wall, and penetrated almost one-half through its thickness. We heard several officers declare their belief, that, had the balls been made of iron instead of lead, they would have actually made a breach through it—the wall was nineteen inches thick."

European Inventions, Discoveries, &c.

TEMPERATURE FOR TEMPERING STEEL—For boring cylinders, turning rolls, or any large cast iron, let it be as hard as water will make it, minding not to heat it more than a cherry red.

Tools for turning wrought iron, pale straw color, 430° Fahr.
Small tools for ditto, shade of darker yellow, 450 "
Tools for wood, a shade darker 470 "
Tools for screw taps, &c., still darker straw color 490 "
For hatchets, chipping chisels, brown yellow 500 "
For small rimers, &c., yellow slightly tinged with purple 520 "
For shears, light purple 530 "
For springs, swords, &c., dark purple 550 "
For fine saws, daggers, &c., dark blue 570 "
For hand and pit saws, &c., pale blue 590 "

The temper greatly depends on the quality of carbon there is in the steel; this the practical man soon finds out, and he tempers or draws down his tools accordingly.—[H. SCRIVENER, Liverpool, England.]

SUBMARINE RAILWAY BETWEEN ENGLAND AND FRANCE—There is, it appears, once more a serious intention of uniting England and France by a submarine railway. The latest project is that of Dr. Payerne, who, with 40 subaqueous boats, of which he is the inventor, 1500 sailors and navies, 4,340,000 cubic yards of material, and £10,000,000 sterling expense, would undertake to construct a tunnel, by means of which the strait that separates the two countries would be crossed in 33 minutes. The position of this tunnel would be, no doubt, nearly parallel with that of the electric telegraph, and contiguous to it, as being the narrowest part of the channel, as well as that where the depth of the water is the least.

IMPROVEMENTS IN BLOWING MACHINES—Mr. C. F. Vauthier, of Dijon, France, has patented a new modification of blowing apparatus, consisting of a cylinder and piston, with a solid piston rod passing through a stuffing-box in the top of the cylinder, and a hollow one through the bottom, through which the air is ejected. Both covers have annular spaces, with valves of india-rubber, or other suitable substance, opening inwards for the admission of air. At each stroke of the machine the air is drawn into the cylinder, and forcibly expelled through the hollow piston rod.

San Francisco Mint.

The San Francisco *Chronicle* states that the Branch Mint, in that city, is now in full blast, refining and coining gold at the rate of \$100,000 per day, and will continue to do so throughout the year. It alludes, however, to a dark prospect for the want of acids, for refining, of which the mint uses 2000 lbs. per day. The *Chronicle* says the size of the mint ought to be increased to a capacity for coining \$50,000,000 per annum, and it hopes the next Congress will pass a bill to this effect. We hope this will be done.

The California Pine.

R. Lawson, of Edinburgh, Scotland—a distinguished forester—says of the California pine (*P. insignis*): "this beautiful tree soon towers above those which have been planted many years before, and when the forests of California supply us with its cones on more moderate terms, it will probably become the staple pine of our forests."

Cleveland Railroad Cars.

Wasson & Co., Cleveland, Ohio, now employ 100 men in making railroad cars, and they have recently made a contract with the Detroit and Milwaukee road to be filled within three years, for different kinds of cars, the stock of which will cost nearly \$600,000.

Tests of Boiler Iron.

We have necessarily delayed for a week or two, the publishing that part of the report of the Inspector for the St. Louis Dist., on the above subject.