

(For the Scientific American.)  
Sisal Hemp.

The tropics of both hemispheres contain almost an innumerable variety of trees and plants which yield fibers of all qualities of fineness and strength, from the Sea Island cotton to the bamboo out of which cables are made in China. Of all such plants in tropical America perhaps there are none so suitable to supply the place of hemp as one species of the celebrated Mexican *Maguey*, out of which the Sisal hemp of commerce is prepared. To the ancient Aztec, the different varieties of the *Maguey* was the same as the reindeer is to the Laplander. The purposes they put it to are too numerous to repeat. But it is singular that such observers as Humboldt should have made the statement that they have but one species of this plant there; yet so it is; and until recently it was generally thought in both Europe and the United States that the "great American aloe" or "century plant," which has been naturalized in the south of Europe, was the only plant of the kind that grew in Mexico; and it was imagined that this plant alone subserved the various uses which have been recorded of the *Maguey*. All of this is a mistake, for it is now known that the plant from which the national drink of Mexico is made, called *Pulque*, is an entirely different species of the *Agave* (*Maguey*) from the one out of which the Sisal hemp is prepared; and the Century plant (great American Aloe) is different, again, from both of these, while the three, probably, do not constitute one quarter of the whole number of the species of the genus *Agave*, which are found in Mexico and in other parts of tropical America. Even in the United States there are three or four species of kindred Genera, one of which, the Bear Grass of the extreme Southern States, is well worthy of attention, from its hardy qualities, and from the fact that it will bear quite hard frosts, while it contains fibers in abundance, although they are not so long, fine, or soft as the Sisal hemp, nor are they as strong; but the Sisal hemp cannot be cultivated north of Tampa Bay, or St. Lucie's Sound, on account of the frost. Yet on these keys, and on the main-land of Florida, within the limits indicated, this plant would produce a tun of fibers to the acre, on rocky arid lands, which would produce nothing else. Here, as in Yucatan, it grows best on lands containing a superabundance of lime, and where its long penetrating roots can search for rich black mold among the clefts and crevices of the rocks. This is precisely the condition of the lands on these keys, and on the southern part of the peninsula of Florida.

Dr. Perrine, who was killed by the Indians in 1846 at Indian Key, and who was our Consul in Yucatan for a number of years, among many other tropical plants introduced here from thence, three species of the *Agave*, (Aloes) for which service his heirs have since very properly received from Congress a grant of a township of land near Cape Florida. After Dr. Perrine's death, most of the plants introduced by him were lost from neglect, but from their self-propagating qualities these three species of *Agave* increased, even without any attention being given to them, till either four or five years, when it began to appear clearly that the *Agave Sisalana*, as Dr. P. called it, could be made one of the most valuable staples of the State; this led many to set out and propagate this plant. About 1000 plants can be set on an acre, and it takes them from three to five years, according to the quality of the soil, to come to such maturity that the lower leaves can be cut from the plant, and the fibers separated from the pulp, for market. The bottom leaves can continue to be cut from the plant from time to time, leaving enough on the top to keep it healthy, for five or more years; and from the great numbers of young plants that continually come up from the lateral roots, by proper care in keeping new plants coming forward at the right distances apart; and by applying coarse manure from time to time, the same land will never require re-planting.

It is said that this plant is not cultivated at all in Yucatan, but I find that it is as much benefited by keeping down the weeds and grass as any other plant; yet the amount of culture that it requires is really very little, and it is certainly no longer an experiment as it

regards the growth of the plant, or of the value of the fiber in market, for there have been already many tuns of it got out and sent forward; and when properly cleaned, it brings about the price of the best Manilla; or if there is any difference in favor of the latter, it is not more than 1-2 to 1 cent per lb. Cleaning the fiber from the pulp of the leaf is the most expensive operation at present, yet even in this respect enough has been done to show that it can be got out at a profit by the present imperfect means.

It is the chief purpose of this communication to inform the numerous inventors who read your widely circulated paper of the nature of the operation that has to be performed, and the difficulties in the way of cleansing these fibers. This plant, like all other species of the same genus, sends out long fleshy leaves from a low central stalk, which, before it goes to seed, increases to the size of a man's body; and when the lower leaves are not cut off, the plant does not grow more than six feet high, until the "seed spike" appears, which happens in this climate in from seven to eight years; but when the lower leaves are used for their fibers this "spike" is cut off, which causes the plant to produce three or four years longer than it otherwise would. If this spike be allowed to grow, it shoots up a single smooth stem, thirty or forty feet high and a foot in diameter at the top of the circle of leaves, which circle is twelve feet across. Near the top, the seed spike throws out lateral branches, on which are produced the flowers, seeds, and, finally the perfect plant in miniature, after which they are detached by the wind and scattered in a large circle, and germinate where they fall. These little plants look very much like a small shuttlecock. After the plant has gone to seed it dies. I am thus particular in describing the plant because a writer in the *National Intelligencer* calls it a species of *Cactus*. It bears about the same relation to any plant of that genus as it does to an apple tree.

