

## REFLEX ACTIONS.

THE many questions of nerve associations are oftentimes passed over by the busy practitioner, and while, perhaps, the knowledge of the fact of a reflex act is all that is required from a clinical standpoint, yet the recognition of the paths of these acts is of considerable interest.

The nervous system, though complex, is a unity in that it binds together and associates organs of such different actions. Without its control each organ could not work, or if it did, would, so to speak, burn itself out. With its perfect action it renders the human organism a finely balanced machine, and, like a delicate machine, anything disturbing one part will interfere with the action not only of that part, but also with that of another and, perhaps, distant part. There are some associations which puzzle and can only be explained by examining closely the anatomy of these structures, such, for instance, as Why, in paralysis of the facial nerve of central origin, the eyelid is to a great extent unaffected, but in that of peripheral origin from cold, blows, &c., the whole side of the face is paralysed. The explanation of this is that the fibres supplying the Orbicularis with motion are derived from the third nerve root and pass by means of the facial to their distribution in the Orbicularis palpebrarum, and hence in injury to the nucleus of the facial or above it, these fibres are not disturbed, but when the facial is injured, either in the canal or at its exit, then these extraneous fibres being bound up with it are also affected, and the paralysis is complete.

When one branch of a nerve is irritated the paths of reflex acts may be direct, *i.e.*, passing through branches of the same nerve, or indirect—passing through other nerves and so affecting distant points. As examples of the first or direct course we have (1) earache associated with toothache of lower jaw. This is due to the fact that the greater part of the external meatus is supplied by the auriculo-temporal, a branch of the inferior maxillary, and the lower teeth are enervated by the inferior dental, a branch of the same trunk, hence irritation of one branch disturbs the other, and pain in the lower jaw is so often accompanied by earache. (2) The copious flow of tears resulting from a boil on end of nose or the irritation of certain odors. Here the nasal which supplies the skin and anterior portion of the mucous membrane of nose is irritated, and the nasal being a branch of the ophthalmic, the lachrymal a branch of the same