

the systolic murmur, or so in succession to it as to present what may be termed a double murmur. Rurgitant murmurs in the semilunar valves are, however, comparatively but of rare occurrence.

The two normal sounds of the heart, as has been shewn, are due to the closure of the valves against the current of the blood. The murmurs, on the other hand, are, as regards the valves, heard under disordered conditions of these valves, so that their normal relations to the flow of the blood become disturbed; and hence they may arise whenever there is a current of blood relatively too large for the aperture guarded by these valves, and thus presenting a condition of obstruction to its free flow. Any circumstances, therefore, occurring to these valves whereby the fluid passing through them finds a narrowed passage will produce a murmur, and consequently it is immaterial, as a source of sound, whether the blood flows normally onwards or abnormally backwards—the physical condition as regards production of sound is the same.

It may be, in the present day, no very difficult task to set forth what may be the sounds heard as proper to each lesion of the heart; nevertheless, practically, a differential diagnosis is frequently fraught with great difficulty, inasmuch as the sounds and murmurs are often continuous, or one sound may mask or entirely supersede another. Then, again, there is the contiguity of the similar parts of the two hearts, and the synchronism in their actions and their sounds, to be estimated and carefully and duly separated.

The due appreciation of these confusing indications requires much practical skill, and a large necessity for taking into consideration many attendant circumstances. Some few of these constantly recurring difficulties in diagnosis will now be referred to.

[To be continued.]

### CHLOROFORM IN DYING.

By JOSEPH BULLAR, M.D., Physician the Royal South Hants Infirmary.

So many cases where most attention is expected, are those where disease can only be palliated, that palliation becomes a very important part of our duties. Few of this large class are more distressing, than when extreme restlessness and sleeplessness accompany the exhaustion of the last days or weeks of the life of the very aged, especially when (as is often the case) the mental consciousness is still active, and the failure of power in the vital organs is actually felt, with none of that physical courage to bear the suffering, which the same patients had when younger and stronger. That true health, or at least that tenacity of life on which its long duration depended, keeps them alive and suffering, and conscious of this suffering, for a length of time tedious to themselves and often most wearisome to those who watch over them, and who look (so often in vain) to medical aid for an alleviation which would relieve themselves as well as the patient.

Small opiates, which at an earlier stage may have been useful, at this later one often aggravate the distress instead of soothing it; and it is in this condition that the cautious inhalation of chloroform is a great boon.

A lady, aged 82, had been for some years confined to her bed and sofa, and, without any appreciable bodily disease, was now gradually sinking. For some years she had suffered mentally from depression taking a religious form as to her soul's safety, and so persistently, that it seemed like a delusion from

the powers of the brain becoming enfeebled. But she had a good appetite; could employ herself much with finger-work; and, though confined to her room and much in bed, had a very fair amount of bodily health. Some months before her death, the delusions were attended with more excitement and irritability; she slept less, and often not at all; and her appetite gradually declined. Small doses of liquor opii sedativus (from five to ten drops) at night soothed her at first; but, as her strength diminished, the same doses excited her brain, and she lay in a very distressing state of restlessness and prostration, exacting constant attention from those watching her. She lost her appetite and power for solid food, and could only take small quantities of beef-tea and weak brandy and water. In this painful condition, about five weeks before her death, I recommended the inhalation of twenty drops of chloroform at a time at bedtime, on a handkerchief; having first given it to her myself, to see whether it soothed and was agreeable to her, or otherwise; and it was found that this prevented the exciting affects of the liquor opii sedativus until its narcotism exhibited itself, and by both together she had quieter nights. But, after a few days, the opiate was discontinued, as it excited, and chloroform alone used, with so pleasant a result to the patient herself, that she frequently, by a sign, indicated her wish to inhale it, and was partially for a month and wholly for five days before death kept almost constantly under its moderate influence. The effect was to quiet the delusions, to make her mind peaceful and happy, and also to raise the pulse and respiration. Her daughter observed this, and I found it to be the case. When she was so weak that the pulse could only be felt with difficulty, a short inhalation of chloroform rendered it distinctly perceptible, and the respiration became slower and more natural.

At my request, one of this patient's daughters stated in writing their observations on chloroform in their mother's case, as the inhalation was carried out by these ladies and a middle-aged sensible attendant.

