Daguerreotype or Photographic Art. The Process Explained.

Of this art there are now two distinct branches viz., one in which the pictures are produced upon the metal, the other upon paper or glass. In the metallic process, iodide of silver is the chemical agent rather than the chloride; this is formed by submitting a perfectly clean plate of polished silver to the action of the vapor of iodine, and sometimes to bromine afterwards, in order to quicken the action. The plate thus prepared is placed in the camera, so that an image of the object to be copied may fall upon it; the consequence is that in the 'lights' of the picture the iodide of silver becomes decomposed, the iodine itself going off in the form of hydriodic acid gas, by combining with hydrogen in the moisture of the air, and the pure silver being left behind; whereas in the shades of the picture where no light reaches, the iodide of silver remains undecomposed. The action usually takes place in some few seconds, according to the intensity of the light and nature of the 'quick' used. When the plate is removed from the camera no picture is visible upon its surface, so that the developing part of the process has then to be performed.—This consists in submitting the plate to the fumes of mercury, which attach themselves to the parts where the pure silver has been separated from the iodine with which it was combined. These parts constitute, as we said before, the 'lights' of the picture, and there the mercurial vapor is condensed, and clings in the form of minute globules; whilst to the parts which have been undecomposed the mercury does not attach itself, having no affinity whatever with the iodide of silver that remains there. The consequence is, that the globules of mercury which cling to the portions where the rays have fallen, reflect so much light to the eye that they form the 'whites' of the picture; whereas the undecomposed iodide of silver, sending no light to the retina, constitutes the 'blacks' and thus the image, which was latent on the plate, is developed, or brought out, with such marvellous fidelity, that when examined with a microscope, characters that were several miles distant in the original may be clearly read in the minute sun-copy.

After this comes the fixing process, and that consists merely in submitting the plate to the action of hyposulphite of soda, which dissolves, and so removes all the undecomposed iodide or silver from it, and thus renders it incapable of being further acted upon by the light. The above constitutes what is now usually known as the Daguerreotype process.

The production of photographic pictures upon paper, on the other hand, forms what is termed the 'Talbotype process'—the names of the two types being derived from those of their inventors. In the latter method of producing sun-pictures there are almost the same different stages to be gone through. The paper itself has first to be iodised, or rendered sensitive to the action of light by means of coating it with a surface of iodide of silver. This is done by washing it over first with a solution of nitrate of silver, and when this is dry, with a solution of iodide of potassium; the consequence is, the one solution decomposes the other, so that nitrate of potash and iodide of silver are formed. The nitrate of potash being soluble, is then washed out of the paper, while the insoluble iodide of silver remains fixed in it—Then follows the 'quickening' of the process.—This consists in washing the sheet of iodised paper over with a solution of what is termed gallo-nitrate of silver, which consists of a small proportion of gallic acid (the acid from gall-nuts) dissolved in water, and added to a solution of lunar caustic, having a little acetic acid, or pure vinegar, in it. The gallic and acetic acids are used because it is found that the presence of any vegetable or organic matter hastens the decomposition of nitrate of silver when exposed to light. The paper is now ready for the camera, and is so sensitive to the action of light that it is said to transcend the ordinary iodised paper in this respect more than a hundred fold, so that even a second or two of time is sufficient to impress a latent image upon it.

Then, as in the daguerreotype method, the developing process has to be resorted to in order to bring out the picture, which is imperceptible on removing the picture from the camera, and the existence of which would not be suspected by any one who had not been forewarned by previous experiments. To render the picture visible, the paper is washed over once more with the gallo-nitrate of silver before described, and then warmed gently before the fire; whereupon that part of the paper upon which the light has acted begins to darken, while the other part of the paper retains its whiteness. After this, as in the 'Daguerreotype' method, the fixing process has to be resorted to. This for 'Talbotypes,' consists in washing the paper in bromide of potassium, which dissolves out all the undecomposed chemicals, and so leaves an indelible impression behind.

The picture thus produced, however, is what is termed a 'negative' one—that is to say, the lights in the original are represented by shades in the photographic copy, and vice versa, the shades in nature are rendered as lights in the picture. The Talbotype, therefore, has to be again copied, in order that the lights and shades may be accurately represented. For this purpose, however, the paper need not be so highly sensitive; so that the ordinary quickening part of the process by means of the gallo-nitrate may be dispensed with, or the paper may be coated with chloride of silver instead of iodide before described. Again, the developing process is no longer necessary, the picture being produced directly by the action of light, rather than indirectly by means of some developing agent. The fixing process in this stage is usually performed by means of hypo-sulphate of soda, and by these means the negative picture before produced is rendered positive, and the lights and shades thus made an accurate representation of those in nature.

