solely in consequence of want of experience in the details of treatment.

We find that the situation of the posterior tibial artery and its relation to the adjacent tendons varies greatly. I have seen it sometimes a short distance from the tendon of the flexor communis digitorum, sometimes immediately behind or even under it; and, in performing subcutaneous operations, the surgeon should remember that, in club-foot, the groove on the tibia which holds the tendons is often so oblique that it would carry the point of a sharp knife directly into the artery. A modern author suggests that "the best way to avoid this vessel is to puncture the sheath of the tendon with a sharp tenotome introduced directly downwards, and then to divide it in a direction forwards away from the vessel." But I believe that, in the first part of the proceeding, there would be great risk of falling into the very danger it is wished to avoid; and, moreover, I doubt the possibility of dividing the tendon with any certainty by cutting in a direction from behind forwards, *i. e.*, towards the tibia. It is also recommended, by way of precaution, to divide the tendo Achillis first, so that the others may be rendered more tense before their section is undertaken; but this advice should not be followed, because, first, in infants, the tendo Achillis is required in its integrity to steady the foot in the earlier stage of proceedings; and because, secondly, in the adult, the contracted and deformed foot has to be unfolded and put into shape after the division of the anterior and posterior tibial tendon, before any operation is performed on the great tendon of the heel. The first step is to convert the pes varus into pes equinus, and then to rectify the latter deformity. The inward displacement of the tendo Achillis in club-foot, and its abnormal relation to the posterior tibial artery, are points too well known to need remark.

Duval (*Traité du Pied-bot*, p. 164) relates the particulars of a case of anchylosis of a great number of joints in a woman aged 35, the subject of talipes varus in both feet. "The joints between the greater number of tarsal and metatarsal bones were anchylosed. The ankle-joint (*i. e.*, the tibio-astragaloid) and the joints of the toes alone were movable: nevertheless, in the first, adduction only was possible; while abduction was prevented by a firm fibrous mass, which extended from the inner side of the tuberosity of the os calcis to the internal malleolus, the inner side of the neck of the astragalus, and, indeed, to the tuberosity of the os scaphoides. The tarsal bones were all changed in volume and form, and anchylosed one with another by osseous concretions and lamellæ. Ossification was especially remarked between the three ossa cuneiformia and the os naviculare, which were locked together as in the sagittal suture; also the articulations of the three first metatarsal bones were anchylosed by osseous plates. The metatarsal bones were less voluminous than natural."

Now, as regards this case, I may say that Mr. Tamplin has not met with one similar during the course of his long experience; nor have I, in my pathological researches, seen such a specimen, unless, indeed, those cases be excepted in which acute rheumatic inflammation has attacked the tarsus, and led to rapid and extensive ulceration of the bones. In every case of deformity, as known by the name of pes varus, the bones retained their form, and the joints their mobility, although the displacement was considerable and of long duration.

[*To be continued.*]

REMARKS ON THE THEORY OF ELIMINATION IN THE TREATMENT OF DISEASE.

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[*Read before the Harveian Society.*]

[*Concluded from page* 331.]

IN *syphilis*, we have, I suppose, an undoubted instance of a poison being received into the circulation, and producing widespread morbid effects. Of the *modus operandi* of the two great reputed remedies, mercury and iodide of potassium, we do not know much. Our most certain information respecting the action of the first, points to it as a controller of sthenic inflammatory movement, and an absorber of effused fibrine. Whether it has really any peculiar specific action on the syphilitic poison, at least in adults, is to me, as to many, a matter of some doubt. I see, certainly, that it makes to cease for a time the secondary local affections; but does it really get rid of their exciting cause? The following quotation from Mr. Erasmus Wilson's work justifies this doubt. After more than five pages devoted to the treatment of constitutional syphilis, he proceeds: "We may now suppose the first attack of constitutional fever, or secondary symptoms, to have passed away; but it does not therefore follow that the syphilitic poison is entirely banished from the blood; on the contrary, the probability is, that after the lapse of a few months, a second attack will occur, and after that we have a third, a fourth, and even more; the attacks at last becoming irregular, and putting on a new shape and new characters."

