

fection of infected houses. Our territory has embraced nearly a third of the Province of Santiago, presenting numerous foci of infection, the isolation of cases being rendered difficult by the lack of roads, the wildness of the country and the superstitious dread of the natives for vaccination and isolation hospitals, many cases fleeing to the mountains, carrying infection to new localities and necessitating the sending out of members of the commission along the byways and into the untraveled forests of the district.

The sanitary commission organized by the department commander, General Wood, over which I have the honor to preside in my official capacity as Medical Inspector of the Province of Santiago, is composed as follows: Col. Felipe Veranes, chief surgeon of the Cuban Army, in charge of the District of Holguin; Major Guillermo Dolz, surgeon, U. S. V., secretary of the commission; Dr. Meyer Herman of New Orleans, in charge of disinfection and vaccination; Dr. O. H. Stone of Mississippi, member of the commission; Dr. Vincent Gomez of New York and Gibara, in charge of the District of Gibara; Capt. I. B. Massie, Company G, Second U. S. V. Infantry, and M.D., of Houston, Texas, in charge of isolation hospital at Gibara; Dr. Edward C. King, Second U. S. V. Infantry, of Houston, Texas, in charge of isolation hospital at Fray Benito; Lieut.-Col. Rudolfo Socarras, surgeon of Cuban Army, in charge of isolation hospital at Holguin; Col. Antonio Lopez, surgeon of Cuban Army, in charge of the District of Tunas; Lieut.-Col. Faustino Silven, surgeon Cuban Army, in charge of the District of Puerto Padre; Dr. Calixto Garcia of Gibara, in charge of isolation hospital at Auras; Dr. Jose Maceo Chamorro of Havana, in charge of isolation hospital at Puerto Padre; Dr. Humberto Manduley of Havana, sanitary inspector of the city of Holguin; Ramon Reyes Zamora, pharmacist; Marcelino Torres, clerk of the commission, and Capt. Charles Muercke, Artillery Cuban Army, chief of sanitary corps of 100 men.

All the above are selected men and have done excellent work in their various capacities. We have been greatly aided in our work by Col. Duncan N. Hood and his regiment of immunes, the Second U. S. V. Infantry. In strange contrast to the insanitary horrors of Spanish occupation is the present occupancy of this regiment, with their careful attention to every detail of military hygiene. Although having taken possession of a district recently garrisoned by 12,000 Spanish soldiers, with the accumulated filth of three years, with a fierce epidemic raging and malarial fevers rife, yet this regiment presents an unparalleled effective strength as compared with other regiments serving in this tropic climate, and as yet no American soldier has fallen a victim to the disease.

## REPORT ON MASSAGE.

EFFECT OF MASSAGE ON THE BLOOD—MASSAGE IN AFFECTIONS OF THE HEART—MASSAGE IN SURGERY.

PAPER NO. II.

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(Continued from p. 173.)

EFFECTS OF MASSAGE ON THE NUMBER AND HEMO-

GLOBIN VALUE OF RED-BLOOD CELLS.

One of the most interesting and elaborate investigations in the past few years is that of Dr. J. K.

Mitchell into the effect of general massage on the blood.<sup>1</sup> These observations were made upon thirty-five people, a few of whom were well, but most of them were suffering from anemia, slight or severe; anemia from hemorrhage and from toxic causes, from chlorosis, from senile and other malnutritions, and one from pernicious anemia. As a rule, in nearly all the cases after massage, there was found a great increase in the number of red globules, and in about half the cases an addition to the hemoglobin also. This increase was found to be greatest at the end of an hour after massage, and after this it slowly decreased. This decrease was postponed more and more when the massage was given daily; and in one case of severe anemia that had been under rest, feeding and massage, after all these had been stopped, the corpuscles and hemoglobin still continued to increase amazingly, thus dispelling the presumption that the improvement in these cases is due to a temporary effect. In this case the white corpuscles were enormously increased; before massage they were 1 to 1200; after, 1 to 134. The red corpuscles on January 11 and 12 were 1,500,000 and 15 to 18 per cent. of hemoglobin; on January 24, under rest and massage, the amount was 3,800,000 before and 5,400,000 after massage. All treatment was stopped on January 24, and yet the corpuscles continued to increase until on January 31 they had reached the amazing figure of 5,500,000, with 50 per cent. of hemoglobin.<sup>2</sup>

Some cases that seemed to be anemic were found on examination of the blood not to be so at all. Massage can not manufacture blood-cells or coloring matter; it simply puts into circulation those that are dormant in the system. This state of things, as Dr. Mitchell aptly puts it, "may be like the want of circulating money during times of panic, when gold is hoarded and not made use of, and interference with commerce and manufacturers results."