(Concluded next week.)

**Circular Saws.**

MESSRS. EDITORS—It is usual to determine the pitch of the teeth of a saw by a line drawn from the point to the circumference of a circle struck from the center of the saw. This circle should never be less than two-thirds the diameter of the saw, and for sawing soft timber it may be even greater. A fifty-inch saw should measure at least two inches from the point to the throat of the tooth, in order to give ample room for the sawdust. If the lines forming the teeth were continued straight, such an angle would be produced at the root of each tooth, that it would be liable to break. It is therefore advisable to connect the teeth by a circular line whose radius should be about one-fourth or one-third the length of the tooth.

In order to secure the greatest possible amount of pitch, without any sacrifice of strength, the front of each tooth should be a curved line.

In dressing saws, the teeth should be filed perfectly true, and the points spread to fill the gauge on each side. The teeth should not be set, as they are thereby rendered much more liable to break out, because the strain, instead of bearing equally on each side of the tooth, is mostly on the side to which it is set.

It is very seldom that a spread tooth breaks out, but when a set tooth strikes a knot, it sometimes receives more set, which, at each succeeding revolution, increases, until the tooth breaks.

J. W. GAREY.

Grenada, Miss.

**Manufacture of White Lead at the West.**

MESSRS. EDITORS—Having under consideration the great varieties of business now being established in this city, and the facilities for transporting the fabricated as well as the raw material, to other parts of the States, and counting up the vast quantities of lead annually raised from the mines, in the vicinity, and the great quantity of white lead yearly used through all the rapidly-growing towns in the interior of this State, and all the towns on the upper Mississippi, I have thought it advisable to invite the attention of some of your eastern capitalists to the fact, that there is not a white lead manufactory this side of St. Louis, Mo., to my knowledge, and that a factory of this kind, established and carried out on a scale

commensurate with its demand here, could not possibly prove otherwise than remunerative.

Dubuque contains about 16 000 inhabitants, and I venture to say there is not another city west of the Alleghanies, that has better prospects for an exceeding great city.

W. H. WHITE.

Dubuque, Iowa, March, 1856.

**Winds of the Northern Hemisphere.**

Professor Coffin, of Lafayette College, Pennsylvania, in an elaborate scientific paper, says that there exists in the Northern hemisphere three great zones of wind, extending entirely around the earth, modified and, in some cases, partially interrupted by the configuration and character of the surface. The first of these is the trade wind, near the equator, blowing, when uninterrupted, from northeast to southwest, this belt is interrupted, however, in the Atlantic Ocean near the coast of Africa, upon the Mediterranean sea, and also in Barbary by the actions of the Great Desert. The second is a belt of westerly wind nearly 2000 miles in breadth, between latitude 35 and 60° North, and encircling the earth, the westerly direction being clearly defined in the middle of the belt, but gradually disappearing as we approach the limits on either side. North of this there is another system of winds blowing southwardly, from high northern latitudes, and gradually inclining towards the West as it moves into a latitude of greater eastern velocity.

**Curious Mountain in California.**

In Tuolumne Co., Cal., there is a very peculiar mountain, from which great quantities of gold have recently been obtained. It is composed of old lava or basalt resting on ancient gravel and other depositions from water. On its top, it is as level almost as the waters of a lake, only descending very uniformly to the west. Its height above the surface of the surrounding country varies, from one to five hundred feet. Its width is generally not far from a sixth of a mile, though differing in different places. But its remarkable peculiarity is that, through its length, which is some fifteen or eighteen miles, it winds and curves with other variations in exact resemblance to a vast river; just exactly as it would, had it once been disgorged, a molten, fiery flood, from the old burning Sierra volcanoes, and poured down the deep channel of some vast river, bearing on with its mighty current, quantities of rocks and pebbles and sand, mingled in and formed into a part of itself upon its edges, filling up the whole bed of the river, and then all cooled down into a moveless solid mass. From its shape, it has received the name of "Table Mountain." Various tunnels have been made by miners, through the hard basalt, to reach the bed of the ancient river, and there is a wild excitement among California miners, regarding the immense treasures supposed to be under the lava.

