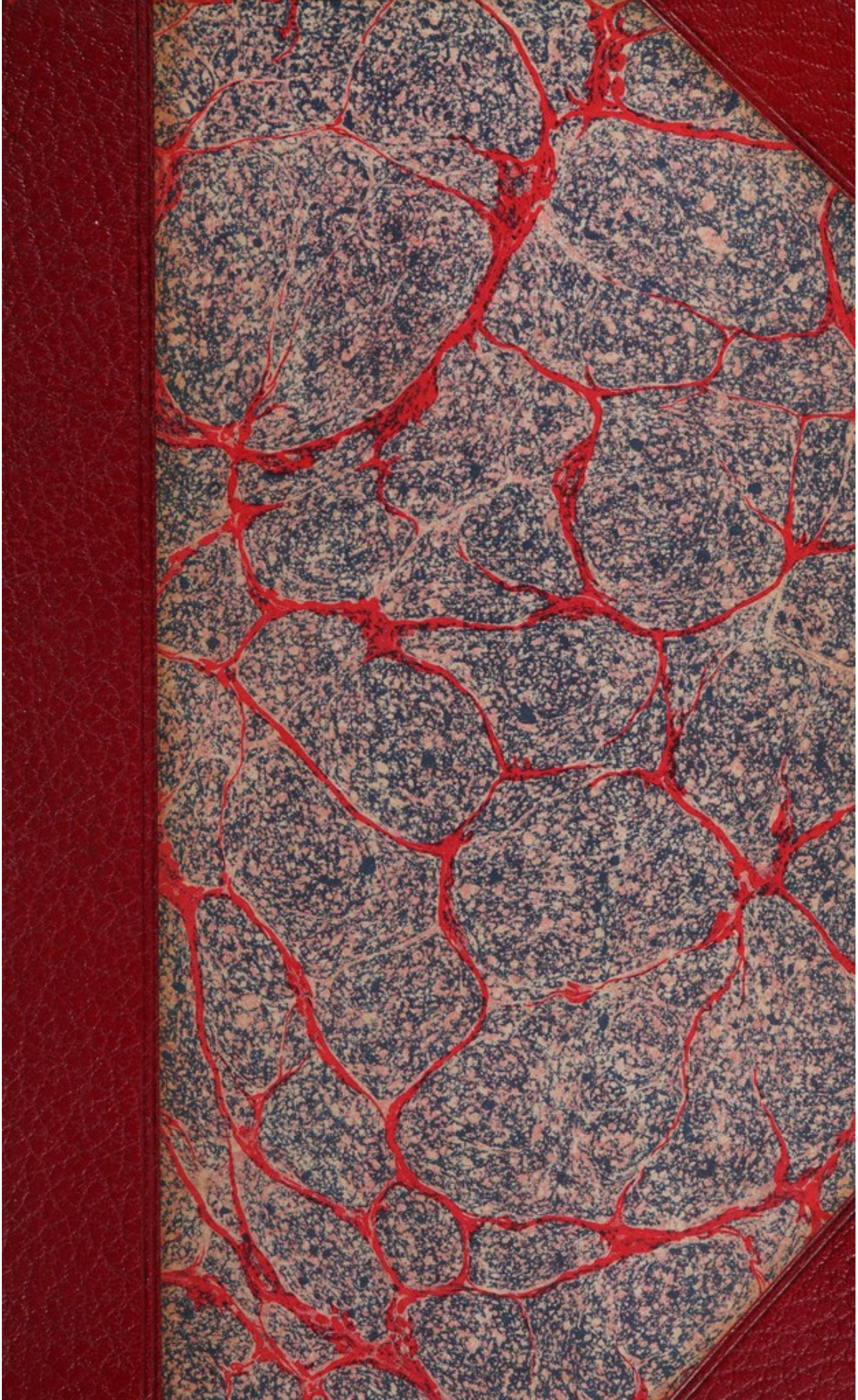
Remarks on the superinduction of anaesthesia in natural and morbid parturition: with cases illustrative of the use and effects of chloroform in obstetric practice / [Sir James Young Simpson].



REMARKS

ON THE

SUPERINDUCTION OF ANÆSTHESIA

IN

NATURAL AND MORBID PARTURITION:

WITH

CASES ILLUSTRATIVE OF THE USE AND EFFECTS OF CHLOROFORM IN OBSTETRIC PRACTICE.

BY

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Serve me—as Mandragora—that I may sleep.
WEBSTER'S DUCHESS OF MALFY.

But there is
No danger in what show of sleep it makes,
More than the locking up the spirits a time,
To be more fresh, reviving.
SHAKESPEARE'S CYMBELINE.

SECOND THOUSAND.