The same things have not always the same effects. That often depends on the previous condition of the patients, as well as upon how the same treatment is applied. In two of the three persons whose blood count was lessened after massage, active exercise had just been previously taken. One had walked two and a half miles on a very cold day; the other a mile. In both of these there was marked diminution of the red globules after massage. The author thinks that inasmuch as these cases had already an increased activity of circulation from exercise, the rest and the massage tended toward a reduction of their blood globules. But he does not tell us that they probably received as much temporary benefit from the manipulation as those that were resting and had an increase in the number of blood-cells after massage. A very important point that he has called attention to is that headaches frequently occur after general massage in sensitive individuals, as a result of temporary plethora. It need not, therefore, be regarded as a reason for stopping massage, but rather as a good indication for its continuance.

MASSAGE IN THE TREATMENT OF HEART DISEASE.

Before Schott or Certel were ever heard of your reporter advocated and practiced the careful use of massage for weak bodily conditions, and as the patients grew stronger passive motion was added; then as they improved, resistive movements were combined with

<sup>1</sup> American Journal of the Medical Sciences, May, 1894.

<sup>2</sup> Eleven years ago the reporter called attention to the fact that in cases of local or general neurasthenia, improvement still went on after the discontinuance of massage, in cases that had apparently come to a stand-still.

the preceding, and when recovery was sufficiently far along they were told to exercise actively, to go about their business. Dr. Douglas Powell has become converted to this way of thinking, and in the *British Medical Journal* of April 9, 1898, he helps to define more clearly the use of massage and exercise. He tells us that massage is a means of helping on the convalescent stage of acute heart disease, and of combating the tendency to stagnant circulation in those who are disabled by chronic heart disease. The treatment, he thinks, is still more useful in maintaining the circulation and mildly stimulating the coronary circulation in those who are bed-ridden, and on that account suffer from impairment of heart nutrition and chilly extremities, feeble pulse, torpid digestion and passive congestion of the lungs. The treatment is not advisable in acute affections of the heart.

The effects of the Schott or Nauheim exercises are a stimulation of the heart's action, with a steady effect or increased completion of the systole, improved circulation through the coronary vessels and an increased motility of the blood, by its readier passage in greater bulk through the muscles, thus relieving stagnation in the great internal organs, especially of their veins. The graduated exercises may be regarded as a *counsel of perfection*, as a preliminary to the return to this increase of active life of which the condition of their heart admits, and also as a guide to what that measure of exercise will be. Resistive exercises are especially adapted for the initial treatment of those flabby, irritable, "stuffy" hearts, applying this term to cases of fatty infiltration and impaired metabolism which are met with in people of venous plethora.

In cases of chlorosis with dilated heart, after a preliminary week or two of rest, the Schott treatment is valuable if combined with a dry, bracing air and mild chalybeate. It is useful in commencing failure of the heart, in chronic valvular lesions, combined with less of other exercises, and also after such cases have been restored to a certain extent by digitalis. It is unsuited in all cases of acute endocarditis while there is any trace of activity of lesion left, and in cases of advanced cardio-vascular changes of the nature of sclerosis, or in introspective people with neurotic hearts.

An excellent summary of this treatment of heart affections was given by Sir Grainger Stewart before the British Medical Association at Carlisle. He has fully satisfied himself on the following points:

1. That in the great majority of cases of cardiac dilatation, the area of cardiac dullness diminishes perceptibly during each administration of massage.

2. That the character of the cardiac sounds, and the rhythm and strength of the pulse correspondingly improve.

3. That the patients usually experience a sensation of comfort and feel the better for the treatment.

4. That although the immediate favorable effects pass off in a few hours, yet they frequently do not pass off completely, for he has often found the line of cardiac dullness within that with which they had started at the previous séances.

5. That repeated applications of massage bring about a permanent diminution of the area of dullness, with improvement of pulse and of the patient's sensations.

6. He has seen a case in which the so-called Schott treatments produced a deleterious effect, rendering the heart more irregular and intermittent. It was

afterward treated by massage alone on the following day with most striking benefit. It turned out that the patient was not sufficiently well to bear the active movements, but was greatly benefited by the passive ones.