The author just quoted refers the beneficial effect of mercury to its acting as an eliminant, and approves of sweating and diluent drinks as adjuvant means; but I must think there are strong objections to this view. It is notorious that copious salivation (three or four pounds a day Boerhaave required) or bilious purging are anything but desirable in the mercurial treatment of syphilis; on the contrary, we are especially anxious to obtain the mildest possible perceptible effect, and we stop as quickly as we can any violent action. I incline strongly to think that, when mercury acts beneficially in constitutional syphilis, it is as a blood alterant, decomposing and destroying some abnormal albuminoid matter in the blood. The marked improvement which takes place in the health of diseased children under its use seems quite independent of any noticeable elimination, and altogether consonant to the mode of action I have suggested. Beyond an empiric acquaintance with the action of iodide of potassium, we are quite in obscurity. We find that it effectually arrests certain inflammations of fibrous tissues, syphilitic or rheumatic, notably those of the periosteum; that it is prone to cause irritation of some mucous surfaces; and that it exerts an absorbent action, attended with more or less wasting, if long continued. Dr. Pereira states that diuresis is a common consequence of its use. This I have not observed. I took ten grains in five doses, in about thirty hours, and collected and analysed the whole urine before and after. Five days before taking the iodide, the twenty-four hours' amount was 32 ounces, of specific gravity 1028·5. While I was taking the iodide, the amount was 38·5 ounces, of specific gravity 1020: the urine contained iodine. The urea, the uric acid, the acidity, the chlorine, phosphoric and sulphuric acid, were all diminished by the use of the drug; the urea especially was less by 170 grains. In the case of a man with incomplete paralysis, which I suspected might be due to the poison of lead, and who had been taking 30 grains a day for several days, the twenty-four hours' amount of urine, while under the influence of the iodide, was 50 ounces, of specific gravity 1023; it contained iodine. Six days after omitting the iodide, and having substituted for it strychnia and arnica, the twenty-four hours' amount was 62 ounces, of specific gravity 1013. The urea had increased, and the sulphuric acid; the phosphoric acid had diminished, and the uric acid was 0. The result of these experiments (though far too few to be decisive) scarcely favours the view that iodide of potassium causes increased urinary excretion. But, even if it were proved to be a diuretic, it would be the merest hypothesis that it eliminated syphilitic poison, and we should have to explain how if came to act so differently to other unquestionable diuretics. To my own mind, the essential agency of iodide of potassium, as of mercury, lies in its nullifying inflammatory nisus; but it has a more immediate relation than the latter to syphilitic and rheumatic inflammations. It appears to me a fact full of significance, that a man who has contracted syphilis, and been apparently cured of it, may remain well for a considerable time, till something breaks down his health, and then the symptoms reappear. Does not this show that, while the vitality of the tissues is vigorous, they can tolerate the presence of the poison without injury; but, as soon as they are enfeebled, the morbid action recommences? The curious facts observed in the treatment of syphilis by repeated inoculation also point out that the expulsion of the poison is not the sole and only means of obtaining immunity from its injurious influence.

With regard to ordinary *skin-diseases*, I think the belief has been and is very general, that they depend on some *materies morbi* acting as a cause of irritation, which requires to be either neutralised or eliminated. But, taking the eruptions which show the greatest tendency to effusion of fluid, such as pemphigus and eczema, do we not certainly find that the best treatment is one which, by toning the vessels of the part affected, arrests the discharge; and that this, which we can often do by arsenic, so far from disordering, improves the general health. What is true of these eruptions is also true in a less degree of most others, always provided that the inflammatory action is not of a sthenic kind, for in that case we