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ON THE

SUPERINDUCTION OF ANÆSTHESIA, &c.[1]

Among the many improvements by which the operative part of medicine has, from time to time, been enriched, few or none have exerted a more potent, or a more beneficial influence over its advancement and progress than the introduction, in the 16th century, of the application of ligatures to arteries, with the object of arresting the hemorrhage attendant upon surgical wounds and operations. Previously to that time, surgeons had no other means of stemming the flow of blood—after amputation of the limbs for instance—than by scorching over the raw and bleeding wound with a red-hot iron, or by plunging it into boiling pitch, or by applying strong potential cauteries to its surface. With laudable efforts to diminish the fearful severities of their practice, they exerted their ingenuity in devising, as it were, refinements upon these necessitous cruelties. Thus Hildanus, the patriarch of German Surgery, amputated the limbs of his patients with red-hot knives, in order that he might divide the flesh and sear up the vessels at one and the same time. Upon all these practices, the great and happy suggestion of Ambrose Paré, viz. to shut up the bleeding vessels, by constricting or tying them with slender ligatures, was a vast and mighty improvement. It at once made the arrestment of hemorrhage in operations far more simple, more certain, and more secure. It saved immeasurably the sufferings of the patients, while it added immeasurably to their safety. But the practice was new, and an innovation; and consequently, like all other innovations in medical practice, it was, at

[1] Read to the Medico-Chirurgical Society of Edinburgh, at their meeting on the 1st December 1847.

first and for long, bitterly decried and denounced. The College of Physicians of Paris attacked Paré for his proposed new practice: they attempted, by the authority of the French Parliament, to suppress the publication and dissemination of his observations: and, for nearly a long century afterwards, some of the Hospital Surgeons of Paris continued, with the characteristic obstinacy of the profession, to prefer cauterizing bleeding arteries "with *all* the ancients," rather than simply tie them "after the manner of a few ignorant and presumptuous moderns."[1] "Without" (writes the late Mr John Bell) —"without reading the books of these old surgeons, it is not possible to imagine the horrors of the cautery, nor how much reason Paré had for upbraiding the surgeons of his own time with their cruelties. . . . The horrors of the patient, and his ungovernable cries, the hurry of the operators and assistants, the sparkling of the (heated) irons, and the hissing of the blood against them, *must* have made terrible scenes; and surgery *must*, in those days, have been a horrid trade."[2]

[1] All writers on surgical history give more or less full details upon this opposition to the practice of Paré. Thus, for example, Professor Cooper observes, "By many surgeons, however, the tying of arteries continued to be deemed too troublesome, and hence they persisted in the barbarous use of the actual cautery; of this number were Pigrai, F. Plazzoni, and P. M. Rossi. Nay, so difficult was it to eradicate the blind attachment shown to the ancients, that Theodorus Baronius, a professor at Cremona, publicly declared, in 1609, that he would rather err with Galen than follow the advice of any other person. . . . I shall not here expatiate upon the ill-treatment which Paré experienced from the base and ignorant Gourmelin, president of the Parisian college of physicians; nor upon the slowness and reluctance with which the generality of surgeons renounced the cautery for the ligature. . . . Almost 100 years after Paré, a button of vitriol was ordinarily employed in the Hotel Dieu at Paris for the stoppage of hemorrhage after amputations; Dionis was the first French surgeon who taught and recommended Paré's method. This happened towards the close of the 17th century, while Paré lived towards the end of the 16th."—*Cooper's Dictionary of Practical Surgery*, 7th Edit. pp. 46, 47. See also *Sprengel's Histoire de Médecine*, Vol. III. p. 315; *Bell's Surgery*, Vol. I. p. 226, &c.

[2] Principles of Surgery, Vol. I. p. 212.

The sentiments which Mr Bell here expresses are those with which the human mind often *looks back* upon our opinions and practices, when these opinions and practices are past and gone, and have become mere matters of history. In the above, as in many other instances, we never become fully awakened to the cruelty and enormity of some of our established doctrines and doings, until, from time to time, an advance is made in civilisation or science, and we find that this or that doctrine and practice, with all its attendant sufferings and inhumanities, was in reality utterly unnecessary, and utterly uncalled for.[1] In general, however, long years elapse before this new aspect of matters is duly seen; or, at least, duly acknowledged. While the practices themselves are in full operation, the mind, enthralled by education and habit, cannot be easily made to view them in their true character; and when, in the progress of the march of knowledge and science, their propriety and perpetuation come at last to be challenged and contested, human passions and prejudices ever (as in the above instance of cauterization) rise up to argue for, and insist upon, the continuance and safety of the past, and the total impolicy and high peril of any attempted alteration. But time passes on, and brings with it, sometimes abruptly—generally almost imperceptibly—a perfect change of doctrine and practice. Any surgeon who, in the days of Paré, dared to arrest the hemorrhages from his am-

[1] Witness, for example,—(as compared with the *past* opinions of those who practised them)—our *present* opinions regarding the burning, by our Druidical forefathers, of whole wickerfuls of living human beings, and in the name of religion; or, in times nearer our own—in Christian times—the application of the fire and fagot by man to man, still under the plea of religion; or the use of the rack and torture; the incremation in the sixteenth and seventeenth centuries of many poor wretches for the alleged crime of witchcraft; the altered existing ideas regarding the required frequency of capital punishments, and the whole question regarding their policy; the recent rapid and complete change of doctrine regarding the horrors and inhumanity of slavery; the changes in practice regarding insanity from what it was in the last century, when chains and a dungeon were the portion of every poor lunatic; &c. &c.