"A pleasing feature in her case," writes the daughter, "was, that chloroform never made her really insensible; it only lulled her pain, gently calmed her spirits, and frequently, but not always, sent her to sleep for a few minutes, when she would awake quite herself, with a perfectly natural look and manner, and perhaps ask how long she had been asleep; and this after so many months of fearful excitement. We felt nervously anxious at first of giving her too much, and we never omitted to watch the pulse. One morning, after breakfast—a time when she was generally low—I had given her the usual dose of brandy and water, when she said, 'I do not like the brandy as I did; give me some of the nice stuff to smell' (meaning chloroform). I did so with some anxiety, as she was so low, when, to my great relief, the pulse gradually rose. I continued giving small doses at short intervals, when it very soon regained its usual strength. After this, we constantly noticed the same thing; and we no longer hesitated to give her as much as she craved, especially as the breathing powers were much relieved and became more free, and the countenance took a peaceful and happy expression, such as we had rarely seen in her of late years. To our minds, this craving was an instinct of nature. She had for a long time been asking for something to smell, and nothing we could get for her seemed what she wanted; but, when she had once felt the effects of the chloroform, she never asked for anything else, but for that constantly.

"My mother used just under a quart. The greater part was given during the last week or ten days of

her life; but, the night before she died, she inhaled nearly half a pint. Still she was conscious till within six or eight hours of her death; at that time, we believe she became quite insensible."

Statements of this sort by intelligent friends, who watch effects and describe them without any bias, are especially valuable.

This statement is satisfactory as to chloroform soothing the mind; for, under its mild influence, the patient was more like herself in the most tranquil periods of her life, and altogether different from that excited and restless or depressed condition which, as her bodily powers failed, added so much to her sufferings. It is also valuable in showing that, in certain weak states of body, chloroform strengthens the pulse and respiration—a fact often observed by those who watch the pulses of patients undergoing operations under chloroform. If the dying state be reckoned by the respiration becoming quicker and the pulse failing, this patient took five days in dying; and, as the chloroform so obviously increased the strength of the pulse and breathing, it rather prolonged than shortened life. Indeed, it seemed to act like the tonic stimulus of food or wine in a stronger bodily condition, and at a time when neither of these could be taken.

This was one of the few cases in which (no *post mortem* examination having been made) the only return of the cause of death I could make was the decay of old age. The lungs, heart, digestive organs, and kidneys, were without disease; and the delusions were attended with no paralysis or loss of cerebral or nerve power.

In the next case, although the patient was 75 years of age, and had been breaking for two years, he did not die of old age, but was greatly worn down by pain. He was well known in this county as a sportsman. He had hunted, shot, and fished from his youth, and still shot all the season; indeed, his last illness was brought on by exposure to cold in shooting, beginning by severe catarrh, and followed by violent pain of the left side of his face and scalp and ear. The pain resisted quinine and other neuralgic remedies, and its obstinacy was eventually explained. He had been deaf for some time; but increased deafness of the ear, with tenderness and some fullness over the mastoid process of the left temporal bone, indicated disease of the petrous portion. He was a man who had been able to bear pain unflinchingly. He was organised for a sportsman—tall, lean, muscular, no fat, large-chested, and bony. In hunting, he had at various times broken or dislocated several of his long bones; and his brother told me he had seen seven men with pulleys trying to reduce his dislocated shoulder, whilst he uttered no complaint; and the surgeons said (in that heroic age of remedies) they could not make him faint. But this pain was so excruciating that it wore him down. It was always there, but at times in acute paroxysms. He had chronic cough and expectoration from bronchitis, and latterly passed much pus from the bladder, giving suspicion of pyæmia, with complete loss of appetite and failing strength. He could never in his whole life take opium, as it excited him; and when he had it now, it produced no relief, but distressing sensations and sickness. In this condition, and about three weeks before his death, when all hopes of his recovery had passed, I recommended him to inhale chloroform. It relieved the pain, and gave him bodily comfort. The effect, he said, was like champagne, when he could drink a bottle of it. As he became weaker, he increased the quantity of it, and kept himself much under its influence. In the last five days, sixty-three ounces of chloroform were used. He was a strong-willed

