

teries, which must be overcome before any blood can enter them. Secondly, the arteries are, in most places, so connected with many heavy parts of the body, that their dilatation cannot be effected without, at the same time, communicating motion to them. Thus, when we sit cross-legged, the pulsation of the artery in the ham, which is pressed upon the knee of the other leg, is sufficiently strong to raise the whole leg and foot at each beat of the pulse. If we consider the great weight of the leg, and reflect upon the length of the lever by which that weight acts, we shall be convinced of the prodigious force which is actually exerted by the current of blood in the artery in thus raising the whole limb. Thirdly, the winding course, which the blood is forced to take, in following all the oblique and serpentine flexures of the arteries, must greatly impede its motion. But notwithstanding these numerous and powerful impediments, the force of the heart is so great, that, in defiance of all obstacles or causes of retardation, it drives the blood with immense velocity into the aorta. The ventricle of the human heart does not contain more than an ounce of blood, and it contracts at least seventy times in a minute; so that above three hundred pounds of blood are passing through this organ during every hour that we live. "Consider," says Paley, "what an affair this is when we come to very large animals. The aorta of a whale is larger in the bore than the main pipe of the water-works at London Bridge; and the water roaring in its passage through that pipe is inferior in impetus and velocity to the blood gushing through the whale's heart. An anatomist who understood the structure of the heart, might say before hand that it would play; but he would expect, from the complexity of its mechanism, and the delicacy of many of its parts, that it should always be liable to derangement, or that it would soon work itself out. Yet shall this wonderful machine go on night and day, for eighty years together, at the rate of a hundred thousand strokes every twenty-four hours, having at every stroke a great resistance to overcome, and shall continue this action for this length