

previous to being taken to the place, so that little else will be required on the spot than to fit the finished materials together. The whole of the structure will be supported on cast iron columns, and the extensive roof will be sustained without the necessity for interior walls for this purpose. If removed after the exhibition, the materials may be sold far more advantageously than a structure filled in with bricks and mortar, and some of the materials would bring in full half of the original outlay. Complete ventilation has been provided by filling in every third upright compartment with luffer boarding, which would be made to open and shut by machinery; the whole of the basement will be filled in after the same manner. The current of air may be modified by the use of course open canvas, which by being kept wet in hot weather, will render the interior of the building much cooler than the external atmosphere. In order to subdue the intense light in a building covered with glass, it is proposed, to cover all the south side of the upright parts, together with the whole of the roofs outside, with calico or canvass, tacked on the ridge rafters of the latter. This will allow a current of air to pass in the valleys under the calico, which will, if required with the ventilators, keep the air of the house cooler than the external atmosphere. To give the roof a light and graceful appearance, it is to be on the ridge and furrow principle, and glazed with sheet glass. The ridge and the valley rafters will be continued in uninterupted lines the whole length of the structure, and be supported by cast iron beams. These beams will have a hollow gutter formed in them to receive the rain water from the wooden valley rafters which will be thence conveyed through the hollow columns to the drains. These drains will be formed of ample dimensions under the whole of the pathways throughout. The floors of the pathways to be laid with trellis-boards three-eighths of an inch apart on sleeper joists. This kind of flooring is both economical and can always be kept clean, dry, and pleasant to walk upon. The gallery floors are to be close boarded. No timber trees need be cut down, as the glass may fit up to the boles of the trees, leaving the lower branches under the glass during the exhibition; but Mr. Paxton does not recommend this course as, for the sum of £250 he would engage to remove and replace every living tree on the ground, except the large old elms opposite to the Prince's gate. Only a few years ago the erection of such a building as the one contemplated would have involved a fearful amount of expense; but the rapid advance made in this country during the last forty years, both in the scientific construction of such buildings and the cheap manufacture of glass, iron, &c., together with the amazing facilities in the preparation of sash-bars and other wood-work render an erection of this description, in point of expense, quite on a level with those constructed of more substantial materials.

NEW RIFLE.—Mr. P. W. Porter, of Memphis, has made a self-loading rifle. It has a revolving

wheel perforated by forty chambers. The discharge of one chamber loads the adjoining one. This is an improvement on Colt's revolver, and will be of great benefit to the Californian adventurers.

NEW LIFE-PRESERVING MATTRESSES.

A series of experiments have been made in the river Clyde, Scotland, with mattresses which have been recently patented in that country by a Mr. R. W. Laurie, of Glasgow, as "Life Preservers." They are made of water-proof materials, not on the principle of air-tight tubes or cushions, which are liable to be destroyed by the smallest puncture, but on the principle of air-cushions and buoyant materials combined, for although a rent or puncture should be made, the mattress will still float. They are made of a series of tubes of vulcanized India rubber, stuffed with granulated cork, to prevent them from collapsing, and from external injury. The way in which the mattresses were made was to have three or four water-proof tubes filled with air and partially stuffed with small pieces of cork. These air pipes are connected together, and stuffed around the sides and over the top and bottom with layers of cotton wool, (which is almost water-proof), and over the whole is a covering of vulcanized India rubber, gutta percha, or any water-proof material. On the sides are attached strong cords to hold on. The surface is quite smooth, and it is as easy to recline on one of them as on a hair mattress. The invention is applicable to footstools, pillows, and other kinds of furniture belonging to steamboats or sailing vessels. We commend this invention to our steamboat and ship companies. Such kinds of life-preserving apparatus should be used on all sailing vessels. Captain Seely of this city has an apparatus of his own invention similar to this, which we have seen tested as a life-preserving raft, and boat, with perfect success.—*Scientific Am.*

COLOR OF DWELLINGS.

We can give no minute directions for painting, not having learned the art of a painter; but there are a few observations we have made which will be worth noticing. And first, the color of the building should be regulated by its situation. A tall house standing plump with the street will not bear the same hue with a low neat cottage, embowered in trees and vines. The first will bear a dark color. Its prominence thrusts it out on the sight, and if it be of a bright glaring hue, it will blind the eyes of every beholder. On the other hand, the half hidden cottage, painted of a dark brown, reminds one only of a prison or barn; whereas it should wear an aspect of light and cheerfulness. If deeply embowered, an absolute white is best. If less, the white may be softened or neutralized by a mixture with it of some other color. A friend of ours had a white house, situated as above described; but, for the sake of prevailing fashion, had it painted a dismal brown, to his utter chagrin then and ever since.

The chief difficulty in getting a neutral color is