7. That on one or two occasions he has seen the manipulations produce unfavorable effects, apparently because the heart was too feeble and the patient was fatigued at the time of application.<sup>3</sup> (In this last case it is possible that the massage was too vigorous, in that the manipulator himself was not in good condition. Your reporter recently had to walk three-quarters of a mile in the teeth of a cold wind to give massage to a patient with a weak heart. The result was the only unfavorable one of the kind he ever had. The patient was unduly fatigued. If I could have ridden to the patient's door the result would most likely have been different.)

The distinguished Dr. Schott<sup>4</sup> himself demonstrates to us by means of drawings and wood-cuts that fifteen minutes of systematic resistive exercise perceptibly diminishes the size of weak and dilated hearts, as seen by the fluoroscope; while straining, irregular and unsystematic exercise, such as wrestling, on the other hand, produces dilation and weakness of the heart. The immediate effect of the Nauheim baths was not so marked as after the exercises, but it seemed to last longer, while the exercises have the advantage of being used more easily and several times a day. A few years ago who would ever have imagined that we could look right through a patient and see the effects of massage, exercise and baths on their internal organs?

Dr. Albert Abrams<sup>5</sup> finds that any cutaneous stimulant—mechanic, chemic or electric, will produce diminution of the size of the heart, with temporary dilatation of the lungs. Vigorous cutaneous friction by means of a wire brush seemed to afford him results in heart disease nearly as good as that obtained by the more elaborate treatment by means of baths, massage and exercises. He quotes Moccucci, who sprayed the left half of the abdomen with ether in twelve cases of enlarged spleen, with the result in decrease in volume of the spleen in all the cases. In repeating these experiments Dr. Abrams noticed a decided diminution of the size of the spleen in all the people he tried it on, irrespective of the fact whether the spleen was enlarged or not. Ether spray over the heart and over the liver caused decrease in size of both these organs. The results were confirmed not only by percussion but also by sight, by means of the fluoroscope.

Maas<sup>6</sup> has reported two cases in which patients apparently dead from chloroform syncope were resuscitated by compression in the region of the heart. In both cases respiration and radial pulse had entirely stopped, and the pupils were dilated. The manipulation of the heart in both cases was carried out for over an hour. Compression over the heart was used 120 times a minute, and soon after it was begun the pupils became smaller and the paleness of the face disappeared. Afterward both patients suffered from mental derangement, difficulty of swallowing and speaking, all of which passed off shortly.

All this strengthens our belief in what we are told of Mary, Queen of Scots, which hitherto, we must con-

<sup>3</sup> Mechano-Therapy in the Treatment of Heart Disease: Dr. T. Stretch Dowse, 1898.

<sup>4</sup> New York Medical Record, March 26, 1898.

<sup>5</sup> Medical News, Jan. 7, 1899.

<sup>6</sup> Berlin Klin. Woch., 1892, No 12.

fess, was not very great. She was stricken down, Oct. 17, 1566, with a fever, caused by fatigue and the annoyance of her Darnley husband. She was very ill and sank rapidly. She became cold and rigid, her form straightened out, and her pulse and respiration were no longer perceptible. All despaired of her save her physician, Dr. News, who, hoping against hope, continued to use vigorous friction, and at length succeeded in restoring her to life. She began rapidly to improve. Her death meantime had been reported in Edinburgh. No doubt, many times afterward she wished she had then died; for it would have saved her from a vast amount of trouble and an ignominious death.

#### MASSAGE IN SURGERY:

##### *Observations at Surgical Clinic of the University of Berlin.*

Zabludowski<sup>7</sup> tells us that massage is of value in the prevention of thrombosis, and that it also relieves the symptoms of existing thrombosis. Good results are obtained from it in peripheral disturbances of the circulation in varices, venous stasis, lymph-stasis, local syncope of arteriosclerosis, and in obstipation and pains in the abdomen, enteroptosis, spasm, residual perityphlitic exudation and cicatricial stenosis of the pylorus.

Massage used at the right time acts as prophylaxis against pleuritis and the formation of thrombosis. In a case of weakness of the heart after influenza, under similar circumstances, one leg which had no massage became gangrenous and soon had to be amputated; the other leg, which soon after began to have similar appearances, stasis, etc., got well under careful massage.

In paralyzes of central and peripheral origin, where the functions of the affected centers, nerves and muscles can not be exercised, massage often succeeds in again restoring the capability of action, not only by its effect on the periphery, but also by psychomotor impulses in the formation of new associations and coordinations.

