

this purpose; as do also the genera *Equisetum* and *Carex*. The various kinds of British and North American orchids and bulbous plants also form beautiful objects: of these latter, such as Scilla, Autumn Crocus, Anemone, Cyclamen, and Dog's-Tooth Violet, may be mentioned as being peculiarly adapted for this purpose.

Some may be under the impression that this sort of thing is very expensive, and that it would occupy a large space; but as it is of the utmost importance to the owners of small gardens that every available portion of their grounds should be occupied to the best advantage, this is one of the best ways of having a great quantity of things in a small space.—*Land and Water*.

#### ALL METALS YIELD PIGMENTS OF SOME KIND.

Mercury produces vermillion. Venetian red, mars orange, and yellow and Indian red are produced from iron. Copper gives us emerald green and verdigris. Chromium affords oxide of chromium and chrome yellow. King's yellow and orpiment are made from arsenic. Cobalt blue and smalt from the metal cobalt. Zinc supplies zinc white. Lead supplies white lead, Kren's white flake white, china white, patent yellow, red lead and orange mineral.

Among the colours extracted from animal matter, those distinguished by the brilliant hues imparted through the agency of Prussic acid are most remarkable. This peculiar acid is produced by the calcination of dried blood, and the hoofs and horny parts of animals, and, in conjunction with iron, affords those beautiful and powerful blues known as Prussian and Antwerp blue. Gall stone and Indian yellow are the products of animal economy, and the cochineal insect by a particular treatment and great delicacy in manipulation, is made to yield the most powerful and beautiful crimson known, namely: the carmine and the crimson lakes. Scarlet and purple lakes are also made from the same by varying the mode of manufacture.

Vegetable colours, from the want of permanency, are mostly rejected by the colour maker. Among the few that are retained, the madder root holds the most conspicuous place. The indigo plant and gamboge also afford useful colours in the fine arts. Among the vegetable colours we must class Frankfort black, and that most important pigment, lamp black.

From this brief review, it would seem that all the kingdoms of the material world and all quarters of the globe, are laid under contribution to supply to the painter his stock of colours.

#### DON'T BEGIN TO BUILD IN AUTUMN.

There are several strong objections against beginning to erect a building with the intention of finishing it next season, or even completing the edifice before cold weather. Masons have often persuaded their employers to dig the cellar and then let them carry up the foundation walls late in autumn, so as to be ready very early the next season to erect the superstructure. Every intelligent mason knows that the practice is not a good one. Yet, as masons are always crowded with foundation work in the former part of the season,—which is the proper time to do such work—if they can induce an employer to commence the foundation of a building in the fall, the masons will gain the benefit of a paying job, and frequently two jobs, as a cellar wall erected just before cold weather will often be so seriously damaged by bearing and settling that a portion—perhaps all of it—will have to be relaid the next season.

When a foundation wall is built with mortar filled in the interstices,—which is the only correct way to prepare a foundation for any building—the mortar near the middle of the wall will not become really consolidated during a period of six months, if the weather be favourable. But if a new wall is exposed to cold weather only a few weeks after it has been built, the green mortar at the middle will be frozen before it is dry, which will damage the wall by bursting the layers of stone or brick asunder, and by destroying the solidifying principle of the lime or cement. After green mortar has been frozen and thawed two or three times, there will be no more strength in a wall than if the stones and bricks had been laid in a mortar made of ashes, sand, and clay.

In most instances, the earth beneath a foundation wall will be frozen more or less, which will destroy its compactness to such an extent that the wall will settle unevenly, often cracking from top to bottom before the superstructure is erected. Besides this, the bank of earth outside of the wall will expand by freezing—especially where it is not of a dry and gravelly character—so that the whole wall will be thrust inward so far beyond a perpendicular position that most of it will have to be taken down and rebuilt. Cellar walls are frequently thrust inward by the frost, even when a heavy superstructure rests on them. It is sometimes as important to exclude frost from a cellar, to prevent freezing the earth outside of the walls, as to keep vegetables from being frozen. The disadvantages of shorter days also, and more stormy weather than we are liable to have in the former part of the season, must be encountered when one commences to build in autumn rather than in the spring. If the foundation wall is built early in the season with good mortar, the entire structure will have ample time to solidify before cold weather, so that it will resist all ordinary thrusts of the earth during the freezing process. When one commences in the latter part of the season, there will usually be more or less unavoidable hindrances when building almost any sort of edifice. Hence, if a builder commences early in the former part of the season, he will be able to meet hindrances without much, if any, real damage.

