

LAUNDRY, as if *Lavanderie*, Fr. the room in which clothes are washed; or, in a more restricted and appropriate sense, as the term is used in the subsequent article, it denotes the place where clothes are mangled, dried, and ironed. Under this head we shall include the *wasch-hause*, as it is necessarily connected with the laundry. Washing and getting up linen are employments of great importance in most families, and they have engaged the attention of many ingenious mechanics, who have contrived various washing-machines for the abridgment of labour and expence in this department of domestic economy. Most of the machines hitherto used are objectionable on many accounts, but principally because they operate by *friction*, instead of *pressure*. When the linen is properly prepared for washing, it may be thoroughly cleaned by *pressure* only. Rubbing it with the hands, or by any machine that operates by friction, injures it more than the wear it sustains in actual use. Hence it follows that the best method of cleansing foul linen is, first, to prepare it for the operation by soaping it where necessary, and putting it into soak for at least twelve hours. This will loosen the filth, and decompose the grease and other matter with which it is soiled, and it will then be readily removed by alternately soaking, and squeezing or pressing. The desideratum, therefore, is, to construct a machine that would, by a rotative motion, or an up-and-down stroke, (like pumping) alternately press and saturate the linen with

L A U N D R Y.

the suds, and lastly with clear water. The machine that comes nearest to this, of any that has fallen under our notice, is one invented by Mr. Gould.

We shall now describe a wash-house and laundry, constructed upon scientific principles by John Bentley, esq. the present possessor of Highbury House, near London, being the completest of the kind we have met with.

The wash-house is 24 feet long, nine feet broad, and eight feet high. It is furnished with a filtering machine, a cistern for filtered water, two coppers, a copper cullender, a jack with pullies, six washing tubs, a stone sink, a table, a wringing machine, and a pump of hard water.

The floor is rough Yorkshire-stone, laid upon a sharp current. Over two-thirds of the roof is a lead cistern containing 40 hogheads of rain water, supplied from the adjoining buildings. The other third of the roof is conical, furnished with a cylinder for a steam-vent, which opens and shuts at pleasure. When open, besides emitting the steam, it admits both light and air. The cistern for filtered water holds 200 gallons, and supplies, by pipes and cocks, the copper tubs and sink.

The first copper is fixed so that the top of it is level with the bottom of the cistern, and the bottom of it is level with the top of the other copper, and the tops of the tubs and sink, all which it supplies with hot water. The tubs, coppers, and sink, are supplied with cold water from the cistern. Each of the tubs has a brass plug at bottom, to discharge the foul water. A nine-inch board runs along the front of the tubs and sink on the ground, to prevent the splashing of the water when discharged. Each tub is furnished with a small wooden strainer for soap.

The second copper is for boiling the linen, and has a copper cullender to hold the linen, which is drawn up by the jack and pullies. The jack has a paul and ratchet wheel to keep the cullender suspended over the copper till the water is drained from the linen into the copper, which can then be turned out altogether into the rinsing-tub. By this contrivance, the usual mode of poking the linen out with a stick (which frequently damages it) is avoided. At the bottom of this copper is a large brass cock for discharging the suds when they are done with.

Though the six tubs are supplied with both hot and cold water, there are only six cocks to the whole, one cock supplying two tubs, by means of a screw-joint in the nozzle, which turns at pleasure to either tub. There is also a screw-joint between the key and pipe in each cock, by which means it can at any time be repaired without the assistance of the plumber.

The filtering machine performs its operation by ascent. It has three cocks in one pipe. The uppermost is for regulating the quantity of water to be filtered, which can be varied at pleasure from 50 to 500 gallons in a day. The other is for cleansing the machine when saturated with filth, which is accomplished by only turning the cock; and will, in a few minutes, be as clean as it was at first, the mud, &c. being discharged at the third or middle cock, which also serves to draw unfiltered water when required. Under the cistern is a receptacle for coals, and under the filtering machine a place for pails and mops. Both cisterns have a surplus water-pipe to prevent running over, and in which are also plugs to discharge all the water when needful.

The table hangs to the wall, and may be put up and down at pleasure. It is for sorting and soaping the foul linen, &c.

The laundry adjoining the wash-house is 18 feet square, and 11 feet in height. It has two windows in front. The floor is level, of rubbed Yorkshire-stone, laid upon brick piers,

to keep it perfectly free from damp. It is furnished with one of Baker's large mangles; an ironing-board 12 feet by three feet, with four large drawers for the ironing-cloth, iron-holders, &c. with room for the clothes-baskets underneath; a stove or drying-closet, eight feet by six feet; a furnace for heating the closet and the irons, and a place for coals under the floor, close by the furnace. The closet contains four wooden horses, each with five rails or bars. Each horse runs in and out of the closet upon two small iron-wheels, upon an iron rail-way. One horse holds six shirts, or a proportionable quantity of other linen, and the whole will dry off as much and as speedily as six women can wash in succession. It hardens the linen after being ironed, and is also useful for airing feather beds, &c. The linen, whilst drying, is kept free from smoke and dust, and there never can be any steam in the room.

