

Different Length of the Fingers.

The difference in the length of the fingers serves a thousand purposes, adapting the hand and fingers, as in holding a rod, a switch, a hammer, a pen or pencil, engraving tool, &c., in all which a secure hold and freedom of motion are admirably combined. Nothing is more remarkable, as forming a part of the prospective designs to prepare an instrument fitted for the various purposes of the human hand, than the manner in which the delicate and moving apparatus of the palm and fingers is guarded. The power with which the hand grasps, as when a sailor lays hold to raise his body to the rigging, would be great for the texture of mere tendons, nerves, and vessels; they would be crushed, were not every part that bears the pressure defended with a cushion of fat, as elastic as that which we have described in the foot of the horse and camel.—to add to this purely passive defence, there is a muscle which runs across the palm and more especially supports the cushion on the inner edge. It is the muscle which, raising the edge of the palm, adapts it to lave water, forming the cud of Diogenes.

On the Construction of Chimnies.

In constructing chimnies, the builder should bear in mind that the facility for the passage of air through a funnel depends entirely upon his labor in its formation. The more direct the funnel, the more regular in its size, and the smoother in its surface, the more perfect will be the draft. The greater length you add to a funnel by giving it abrupt turns or "breaks" (as they are sometimes called, the less useful it is for the purpose for which it was designed. A funnel 8 inches square, made perfectly smooth and even in its inner surface, and perpendicular in its direction, will conduct a stronger draft than twice the size which is irregular in its form, with a rough surface, and having abrupt turns. A separate funnel for each room should be carried all the way up the chimney; and if this is not done, the area of each funnel should equal in measurement that of all the flues leading into it. A chimney in a conical form, with a gradual increase of area as it is carried up, will be much more regular in its draught at the apex than that of the ordinary construction, where the outlet of the funnel is smaller than the bottom or inlet. The most prominent difficulty in the draft of chimnies is occasioned by discrepancies in the formation of the funnel.

To Make Phosphuretted Hydrogen Gas which burns under water.

Take about a teaspoonful of clear zinc filings. Put them into a wine glass, with eight or ten small bits of phosphorous; nearly fill the wine glass with water; then by means of a dropping tube, convey some oil of vitriol to the zinc, which will by and by begin to be dissolved. During this solution, water is decomposed; its oxygen unites to the zinc, and its hydrogen dissolves the phosphorous, and rises in the form of phosphuretted hydrogen. In making experiments with phosphorous, take care to cut it while immersed under water in a saucer, with wet fingers. Cut it slowly and cautiously, for it is apt to fly about and be lost. It will inflame quickly at from 80 to 90 degrees of Fahrenheit, and if, while inflamed, it comes in contact with the skin, it makes a very deep and painful sore. Never, therefore, trust your dry fingers to press it; for the warmth of the skin soon inflames it.

Test to Detect Arsenic.

Put two or three grains of arsenious acid (white arsenic) and eight ounces of distilled water, into a Florence flask; heat the mixture over a spirit lamp till the solution boils, and then add to it a grain or two of sub-carbonate of potash or soda. Pour a few table spoonfuls of the solution into a wine glass, and present to the mere surface of the liquid a stick of dry lunar caustic. A yellow precipitate will instantly appear, which will proceed from the point of contact of the lunar caustic with the fluid and settle towards the bottom of the glass as a flocculent and copious precipitant. The above method of detecting arsenic is derived from Berthollet. It is known but to few that arsenic is used as a drug for dyeing. In combination with the sulphate of copper, precipitated by a caustic ley, it makes a most beautiful green, well known by the name of sage green, a name remembered with horror by many dyers who have suffered from the direful effects of the poisons.

Chemical Amusements.

TO ENGRAVE FIGURES ON GLASS.

Cover one side of a flat piece of glass, after having made it perfectly clean, with white beeswax, and trace figures upon it with a needle or other sharp point, taking care that every stroke cuts completely through the wax.—Next make a border of wax all round the glass, to prevent any liquid, when poured on, from running off. Now take some finely powdered fluat of lime, (fluor spar,) strew it evenly over the glass plate, (upon the waxed side,) and then gently pour upon it, so as not to displace the powder, as much sulphuric acid, diluted with thrice its weight of water, as is sufficient to cover the powdered fluor spar. Let every thing remain in this state for three hours, then remove the mixture, and clean the glass by washing it with turpentine; the figures traced through the wax, will be found beautifully and deeply engraven on the glass, whilst the parts covered by the wax will be left uncorroded. These engravings, when elegantly executed, are very handsome, and as the expense is but trifling, and the ingenuity required so small, it is an experiment certainly worth trying. I must add, however, as caution, that this experiment should be conducted with great care, as regards the skin and clothes, as the substances required are very corrosive.