It is always objectionable to allow the foundation walls to stand any considerable time without the superstructure. The most complete preparation should be made before the ground is broken. All the lumber should be delivered and stuck up under shelter, so that it may have a long time to dry and become seasoned before it is worked. Then, as soon as the frost is really out of the ground in the spring, dig the cellar, carry up the foundation wall, erect and enclose the superstructure as soon as practicable, let it stand to season, settle, and shrink until autumn; then plaster and finish the inside before cold weather.

By building a dwelling in this manner, all the shrinkage and cracking of the woodwork and the cracking of the walls will be avoided; and the walls will be far more firm than if the plastering had been done in hot weather, when the mortar will dry too rapidly to make a strong wall. Building architectural structures, like the formation of character, is a job of

a lifetime. In building a cottage or a palace, a hennery, pig-gery, or a spacious farm barn, a beginner should avail himself of the practical experience of such builders as have purchased their wisdom at the costly rate of damaging and expensive mistakes in beginning to build in the latter part of the season.—*Technologist*.

**MAGNETIC WELLS.**—Much has lately been said about certain wells in Michigan, the waters of which are said to contain most extraordinary magnetic properties. The controversy as to the magnetism contained in the water is not yet settled. Professor Winchell gave it as his opinion before the American Scientific Association, at their meeting in Troy last year, that the water was not magnetic; but in his late report to the Legislature, as State Geologist, he so far modified his views as to be in doubt on the subject. Prof. R. C. Kedsie, of the State Agricultural College, at Lansing, asserted that the magnetism was only in the iron tubing, and instanced as a proof of this, a pipe which he had inserted in the ground to the depth of thirty feet, and which had become magnetic. This, however, is no new principle. Every school boy knows that any bar of iron, placed upright, will, after a time, become magnetic.

That the water is strongly magnetic was shown where a wooden pipe, ten feet long, was placed between two lengths of iron pipe. The iron tubing, which the water reached after passing through the wood, was as strongly charged as the first piece.

Whether the magnetism is derived from the pipe or its rocky bed, is a matter of dispute. Experiment proves that it is in the water. Knives held in the stream or rubbed upon the pipes become magnets. The time required to magnetize them varies greatly. Knives have been charged in two minutes. Sometimes, of five knives suspended in a bath tub over night, four will become strongly magnetic, while the fifth will be unaffected. If a compass be held near the running water, or near the pipe, the needle is deflected, more in the latter than in the former case.

Another curious property of the water is its colouring power. Superintendent Crow will show the visitor into a room in which stand goblets, glasses, bottles, tin cups, salt-cellars, and the like, all under a shower of magnetic water. Five days suffice to colour these in turn to a beautiful amber, seeming to saturate the glasses with pale gold. This is caused by the deposit of iron, and gives table-ware a handsome appearance. Some cheap jewelry company, if alchemically inclined, might transmute the baser metals into gorgeous jewelry, and reap unbounded harvests on the principle of the "one almighty dollar." The colour seems to be imperishable, and is beautiful as it is lasting.

#### QUALITIES OF A GOOD COLLECTOR.

Is on time to a minute when the debtor says "come to-morrow at nine o'clock."

Sits on the steps and waits for his return when he says, "I am just going to dinner."

Insists on stepping out make change when the man "has nothing less than a twenty."

Will go to an "old stager" every day for a month with a cheerful countenance "about that little account."

Doesn't mind edging into a crowd to ask a fellow.

Will take a dollar in part if he can't get ten in whole, and "credit it" with thankful alacrity.