Massage is contraindicated in cases in which the cerebral or spinal affection is accompanied with muscular spasm, contracture and exaggerated tendon reflex.

In order to obtain good results in chronic neuritis, massage should be applied with considerable energy properly directed. Zabludowski is often convinced that, even where there are permanent anatomic changes with lasting functional disturbance and pain, it is possible to do much good by means of massage. It is a sovereign remedy "against surgical affections which have kept the patients long in bed, as it helps them, in a short time, to get to their legs again" (when they have any left to walk on).

Zabludowski insists on a long and careful training of those who intend to do massage. He mentions many affections, of a serious nature, which may result from ignorance of the details of the method, or carelessness in its practice. These are: 1. The appearance of *furunculosis* in one case of diabetes, with a fatal termination. 2. Extensive abscesses of the abdomen, in one case of pyemia, with a fatal result. 3. Break of the formation of callus in consequence of too brusque movements in old people and children. 4. Dislocation of fractures, mostly of the patella and olecranon. 5. Transition of processes almost recovered into subacute and acute, mostly cases of arthritis sicca and tuberculosis. 6. Transition of

acute cases into chronic, most frequently of slight sprains into chronic arthritis. 7. Joints becoming stiff by adhesion and not being loosened at the proper time. In many cases, through long inactivity, the joints have undergone changes that can not be alleviated. 8. The production of tendo-vaginitis, myositis and neuritis. 9. The causation of movable kidney and enlargement of hernia, especially umbilic hernia, both by too strong pressure and long-continued kneading of the abdomen. 10. The transition of slight forms of neurasthenia and hysteria into severe ones by tedious and painful manipulation and by long continued or too extensive peripheral nerve irritation.

#### MASSAGE FOR GOUTY DEPOSITS IN THE SOLE OF THE FOOT.

Dr. Kittel<sup>8</sup> mentions that in the aponeurosis of the foot and of the bones there sometimes occur collections of small particles like concretions of sand, which by pressure interfere with walking. These are thought to be the result of interference with the circulation of the foot from exposure to dampness. A gradual degeneration takes place, followed by necrosis of tissues; deposits of urates follow; stiffness, deformity and distortion of joints occur. The clinical symptoms are not those of true gout, but seem to be an atypic form of gout. Medical treatment proved to be useless, as the deposits were encapsulated in necrotic tissue beyond the reach of medicinal means of promoting absorption. For treatment, the author recommended mechanic exercises with massage, and the application of cloths wet in alkaline solutions, from which much benefit was derived.

#### MASSAGE AFTER OPERATION IN INFANTILE PARALYSIS.

Sixteen operations for the transplantation of muscles in infantile paralysis are described by Drobnik.<sup>9</sup> He states that it is very difficult to determine by electric examination what muscle is paralyzed beyond massage, and what muscle can be developed. In certain cases he found that atrophied muscles which did not react to electricity developed activity after the partial restoration of the use of the limb. Massage and, later, passive and active motion, should be commenced with great care in these cases.

#### MASSAGE IN SPASTIC PARALYSIS.

Lorenz advises tenotomy of the spastic muscles, with attempt through separation to lengthen the divided tendons. In spastic equinus the foot should be kept from four to six weeks over-corrected. After this the pronators, the weakened tendo-Achillis and the whole of the foot can be used. Where the knee is spastically contracted after tenotomy of the tendons of the semi-membranosus and gracilis, a lengthening of the tendons is to be expected, and a stretching of the knee, even into the position of a slight genu-recurvatum, is desirable for a while. Instead of tenotomy or myotomy of the adductors, Lorenz advises the use of force under an anesthetic. He prefers stretching to an open myotomy (a heroic form of massage). In certain cases neurectomy is combined with myotomy. All retaining apparatus is laid aside at the end of from four to six weeks. Massage, electricity and resistive movements, combined with gradually increasing use of the limb, will in time enable the patient to get about without any apparatus.<sup>10</sup>

(To be continued.)

<sup>8</sup> Berliner Klin. Woch., 1897, No. 17.

<sup>9</sup> Zeitschrift für Chirurgie, Bd. xliii.

<sup>10</sup> Münch. Med. Woch., 1887, No. 23, and Boston Medical and Surgical Journal, July 7, 1898.

<sup>7</sup> Sammlung Klin. Vorträge, 1898.