must first subdue the tissue-irritation before attempting to tone the vessels. Some of these skin diseases, as they are called, are beautiful illustrations of one most frequent form of diseased action, viz., of that which is essentially dependent on paralysis of the vaso-motor nerves. Roseola, for instance, is not uncommon as an effect of summer heat; it is also observed in cholera, and in remittent fever, and chronic aguish disorder. It is not a sign of any poison wanting to escape by the skin, but simply of a paralysis of certain vaso-motor nerves, and consequent flushing of the capillaries. Quinine I have found a very good remedy for it. Or take herpes zoster, with its pearly vesicles grouped so prettily on their pink areas,—is this an eliminative effort? Not so surely, seeing that the eruption is best treated by drying it up as soon as possible, and giving quinine or other tonics freely for the cure of the attendant neuralgia, which is often so severe. Of erythema nodosum, nearly the same may be said. Dr. Watson finds it to yield readily to quinine. Now, if these instances are not of eliminative character, why should we, in the absence of proof, suppose other skin eruptions to be?

Carbuncles are sometimes imagined, as well as *boils*, to indicate the presence of some morbid matter in the blood; and it is probable enough that the fibrine is in an unhealthy state, and prone to deposit. But no mere eliminative treatment is adequate to cure; but it is to tonics and generous diet that we must look chiefly for cure and prevention. Furunculoid deposits are said to be no uncommon results of the hydropathic treatment, which must certainly eliminate powerfully. The particulars of an interesting case have lately been communicated to me by Dr. O'Ferrall, in which a carbuncle, which was extending in spite of having been incised, was immediately beneficially modified, and soon brought to heal by the application of pressure. Here elimination was out of the question.

The last disease to which I shall allude in the discussion of this subject is *rheumatism*, including the febrile and non-febrile forms. The prevalent theory, that adopted by Drs. Todd and Fuller, is, that undue development of lactic acid in the secondary assimilating processes generates a poison which produces the familiar symptoms. Dr. Copland, on the other hand, locates the primary disorder in the organic nervous and vascular systems, and regards the production of acid rather as the effect than as the cause of the disease. A strong argument in favour of the lactic acid theory, as it appears to me, is the great benefit derived from saturating the system with alkali. No other mode of treatment, at the present day at least, seems to be comparable with this—I mean, of course, in rheumatic fever. Another argument is furnished by the interesting observation of Dr. Richardson, that injection of lactic acid into the peritoneum of animals produces endocardial inflammation. On the other hand, it may well be questioned whether the alkalies act as mere chemical agents, neutralising and eliminating excessive acid; and whether their remedial agency is not of a different kind, viz., vitality-modifying, or dynamic. There are testimonies which can scarcely be set aside as to the possibility of treating acute rheumatism advantageously in other and very different ways. Thus, Dr. Watson affirms to have certainly *cured*, not seen recover, patients by the use of colchicum, conium, and calomel with opium. Dr. Corrigan has succeeded well with opium alone. Dr. Sibson, while giving an alkaline drink, administers with advantage from three to twenty grains of opium daily. M. Trousseau, a first-rate authority, states that, after having carefully tried M. Briquet's recommendation of quinine, he has satisfied himself of its happy effect in this disease, and in this conclusion he is supported by M. Legroux. Trousseau, however, thinks that quinine is much more efficacious when the inflammatory nisus has been previously subdued by the administration of calomel in divided doses. Now, be it especially observed, I am not advocating these modes of treatment; I decidedly give the preference to the alkaline; but my argument is this, that if these means, and especially the two latter, *can* cure, then there is much ground for believing that the alkalies do not act beneficially merely in virtue of their chemical quality. It seems to me very probable that they may act solely as tissue-sedatives, tranquillising the action of the heart, and nullifying inflammatory excitement in the parts affected. Certainly, the alkalies may produce a notable eliminative effect. A man to whom I gave half a drachm of bicarbonate of potash four times a day, for four days, passed in twenty-four hours 35 ounces of urine, of specific gravity 1024; while, without any medicine, he passed only 18 ounces, of specific gravity 1027. The amount of urea was increased by about 170 grains. On the other hand, in acute rheumatism, this effect is not uncommonly slow of attainment. A boy, aged 12, suffering with rheumatic fever and slight pericarditis, after nine days of alkaline treatment (a scruple of bicarbonate of potash every two hours) passed in twenty-four hours only 10 ounces, of specific gravity 1034; after fifteen days, he passed only 12 ounces, of specific gravity 1035; he was now much improved, and all medicine was suspended. Nine days later, no medicine having been taken, and diet being the same, he passed 20 ounces, of specific gravity 1016. He was then quite convalescent. A man, aged 21, suffering with acute rheumatism, a slight endocardial murmur existing, after taking a scruple of bicarbonate of potash every hour for four days, passed in twenty-four hours only 9 ounces of urine, of specific gravity 1025. Five days later, all medicine having been omitted for the last three, he passed 28 ounces, of specific gravity 1022; he was then much improved. From these and other observations, it seems as if the alkalies acted primarily on the morbid process; and that, on the subsidence of this, the urine increased in quantity. I think I can be sure of this, that, in spite of the most thorough alkalisation, the urine effervescing strongly with muriatic acid, the phenomena of rheumatism in a subacute degree may persist, scarcely modified.