Always suggests a check when the money is not in hand, as he can get it "cashed" to-morrow.

Always has that account "on top" so the man can make no excuse for putting him off.

Don't mind asking for it immediately after being "treated"—or pleasantly entertained.

Is never in a hurry, "can wait till you get through."

Cuts off the retreat of the dodger by crossing over to meet him, or follows him into a store where he goes to hide.

Can cough or salute when the "hard case" wants to pass without seeing him.

In fine—is patient as a pest, cheerful as a duck, sociable as a flea, bold as a lion, weather-proof as a rubber, cunning as a fox, and watchful as a sparrow-hawk.—*Columbus Index*.

#### PLANTS IN BEDROOMS.

Dr. J. H. Hansford, in *The Household*, says that the idea that plants throw off nitrogen in the night to an extent to prove injurious, in any material degree, may have had its origin in the vagaries and speculations of some medical theorists, utterly forgetful of an over-ruling Providence who makes no blunders of this kind. These plants have their labour to perform, so to speak, and we need not trouble ourselves about that, but simply regard all as right.

While the breathing of every living creature, the combustion of fuel, etc., are constantly destroying the oxygen of the air, leaving an excess of nitrogen, the other element of air, (the two gases, oxygen and nitrogen, making pure air,) some means of restoring these relations would seem necessary. This is done by the vegetable creation, the leaves of plants, like lungs, absorbing this gas, and throwing off the oxygen, or restoring the purity of the air.

The animal creation and combustion thus furnish carbon in the form of carbonic acid gas to the vegetable, while the vegetable creation kindly returns to us the oxygen in a gaseous form, and the carbon in a solid, in the form of food; an arrangement with which we need not quarrel. The work is constantly going on, illustrative of the wisdom and the goodness of the Great Father. It is a matter of little importance whether this is in vast creation, on a grand scale, or in our sleeping rooms. It may be remarked that it would be possible to fill our rooms with various articles to an extent to leave too little room for air, and thus deprive ourselves of this necessity of life. We can scarcely have too much of it, as it is our life to a greater extent than many suppose. But even if there might be some of the evils referred to, it does not follow that these rooms should be so closed at night as to exclude all of the outward air or prevent the escape of a large amount of carbonic gas, or supposed excess of nitrogen from the plants. The breathing will leave such an excess, even with no plants in the room, which should be allowed to escape.

Such sleepers have more occasion to fear this deadly gas, constantly produced by breathing, than the "night air," so foolishly dreaded.

In short, while our sleeping rooms are so often too small, it may be advisable to have our plants in some other room, with open doors, that they may aid in purifying the air. We

may rest assured that they will do us far more good than harm; that this law of compensation is in active operation all around us, and is merely another term for the goodness of the Creator.

#### MISCELLANEOUS.

It has recently been discovered in France that splendid blotting and wound-dressing paper can be manufactured out of sponge. The sponge is reduced to an impalpable pulp by grinding, and is then made into paper by the usual process. The discovery is secured by a patent, and will prove valuable, as the paper thus made is indispensable in dressing wounds.

Dr. Prestil, a German naturalist, attributes the cold weather in Europe, during the last spring, to the frequency of aurora borealis and spots on the sun. He says that the same kind of weather, and a frequent occurrence of those phenomena, were observed in 1838, 1840, and 1860, in intervals, therefore, of eleven years, and prophesies a comparatively cool fall for Europe.

R. D. Munson is a persistent Yankee, a native of Williston, Vermont, who has devoted ten of his fourscore years to the achievement of making a clock that is more complicatedly ingenious than the Strasbourg timepiece, and is vastly more serviceable. It runs eight days, and the dial marks the seconds, minutes, hours, and days of the week, month, and year; a thermometer rests against its pendulum, giving the state of the temperature; the ball of the pendulum contains a miniature timepiece, which derives its motive power solely from its vibrating position, and keeps accurate time; with this there is a delightful musical apparatus, which plays an air at the end of each hour, and it is piously preconcerted so as to play only sacred tunes on Sunday, beginning and ending with the "Doxology." On national holidays the airs are diversified patriotically with "Yankee Doodle," &c. This wonderful timepiece presents a black walnut front ten feet deep, and is embellished with profuse scroll-work and national designs.

