On Plastering.

The modes of rendering the insides of dwellings vary in different countries with the materials most commonly found. Wherever the sulphate of lime occurs in large quantities, it is the material exclusively employed; when it becomes too dear, a combination of lime with sundry other materials is substituted for it; or cement, either natural or artificial, is used.

The sulphate of lime is met with in large formations known under the commercial name of gypsum.

The sulphate of lime is insipid, or of a slightly bitter flavor; it is colorless and indecomposable by heat. It is soluble in water, whether hot or cold, 1,000 parts of water at any temperature between 10° and 100° of the centigrade scale dissolving 3 parts of plaster. Its specific gravity is 2·31; it contains in its natural state 20·9 per cent. of water of crystallization, which is given off at a temperature less than 200° of the centigrade scale (392° Fah.)

The gypsum from the best quarries is nearly as hard as the calcareous stones; after its water of crystallization is driven off, it becomes pulverulent and like flour. If fresh water be presented to it in this state, it combines with the normal quantity of water, and re-assumes the form of a hydrate, which it had lost by the burning, crystallizing around the materials presented to it, and recovering its original density and strength to a very great degree. It is this property which has led to its use in buildings; when the plaster is burnt it is dishydrated; when gauged, or worked up, the precise quantity of water it had lost is restored to it.

After the calcination, the plaster is reduced to powder, either by hand or in a mill; in this state it absorbs the humidity of the atmosphere with avidity, and requires to be covered up very carefully, to secure it from contact therewith, directly it is crushed. There is also, from this reason, a very great objection to transporting the plaster in its manufactured state for any great distance.

Plaster is far from having the tenacity of mortar, which, as it is well known, increases with time. Rondelet found that if two bricks were joined together with this material, they united with one-third more force in the commencement than if they had been joined with lime; but that they subsequently lost their force of adherence. A very useful application of plaster was made by Smeaton in the construction of the Eddystone Lighthouse, where he covered the fresh cement joints with it, to give them the time necessary to harden.

In France it is largely used for the construction of walls, both internal and external, as well as for "rendering" them afterwards. If proper precautions be taken to cover the surfaces exposed to the weather, and if it be painted as soon as dry, the plaster is eminently useful in such positions; and replaces very advantageously the natural cements for all common purposes. But it is utterly incapable of resisting the action of water.

The coarser kinds of plaster are used for the ordinary works, such as the "rendering" of walls and partitions; the finer qualities are reserved for the ceilings, cornices, and other decorative works. A difference is to be observed in the quantity of water to be mixed, according to the position and nature of the work to be executed. Thus, for walls, the plaster must be gauged stiff for the first coats, and more fluid for the setting coat. For cornices worked out in the solid, the core is made of stiffly gauged plaster, which is floated with finer material, and lastly finished off with plaster laid on by hand about the consistence of cream. Practice only can ascertain the precise degree of stiffness to be given, especially as every burning yields a different quality.

When walls are to be rendered in plaster, they require to be first jointed, and then wetted with a broom. The surface is then covered with a coat of thinly-gauged stuff laid on with a broom, or at least worked with the trowel in such a manner as to leave sufficient hold for the next coat.—This is gauged stiff, and is laid on with the trowel; it is floated with a rule, but the face is finished with a hand trowel. Owing to this, and to the fact that the plaster sets too rapidly to allow any pains being taken with the floating, the surfaces are never so even, nor the angles so square and true as with our common system. But this mathematical nicety is not really of importance in ordinary works, whilst the rapidity with which the plaster dries constitutes a real and very important recommendation in its favor.

The partitions in Paris are generally made solid, so as to prevent sound from passing through them. They are executed with quarters of oak or pine, according to the nature of the building. Upon the quarters laths are nailed every 4 in. apart, and the interior is filled in with plaster rubble. This is made even and flush with the laths, and the whole is then rendered like any ordinary wall.

The ceilings are sometimes executed with close laths, but the usual plan is to nail them about 3 to 3½ in. from centre to centre. A sort of flat centreing is put under them, and what are called "augets" are then formed between in plaster, which finish about flush with the under side of the laths, and return up the joists to nearly their total height, forming a sort of channel, which the workmen often finish by drawing a bottle along the sides.—The thickness in this case should be about 1 inch; the ceiling itself is added underneath; the floors are either of wood, or tiles upon a bed of plaster formed above the joists. The better description of such floors or ceilings are often made, however, with laths spaced 4′ from centre to centre; the space between ceiling and floor is then filled up with light plaster rubble, and the upper and under surfaces are rendered to receive the ceiling and the tiles. Ceilings executed in either of these two last-named manners, cost 1½ time those executed either with laths or flat "augets."