It will now be seen that the art of producing sun-pictures whether by the Daguerreotype or the Talbotype, comprises usually four distinct processes, viz:

1. The preparatory process, which consists in preparing the plate or paper—that is to say, in coating it with some solution of silver that is capable of being decomposed by the action of light.

2. The quickening process, which consists, again, in rendering the plate or paper more highly sensitive to light by the addition of some other chemical, which facilitates the decomposition of the compound of silver, with which the surface has been previously coated.

3. The developing process which consists in rendering visible the latent picture which has been impressed upon the plate or paper while exposed to the action of the light in the camera.

4. The fixing process, or the dissolving out of all the undecomposed silver compound, and so preventing the light from having any further action upon it.

It must not be supposed that the compounds of silver are those only which are capable of being decomposed by the sun's rays, for photographic pictures have been produced by compounds of all the precious metals—such as gold, platinum, mercury, &c., these substances having but slight affinities, and so being easily separable from the elements with which they are united. Again, iron has been used successfully for the same purpose—for this body also, is readily decomposed when combined with certain substances. Further, the gum-resins and bitumens admit of being employed in the same manner, and many vegetable juices have been used by Sir John Herschel for a like purpose. Indeed it has been truly said, that almost every substance in nature is affected in some way or other, by the solar rays, for we now know that no substance can be exposed to the sun's rays without undergoing chemical action.

Vegetable Poisons.

At this period, when so much attention has been directed to the subject of vegetable poisons from the frequent deaths that have occurred, I have thought that my readers might be interested in learning which of the showy inhabitants of our English gardens are most inimical to human life. Unfortunately, there is nothing in the outward appearance of these plants to indicate their deadly nature. They are generally bright in color, and sometimes very elegant in form; and the greater part of them are common in every flower-garden. Among these last may be mentioned the Aconite, also called Wolfsbane, or Monkshood of which there are various species, all ornamental. The common Monkshood is well known from the amusement children find in pinching the flowers, so as to make the curiously-folded petals start from beneath the hood, like two great eyes—These petals look like gigantic and crested stamens, and the hood, which is only a calyse, is generally supposed to be formed of the petals of the flower. The real stems are, however, the centre of the flower, and they surround a group of three or five seed-vessels or follicles, which, when ripe, burst open at the top to discharge their seeds. The leaves are deeply cut, and the stem, which is tall and upright, is thickened at the bone, where it joins the root, so as to give it the appearance of celery; and persons have been poisoned by eating it in mistake for the vegetable. The part of the root which is buried in the ground is also thickened, and resembles horse-radish so much, that a party of friends dining together at Dingwall in Scotland, were poisoned by the cook fancying it was a root of horse-radish she was scraping, when she was, in fact, offering to her master's guests a most deadly poison. There is nothing in the taste of this plant to warn the eater of it of his danger.—It is slightly acrid, but not more so than many plants that are perfectly harmless. The Aconite is very nearly allied to the Larkspur which is also poisonous, the seeds acting as a violent emetic.

The Anemone is another poisonous plant, from its acidity and its emetic qualities; and the juice of its leaves will raise blisters. This is also the case with various kinds of Clematis and Ranunculus. The juice of the common Buttercup is extremely acrid, and the species with a creeping, fleshy root is a deadly poison to human beings though pheasants seem to eat it with impunity, as its tubers have been found in the crops of birds that have been shot.

The seeds of Peony will occasion symptoms resembling cholera, with violent sickness; and the Poppy is as everybody knows, highly narcotic—Opium is prepared from the capsule, or seed-vessel, of the large White Poppy, which is cultivated for that purpose to a great extent in the East, particularly in Turkey, Persia, and some parts of India.

The capsule of the Opium Poppy is much larger and more fleshy than that of the Corn Poppy, and this fleshy substance is full of a milky juice, which hardens by exposure in the air into a gum which we called opium. In countries where opium is cultivated as an article of commerce, the Poppies are grown in large fields, and planted in rows to enable the people to reach their heads easily. When the petals of the flowers have fallen, and while the Poppy-heads are yet green and full of juice, the cultivators of opium wound the capsules with a kind of lancet having two blades, so that two cuts are made with each stroke. The milky juice which exudes hardens in the course of the night, and is scraped off the next morning with a blunt knife, before the sun has time to melt it. It is afterwards kneaded into cakes, and packed, in leaves for sale. Laudanum is opium steeped in spirits of wine, and paregoric is laudanum with aniseed and camphor added to it; morphine is the sedative part of opium separated from its intoxicating quality. In England all Poppies are more or less narcotic, and of course poisonous, but the milky juice is not secreted in sufficient quantities to render it worth while to cultivate the Poppies for their opium.

