

but on a second trial, complete insensibility was produced in from a minute and a half to a minute and three-fourths, and from this time we have the patient's positive assurance that she remained perfectly insensible up to a point of time, which, as nearly as might be, amounted to three minutes after the operation; that all this time, in fact, she felt nothing. One particular observation made by Dr. Hutton, and mentioned in the communication to the *Medical Press*, was the complete power possessed in managing the stump; it could be moved about in every direction while securing the arteries, which were in unusual number in this case. It was also remarked by Dr. Hutton that there was rather more blood than usual: as regards this observation, however, Dr. Macdonnell was not sure that much importance is to be attached to it, but under circumstances where every point is deserving of accurate note, it was worth recording. The patient suffered unusually little from aching of the wound, but complained slightly of it after her removal to bed. The notes of the pulse were published from Mr. Tyfnell's observations. Before the operation her pulse usually numbered 120 or 130, but it has since returned very near the natural standard; the pulse being now 100, or very little above it. He (Dr. Macdonnell) had never seen any case turn out more completely favourable; he now looked on the patient as perfectly safe; the only circumstance out of the ordinary course that had occurred was this—on the sixth day after the operation (Thursday) two ligatures fell, and one yesterday, the single one he believed was from the humeral artery; three ligatures still remain.

As his object was (Dr. Macdonnell said) to elicit opinions, he would trespass very little longer on the time of the society, but would merely state a few of the cases in which it occurred to him the employment of the ether would prove highly serviceable. In cases of tetanus and hydrophobia, if inhaled just before the approach of the fit, it might, he thought, turn out to be extremely useful. Again, where operations have to be performed on subjects in whom there is a marked deficiency of moral courage—a perfect effeminacy in fact—he had often observed even slight operations prove fatal under such circumstances. In one such instance he had known the man express his conviction, several days before the operation of amputation, that he would not recover, and in three days after he died without anything having occurred to account for the man's death except the shock upon the nervous system. Many of the gentlemen present had, no doubt, experienced similar results in persons of that highly impressible nature. In many cases of compound dislocation and fracture, it would also, he was sure, be of much service, as a means of allaying the strong spasmodic action of the muscles which so greatly interferes with reduction of the former and coaptation of the latter. How very fortunate, he would say, might not a knowledge of such a remedy have been on an occasion of late occurrence; he alluded to the case of dislocation of the hip which had excited so much sympathy amongst the profession and the public. In conclusion, Dr. Macdonnell suggested the necessity of using the ether with great caution in all cases where disease of the brain is at all suspected, or any apoplectic tendency. He again begged to remark that his great object was to ascertain the opinions of the society generally on this important subject. One or more of the gentlemen present would perhaps be willing to be experimented upon.

Mr. Ellis begged to ask a question or two respecting a couple of points which he supposed Dr. Macdonnell had unintentionally omitted to mention. First, with respect to the effects produced by the vapour; whether Dr. Macdonnell had observed anything like collapse before or after the operation performed by him; secondly, as to the effects experienced by Dr. Macdonnell himself, for having seen that gentleman's interesting letter in the *Press*, he (Mr. E.) was

aware of Dr. Macdonnell's having himself inhaled the vapour.

Dr. Macdonnell replied, that in the communication alluded to by Mr. Ellis, he had stated all he knew on both the points referred to by him; and being under the impression that almost all present were aware of the contents of that communication, he had purposely avoided occupying the attention of the society with a repetition. The first unusual sensation experienced by Dr. Macdonnell on the inhalation of the vapour, was a disagreeable feeling of heat referred to the centre of the chest—that is, to the larger bronchial tubes, together with a sensation of slight obstruction in them, accompanied with cough. These symptoms disappeared on the approach of insensibility, and the breathing became apparently easy; then for a few seconds a low humming sound was felt in the head, and in a few seconds more a total deprivation of sense ensued, as if from receiving a heavy blow on the head, but without the sensation of a blow being inflicted. Both in Dr. Macdonnell himself, and in every person on whom he operated, there was dilatation of the pupils, and it had been observed by his friend, Mr. Macdonnell, who assisted him, that in the beginning his pulse rose slightly, but fell again as insensibility became established, and was rather stronger than usual, his friend thought. It was observed by Mr. Tufnell, too, that the pulse varied very much at different periods of the operation subsequent to the production of insensibility. The only signs of collapse observed in Dr. Macdonnell himself, or in others, was a total loss of muscular power, complete inability of motion in the limbs. He believed the effects of the agent as just described were exactly in accordance with what occurred in a case in which Mr. Collis had on Wednesday last removed a toe-nail from a patient at the Meath Hospital, and in which the application of the ether was perfectly successful. The effects of the vapour have, Dr. Macdonnell thought, no similarity whatever to those of intoxication; he certainly felt nothing of the kind himself, neither did any one else, as far as he was aware. Immediately on recovering from the state of insensibility, too, which was in five or six seconds from the time of its being complete, he (Dr. Macdonnell) looked about and saw distinctly two objects on a table at a distance; there was, therefore, nothing of double vision or other sign of intoxication.

Mr. Tufnell next related the particulars of four cases in which he had tested the effects of the ethereal vapour. The first was that of a stout healthy dragoon, aged 25, who had an abscess, or, as it is commonly called, a gumboil, caused by a carious stump, in the removal of which considerable additional pain would of course be suffered in consequence of the abscess.

The vapour was inhaled gradually and slowly, and as soon as the brain began to be affected by it, the man showed signs of distress and dyspnoea. Owing to deficiency in the apparatus, the atmospheric air was not entirely excluded, so that at the end of six minutes insensibility was not complete; there was, however, loss of muscular power and other evidences of the action of the vapour, and this being the first experiment, Mr. Tufnell was unwilling to push it further. The tooth, however, was extracted without any manifestation of suffering, further than a slight effort on the part of the man, but he did not touch the hand of the operator. He soon after stood up and looked about vacantly. The condition of the pulse was not noted in this case, but the pupils were observed to be very slightly altered.

The subject of the second experiment was a man of a weakly leucophlegmatic temperament. Before a minute had elapsed there was slight spasm of the respiratory muscles and short cough, which, in a few seconds more, increased to such a degree that the points of the fingers shook from the violence of the inspiratory efforts. The head dropped on one side of the neck and the eyelids fell. In three