

**A PERSIAN ROYAL PAVILION.**

At the southeastern end of the Caspian Sea, not far from Resht (which is the only harbor accessible in stormy weather, on that part of the Caspian), is a village called Enseli. It is near the borders of Russia, and was selected by His Oriental Majesty the Shah as the locality for a temporary marine residence, wherein he could take a solemn leave of his dominions, and say farewell to his wives before his journey to Europe four years ago. We publish herewith an engraving of this structure, which was built in great haste and is very slightly put together. The material is chiefly adobe or sundried brick; and the clay was so poor that the building is already returning to dust, a fate which overtakes many buildings in that part of the world. The one-storied houses, which are common in Persia, of course suffer less than such a building as is shown in our engraving; and the danger to the inhabitants of the upper stories of the pavilion is obviously very great. So, with true Oriental sagacity, the upper rooms are allotted to the women of the family, an additional reason for this arrangement being that the roof under the blazing sun makes the top stories exceedingly uncomfortable from the heat.

In his journey eastward to Enseli, the Shah was accompanied only by a detachment of his wives, each of the ladies being carried in a tight box suspended on one side of a mule. With unusual forethought, a small opening had been made in front of the box to admit light and air; and each box was so tightly packed that the occupant was obliged to forego the use of her limbs, and could not even sneeze without disturbing the lady on the other side of the animal. A few carpets were all the furniture thought necessary for the ladies' accommodation; and an appearance of royal pomp was imparted by the presence of a few regiments of soldiers. When the solemn farewell ceremony was over, the wives were boxed up again and sent back, much to their disappointment, as they had indulged a hope of seeing Europe; but, it is stated, the Emperor of Russia objected to such a cavalcade crossing his territory.

**Staining Wood.**

In most cases the staining of wood may be effected so as to produce very bright colors without any previous preparation, as, generally speaking, the mordants employed have a bleaching action on the wood. But in many cases, in consequence of the quality of the wood under treatment, it must be freed from its natural colors by a preliminary bleaching process. To this end it is saturated as completely as possible with a clear solution of 17½ ozs. chloride of lime and 2 ozs. soda crystals, in 10½ pints of water. In this liquid the wood is steeped for half an hour, if it does not appear to injure its texture. After this bleaching it is immersed in a solution of sulphurous acid to remove all cases of chlorine, and then washed in pure water. The sulphurous acid which may cling to the wood in spite of washing does not appear to injure it, or alter the colors which are applied.

**Red.**—The wood is plunged first in a solution of 1 oz. of curd soap in 35 fluid ozs. of water, or else is rubbed with the solution, then magenta is applied in a state of sufficient dilution to bring out the tone required. All the aniline colors behave very well on wood.

**Violet.**—The wood is treated in a bath made up with 4½ ozs. olive oil, the same weight of soda ash, and 2½ pints of boiling water, and it is then dyed with magenta, to which a corresponding quantity of tin crystals have been added.

**Blue.**—Prepare as for violet and dye with aniline blue.

**Green.**—Mordant the wood with red liquor at 1° B. This is prepared by dissolving separately in water 1 part sugar of lead and 4 parts of alum free from iron; mix the solutions and then add one thirty-second of a part of soda crystals, and let settle over night. The clear liquor is decanted off from the sediment of sulphate of lead and is then diluted with water till it marks 1° B. The wood when mordanted is dyed green with berry liquor and extract of indigo, the relative proportions of which determine the tone of the green.

The wood, mordanted, as above directed, can also be dyed a fine blue with extract of indigo.

