

the hope that I may assist any who may seriously think it worth their while to make an effort to rescue the art of dressing from the domain of Fashion, and place it under the laws and direction of Reason.

### THE PHILOSOPHY OF BATHING.

There are in the human body 2,700,000 glands and 7,000,000 pores, from 2,000 to 3,000 to the square inch, and one-eighth of an inch in depth—making twenty-eight miles of human drainage!

Five-eighths of all that is eaten passes off through these pores, and but one per cent. of all the perspirable matter consists of solid substances. The change in the muscles, tissues and bones occurs in from one to three years, and in the entire body in from six to seven years. If this old matter be retained, it causes disease—it is a real virus.

Some diseases are relieved almost instantly by opening the pores. Diarrhoea is frequently cured; matter from mucous membrane is expelled through the skin; tobacco, opium and mercury have been thus excluded. Whatever through the skin the body can expel, it can absorb. Hold the end of your finger in spirits of turpentine—it is absorbed; goes through the system, and may be detected by its odor. Constant handling of arsenic has produced death by absorption.

The doctor relates an account of a gentleman in Barbadoes, who was in the habit of daily intoxication, and had constructed a tub, with a pillow to accommodate his head, and when in this state was placed therein, and the tub was filled with cold water, in which he reposed for two or three hours, and would then arise refreshed and invigorated. When his wife or family required him, they would wake him up by taking out the plug, and allow the water to escape, when he would pleasantly complain of the "loss of his bedclothes."

Dr. Crook, a student of Sir Astley Cooper, once poisoned a dog, which immediately plunged into a neighboring river, and remained for some time with his body entirely submerged, after which he left his watery hospital and ran home cured. Dogs have been repeatedly cured of hydrophobia by holding them in water.

Thirst has often been relieved by immersion, even in salt water, the salt, probably, being excluded during the process of transudation. Mutton bones, boiled a long time in soft water, with a slight addition of calcined potash, made fresh every day, have imparted to the water such nourishing properties that the patient bathing therein daily, and taking nothing save a few teaspoonfuls of tea twice a day, and one tablespoonful of tonic syrup, gained 15½ pounds in as many weeks, simply by absorption.

Perspiration is eliminated from all parts of the body, and the excretions, cutaneously forced, may from some parts of the surface, be re-admitted to the circulation, and if poisonous or injurious, whenever the blood visits it, it must carry disease. Nature keeps her side of the interior clean and soft, and demands an unobstructed exterior, and exudes to the surface the refuse matter for removal by bathing and evaporation. A dry, light powder, mixed with sweat and oil from the glands, and dust, clogs upon the pores. As all parts of the

cuticle have pores, as well as the face and arms, all the body should be bathed at least one-third as many times as those are.

On board a slave-ship the small pox suddenly broke out. Medical aid was powerless. Every morning the dead in great numbers were thrown overboard. In the midst of terror and anguish, the negroes cried out, "Let us do as we do in our own country with the sick," and permission being given, they gently lowered their sick companions into the sea, letting them remain a few minutes, and then raised them, and placed them in the sunlight on deck until dried, when the disease left them and they were cured.

At Charleston, S. C., during the recent epidemic, among several northern mechanics who had gone thither in company, but one escaped the prevailing fever, and he alone bathed frequently, and never slept at night in any of the clothes worn by day. The others cast off only the outer garments, slept in their perspiration, and died.

Cold water is used and prescribed much more than formerly, though many would think a physician not worth sending for who should prescribe so simple a remedy. Abernethy's advice to one of his wealthy patients was—"Let your servant bring to you three or four pailfuls of water, and put it into a washtub. Take off your clothes, and get into it, and you'll recover." "This advice of yours seems very much like telling me to wash myself," said the patient. "Well," said Abernethy, "it is open to that objection."

Dr. Currie used fresh water generally, and by long and careful experience, he found that bathing prevented or cured most diseases.

## Machinery and Manufactures.

### TURBINE WATER WHEELS.

By C. SCHIELE.

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The construction of a practically perfect turbine wheel is a subject which severely taxes the intelligence of him who undertakes to solve that problem, the points to be watched, or the conditions to be realised being so numerous and sometimes at variance with each other. We will now pass in review the various conditions, the realization of which should be aimed at in the construction of turbines, and these are as follows:—

1st. Economical adjustability to the variation of water quantities, or to the variation of power.

One great desideratum is to realise the same percentage of useful effect, whether the wheels be worked to its full power or not, that is, whether the wheel consumes its maximum quantity of water or any smaller quantity; a water engine, in fact, ought to be like a steam-engine. In the case of the latter when there is little work, less steam ought to be consumed, and in a similar manner should the former admit of the adjustment of the flow of water in proportion to the work to be performed; and, moreover, it should do this by means of self-acting apparatus, as is almost invariably done in the steam-engine. At the same time the smaller quantity of water should be used to the greatest possible advantage, or in other words should yield the same