

THE INFLUENCE OF THE TURKISH BATH ON RESPIRATION.

By JOHN CHARLES BUCKNILL, M.D., F.R.S.

I HAVE recently observed a remarkable change which takes place in the relative activity of the cutaneous and respiratory functions during profuse sweating caused by the Turkish bath, which appears to me to have an important bearing on therapeutics, and which I desire to make known in order that other observers, with better means at their disposal than I possess, may be led to pursue the investigation.

My observations were made only on one subject, a man of fifty-eight years of age, with a weak heart. On four occasions I found his pulse, before entering the bath after exercise, to be 70, and his respiration 18. After remaining five minutes in the bath at 160° F. the pulse was 80, and the respiration 21; but after remaining twenty minutes in the bath, when profuse perspiration had been induced, the pulse was 100, and the respiration 12, and this rate continued until leaving the bath ten minutes later. After washing and cooling for thirty minutes, the pulse had again sunk to 65, while the respiration had risen to 18. I have asked my friend Dr. Duckworth Williams, of the Sussex County Asylum, to verify these facts, which he has kindly done upon six patients, the details of observations upon whom I append.

Excluding the sixth observation, in which the respiratory movement of the patient became so slight that it could not be counted, and omitting small decimals, it will be seen that in the five remaining cases before the bath the mean of the pulse was 92, and the mean of the respiration 20.6.

During the free perspiration caused by the bath the mean of the pulse rose to 108, while the mean of the respiration fell to 16.4.

After washing and cooling, the pulse fell to a mean of 83, and the respiration rose to a mean of 21.

The small effect upon the bodily temperature of an air-bath of 175° is to be remarked, only raising it, on the average, 1.7°. This is the more curious since animals whose cutaneous function has been stopped by varnishing rapidly lose their heat.

Before the bath the mean ratio of pulse to respiration (20.6 : 92) corresponds very closely to that of health, which, as stated in THE LANCET of April 22nd, has been fixed by Jürgensen at 2 : 9 or 20 : 90.

During the free perspiration caused by the bath, the mean of the pulse ratio changed from 20.6 : 92 (say 20 : 90) to 13½ : 90.

After the cooling process the change in the mean of the pulse-respiration ratio was still greater, being 21 : 83.

Is the whole of this change attributable to the well-known vicarious function of the skin to that of the lungs?

Dr. Williams writes me that he "was much struck by the diminution of the respiratory murmur after sweating had set in."

I trust that some one will carry this inquiry further by means of the spirometer.

No. 1.—Admitted with recurrent mania. Is now convalescent, and in good bodily health. Temperature of bath 175°; was in fifteen minutes. Skin acted freely. In the habit of having Turkish baths.—Observations before bath: Pulse 80; temperature 98°; respiration 21, and respiratory murmur loud. When skin was acting freely: Pulse 100; temperature 99.6°; respiration 17; respiratory murmur indistinct. After a wash, cold douche, &c.: Pulse 76; temperature 98.2°; respiration 20; and respiratory murmur again strong.

No. 2.—Admitted with melancholia. Is now convalescent, and in very good bodily health. Temperature of bath 180°; was in twenty minutes. Skin acted very freely.—Observations before bath: Pulse 84; temperature 98.4°; respiration 18; respiratory murmur loud. After skin had acted freely: Pulse 100; respiration 16; respiratory murmur indistinct; temperature 100°.—After a wash, cold douche, &c.: Pulse 80; respiration 20; respiratory murmur loud; temperature 98°.

No. 3.—Admitted with recurrent mania. Has now a lucid interval, and is in robust health. Has regularly had the bath for years. Temperature of bath 175°; was in twenty minutes.—Observations before bath: Pulse 76; temperature 98.7°; respiration 20; very strong respiratory murmur. Observations when skin had acted freely: Pulse 100; respiration 15; respiratory murmur slight; temperature 99.8°. After a wash, cold douche, &c.: Pulse 80; temperature 98.4°; respiration 20; respiratory murmur again strong.

No. 4.—Admitted with strong suicidal impulse and refusal of food. Is now convalescent, and has been treated with the Turkish bath. In good bodily health. Temperature of bath 175°; was in twenty minutes.—Observations before bath: Pulse 120, evidently from nervousness; respiration 20, murmur fairly loud; temperature 98.5°. When skin had acted freely: Pulse 120; temperature 100°; respiration 16, murmur barely perceptible. After a wash, douche, &c.: Pulse 100; temperature 98.7°; respiration 20; murmur still indistinct.