Against the view of alkalies being useful in febrile rheumatism, by a neutralising and eliminating effect, may be adduced the almost equally marked action of Fowler's solution in the less febrile or apyretic forms. This drug can only act as a toner to the vaso-motor nerves, and so, by contracting the vessels, diminish hyperæmic afflux. In fact, it cures rheumatism on the same principle that it cures eczema, and, *mark*, the non-febrile forms of either. Without committing myself to a decided opinion, I will only observe, that it seems to me still an open question whether the treatment of rheumatism is to be based essentially upon the elimination of some poisonous matter, as lactic acid (which, by the way, may be given a long while without producing rheumatism); or whether the disease is rather to be regarded as analogous to catarrh with special articular implication, and is to be treated simply with reference to general principles, nullifying the inflammations and fever in any way that we best may.

I will now state shortly, in the way of propositions, the views I entertain on the subject discussed.

I. In the majority of instances in which we have reason to believe that a morbid matter has entered the blood, and is affecting the system injuriously, it is vain to think of expelling it by any therapeutic efforts. Nature must be left to deal with it as she will, and the only direct aid we can give her in this process is to admit pure air as freely as possible, so as to favour the pulmonary exhalations.

II. We are at the same time to watch carefully for opportunities of *aiding* Nature in her conflict. If reaction is excessive, we must endeavour to lessen it; if prostration threaten, we must support and tone. If secretions become morbid, they must be corrected; and generally we must be on the look out to discover and meet any requirement that may arise. Often and often our help judiciously given will turn the scale; but, on the other hand, we may do infinite harm by meddling interference. It is a wise saying, "that it often happens to good physicians to find no indications for treatment, to bad ones never."

III. There are several disorders which simulate, so to speak, eliminative actions, but in which the morbid phenomena are capable of a different and better interpretation, and even the presence of a *materies morbi* is very doubtful. These are to be treated by endeavouring to quiet inflammatory nisus, to soothe nervous irritation, and to tone relaxed vessels.

THE SERGEANT-SURGEON. The stipend of this office used to be 595 marks, which is equivalent to £396:13:4 per annum. The following is a list of those surgeons who have held the appointment during the last eighty years:—Sir Cæsar Hawkins, Dr. Middleton, Mr. Samuel Hawkins, Mr. Charles Hawkins, Sir David Dundas, bart., Sir Everard Home, bart., Mr. Patrick McGregor, Sir Astley Cooper, bart., Sir B. C. Brodie, bart., Mr. Robert Keate, and Mr. B. Travers. Of the above twelve, Sir David Dundas filled it for the longest period (thirty-four years)—viz., 1792-1826; and Mr. Travers the shortest time. *Apropos* of the recent appointment, the *Globe* remarks, that the duties of Sergeant-Surgeon have a peculiar quaintness that reminds us of Joan of Arc's time rather than of the peaceful Highland solitude of Balmoral. The Sergeant-Surgeon has £400 a-year for accompanying the Queen to the field of battle, when Her Majesty shall find herself opposed to the enemies of her country, and may require the veteran Lawrence's services.