oxide of iron which it contains; whilst that from the Tyrol still remains white. In some manufactories, however, where they have perceived this inconvenience, they now cease to calcine the sulphate of barytes.

Third quality.—This third sort is formed by mixing two parts of sulphate of barytes with one of carbonate of lead: it is known in Germany by the name of *Hollanderweiss*, *Dutch-white*.

These various kinds of white are generally made according to the proportions we have described: however, for the manufacture of a very cheap article, they mix seven parts of sulphate of barytes with one of carbonate of lead: this white, nevertheless, always bears the name of *Dutch-white*, but is rejected for delicate painting. It is convenient that white lead should sometimes be mixed with sulphate of barytes; and for this simple reason, that it gives it more opacity; a convenience, however, which can only exist in the painting of the less-delicate pictures: as in the most-delicate paintings, its transparency is rather an advantage than otherwise.

(TO BE CONTINUED.)

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*On extracting the Colouring Matter from the Carthamus.**

Carthamus, or Bastard Saffron, (*safranum*, *carthamus tinctorius*,) a plant of the *syngenesia polyg. æqualis* of Linn., the *flosculosi* of Tournefort, and the *cinarocephalæ* of Jussieu, is an annual; grows spontaneously in Egypt, of which it is a native; and is cultivated in India, and some parts of Europe, on account of its valuable properties for dying. It has a straight, firm, smooth, and whitish stem, two or three feet high; which is divided towards the top into many branches, furnished with leaves that are simple, entire, oval, pointed, and bordered with prickly teeth; each branch being terminated by a somewhat large flower, in which the scales of the calix are spinous, the florets hermaphrodite, and the corols, which have five segments, of a beautiful red-saffron colour.

The corol of the *safranum* is usually gathered as soon as the flower begins to open, because it loses its lustre when it is more fully blown. It must be dried in the shade, and preserved from any damp or moisture. It is the more valuable, in proportion to the brightness of its tint. When it has a dusky hue, it is a certain proof that it has either been gathered in a rainy season, or badly dried, and that its colouring matter is greatly deteriorated.

The corol, which is also called the flower of the carthamus, and commonly *safflower*, is very much used in dying. It contains two colouring matters; one of a reddish yellow, which is rejected as useless, because it produces only inferior shades; the other, which is of a beautiful red, serves to produce every shade, from the most delicate rose to the deepest cherry-red. The first easily dissolves in cold water; whilst the second, which is of a resinous quality, does not possess the same property. In order to separate the one from the

* From the *Dictionnaire Technologique*.

other, it is sufficient to wash the carthamus under a small jet or stream of water, which removes the yellow colouring matter. When the water becomes colourless, the washing may cease, and the carthamus be macerated in a weak solution of soda: the bath soon becomes coloured of a darkish yellow red. When it is thought that the maceration has been sufficiently prolonged, it is passed through a sieve or filter; then carded cotton is plunged into it, and a vegetable acid is added, until the alkali is completely saturated. Lemon-juice is generally preferred, because it renders the colour more vivid. The carbonic acid which is disengaged during the saturation produces a slight effervescence, which requires attention, lest the liquor should flow over the edges of the vessel: it must be continually stirred, and the acid be added by degrees. The colouring matter, which was only held in solution by the alkali, separates from the solution as the saturation is effected; but, instead of being deposited on the sides of the vessel, it fixes itself, in preference, on the cotton, with which it has an affinity. The first washing of the carthamus can never sufficiently clear it of the yellow-colouring matter; a portion of it is always found in the alkaline solution, and rather injures the tint of the cotton which has served to collect it; but this is removed with facility by further washings. When the cotton has been well washed, it is again treated with a fresh solution of carbonate of soda; and a bath is obtained, containing only the red-colouring matter, perfectly pure. When it is used for dying, the stuffs are plunged into it; and, as in the former case, a sufficient quantity of lemon-juice, or tartaric acid, is added. If it is wished to separate the colouring matter as it is employed in making bunches of artificial roses, the manipulation is exactly the same; with this difference only, that the vessel does not contain any cotton on which the colouring matter might fix, and it therefore deposits itself by degrees in very minute particles: the liquor is then decanted, the precipitate is washed, and distributed into several saucers; and assumes, on drying, a kind of greenish-coppery tint, affording, by reflected light, an appearance somewhat like that of cantharides.* The rose-coloured tint is developed as soon as water is added to it. This colouring matter, mixed with the chalk of Briancouf reduced to an impalpable powder, constitutes the *vegetable rouge* or paint. R.

On Artificial Stone Chimney-pieces. By Mr. Charles Wilson.

From the Transactions of the Society of Arts, &c.

Take two bushels of sharp drift-sand, and one bushel of sifted slaked quick-lime; mix them together with as little water as possible, and beat them well up together for half an hour every morning, for three or four successive days, but never wet them again after their first mixture.

* These saucers are sold in this country, in the colour shops; and are known by the name of *pink-saucers*.

† In England, steatite, or French chalk, reduced to fine powder, by means of Dutch rushes, is employed for this purpose.