A new French invention is said to have quite solved the problem of preserving meat and other provisions from place to place, no matter what may be the state of the temperature. The object is effected by filling the vessel or chamber in which these articles are to be kept with a dry cool air, which, by its moisture, as well as low temperature, is found completely effective for the purpose. It is reported that the machines employed in the process are already used extensively by brewers, who have hitherto had to employ ice to keep down the temperature of their beer at certain stages of the manufacture. It is expected that it will be largely employed in churches, hospitals, hotels, and other places where great heat is unhealthy or unpleasant. As an experiment, one of them was fitted up in the steamer "Rio Janeiro," which conveyed to the Brazilian port of that name a quantity of meat, game, &c., which had been shipped in London. On the Equator the thermometer was 107 deg. in the air, while in the chambers devoted to the preservation of these provisions, it was kept at 33 deg. Beef and uncleaned game and fish were preserved by it in Paris for eight days, and were perfectly sweet when served at the table of M. Lavalette, the celebrated diplomatist.

**THE VENUS OF MILO.**—Art circles in Paris are convulsed about the attitude of the Venus of Milo. The upper portion of the statue rests on the lower half, where the drapery commences, in such a manner that wedges are inserted on the left side to make the body lean over to the right in an attitude of marked repose. In the damp cellars of the Prefecture of Police, where the statue was deposited for safety when the first siege commenced, those wedges became loose and fell out. It was then seen that if the wedges were removed it would make a considerable difference in the pose of the statue. The question now is whether the bust of the goddess should stand bolt upright, or be tipped over upon the right hip with the aid of wedges. Every one admits that the statue is realistic to a wonderful degree. One cheek is bigger than the other, the corners of the mouth are not alike, and the remaining foot, particularly as regards the curvature of the little toe, is not exactly what one would look for in the figure of a goddess unacquainted with shoes or sandals. The wedges certainly conduce to this realistic effect, as they throw the figure into an easy and natural position. But it is generally admitted that the statue is more ideal without the wedges. So the conjecture is that the French antiquarians who found the statue and put its parts together fifty years ago inserted the wedges on their own responsibility and with a false idea of the supposed action of the goddess, as indicated by the fragments of the arms which remain.

German papers inform us somewhat triumphantly that the exaltation of their empire has not gone unrecorded or unappreciated in remote parts of the globe. In the first place, the ruler of the Celestial Empire has paid a conspicuous compliment to "Monsieur son frère" on the German throne. By a decree dated July 26, but only quite recently delivered in Europe, his Celestial Majesty has conferred on the Emperor William the highest title recognized by Chinese court etiquette, Hwang-ti. The conferring of this title, which hitherto the Emperor of China has reserved entirely to himself, on a foreign potentate is an unheard-of thing, the highest distinction that European rulers have ever attained to being the far humbler rank of Hwang Shan. Another tribute of respect has been paid to the Emperor by the Dutch colonists on the Orange River in South Africa, who have elected his Majesty umpire in their dispute with our own Government. Things do not go on quite so satisfactorily in the neighbouring Russia and the allied Austria. German papers express great indignation at the slight put upon their generals by the Grand Duke Constantine on their assembling to greet the illustrious traveller at the railway station of Königsberg. His Imperial Highness met their loyal welcome with the curt reply that "he was sorry they had put themselves to the trouble." A still greater affront has been offered by Archduke Charles Lewis—if we may credit an account that has passed unchallenged through the entire German press. His Highness, on a visit to the well-known hill Hehe Salve, on the Bavarian frontier, felt so much offended at the sight of an effigy of the Emperor William peacefully hanging on a wall in the inn side by side with prints of the Emperor Francis Joseph, the Kings of Bavaria and Saxony, and some other worthies, that he *propria manu* tore it from its nail, and in the sight of the astonished landlord and landlady consigned it to the flames.