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of 'expectant attention' partisans. The latter will have to produce some more cogent arguments than those they hitherto have condescended to give us. Among other things, how do they account for the fact, that only *temporary* effects are produced by magnets in the excitable victims of hysteria, whilst *permanent* results are obtained from applications to the anæsthetic side (and that side only) of the more sedate, and often apparently incurable, sufferers from organic disease? A. DE WATTEVILLE.

DUMONTPALLIER ON THE CURE OF PAIN BY ACUPUNCTURE AT A DISTANCE.*

IN this note, Dr. Dumontpallier gives very briefly the result of a considerable number of experiments which he has recently been making in the wards of La Pitié hospital, on the treatment of the severe pains of neuralgia, of acute articular rheumatism, and of pleurodynia, sciatica, etc., by acupuncture, not at the painful spot, but at a corresponding spot on the opposite side of the body. These experiments had a double origin. In the first place, the experimental facts ascertained by Charcot, Dumontpallier, Westphal, Inglis and many others in hysterical and other phases of hemianæsthesia, have led to the conclusion that these phenomena of transfer of sensation from one side of the body to the other, are the consequence of a modification of the nervous centres by peripheral excitation. On the other hand, Dumontpallier, in making subcutaneous injections for the relief of severe pains, had confirmed frequently the good results obtained by Luton, Potain, and Pasquet La Brone, from the subcutaneous injection of water. It is difficult to see, in this form of subcutaneous injection, anything else than the action of a local peripheral irritation. The therapeutic use of acupuncture has been much studied by earlier writers, and Dumontpallier cites amongst Frenchmen, Professor Jules Cloquet and Dr. Dantu in 1826. A series of comparative experiments made upon persons suffering with neuralgic, rheumatic, and pleuritic pains, showed that a hypodermic injection is a complex act, consisting, first, of the irritating action of the puncture of the skin; second, of the irritating action of the fluid injection; thirdly, of the constitutional effect of any medicated fluid which may be employed. Brown-Séquard and Tholozan ascertained by experiments, published in the *Journal de Physiologie*, vol. i, page 58, and *Societé de Biologie Mémoires*, 1851 (*vide* LONDON MEDICAL RECORD, October 1879, page 393), the transmission from one side of the body to the other of peripheral modifications of the temperature; lowering of the temperature of one hand being reflected by a corresponding diminution in the temperature of the opposite hand, and so on.

Dumontpallier (*Societé de Biologie, Comptes rendus*, 1878) has also shown that a similar crossed effect is produced upon local sensibility by ether-vapour; and in the present clinical experiments he has undertaken to examine whether pain existing in one side of the body cannot be modified by irritation of the opposite side. The facts which he brings forward as the result of the inquiry are the following. In cases of neuralgia of various seat and nature, in acute articular rheumatism, in cases of rheumatic or toxic myalgia, he directed the patients to point out with the finger the painful spots. That done, he sought the similar points on the opposite side of the body, and at these latter points—most frequently free from pain—he either performed hypodermic injection with simple water, or made deep pricks with thin metal pins. These spots were most often not painful, but it was not uncommon to find that 'the corresponding point' was painful to pressure, so that there existed sometimes a latent neuralgia, symmetrical with the primary neuralgia. In the great majority of cases, immediately the puncture was made on 'the corresponding point' of the sound side, the patients declared themselves relieved, and often announced the complete cessation of pain on the diseased side, and this, it must be noted, in cases of acute rheumatic arthritis. The latter example was chosen for the demonstration, because it is hardly possible in such a case to be deceived by a patient, the articulation being red, swollen, hot, and painful both to the touch and on the least movement. Immediately the little operation was over, the patients felt that the pain was lessened or had disappeared, and they were able to effect movements of flexion and extension with joints previously immovable. 'There is no more pain', a patient would commonly say, 'and if I cannot move my joint more freely, it is because it is swollen, but I do not suffer any more'. Dumontpallier considers it unnecessary to insist further on such facts; it is sufficient to enunciate them for their value to be perceived, and anyone who places himself under the same experimental conditions can ascertain the accuracy of the report and reproduce the result. As to the physiological interpretation of the facts, he asks, how can the peripheral irritation of one side of the body relieve the pain which has its seat on the opposite side in an articulation, in the muscle, or in the skin? He answers that the spinal cord is composed of nervous cords, and of a sensori-motor centre; and, after entering into the well-known details of the structure of the spinal cord, he concludes that a peripheral irritation of one side of the body, transmitted to the sensitive cells of the corresponding side, is capable by central nervous anastomoses of modifying the sensibility of the cells on the opposite side; and this results in the cessation of the primitive peripheral pain. If the relief of the peripheral pain is due to a modification of the central sensitive cells, are we not authorised to conclude that the peripheral pains have their real seat in the nervous centres? Do we not know that in certain kinds of neuralgia there exists sometimes a painful point on the spine, indicated by pressure on the spinal apophyses? Do we not know that in various forms of myelitis peripheral pains occur which may be soothed by irritation of the painful spot, which irritation can only have a therapeutic action by affecting the sensitive centre, which is the seat of the lesion? It is then probable that many peripheral pains, as well as hysterical or organic hemianæsthesia, have their seat in the nervous centre, and the crossed analgesic action determined by peripheral irritation in the above experiments appears to afford an important argument in support of this interpretation. The conclusions of this inquiry are:—1. That subcutaneous injection with a medicated fluid is a complex operation in which a part is played, of which account may sometimes be taken, by local irritation, and a part by the fluid injected. 2. The local irritation is transmitted from the periphery to the sensitive centres, and excites in

* Sur L'Analgésie Thérapeutique Locale, déterminée par l'irritation de la région similaire du côté opposé du corps; par le Dr. Dumontpallier, Medicin de La Pitié. Paris, 1879.