No. 5.—A case of chronic dementia in good bodily health, and has frequently had the bath. Temperature of bath 175°; was in thirty minutes.—Observations before bath: Pulse 100; temperature 98.6°; respiration 24; murmur loud and irregular. When skin had acted freely: Pulse 120; temperature 101°; respiration 18; murmur indistinct. After a wash, douche, &c.: Pulse 80; temperature 97.9°; respiration 24.

No. 6.—A case of dementia in good bodily health. Had not taken a Turkish bath before. Temperature of bath 170°; was in thirty minutes.—Observations before bath: Pulse 80; temperature 98.5°; respiration 16; murmur plainly audible. When perspiration was profuse: Pulse 60, was a little faint; temperature 99.5°; respiration so slight that it could not be counted. After washing, douche, &c.: Pulse 100; temperature 98°; respiration 24.

TETANUS FOLLOWING THE HYPODERMIC INJECTION OF QUININE IN MALARIOUS FEVERS.

By H. P. ROBERTS, M.B.,
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CASE 1.—Private Gopal Gowra was admitted to hospital on Oct. 15th, 1875. He was suffering from quotidian ague, and he had had three attacks before admission. He received a hypodermic injection of three and a half grains of the neutral sulphate of quinine, but the fever recurred during the day. On the morning of the 16th he received another injection, and after that no attack of fever occurred, and on the 18th he was discharged, and returned to duty.

With reference to the hypodermic injection of quinine, I may mention that I was at this time comparing the results of this method with the administration of the sulphate of chinchonidine by the mouth. The solution I used was one of eight grains to the drachm of water, and was injected at a temperature of 100° F. The point of the needle of the syringe was inserted on the outer surface of the biceps muscle, about half way between the elbow and shoulder. The needle was previously dipped in a solution of carbolic acid and oil (1 to 15).

The patient went on guard at the Residency on the 22nd instant, and slept during a portion of the night on the ground, and it appeared to me probable, from his symptoms on admission, that he had met with a chill, from the cold morning air, following great heat during the day. In the evening he presented himself for admission, complaining of a stiff neck; he had felt the stiffness first in the morning, but it had become worse, and in consequence he came to the hospital. Shortly afterwards I paid my evening visit, and on going up to the man's cot, found him in well-marked tetanic spasms. I treated him chiefly with the chloral hydrate in thirty-grain doses, repeated frequently, but without any benefit. Chloroform was the only remedy

which afforded a temporary relief. I tried the subcutaneous injection, at one time two grains and at another time three grains of the chloral hydrate, without the slightest effect being produced.

Though he slept for several hours on the night of admission (the 23rd), the spasms returned, and became more frequent and more powerful, until the morning of the 25th, when he died, apparently from exhaustion, about 9 A.M. He was a young, strong, healthy, well set-up man. I was much puzzled by this, as I had given the subcutaneous injection for fever some hundreds of times, had always taken it that way myself, and the civil surgeon from whose successful treatment I had been led to employ this method had used it (the neutral sulphate) upwards of 5000 times, and he had not met with an authenticated case of sloughing, even, following his treatment. There was no external mark, nor could I detect any lesion beneath the skin or muscles of the arm which indicated the irritation of a nerve—that is to say, there was nothing perceptible to a careful examination with the naked eye. I therefore attributed the tetanus to the effects of a rapid change of temperature, the man having been weakened by a previous attack of fever, and having thus become more liable to a chill.

CASE 2.—I was naturally much surprised when, only a few hours afterwards, I was sent for to see another sepooy, who had commenced to exhibit similar symptoms. Private Babajie Mori was admitted to hospital on Oct. 17th, for intermittent fever, having previously been attacked for two or three days. He received the subcutaneous injection of quinine, and, with the exception of a slight attack on the 18th, had no return of the fever, and was discharged on the 24th. Early on the morning of the 25th he felt pain and stiffness in the jaws and right side of the neck, which gradually increased until he was admitted to hospital about 1 P.M. He complained that his arm pained him at the site of the injection, and there was certainly a small knotty swelling under the skin at that time. Since leaving the hospital he had eaten nothing but some rice and mutton, and had applied to no native hakim for medicine. At night he had slept in his hut. Notwithstanding chloral hydrate by the mouth and subcutaneously, large doses of the acetate of morphia hypodermically, and his being kept under chloroform frequently, the spasms increased rapidly, and he died the next day about noon.

On examining the arm the hard swelling had disappeared, and there was no trace of any lesion to a nerve. Though I could detect no injury myself, I am obliged to attribute these cases to the hypodermic injection. The coincidence was too marked to consider the tetanus induced by rapid changes in the temperature, though I am told that in Goojerat during the commencement of the cold season, cases of idiopathic tetanus are not uncommon.