The furnace for heating it is similar to those under coppers or in a hot-house, immediately over which, before it enters the flue to the closet, is an iron oven for heating the irons. The flue is continued round the bottom of the closet, and carried up the end of the building. The top of the horizontal part of the flue is of cast-iron plates; iron being a good, and brick a bad conductor of heat. A few inches above these iron plates, the iron rail-way before mentioned is laid, between which and the flue there is a flooring of wire-work. This prevents any accident from the casual falling of linen upon the flues, but does not impede the ascent of warm air. Level with the rail-way, inside the closet, there is an opening 15 inches square, communicating with the external air. The ceiling of the closet is in the form of a hopper, terminating in a funnel of the same diameter (15 inches) as the external air-vent. Both these vents are furnished with a sliding door, which opens and shuts, as required, by pulley cords.

The principle upon which it acts is by heating it to a degree sufficient to excite a strong evaporation from the wet linen, and carrying off the moisture by means of the two vents. During the time of its acquiring this heat, both the vents, and also the horses, are kept closely shut, so that the closet is nearly air-tight. As soon as the proper degree of heat is obtained, both the vents are to be opened, when a strong current of air rushes in at the lowest, carrying up all the vapour from the linen through the upper vent or funnel, when the drying will be very speedily completed. The linen is then removed, a fresh supply put in, and the operation repeated as before, beginning by closely shutting all up.

Besides the dispatch and economy attending this wash-house and laundry, the health and comfort of those employed in them are greatly promoted, by being entirely free from the pernicious effects of damp vapour, and in not being incommoded by any extra heat in hot weather.

Since this article was written, the gentleman above mentioned has made a considerable improvement in the wash-house. He has constructed an apparatus for performing the operation by steam. Although it is not yet (December 1811) quite completed, it is sufficiently so to have ascertained by experiment, that every species of white linen may be better cleaned this way than it is possible to do it by the hands, or any machine hitherto invented. We say white linen, because the operation proves to be so powerful, that it discharges the colour from all dyed and printed articles that have been tried with it.

At the end of the wash-house a strong iron-boiler is fixed, three feet six inches long, one foot eight inches wide, and two feet nine inches deep, with fittings up the same as those for steam-engines, viz. a feeding-pipe with regulator, a

L A U

mercury gauge-tube, a three-inch steam-tube, two observation cocks, a safety valve, and a discharging pipe. From the steam-tube, a pipe of $1\frac{1}{2}$ inch bore is continued the whole length of the building; and from this main steam-pipe, others of smaller dimensions, from $\frac{1}{8}$ to $\frac{1}{2}$ inch diameter, are laid on the different steaming vessels. These may be either of wood, tin, or copper; but the latter is certainly best, for the action of steam is so powerful, that it will soon render both wood and tin useless. They must be fitted with a loose grating inside, about two inches from the bottom; a cock at one end, to admit the steam; and another at the other end, quite at the bottom, to discharge the foul water. The process is as follows: Soap the linen where it is very dirty, and put it to soak; then place the linen upon the grating in the steam vessel; cover it up, and turn on the steam. The discharging cock must be occasionally opened, to draw off the condensed steam; and when it is found to come off perfectly clear, which it will do in half an hour, or less, the operation is finished, and the articles will come out perfectly clean, and most beautifully white.

By this simple and easy process, the drudgery of washing is entirely done away; and the saving in time, soap, and other expences, is greater than can well be conceived. The saving of water in many situations is a matter of consequence; but what is of still more importance, the linen will last double the time it otherwise would do: for as there is neither pressure nor friction, it cannot be injured in this process.

Washing by steam has been practised, but never before by this method. The way it has been done has been by steaming the linen *in the fuds*. Hence it is evident that the filth that is forced out of the linen is mixed with the fuds, and is again dispersed equally all through the linen; so that repeated changes of soap and water must be had recourse to, before the linen is made thoroughly clean. But by this new process, the linen being put into the steaming vessels, without any other liquor than it retains on being taken out of the soaking tubs, every particle of matter which is dislodged from it instantly subsides to the bottom of the vessel, and never can again come in contact with the linen. Our readers must excuse the prolixity of this article, on account of its great importance and usefulness in domestic economy to every family.

Note.—The boiler above described also heats an hot-house in an adjoining garden, besides boiling a copper, and thus does the work of six fires.