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the centres a modification of which the consequence is the cessation or diminution of the peripheral pain. 3. The real anatomical seat of certain pains may perhaps be ganglionic nerve centres, and this assertion seems demonstrated by the cross effect of artificially excited peripheral irritation. 4. Irritation provoked *loco dolenti*, or in the neighbourhood of the painful point soothes or abolishes the pain. Further, when the irritation is excited at points symmetrical, but on the opposite side, to those which are the seat of pain, this irritation often suffices to determine the complete and durable cessation of pain.

[The reporter has had many opportunities of seeing these facts in the wards of La Pitié, and has notes of a number of cases of neuralgia, of severe pleurodynia, and acute articular rheumatism, in which severe local pains have disappeared; sometimes they were of long standing, as in sciatica, sometimes quite recent and very acute, accompanied by the usual conditions of swelling, redness and acute tenderness to the touch. The pains have been abolished, sometimes instantly, and more or less permanently, by acupuncture of corresponding parts of the body on the opposite side. These clinical facts are of much interest, and although the therapeutic method may prove to be of only limited and occasional value, its simplicity and the ease with which it is effected are manifest, and indicate it as a resource not to be despised.—A. M. H.]

CHAUVEAU ON RACIAL RESISTANCES TO INFECTIVE POISON.

THIS is an elaborate study by the well-known Lyons professor on the influence of origin or of race on the aptitude of animals of the ovine species to contract splenic disease. The following are the principal facts and conclusions, which are considered deducible from them.* Nine sheep of Algerian origin, and of pure Barbary race, or crossed with Syrian race, resisted all the inoculations of splenic disease performed on them. [The indigenous sheep and rabbits inoculated for the purpose of comparison with the same infectious substances, on the contrary, all died within a short space of time.] The inoculation matters were furnished sometimes by the fresh blood, the spleen, and the lymphatic glands, of sheep or of rabbits which had just died of *charbon*, sometimes by culture-fluids rich in spores, sometimes by pieces of spleen dried under conditions favourable to the conservation of the spores and the rods. All these substances tried upon subjects for comparison were of a most fully developed virulence of action. To proceed to the inoculation: subidermic punctures were made on the ears, with the point of a blade thoroughly impregnated with infecting matter, or else this matter was injected freely into the veins. In the latter case, the quantity of infecting agents brought into contact with the organism was always considerable—sometimes as many as 'eight milliards of bacteria.' Except in the experiment in which the injection was introduced into the jugular vein, producing the enormous quantity of eight million millions of splenic bacteria, the animals did not show any well-marked disturbance in their general condition. They continued to eat, and they ruminated like healthy animals. Those, however, which were inoculated by cutaneous punctures, presented as a local symptom a more or less appreciable tumefaction of the lymphatic glands nearest to the point of inoculation. Moreover, as a general phenomenon there was observed, especially after the first inoculation, a certain rise in the rectal temperature. In the experiment in which the infection was produced by the intravenous injection of a cubic centimètre of splenic blood, containing at least eight million millions of bacteridia, the animals showed marked discomfort, which usually began almost immediately after the injection, and lasted about twenty hours. This discomfort shewed itself by considerable depression, loss of appetite, acceleration and irregularity of the respiratory movements, an elevation of the temperature, which in one of the animals rose as high as from 40.6 to 43 degrees. It was certainly not the proliferation of the rods introduced into the blood which induced disease in the animals, for, at the moment when they appeared the most strongly affected, multiplied examinations of the blood did not display one single splenic rod. M. Chauveau proposes to develop in another memoir the reasons which induced him to think that the temporary indisposition presented by these animals should be attributed to the action of a soluble poison manufactured by the bacteridia and present, as these latter are, in the injected blood. Some reserve must, however, be made as to this explanation, for it is possible that the animal bacteridia, introduced into organisms unsuitable for their proliferation, are arrested in the capillary network of some important organs, and may there have determined, before perishing, a passing local irritation. A necropsy performed at the proper moment would have cleared this up, but this necropsy could not be made, because it was impossible to foresee the course which the indisposition of the animals in this experiment would follow. Another hiatus of little importance and of the same kind, is the omission to examine the anatomo-pathological condition of the glands next to the point of cutaneous inoculation. It would not have been without interest to know if there was any beginning of bacteridial development, which subsequently aborted. However this may be, it is none the less established that in the nine series of experiments, the Algerian sheep showed themselves absolutely refractory to the development of the disease which is engendered by the proliferation of *Bacillus anthracis*. Why is this ground so unsuitable to the culture of the splenic bacteridia? The experiments of M. Pasteur and M. Joubert on fowls, which had been cooled to a low temperature, might give rise to the suggestion that the development of the microbium was interfered with in these sheep by the elevated temperature which they attained. One of the animals subjected to cooling by a prolonged sojourn in a cold bath, did not contract splenic disease any more than the others. For the rest, the sheep attacked with splenic disease at the moment of death often present a temperature higher than 40 deg. Cent. (104 deg. Fahr.), with as many bacteridia as red blood-corpuscles in the blood, so that in sheep temperature does not seem to exercise on the development of splenic disease an influence similar to that which has been pointed out in fowls by MM. Pasteur and Joubert. The resistance of the Algerian sheep must be otherwise explained.

It appears certain that there is here something else than a purely physical obstacle to the proliferation of the microbium of splenic disease. The rebellious medium sins not only in respect to temperature. If

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