vessel in which he stands, no motion will ensue ; for as much as he presses in one direction with the pole, just so much does the action of his feet, on which the pressure of the pole must ultimately rest, push the vessel the other way : but if, instead of the side of the vcssel, be pushes the pole against the shore, then only one force acts upon it, namely, that of the feet ; which being resisted only by the water, the boat begins to move from the shore. Now the very same thing takes place in swimming, whether the animal be man, quadruped, bird, or fish. If we consi­der the matter simply, we may suppose an animal in such a situation that it could not possibly swim : thus, if we cut off the fins and tail of a fish, it will indeed float in conse­quence of being specifically lighter than the water, but cannot make any progressive motion, or at least but very little, in consequence of wriggling its body ; but if we al­low it to keep any of its fins, by striking them against the water in any direction the body moves the contrary way, just as the boat moves the contrary way to that in which the oars strike the water. It is true, that as the boat is but partly immerged in the water, the resistance is compa­ratively less than when a frog or even any other quadruped swims; but a boat could certainly be rowed with oars though it were totally immerged in water, only with less velocity than when it is not. When a man swims, he in like manner strikes the water with his hands, arms, and feet ; in consequence of which the body moves in a direc­tion contrary to the stroke. Upon this principle, and on this only, a man may either ascend, descend, or move obliquely in any possible direction, in the water. One would think, indeed, that as the strength of a man’s arms and legs is but small, he could make but very little way by any stroke he could give the water, considering the fluidity of that element. Nevertheless it is incredible what expert swim­mers will perform in this way ; of which Dr Forster gives a most remarkable instance in the inhabitants of Otaheite, whose agility, he tells us, was such, that when a nail was thrown overboard, they would jump after it into the sea, and never fail to catch it before it reached the bottom.

As to the practice of swimming, there are but few direc­tions which can be given. The great obstacle is the na­tural dread which people have of being drowned ; and this it is impossible to overcome by any thing but accustoming ourselves to go into the water. With regard to the real danger of being drowned, it is but little ; and on innumer­able occasions arises entirely from the terror above men­tioned, as will appear from the following observations by Dr Franklin.

“ lst, That though the legs, arms, and head, of a human body, being solid parts, are specifically somewhat heavier than fresh water, yet the trunk, particularly the upper part, from its hollowness, is so much lighter than water, as that the whole of the body, taken together, is too light to sink wholly under water, but some part will remain above until the lungs become filled with water ; which happens from drawing water into them instead of air, when a person in the fright attempts breathing while the mouth and nos­trils are under water.

“ 2dly, That the legs and arms are specifically lighter than salt water, and will be supported by it ; so that a hu­man body would not sink in salt water though the lungs were filled as above, but from the greater specific gravity of the head.

“ 3dly, That therefore a person throwing himself on his back in salt water, and extending his arms, may easily lie so as to keep his mouth and nostrils free from breathing ; and by a small motion of his hands may prevent turning, if he should perceive any tendency to it.

“ 4thly, That in fresh water, if a man throws himself on his back near the surface, he cannot long continue in that situation, but by a proper action of his hands on the water.

If he uses no such action, the legs and lower part of the body will gradually sink till he comes into an upright posi­tion, in which he will continue suspended, the hollow of the breast keeping the head uppermost.

“ 5thly, But if in this erect position the head is kept up­right above the shoulders, as when we stand on the ground, the immersion will, by the weight of that part of the head that is out of the water, reach above the mouth and nos­trils, perhaps a little above the eyes ; so that a man cannot long remain suspended in water with his head in that po­sition.

“ Gthly, The body continued suspended as before, and upright, if the head be leaned quite back, so that the face looks upwards, all the back part of the head being then un­der water, and its weight consequently in a great measure supported by it, the face will remain above water quite free for breathing, will rise an inch higher every inspiration, and sink as much every expiration, but never so low as that the water may come over the mouth.

“ 7thly, If therefore a person unacquainted with swim­ming, and falling accidentally into the water, could have presence of mind sufficient to avoid struggling and plung­ing, and let the body take this natural position, he might continue long safe from drowning, till perhaps help would come ; for as to the clothes, their additional weight while immersed is very inconsiderable, the water supporting it ; though when he comes out of the water, he would find them very heavy indeed.”

The method of learning to swim is as follows. The per­son must walk into water so deep that it will reach to the breast. He is then to lie down gently on the belly, keep­ing the head and neck perfectly upright, the breast advan­cing forward, the thorax inflated, and the back bent ; then withdrawing the legs from the bottom, and stretching them out, strike the arms forwards in unison with the legs. Swim­ming on the back is somewhat similar to that on the belly, but witli this difference, that although the legs are employ­ed to move the body forwards, the arms are generally un­employed, and the progressive motion is derived from the movement of the legs. In diving, a person must close his hands together, and, pressing his chin upon his breast, make an exertion to bend with force forwards. While in that position, he must continue to move with rapidity under the surface ; and whenever he chooses to return to his former situation, he has nothing to do but to bend back his head, and he will immediately return to the surface.

It is very common for novices in the art of swimming to make use of corks or bladders to assist in keeping the body above water. Some have utterly condemned the use of these ; Dr Franklin however allows that they may be of service for supporting the body while one is learning what is called the *stroke,* or that manner of drawing in and strik­ing out the hands and feet that is necessary to produce pro­gressive motion. “ But,” says he, “ you will be no swimmer till you can place confidence in the power of the water to support you : I would therefore advise the acquiring that confidence in the first place, especially as I have known se­veral who, by a little of the practice necessary for that pur­pose, have insensibly acquired the stroke, taught as it were by nature.

“ The practice I mean is this. Choosing a place where the water deepens gradually, walk coolly into it till it is up to your breast : then turn round your face to the shore, and throw an egg into the water, between you and the shore ; it will sink to the bottom, and be easily seen there if the water is clear. It must lie in the water so deep as that you cannot reach it to take it up but by diving for it. To en­courage yourself in order to do this, reflect that your pro­gress will be from deeper to shallower water ; and that at any time you may, by bringing your legs under you, and standing on the bottom, raise your head far above the wa-