In countries like our own, where the price of plaster is very high, it is replaced by the use of a mixture of lime and sand, to which cows' or calves' hair is added. The mixture is then applied upon close lathing for ceilings or partitions, and in the usual manner upon walls.

The lime generally used for this purpose is the white lime, which is slacked with a great deal of water, and runs from an upper basin to a lower one, where the excess of water is allowed to evaporate. A grating should be placed at the entry of the passage between the two basins, to keep back the core, or any unslacked particles the upper one might contain. The lime run in this manner is made into a mortar with a very fine sand; and the hair is then added. For the first coats coarse hair will be most desirable; for the finishing coat it should be finer.

In well-finished works two coats are given, which are distinguished by the names of "rendering" and "floating." A third coat is then added called the setting coat, which is made of the pure lime as it is run from the basin. Ceilings are afterwards covered with a very light coat of plaster, gauged thin, and laid on with a trowel. Such plastering is very cheap; and if proper attention be paid to its execution so as to avoid blisters from the use of unslacked lime; to fill the cracks which frequently take place in the thicker coats, from the unequal contraction of the lime in setting; and to allow a proper interval for the whole plastering to dry before the painting, or subsequent decoration to be added, is applied; the lime and hair may be safely admitted as a substitute for the natural plaster. The superior rapidity with which the latter dries, the much superior manner in which it takes color, and the degree of hardness it attains, will, however, secure it the preference, unless very weighty considerations of economy oppose its employment.

Consumption.

Two or three years ago, experiments were made by members of the Londoh Faculty Physicians, in different Hospitals, for the cure of diseases of the lungs, by breathing in warm medicated vapors. The success of the experiments were so gratifying that an institution, the Brompton Hospital, for the cure of bronchitis and consumption, was immediately established, and so favorable has been the result of the treatment, that the number of patients admitted during the past year is between two and three thousand, and the Hospital Report shows that full seventy-five in every hundred have been completely cured.

Ship Navigation to Albany.

A project is on foot to secure a sufficient depth of water between this city and Hudson to enable the largest class ships and steamers to reach our docks. This may be effected by building a ship canal to New Baltimore (on either side of the Hudson) or by deepening the channel of the river. Either plan is feasible. The latter would probably be the most acceptable, although a canal would be of equal practical utility.

Measures are being taken to secure early surveys. A subscription book to procure the necessary funds is now in circulation, and more than half the amount required is already subscribed. There should be no delay in filling up the amount.

No enterprize more important to the city than this has ever been projected. Albany is the great outlet between the illimitable West and the Atlantic border. The products of all the most prolific States in the Union, concentrate at this point. But, with trifling exceptions, they move forward to New York for trans-shipment to foreign and coastwise markets, doing but little toward promoting the interests or augmenting the population of Albany.

If, however, ocean vessels could reach our docks, Albany would become the point of trans-shipment, because now nearly as much is lost in cartage, storage, and commissions in New York as would cover the freight to Liverpool direct from this city. The same is true of importations. Millions every year could be saved to both producer and consumer, and Albany be made a great mart of foreign as well as home commerce.

It is unnecessary to point out the advantages which would accrue to the city from such a revolution. They must be self-evident to every intelligent mind; and our only surprise is that a project so entirely feasible, involving such magnificent results, should not sooner have attracted the attention and enlisted the energies of our people. But "better late than never." We cannot recall the past, but we can improve the present; and we trust that our business men may promptly fill up the subscription for the contemplated surveys, and push forward the project so that Albany may become what nature has ordained—the meeting point of the products of the old world and new, and the place of trans-shipment for both.—[Albany Evening Journal.