**Yellow.**—Mordant with red liquor and dye with bark liquor and with turmeric.

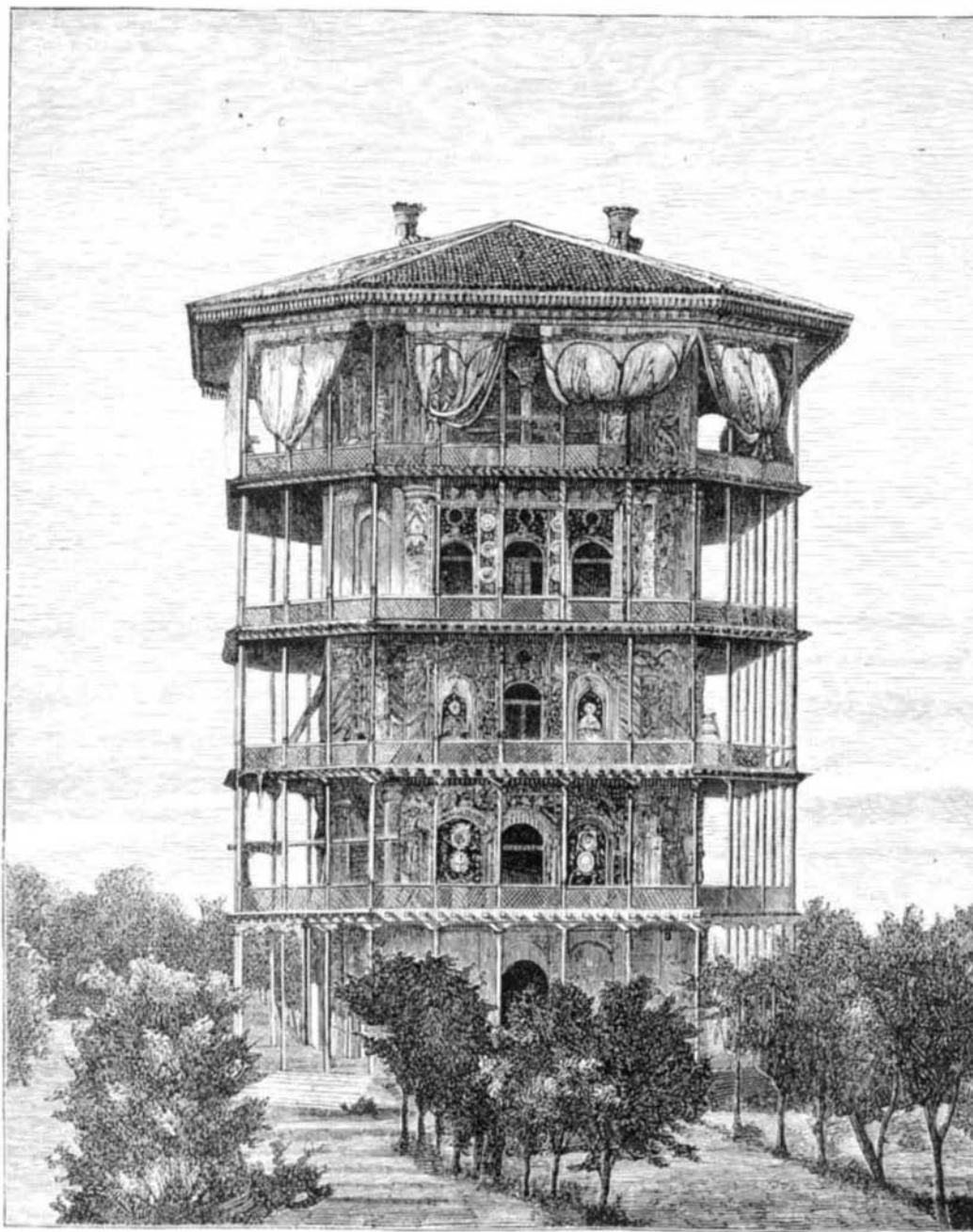
Besides the aniline colors cochineal gives a very good scarlet red upon wood. Boil 2 ozs. of cochineal, previously reduced to a fine powder, in 35 ozs. of water for three hours,

and apply it to the wood. When dry, give a coating of dilute chloride of tin, to which is added a little tartaric acid, 1 oz. of chloride of tin, and ½ oz. of tartaric acid in 35 fluid ozs. of water. If instead of water the cochineal is boiled in a decoction of bark (2 ozs. bark to 35 ozs. of water), and the chloride of tin is used as above, an intense scarlet, and all shades of orange, may be produced according to the proportions.

**Brown.**—Various tones may be produced by mordanting with chromate of potash, and applying then a decoction of fustic, of logwood, or of peachwood.

**Gray.**—Grays may be produced by boiling 17 ozs. orchil paste for half an hour in 7 pints of water. The wood is first treated with this solution, and then, before it is dry, steeped in a beck of nitrate of iron at 1° B. An excess of iron gives a yellowish tone; otherwise a blue-gray is produced which may be completely converted into blue by means of a little potash.

**Black.**—Boil 8½ ozs. of logwood in 70 ozs. of water, add 1



TEMPORARY RESIDENCE OF THE SHAH OF PERSIA.

oz. blue stone, and steep the wood for twenty-four hours. Take out, expose to the air for a long time, and then steep for twelve hours in a beck of nitrate of iron at 4° B. If the black is not fine, steep again in logwood liquor.—*Dingler's Polytechnisches Journal.*

**Boring for Coal in Switzerland.**

A remarkable example of rapidity in deep boring has recently been furnished by the first bore hole put down by a company formed to search for coal in Switzerland. A depth of 1,422 feet was reached in two months, including the re-boring of the upper 640 feet from 3½ inches to 7 inches in diameter. The work was done, including all delays, at a rate of over 1,000 feet per month, the highest speed being nearly 77 feet in 24 hours. The results obtained were negative, the section showing about 1,200 feet of Permian strata resting upon old crystalline rocks; but the trial is only the first of a series.