The Atmosphere.

The atmosphere is composed of nitrogen 4 degrees, oxygen 1. Laughing gas is composed of nitrogen 2, oxygen 1. Aquafortis is composed of nitrogen 2, oxygen 5. What a small cause would change our atmosphere into a deadly poison. Epidemics which so often occur in different parts of the world, can thus easily be accounted for. How inscrutably wise is that Being, who by the same elements can create and destroy.

RECIPE FOR MAKING BEER.—Take one pint of corn and boil it until it is a little soft; add to it one pint of molasses and one gallon of water; shake them well together, and set it by the fire, and in twenty-four hours the beer will be excellent. When all the beer in the jug is used, just add more molasses and water. The same corn will answer for six months and the beer will be fit for use in twelve hours, by keeping the jug which contains it warm. In the absence of molasses, sugar or honey will answer in its place. In this way the whole ingredients used in making a gallon of beer will not cost exceeding four cents, and it is better and more wholesome than cider.—*Paulding (Mississippi) Clarion.*

The Farm.

A Plea for Birds.

The Horticulturist for April, has, among other articles, an eloquent "Plea for Birds," by a lady. We make a single extract: "I avow it is my firm belief, that all the discussions about the curculio which vex the horticultural soul from day to day, would come to a peaceful end if there were birds enough to eat the creatures up. Were our forefathers beset with these spoilers of the fruit? Did not my grandmother's garden teem with plums, apricots, and peaches, of every kind and color? Was the curculio made expressly for the vexation of later days! or is it that the feathered toll-gatherers are gone too, and, to use your own language, O! conscript fathers! 'the supply exceeds the demand' of every bug that caters for itself in our thriftless orchards? I should not dare to raise my feeble voice in this behalf through any other medium than the Horticulturist; but I know my audience here are the forest trees, as it were, of the land: sturdy, sensible cultivators of the soil; educated, intelligent possessors of gardens and green-houses; electors, if not members, of the legislative bodies. And I am supported by the wide sympathies of every pomological convention and fruit-grower in the land. Strong in this triple shield, I ask you, assembling citizens of this free and fertile country, to have regard in your laws to the birds. Do not let them be slaughtered for the wanton pleasure of school boys, or the improvement in shooting of the older, but scarce wiser men. Through a round their wind-sprung cradle the sheltering film of legal pains and penalties. Guard their untired wings with fines and prosecutions to the disturbing and destroying hand. Let their family grow up at least. Somewhat encourage the song and appetite that give you pleasure and the insects an end. If it please you to permit their shooting after a certain date, yet let them arrive to some strength and flight.

A band of greater power and tenderness than is apparent to you, has given them the means of escape; a pure air, and wide sky open before them; and if the leaden messenger overtakes even their rapid pinions, they shall not fall unnoted or uncared for. It is not life, or food, or any other alms, they ask from human compassion; but merely such protection to their existence as is most for human benefit. My dear sirs! care for the birds a little, and they shall care for you. Your fruit shall ripen in August suns. Your plantations shall echo with songs that will be vocal gratitude to your conscience."

Washing Sheep.

The Maine Farmer has the following on this subject:—

There will probably not be so much wool clipped in Maine this year, as there was last, because, owing to the depressed price of wool our farmers have been, for several years past, diminishing the number of their flocks. Notwithstanding this, we would urge the importance of thoroughly cleansing what wool is clipped, and putting it in the best possible condition for the market. Aside from the honesty of such a course, in itself considered, it is a matter of policy so to do. The better you prepare your wool, the better reputation will it have in the market, and as a natural consequence the more ready will be the sales and the larger the price.

There are various modes adopted by flock-masters for washing sheep. Some drive them to the margin of a pond or stream of considerable depth, and standing in the water, plunge each sheep in separately, and by pressing and squeezing the wool, get the dirt out in this way. As the operator has to stand in the water all the time, while doing this, it is rather a tedious process when the flock is numerous. Others make a sort of trough or flume in a small stream, with gates to open in the upper end through which the water is let in, and another at the lower end to let the water out. The operator in this case stands on the outside and washes the sheep, without being much exposed to the water himself. This is a very good mode.

A correspondent of the *Prairie Farmer* gives the following mode, which he adopted: "I took a trough," said he, "which held about a barrel, and filled it with soap suds. I laid a board on one end of the trough, slanting it so that when a sheep was dipped and taken on to the board, the water would drain into the trough. A boy took the hind legs of the sheep and I took the fore legs, and turned their backs into the trough, then raised them out on the board and squeezed the wool thoroughly with our hands. When the soap suds grew low we would add more—having a quantity of dissolved soap in readiness. The soap suds should be made very strong. When we had thus soaked them all, we commenced washing. I found the wool whiter and cleaner than I ever got it before without soap, though I have helped wash sheep for more than twenty years; and when we came to shear the sheep, we found the ticks all dead."