[Albany is not ordained by nature for a great shipping port. It is too far inland.—Would ships go up to Albany doubling and winding all the points for 150 miles up the North River? No. The man who would attempt to make a canal on either side of the Hudson from Albany to New Baltimore, we would set down as a person fit to be sent to the asylum at Utica. There is as much water flowing in the Hudson at Albany every day, as would float a seventy-four. The channel of the river has only to be deepened, and made narrower, so as to direct the water therein, thus giving it a greater velocity, which will assist to keep it clear. It is our opinion if the river were deepened that the trade of Albany might support two propellers of 1,600 tons burden, to run between that city and Liverpool. They would make about three trips per year each way, for they could not go to Albany during three months in winter. The Evening Journal forgot this when it made the remark about "nature ordaining it as the meeting point of the products of the Old World and the New." Mr. McAlpine, the State Engineer, knows how the Hudson can be deepened—the way by which the river Clyde was made from a small river like the Mohawk, into a river which sends ships of 1,800 tons to New York, must be well known to him, as they have been published in the Engineers' Magazine: blasting, dredging, and banking were the plans. The citizens of Albany may have some ocean commerce if they would really go to work in earnest and perform what they now propose, as set forth above. They will find it a much more beneficial project for the city than making a tunnel under the Hudson (after the unwise example of the London tunnel) to carry merchandise, not from, but past the city. The people must not overlook one fact in all their schemes, their city has no natural resources to make it great; it is barren of coals and minerals; its citizens must be cautious and not over speculative about its future commercial prospects.

Signal Lights for Railroads, and Stopping of Trains.

After a few remarks about the Marine Signal of Thomas H. Dodge, of N. H., illustrated, three weeks ago, in the Scientific American, our correspondent, Chas. McKean, presents the following suggestions, which, in our opinion, are good and well worthy of the attention of our railroad companies:—

"A better signal for the kind of switches used on our road, would be a square lantern placed on the top of the switch pole that carries the day signal; this pole is about ten feet high, and has a crank at the bottom, and a hand wheel for turning it, and to effect a change in the position of the switch—the pole with the crank is turned half way round. the square lantern at the top of the pole having two red and two white lights opposite each other, would show the same signal both ways on the line of road, and would not be subject to the expense or derangement of the cord pulley and box system.

Another thing I would like to mention before closing, is, stopping of railway trains in cases of danger. An advertisement appeared in your paper, not long since, from a person connected with the American Institute, offering a reward for some effectual plan to accomplish that very desirable object. I have seen many schemes for that purpose, such as attaching brakes to locomotives, &c., but none in actual or successful operation. Our double brakes are so powerful that they almost take the rails along with the train, and there is not much chance for improvement in that quarter. I have noticed the effect that a little sand left on the rails by the repairer has produced on a train of cars, causing them to drag heavily through it; and I have thought that sand boxes might be placed under the platform of cars and worked similar to those used on locomotives to prevent their slipping (it will also aid materially in stopping one); these boxes could be operated by the brakemen by means of levers placed within their reach: and in cases of emergency, a stream of sand could be poured on both rails in front of each car, as well as the engine, which any one acquainted with the subject can easily see would do much towards stopping a train. I would recommend this idea to the person referred to (not with expectation of gain, however).

CHAS. M'K., Engineer.

New Haven, Conn., June 28, 1852.

Telegraph and Steam.

On the 8th day of June, an auctioneer in this city, sent on by telegraph to Philadelphia an order to a manufacturer for about $1,000 of goods, of a particular description to suit a certain phase of the market here. The manufacturer received the despatch the same day, the goods were sent to New York that afternoon, and placed on the steamship Empire City, which left for this port on the 9th instant. She arrived here but Saturday morning the 19th instant: the goods were delivered up and sold at a satisfactory price, and yesterday morning the proceeds, in the shape of a draft, were despatched by mail to the manufacturer. Rather quick work all round.—[New Orleans Picayune.

[This is what our inventors are doing for the world.

Neatness in Holland.

If cleanliness can ever be carried to excess, it is in Holland. The very servants have such caps and kerchiefs, and aprons and laces, and so beautifully got up. I can compare it to nothing but a laundress on a pleasure party, taking a day's wear of her mistress's best things. Of course, they have a wash, every week day, besides the grand one on Saturday, when they really wash up everything in the place except the water. As an instance of the particularity, at almost every house there is a sort of double looking glass outside the window as if for seeing up and down the street, that the Dutch ladies may watch a friend to see whether he has dirty boots or shoes.—[Exch.