

can, by an external stimulus *excite* movement in both anterior and inferior extremities; the effects of shock have passed off. Still, as you perceive, there are no *spontaneous* movements.

I will now place the animal in a position which would be most painful, if the faculty of perception remained. Still you see that, when it has once become tranquil, the animal, if perfectly unexcited, moves no more. There is no spontaneous motion.

But now observe how slight an excitement will develop movement. I take a toe between my thumb and finger, and gently compress and irritate it. There are vigorous movements enough. Some of these movements much *resemble* voluntary movements, and so have misled some experimenters into an erroneous conclusion, that perception, design and volition still exist in the decapitated animal. Such phenomena are seen in the frog, and have recently been frequently displayed in the *alligator*.

I now place this vigorous frog, which has scarcely lost any blood from the operation of separating the cerebrum from the *modulla oblongata*, *rudely* on the back. You see the animal turn briskly on the abdomen, its natural position.

I said I placed it on its back *rudely*. In doing this I *excited* the *episodic* or incident dorsal nerves, by the rude contact with the table. I now place it in the same position softly and gently. You see that it retains that position; and this, I may add, it will do, without alteration, *if all excitement be avoided*. You may sketch its present form, leave it for the night, and come to-morrow and find that form unchanged, all vital phenomena being extinct. Yet if I irritate the animal at this part, near the sphincter ani, it will, as in similar experiments with the *alligator*, raise its foot or feet so as, apparently, to remove the source of irritation. How is this fact to be explained, except on the principle of consciousness and volition?

In every voluntary act there is the concurrence of *spinal action* with volition. This spinal action coincides and co-operates accurately with that act, and when this act of volition is absent, the spinal action assumes precisely the same form as before. Thus the decapitated fowl will fly; the decapitated ostrich, as in the case in which the Emperor Commodus struck off its head by means of a crescentiform arrow, runs on; the decapitated triton, tortoise, or snake, will slowly walk or move onwards.

Evidence of this spinal action seconding volition is afforded by some pathological facts. In writing, the thumb, in one case, is carried inconveniently, so as to make painful pressure on its edge. There is lost coincidence of action.

There is nothing more important and interesting than the principle of