man, who would do as he liked; and, having once felt the agreeable relief which chloroform gave him, he compelled his niece (who watched him) and his servant to wet his handkerchief with it as often as he called for it. It rendered his last days bearable, and indeed comfortable, instead of a period of excruciating pain. There was no *post mortem* opportunity of seeing the disease which produced this great suffering; but, as the mastoid process was tender on pressure and swollen, and the skin somewhat red, with complete deafness, it was evidently from diseased bone. It recalled a case I saw in February 1863, of a man who seemed literally to die of pain referred to the sacrum and coccyx, which came on after exposure to wet three months before admission into the South Hants Infirmary; and by no remedies could the pain be removed. Subcutaneous injections of morphia, chloroform, veratrine, aconitine; externally, blisters, with morphia, hot hip-baths, were thoroughly tried; externally and internally, opium, chlorodyne, cannabis indica, quinine, iodide of potash, and guaiacum. Short relief was given by relays of four leeches, but this only for a short time; and the poor fellow was actually worn down, and died from this pain. My friend, Professor Aitken of Netley, kindly examined minutely a portion of the sacrum and coccyx I sent him, and the cause was discovered to be vascular tumours in the bony structure. He thus described them. "In both pieces of bone, after the flesh had been removed, vascular tumours are seen. One of them is nodulated, and of the circumference of a shilling; the other less. They are imbedded in the spongy bone, and one at least presses upon the nerves as they make their exit through the sacral foramina. I am of opinion that more of these little tumours have existed in the substance of the sacral bones; perhaps also in the spongy parts of the vertebrae. They seem to me to be of a varicose nature, and connected with the venous system, rather than the arterial."

This case, as in the former, came on after exposure to cold. He had lived very freely, occasionally drinking very hard; and, though only sixty-two, was a worn-out man. He had Bright's kidneys.

It did not occur to me to make him inhale chloroform, as I should do now; for it was one of the most distressing diseases I ever watched, as nothing alleviated his constant pain; and (as the cause showed) nothing but such an anæsthetic as inhaled chloroform would have destroyed pain from tumours pressing on sensitive nerves amongst bone.\*

The only other case in which I have given chloroform to the dying was that of a lady, many years ago, who was subject to very painful attacks of gall-stones. Chloroform inhaled was the only relief. After several gall-stones had passed, at varying intervals of weeks and months, one attack came in which the pain never ceased, and she died after many days, deeply jaundiced. Her son, who was studying medicine, administered the chloroform. "It had the effect," he writes, "of very quickly lulling the pain; and, the moment she was out of pain, I desisted. At such a moment, she was sometimes conscious of my presence, sometimes not. The amount of chloroform used altogether was very large indeed." I found, *post mortem*, a gall-stone of the size of a small marble, impacted in the common duct, two inches from the duodenum. The liver was very large and light yellow; and there was an ovarian tumour, with hair and bones in it, the pressure of which on the crural nerves during life had caused much suffering. She had been an invalid for a long time. In this case, also, when the patient had felt the relief from chloro-

\* Unless Dr. Richardson's ether spray would do it now.

form, she would have it given to her. I have seen one patient die from a gall-stone rupturing the duct; and the agony is such, that any amount of chloroform which gave ease would be justifiable; so would it be in cases of rupture of the stomach and intestines. But, in these cases, it must be given as long as life exists; and, when once its relief is experienced, we may be sure the patient will insist on its continuance to the fatal end.

I look back many years with regret to a night during the whole of which a lady of the most sensitive nervous organisation died in inconceivable suffering. Dr. Baillie said to her in her girlhood, "You will have a great deal to suffer in your life, my dear, but don't talk about it;" and his prescience was too true. For many years before her death, she constantly suffered abdominal pain, restlessness, and general distress; and latterly the cause of this was explained by the discovery of an abdominal tumour. This suddenly burst internally; and, after twenty-four hours of what was literally horrible torment, she died. Having watched the case for years, I knew she must die; but, from the weakness of her heart, I feared chloroform might extinguish life at once. With my present experience in chloroform, I should have given it freely, with the belief that the chances would be in favour of its rather prolonging life, which was shortened by the pain; and opium gave no relief.