**The Lost Marine Telegraph Cable.**

The London *Shipping Gazette* of the 18th Feb. contains a letter from Cyrus W. Field, of this city, now in London, announcing his failure to procure a settlement of the Company's claim on the London underwriters for the loss of their electric cable. This occurred, as our readers well remember, last summer, between Newfoundland and Cape Breton, in consequence of a storm that compelled the captain to cut the cable, in order to save the vessel in which it was embarked. Mr. Field says that one of the underwriters told him "there was no loss, the cable being at the bottom of the sea, just where you w shed to put it!" This is a pretty good joke at the expense of the owners. Mr. Field has ordered the preparation of a new cable, which shows the spirit of the American company. Its members are determined to carry out their object, and construct an Atlantic Telegraph Line. The leading personages among them—Peter Cooper and others—are of that class of our go-ahead men who "never say fail."

**Steam Engines.**

In the advertisement of J. H. Lester, which appeared in our last number, it is erroneously stated that there was no difficulty in obtaining 95-horse power with a pressure of 80 pounds of steam. It should read 65 instead of 95.—The 6 got wrong side up.

**Chancery and Jury Trials in Patent Cases.**

In the course of a hearing on a motion in one of the India-rubber cases in Philadelphia, before Judge Kane, on Feb. 23, the question arose whether issues should be sent to a Jury in order to try certain questions of fact which were raised in the pleadings. These questions of fact were raised and insisted upon by the counsel as the turning point in the controversy, the determination of which would be decisive of the suit. Counsel were heard for and against the motion, and Judge Kane, in the course of delivering his opinion, made the following remarks upon jury trials:—

"When an action is tried in this Court at law, it is the aim of the Court that questions of fact shall be decided by a Jury, though we may sometimes err in determining what is a question of fact, and are bound therefore to submit to the rebuke of our superiors in office when we do make such errors; yet that ought not to withhold us from exercising those functions which in a proceeding in equity devolve upon us as chancellors. Where a bill is filed I hold that it is not the right of a party to claim a trial by Jury. I hold that the chancellor relieves himself from an apparent and not a real responsibility if he devolves the determination of a question of fact upon a Jury, when his own conscience does not doubt, and does not need the instruction which a verdict can give. In the limited experience which I have had upon this bench I have never known an issue out of Chancery that has guided the action of the Court satisfactorily. I have myself for many years invariably declined the ordering of a feigned issue in a patent cause unless there was clearly some question of simple fact entirely unconnected with the history of the patent and with the terms of the patent itself. I have found that in those cases in which a suit had originally been brought at law, and there has been a verdict rendered, it has not had the effect of putting an end to the litigation as certainly and as satisfactorily as where a proceeding has been conducted according to the form of Chancery. Such at least has been my experience. Nor do I know that a case can be presented to my mind in which I would order an issue to be tried at bar in a Chancery case, unless after the proofs were in and the case was ripe for a final hearing before me, I found that there were points of fact upon which I would like to consult the consciences of twelve men taken from the community at large."

**Treatment of Scarlet Fever.**

As the scarlet fever is very prevalent at present, it may be of great benefit to many persons to publish two simple methods of treatment for the disease, in its earlier stages. The one is to rub the entire body of the sick with a soft lubricating substance—a piece of fat pork has been used for this purpose. It is stated that it softens the skin, opens its pores, and produces a soothing influence on the patient.

The other plan is to dissolve some saleratus in warm water (about one-fourth of an ounce to the quart,) and bathe the patient's body with this, at a milk heat. A soft sponge is employed in bathing the body, and a soft towel used for drying. This operation should be done rapidly in a comfortably warm apartment, and the patient placed in bed as soon as possible afterwards.

The alkaline solution, it is stated, removes scurf from the skin, softens it, and promotes perspiration. Both methods, to our knowledge, have been tried with good results; but we do not present them as substitutes for any method of treatment practiced by physicians; the throat affection—the most dangerous connected with this disease—must be treated locally for itself.

**Draper's Mill-Stone Dressing Machine.**

In the description of the engraving of this invention, published in No. 24 of the present Vol., it was inadvertently stated that the machine rested upon and revolved with the stone. It should have been said that the machine rested upon the stone but did not revolve, except when moved by hand. The driving cam is the only portion of the machine that has regular rotation.