Nearly all the umbelliferous plants are poisonous in a wild state. Even Celery is only rendered wholesome by cultivation. Wild Chervil also is poisonous, but the cultivated is eaten in salads.—Of all the umbelliferous plants, Water Hemlock, or Cowbane, is, perhaps, the most deadly. It grows in marshy land in several places in the neighborhood of London; and, as it has no bad smell it is sometimes eaten by cows, who die immediately. Children are also frequently poisoned by chewing it It is an acrid poison, and destroys life by burning the coats of the stomach. Fool's Parsley is very dangerous, as it often comes up in gardens with the other parsley—and when both are quite young, it is not easy to tell the difference between them. When in flower, it is distinguished by two long beards hanging from each flower, while the common parsley has none. But even when not in flower the two kinds many be distinguished by the leaves of the Fool's Parsley being of a darker and bluer green, and having a smell like garlic. Hemlock is also often mistaken for parsley.

Water Parsnip is sometimes mistaken for Skirret, the tubers of which are eaten in Scotland under the name of Crummock. The Water Parsnip, however, may be known by its always growing in water, which the Skirret does not.—The Water Dropwort is still more dangerous from its strong resemblance to Celery; and this last plant is so poisonous that many persons feel giddy only from smelling it.—[London Newspaper.

Plant Trees.

Trees are Nature's gift to the country, but their growth is not inhibited in the dust and turmoil of town. They are gentle and beautiful reminders of the innocent pleasures of country life—hints of the purity of younger days when the anxious denizens of the great and wicked city were lads and lasses, and disported, with the glee of childhood, beneath the spreading branches that overhung the old homestead, that shaded the quiet nook, that tossed and waved on the hill side, throwing changing and fantastic shadows on the turf beneath. If for nothing else—for your childrens' sake, plant trees. Do not bring them up without a knowledge of what it is to love Nature in one of her most beautiful manifestations.—Let not their young affections be crisped up by the bare brick walls of shadeless streets along which the sun at noon-day pours down his hottest beams. Plant trees, and let the wee things assist you while you do it. Let todding Jimmy help you while you prepare the bed in which it is to be placed; let Charley bring the water with which you moisten the roots and mulch them in the quickening earth; let Ann or Jennie hold upright its slender trunk while you shovel in the soil. Plant one for each. Let this be Charley's, that Ann's this in the corner is Nellie's, and that at the end of the walk shall be Jim's. Think you they will not love them? Think you, when you are dead and gone they will not make pilgrimages to the spot with their children and point out where you stood? that they will not repeat what you said? that they will not struggle to repress the rising tear that the old place calls up? Oh, you of little faith!

Plant trees for yourself. The walls inside your room are hung with landscapes in which trees are the principal feature. You insist that your friends admire them and you declare that you love and appreciate them yourself. You point to the delicacy of tint here, the reflected sun light there and the soul're shadows beneath. But, though in a gilt frame, and a room where gaudy painters and vulgar upholsters have done their worst, they are all mean and tawdry compared with the living trees that the Great Master was caused to grow. That daub cost you a handsome sum; but you cannot or do not spare the trifle which, expended as we would wish, would give you a pleasure that the painting never can confer.

Plant trees for your neighbors. We fear that you are doing nothing to insure your remembrance in the busy world that you cannot be a part of forever. You have been lucky in trade, have amassed money in corn; have become a half-millionaire in real estate. Trees outlast fortunes.—Storms toss their branches and sway their trunks, but the gentle breeze kisses their foliage to-morrow and they give no sign of the trial they have passed. Not so your riches. You have done little in the way of making the world more beautiful or happy. It is not too late to begin now. Begin with the cheapest method: plant trees that will live when you have given up riches and gone where they are of no use; but where a cultivated sense of the good and the beautiful count more than all the gold of Ophir.

Plant trees, if you will speculate, for their money worth. Make that vacant lot, every year rising in value, rise more rapidly as the trees that you put on it, cause it to be more and more attractive and marketable. Hide the decaying front of that tenement occupied by your poorer neighbor, off whose industry you live, and who by the way, you are grinding rather harshly in the way of rent,—hide it with a coronal of living green that will more than compensate for want of paint or the lack of skill in the wooden architect who designed it. Trees are money in every city; and more than anywhere else, where Nature in her gifts of the beautiful has been so niggard. Relieve the flatness of surface, and destroy the unbroken continuity of view, by trees. If the lot is wet and of little value, there is the more necessity for the beauty that trees will give. If it is high and dry, trees will grow the better thereon. Put money in thy purse—and plant trees!—[Ex.

How to Preserve Women.

