

irritation coming from the periphery?" And truly we would say the same; because, if the peripheral irritation be capable of modifying the vaso-motor centres, that is not for us a valid reason for the denial of its capability also to modify, and much more actively, the nervous cells with which the cord conductive of the irritation is in direct continuity. This hypothesis is the more rational; it is that which has been proposed by Handfield Jones, in England, Jaccoud, in France, and Wier Mitchell, in America, and it has been adopted by Charcot in his lectures on urinary paraplegia. In the experiments of Brown-Sequard in the artificial epilepsy of cobayes, the phenomena of excitation occupy the first position, but in the same experiments it was likewise observed that intense irritation of the centripetal nervous fibres sometimes determines a weakening of the nervous action in the part of the medulla corresponding to the insertion of the nerves irritated. This fact also has been confirmed for us: 1st, by the observations of Herzen, Lewisson, and Comhaire, who availed of mechanical stimuli on various species of animals; 2nd, by Vulpian, who effected his studies by means of faradization on rabbits: 3rd, by the celebrated observation of G. Echeverria on man.

Hitherto we have what has been taught by experimental pathology. In all these experimental facts it is necessary to note with Vulpian, that, with the exception of the artificial epilepsy of *cobayes*, the phenomena produced by centripetal irritation are always of short duration; a fact not observed in man, in whom, as we shall see, they are, on the contrary, more or less persistent. In the clinical facts we are about to state, we shall first speak of the phenomena of *excitability*, and afterwards of those of *inexcitability*, or *depression*.

A. *Phenomena of excitability*.—Among the various clinical manifestations derived from the irritation of the nerves of the periphery, we shall select those which seem to be derived more directly from the modification carried to the central system. And here again we shall take as our basis of the description, the nervous phenomena observed on persons who had undergone amputations. These nervous phenomena are of two orders; the one local, the other distant. The first have been described and well studied by Mitchell, under the name of the neuralgia and *choréa* of stumps. The most notable example of this sort of neuralgia is

that reported by Dr. Nott: a man whose leg had been amputated was taken with atrocious pains in the limb operated on, a short time after the operation; amputation was performed a little higher, and afterwards an inch of the sciatic nerve was excised (?) in the popliteal hollow—no relief. It was necessary to amputate the thigh; this time without good result. Dr. Nott then cut off an inch of the sciatic below the pyramidal muscle. This piece of the sciatic was the first that appeared to the naked eye sound; but microscopic examination was not made. This last operation gave a partial amelioration. Analogous phenomena are also observed following traumatism the most various. In the treatise of Swan numerous examples of these neuralgias are found; facial neuralgia from dental caries is a type of it. Mitchell relates many examples of this sort, and in all the cases he attributed the persistence of the neuralgia to an ascending neuritis. Vulpian, on the contrary, thinks these neuralgias frequently have another mechanism, and that they depend on a modification of the grey substance of the medullary centre. This hypothesis of Vulpian has the merit of explaining other facts, of which it is difficult to render a reason, as, when the neuralgia is reflected upon the nerves of the sound side; thus in one of the observations published by Hutchinson, after a wound of the cubital nerves and the median of one side, the pain was localized in the hand of the opposite side. Pirogoff, as cited by Mitchell, relates an analogous fact of a wound of the right brachial plexus. Ollivier has communicated to the society of biology an interesting observation of this sort of reflex neuralgia. A woman received a blow which bruised the fifth intercostal space. After a few months she felt in this region occasional sharp pains, and some months afterwards shooting pains, with formication and prickings on the right side of the neck, in the clavicular region, and along the arm and forearm down to the ring finger and the inner half of the middle finger. These pains disappeared in a few days under the influence of subcutaneous injections of morphia. Now this fact cannot be explained unless by admitting with Ollivier, that the contusion of the fifth intercostal nerve had determined in the cells of origin of this nerve, a morbid excitation, which was propagated to the proximate cells, and carried, by means of the sensorium, to the periphery of the nerves proceeding from it.