**The Scientific American.**

“This has been for years the best paper of its kind published in America, but it never was so attractive and useful before as during the year 1877. Every week there are from six to ten engravings of new machines and inventions, which are especially prepared for it, and which are not found in any other publication. Those who are engaged in any mechanical pursuit will find this paper of great value. In excellency of illustrations and matter, quality of paper, and mechanical execution, it surpasses all others of its kind; besides, it is a weekly.”—*Missionary Visitor.*

**Preparing Garments with Cotton Warps for Dyeing.**

In many dye works articles before being dyed are cleaned with soap, and then rinsed. Although this treatment cannot be pronounced irrational or bad, it is not to be recommended to every dyer. An inequality in the manner of rinsing the washed garments often produces spots or shades during dyeing. In dye works not provided with soft water other means are used in place of soap. The best agent for cleansing is carbonate of soda. A somewhat concentrated lye generally removes the greater part of the spots.

To cleanse twenty garments for dyeing, a beck of the needful size is filled with water at 155° Fah., in which 4 lbs. 6 ozs. of soda crystals are dissolved. In this the goods, well spread out, are allowed to steep for four or five hours. At the end of this time the garments are taken out, one by one, and spread upon a very clean table close at hand. A strong and hot lye of soda is prepared in a pail, and such parts as are spotted with grease, etc., are treated therewith, with the aid of a hard brush, till they disappear.

To remove hardened spots of stearin, paraffin, tar, resin, etc., benzine (not benzoline) must be used. A rubber is steeped with it and applied to the spot till it is completely removed. The rubber, thus used instead of the brush, is formed of a piece of woollen cloth rolled tightly up, and covered with a small piece of cotton or linen. The whole must be large enough to be grasped firmly in the hand.

In well organized dye houses no garment is washed in rivers, but in properly arranged washing machines.

**Green on garments with cotton warps (11 lbs.):** Mordant for an hour at a boil, with 2 lbs. 3 ozs. alum, 8½ ozs. tartar, 4½ ozs. sulphuric acid, 6½ ozs. extract of indigo, 2 lbs. 3 ozs. fustic. Put it then in a fresh beck, containing 17½ ozs. alum, and the same weight of fustic. Work for an hour, lift, and enter in a fresh beck, with 2 lbs. 3 ozs. sumac. Leave it in this latter beck for two hours, turning it from time to time. Lift, wring, and dye in a fresh cold beck, with methyl green. For deeper shades extract of logwood may be added.

**Brown on garments with cotton warps (11 lbs.):** Make a decoction of 2 lbs. 3 ozs. catechu in water; decant the clear liquid, and add to it the solution of 5 ozs. bluestone. Enter the garment, spread out, and steep for an hour. Lift, press, and enter in a boiling beck, made up in the proportion of 1 lb. 10 ozs. argol, and 17½ ozs. bichromate of potash. Boil for half an hour, then lift, and dye for the same length of time with 2 lbs. 3 ozs. peachwood, and 17½ ozs. fustic. After boiling for half an hour, lift, and examine if the shade is as required. If not, it may be reached by an addition of peachwood, fustic, or logwood, keeping up the boil. If the cotton is not of the same shade as the wool, 3½ to 5½ ozs. of alum is added to the dye beck, and the goods are re-

entered, but not boiled.

**Black on garments with cotton warps (11 lbs.):** Dissolve 8½ ozs. solid extract of logwood in boiling water, and boil the goods in this. Lift and boil for 45 minutes in a fresh beck, made up with 8½ ozs. bluestone, and 12 ozs. copperas. Return to the first logwood beck, to which 5½ to 7 ozs. of soda ash has been added. If the color is not full enough, add a little more extract of logwood. Sadden with 2½ to 3½ ozs. copperas.—*Teinturier Pratique.*

**Testing Flour.**

The rise in price of breadstuffs caused by the declaration of war by Russia against Turkey may lead unprincipled men to imitate the adulteration of flour practised in some foreign countries. An easy method of detecting such adulteration, according to Jegel, is to mix the flour with chloroform. The chloroform exerts no chemical action upon the flour; but being specifically heavier than flour and lighter than the earthy adulterants, the former floats upon the chloroform and the adulterant sinks. On shaking up a sample of flour in a test tube of chloroform and allowing it to settle, a sediment will indicate adulteration. On decanting the turbid liquor, the sediment may be washed and weighed or tested quantitatively.

A CORRESPONDENT, D. J. W., suggests that the line rockets used for communicating with ships wrecked on the coasts might be utilized, in cases of fire in the upper stories of tall buildings, to carry a cord into a window, to which a stout rope, or even a ladder, could be afterwards hauled up.