There is nothing in this world that we think so much of as we do of women. Our mother is a woman—wife, sisters, pretty cousins, are all women; and the daughters will be, if (Heaven spare them!) they live long enough. And then there is the love of women in general, which we do not deny. A fine, magnificent specimen of the sex, full of life and health—a ripe, red cheek and lip and flashing eye, is something that does one good to look at, as she illuminates the humdrum sidewalks of the everyday street. A North River steamboat, under full headway, with colors flying, is rather a pretty sight—rather stirring and inspiring; and we pull up our fired nag on the shore to see her pass, and admire the swell she cuts. Comparatively, however, the steamer sinks into insignificance, or some other very deep water, by the side of a well-kept, well-dressed woman. There is no rubbing it out; women are an ornament, charm, blessing, beauty and bliss of life, (man's life, we mean of course) and any means that can be devised for preserving them should be publicly made known. They are different from any other kind of fruit. You cannot pickle them; vinegar absolutely spoils them. You cannot do them up in sugar, and set them in a cold room, with a paper soaked in brandy over their mouths. You cannot put them into cans and seal them up air-tight without injuring their flavor. Now, as men are so dependent upon women for life's choicest blessings, a proper mode of preserving them becomes a matter of great moment, and we are sure that the public will thank us for an unfailing recipe. Here they have it:—

Wash clean in cold water as often as three times a week in cold weather, and every day in warm weather, and then rub dry with a coarse towel. If the skin takes on a blush under the friction of the towel, so much the better. It betrays inherent vitality and a happy reaction. After the glow is well established, dress in winter with thick flannel—flannel jacket next to the skin, and a pair of flannel drawers, which like the jacket, were better knit, and fitted closely. Over the terminations of these, heavy woolen or worsted hose should be drawn. If this preliminary process is perfected, a very important step has been taken towards the general result. Women are spoiled nearly as much from unprotected limbs as from unprotected feet. Skirts are but an indifferent protection.

Well, then, after the jackets and drawers are on, and the woolen hose, there is nothing to hinder the perfection of the dress after the usual mode. The woman is on the direct road to preservation, and no damage is done to her looks.

Expose to the air daily. As a preparation for this, put the feet, already enclosed in a woollen hose, (premising still that the season is winter) in thick-soled shoes, or regular Wellington boots. The thin slippers, and the thin cold rubbers beneath are not enough.

A better conductor of caloric could hardly be found than they combine to produce. Besides, the rubber confines the moisture of the foot, and every moment it is worn, the worse it becomes, until the connection of the foot with the ice beneath is almost as direct as if no medium interposed. We would not discourage rubbers over thick shoes, to be worn during brief passages. They are very useful and convenient, but they never should be relied on as the main protection of the feet.

Having the feet well protected, pay the next attention to the chest. The chest is the repository of the vital organs. There abide the heart and lungs. It is from the impression made upon these organs through the skin that the shiver comes. It is nature's quake—the alarm bell—at the onset of danger.

A woman never shivers from the effects of cold upon her limbs or hands; but let the cold strike through her clothing upon her chest, and off go her teeth in a chatter, and the whole organism is in commotion. One sudden and severe impression of cold upon the chest has slain its tens of thousands.

Therefore, while the feet are well looked after, never forget the chest. These points attended to, the natural connections of dress will supply the rest, and the woman is ready for the air. Now let her visit her neighbors, go shopping, call upon the poor, and walk for the good of it or the fun of it.

Keep away from the stove or the register. Air that is dry or burnt, more or less charged with the gases evolved by the consumption of fuel, is poison. Go up stairs and make the beds with mittens on. Fly around the house like mad, and ventilate the rooms. Don't sit pent up in a single room with double windows.

Fruit will not retain its full form and flavor in air-tight cans; neither will women. They need air. If the shiver comes on in these operations, go directly and put on something more about the chest.

Thus much for the winter treatment. Generally, for the other seasons of the year, adapt the clothing to every change of temperature.

This may require a modification of the dress four or five times a day, but it pays.

Ours is a versatile climate, and if we are fit to live in it, or must live in it, we must take it as it is, and make the best of it; and the way to make the best of it is by placing more or less between the atmosphere and the skin.

Again, do not live in dark rooms. Light fades the carpet, but it feeds the flower. No living thing, vegetable or animal, can enjoy health in darkness.

Light is almost as necessary as air, and a brown tan is far preferable, even as a matter of beauty, to a sickly paleness of complexion.

Thus much in regard to the physical means for preservation. There are moral means no less important. Every woman should be married to an excellent man. (Marriage, it is true, brings care and wear, but it is the ring that is worn that keeps bright, and the watch that lies still unwound that gets out of order.) The sweet sympathies evolved in the relations of the family, the new energies developed by