I gave all the injections myself, and always cleaned the syringe carefully after use; and I had too the practical experience of the result of the large number of cases given me by the civil surgeon I referred to before.

There was no evidence whatever that either of these men had had poison administered to them, which might have produced a train of similar symptoms. I have been therefore obliged, as such results have a most prejudicial effect on the men of the regiment, to abandon what has hitherto been with me a most ready and efficacious method of treating malarial poisoning.

Baroda.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—

The last meeting of the twentieth session was held at the Royal Kent Dispensary, Greenwich-road, on Friday evening, May 5th. In accordance with Rule 15, three members were chosen to audit the treasurer's accounts. The following cases were brought forward for discussion:—Dr. W. Carr: A Case of General Dropsy (Bright's disease) cured by puncturing the legs and diuretics, illustrating the doctrine of elimination. Dr. Ralph Gooding: A Case of Prostatic Disease. Mr. John Prior Purvis: A Case of severe Trifacial Neuralgia of long standing successfully treated by the Continuous Galvanic Current. The annual dinner will be held on Wednesday, June 28th, at the Ship Hotel, Greenwich, at 6 for 6.30 P.M.; the president, Dr. J. N. Miller, will occupy the chair.

A Mirror

OR

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. MARY'S HOSPITAL.

RHEUMATIC FEVER TREATED BY SALICYLIC ACID.

(Under the care of Dr. SIEVEKING.)

FOR the following notes we are indebted to Messrs. J. Jackson Gawith and H. Sworder, house-surgeons.

CASE 1.—Julia L—, aged forty-five, was admitted into hospital on March 27th, suffering from acute rheumatism. About a week before admission she was taken ill with severe pains in the hips and legs, loss of appetite, scanty and high-coloured urine, and general feverishness. When admitted she had well-marked symptoms of rheumatic fever; temperature 103.2°; pulse 108; tongue thickly coated with fur; pain and swelling in both knees, more especially in the right, also some tenderness in the right ankle.

Salicylic acid was ordered in twenty-grain doses every hour for six hours, together with milk, beef-tea, and imperial drink as diet. The first powder was given at 4 P.M., the temperature being 103.2°. After the second powder she expressed herself as feeling much relieved, but complained of some slight noises in her ears and feeling rather silly. It was certainly difficult to make her answer questions properly. Heart-sounds quite normal. Temperature after the fourth powder 101°; temperature after the sixth powder 99.2°.

March 28th.—Had a fairly good night; perspired very freely; tongue still furred; knee-joint still a little swollen, but feels about normal in temperature. Temperature 99.2°; pulse 100; urine cloudy, sp. gr. 1010, acid, a very little albumen.

29th.—Slept well; tongue cleaner; bowels confined; no pain anywhere; feels quite well, but weak. Temperature 10 P.M. last evening 99°; temperature at 9 A.M. this morning 98.4°; pulse 88; heart sounds quite normal; perspired a little during the night; temperature this evening 98.2°; pulse 88.

30th.—Had a very good night; appetite improving; bowels open; in no pain; no heat or swelling of knees; no albumen in urine. The following mixture ordered:—Six grains of citrate of quinine in infusion of quassia three times a day.

April 2nd.—Still going on favourably; is in no pain. Can stand, but is too weak to walk.

5th.—Convalescence continues. Patient can walk about the ward well, and appears quite strong again. No morbus cordis.

7th.—Was discharged to-day, perfectly well.

CASE 2.—Emma H—, aged twenty-seven, unmarried, a servant, admitted March 25th. She had severe pain in the left knee, which was swollen and red, and about an inch and a half larger than the other, with some effusion into the joint. There was also some pain and tenderness in the right ankle, and on the inner side of the same there was an erythematous blush, which gave rise to a suspicion of the formation of an abscess. She had not been well for a fortnight, but was only forced to remain in bed three days before admission. Tongue thickly coated; bowels constipated; temperature 101.4°; pulse 110. Salicylic acid, in twenty-grain doses, ordered every hour for six hours. After the fourth powder the temperature was 101.8°, but the pain in the knees was very much less. After the sixth powder the temperature was 100° and the pulse 108; skin very moist, and in a free perspiration.

March 26th.—Had a good night. Tongue furred; rather dry in middle. No pain, except a little in right knee. Left knee still one inch larger than right.—10 A.M.: Temperature 98.8°; pulse 104.—12 P.M.: Temperature 100.4°; pulse 110.