The rule, in advising chloroform in these cases, is to judge by its immediate effects. In these instances, it was so agreeable, without any after discomfort, that, when once given, the patients insisted on its continuance; and this is our guide.

The inhalation had better first be tried by the medical attendant himself; twenty minims being dropped on a handkerchief, and held before the mouth and nose at such a distance as to admit air, but not far off; and the patient directed to breathe naturally. If it irritate or nauseate, or be in any way repugnant, these are probably unfit cases. If it soothe, and the patient ask for it again, it may be very safely entrusted to a careful nurse or female member of the family, giving clear directions that at first no more than twenty minims should be poured on a handkerchief at a time, and held at a certain distance; and that the breathing and pulse should be watched. A second supply should not be used, if the first has produced its soothing effect.

There is one question which must not be avoided, and that is the ethical one.

It is reported that Queen Maria Theresa said, in dying, "Give me no opiates; I would meet my God awake." And we meet with similar instances, where the patient sometimes, and more often his friends, think it is wrong, in a religious point of view, to give narcotics in dying. But it is not recommended for these "great hearts" to use chloroform, but for the weak ones, who suffer so terribly from the mental and bodily exhaustion of dying. The best answer to those who doubt its propriety on religious grounds, is in these letters from the relatives of two of these patients. One writes:

"For my mother, chloroform seemed to clear her intellect, and enabled her to speak with thankfulness and hope regarding her eternal interests, as she had not done for so long; and I cannot but think that more precise knowledge of its effects in individual cases would dissipate those anxious thoughts of friends on this, as on other points, to the benefit of all concerned."

The next letter is from the lady who watched the patient, to her father.

"I am quite aware of your dislike to anything like a sedative being used when a human being is

passing from time to eternity. The free use of chloroform in my uncle's case was unavoidable. After once inhaling it, he would have it. But, had it been denied him in his last hours, the agony which he was suffering was so excruciating that consciousness as to everything but that, was gone. Chloroform stupifies for the time; but, when its effects are past, the faculties are alive again, and the person able to attend to other things. Were I in attendance upon a dying person, I should prefer his having temporary relief from pain; as, if he had not, he would not, humanly speaking, be more able to attend to the things which concern his soul's salvation, than if he had not obtained relief from chloroform; or I would rather say, not so capable."

These letters are satisfactory answers to those who, in case themselves, theoretically object to soothing others in the saddest form of distress; for they show that chloroform thus administered, by relieving restlessness or pain, renders the patient, in intervals of ease, more capable of normal thought and feeling.

## Transactions of Branches.

### LANCASHIRE AND CHESHIRE BRANCH.

#### PRESIDENT'S ADDRESS.

By A. T. H. WATERS, M.D., Liverpool.

[Delivered at Liverpool, June 13th, 1866.]

GENTLEMEN,—My first duty, on taking this chair, is to thank you for electing me to an office which I deem it both a privilege and an honour to fill; and my second duty is to offer you a few remarks incidental to my position and to the occasion which has called us together.

I would first of all express the strong opinion I entertain of the value of these annual gatherings, not simply as means of friendly intercourse, or for the interchange of views on matters of professional interest, but inasmuch as they tend to keep alive in us a spirit of honourable ambition and rivalry, the basis of all progress, whether in science or in art.

I doubt not there are some amongst us who, at one or other of our anniversary meetings, have first felt spring up within them the desire of honourable distinction; who, seeing the way in which honour has been dealt to others, have experienced a craving for a like reward; and who, from such period, can trace the development of a germ, which, as it has grown and strengthened, has been to them the harbinger of professional advancement and success; and if in only a few instances such a result should have been achieved, if the influence of our Association should only occasionally have led to extraordinary exertion, it would well deserve the support of our profession; but it has had an effect of a far wider range in a different direction. It has, I venture to say, been the means of bringing into closer alliance larger numbers of our body; it has exerted itself, in some instances successfully, to remove the grievances and improve the status of our profession; and it may, I think, by its precepts no less than by the example of its members, have tended to promote the observance of a higher professional morality.

My own connexion with the Association has been one of much pleasure and satisfaction; and I cannot do other than urge all who have not joined our ranks, and especially the younger members of the profession, to enrol themselves with those who constitute, in almost every district, an important section of our