Adopt any mode you think best, but by all means wash your wool clean.

How Cattle Kill Trees.

It is a noticeable fact that a tree ever so thrifty and of whatever kind, to which cattle can gain access, and under which they become habituated to stand, will very soon die. In the case of a solitary shade-tree, in a pasture or by the road side, this is of common occurrence. The query may have been suggested, to what this is owing. In the first place, the rubbing of a tree by the necks of cattle is highly pernicious, and if persisted in, it will commonly destroy it, sooner or later; but if the body of the tree be cased, so that their necks cannot touch it, death will ensue just as certainly, if they are allowed to tramp the earth about it. But why should tramping the earth destroy the tree? The reason is one of wide and important application to the laws of vegetable growth. The roots of plants need air, if not as much, yet just as truly as the leaves and branches. Their case is analogous to that of fishes, which though they must have water, must have air also, viz: just about as much as permeates the water. If it be all shut off, so that none which is fresh can get to them, they will exhaust the supply on hand, and then die; precisely as a man in a close room will use up the air he has, and then die for want of more.

So the roots of trees and vegetables want air. When the earth is in a normal or natu-

ral condition, it is full of interstices and channels by which air gets to them. But if cattle are allowed to tramp down the earth, and the sun aids their work by baking it at the same time, a crust like a brick is formed, wholly impervious to the atmosphere, and the tree yields to its fate. So a tree cannot live if its roots are covered with a close pavement.—They will struggle for life by creeping to the surface, and hoisting out a brick here and a stone there, or find a crack where their noses can snuff a little breath; but if fought down, and covered will finally give it up. So, if a tree be thrust into close clay, or its roots are kept under water, it refuses either to be an aquatic or to put up with his prison. It will grow as little as possible and die the first opportunity.

German Hot Beds.

Take white cotton cloth of a close texture, stretch and nail it on frames of any size you wish; take 2 oz. of lime water, 4 oz. linseed oil, 1 oz. white of eggs, 2 oz. yolk of eggs; mix the lime and oil with very gentle heat, beat the eggs well separately and mix them with the former; spread this mixture with a paint brush over the cotton, allowing each coat to dry before applying another, until they become waterproof. The following are the advantages this shade possesses over glass ones:

1. The cost being hardly one-fourth.
2. Repairs are easily and cheaply made.
3. The light. They do not require watering; no matter how intense the heat of the sun, the plants are never struck down or burnt, faced or checked in growth, neither do they grow up long, sick and weakly as they do under glass, and still there is abundance of light.
4. The heat arising entirely from below is more equable and temperate, which is a great object. The vapour rising from the manure and earth is condensed by the cool air passing over the surface of the shade, and stands in drops upon the inside, and therefore the plants do not require as frequent watering. If the frames or stretchers are made large, they should be intersected by cross bars about a foot square, to support the cloth. These articles are just the thing for bringing forward flower seed in season for transplanting.—*Plough, Loom & Anvil.*

Carrots.

Carrots bear a succession of crops very well; better than most other crops; yet it is not an established fact that they will bear good crops for a series of years so profitably as they would by a change of soil, and by being brought into a rotation once in three or four years.

Generally there is no advantage in cultivating one crop on the same land for a series of years; for, in order to get good crops, higher manuring will be necessary than in rotation. As different crops differ in their constituent elements, they, of course, draw different elements from the soil. There is, generally, economy in a rotation of crops, as less manure is required. There are some exceptions.—The onion, for instance, not only bears a succession of crops with success, but it is said that it flourishes better on land that has been long under its cultivation. An instance is named of a piece of land in England that has borne good crops of onions for 400 years in succession.—*N. E. Farmer.*

Savings.

There is great gain to farmers in saving whatever is likely to come in use. To say nothing of all refuse materials fit for manure, if properly composted, and by the saving of which a big heap may be gathered on every farm in the course of a season. Attention should also be bestowed to the securing of all pieces of boards, and iron, to rails and ropes, and such other articles as are often wanted.—Have a place for these, and when needed, you can place your hand upon them without loss of time. It is a good motto for the farmer to practice upon, "Gather up the fragments that nothing be lost."

WHITEWASH.

It is said that a pint of varnish mixed with a bucket of whitewash, will give it in a great degree the qualities of paint, and it will withstand all kinds of weather. As this is the season for whitewashing, a knowledge of the above may be of some use to our readers.

Never trim the hair from the ear of your horse. It is placed there by nature, to protect the orifice and drum of the ear from insects, dirt and sudden changes of the weather.