putation wounds, by applying ligatures *instead* of red-hot irons, would have been denounced by his compeers. Any surgeon, on the contrary, who now, at this present day, dared to arrest the hemorrhages from his amputation wounds, by applying to the bleeding vessels, not ligatures but red-hot irons, would as certainly be denounced by his compeers, and his talents, as well as his humanity, would be strongly challenged. We look back with sorrow upon the pitiless practices in that respect of the contemporaries and opponents of Paré. In the course of years our successors in the profession will, I most sincerely believe, look back with similar feelings upon the alleged "insignificance," and "propriety," and "desirability" of pain in surgical operations, as maintained by many members of the profession at the present day; and they will equally marvel at the idea of men—of humane men—complacently confessing and upholding, that they prefer operating upon their patients in a waking instead of an anæsthetic state; and that the fearful agonies which they thus inflict—the agonies of the surgeon's knife—should be endured rather than avoided—quietly and decorously submitted to, and not attempted to be eschewed. I have elsewhere discussed,[1] at some length, the strange opinions and practices of some modern surgeons, upon this alleged propriety and necessity of pain in surgical practice and surgical operations. On the present occasion, my object is to offer some remarks regarding the pains attendant upon parturition, and the propriety of alleviating and annulling the sufferings of our patients in obstetrical practice and obstetrical operations. But let me first adduce some evidence of *their* intensity and amount.

"The distress and pain (observes Dr Denman [2]) which women often endure while they are struggling through a difficult labour are *beyond* all description, and seem to be more than human nature would be able to bear under any other cir-

[1] See Monthly Journal of Medical Science for September 1847, Pp. 156–166, "On the Allegation of the Prevention of Pain in Surgical Cases being Unnecessary and Improper."

[2] Introduction to Midwifery. 5th edition, p. 377.

cumstances." But even the amount of agony endured in most cases of *natural* parturition, is abundantly severe.[1] Viewed apart, and in an isolated light, the total sum of actual pain attendant upon common labour is as great, if not greater, than that attendant upon most surgical operations. It is, I believe, education and custom, and perhaps the idea of its inevitable necessity, which have made the profession in general look upon the degree of maternal pain and physical suffering accompanying natural parturition, as less deserving of consideration than in reality it is. These circumstances have, in a great measure, blinded us as to its actual amount, and intensity, and importance. For it was, no doubt with perfect truth, remarked by an author[2] who wrote three hundred years ago, "Mulier, in partu, maximos et fere intolerabiles sustinet dolores."

Some living authors—without any view to such a question as the possibility of avoiding it—in fact, with a view only to the accurate painting of nature, have described to us in forcible language the degree of suffering attendant upon the last stages of the process of common parturition. "The pulse (says Dr Merriman) "gradually increases in quickness and force; the skin grows hot; the face becomes intensely red; drops of sweat stand upon the forehead; and a perspiration, sometimes profuse, breaks out all over the body; frequently violent tremblings accompany the last pain, and at the moment that the head passes into the world, the extremity of suffering seems to be beyond endurance."[3] Or, let us take the picture of the sufferings of the mother in the last part of natural labour, as portrayed by one who is universally reputed by the obstetric profession as the most faithful of living observers—Professor Naegele of Heidelberg—"The pains (he observes) of this stage are still more severe, painful, and

[1] Cases undoubtedly ever and anon occur, in which the mother suffers comparatively little or no pain; but these are exceptions, rare exceptions, to a general rule.

[2] Hieronymus Mercurialis, in Spachius Gynaecia, p. 233.

[3] Synopsis of Parturition, p. 15.

enduring; return after a short interval, and take a far greater effect upon the patient than those of the previous stage. Their severity increases so much the more from the additional suffering arising from the continually increasing distension of the external parts. They convulse the whole frame, and have hence been called the *dolores conquassantes*. The bearing down becomes more continued, and there is not unfrequently vomiting. The patient quivers and trembles all over. Her face is flushed, and, with the rest of the body, is bathed in perspiration. Her looks are staring and wild; the features alter so much that they can scarcely be recognised. Her impatience rises to its maximum with loud crying and wailing, and frequently expressions which, even with sensible, high-principled women, border close upon insanity. Every thing denotes the violent manner in which both body and mind are affected." [1] "This (observes Dr Rigby) is the moment of greatest pain, and the patient is frequently quite wild and frantic with suffering; it approaches to a species of insanity, and shows itself in the most quiet and gentle dispositions. The laws in Germany have made great allowances for any act of violence committed during these moments of frenzy, and wisely and mercifully consider that the patient at the time was labouring under a species of temporary insanity. Even the act of child murder, when satisfactorily proved to have taken place at this moment, is treated with considerable leniency. This state of mind is sometimes manifested in a slighter degree by actions and words so contrary to the general habit and nature of the patient, as to prove that she could not have been under the proper control of her reason at the moment. It is a question how far this state of mind may arise from intense suffering, or how far the circulation of the brain may be affected by the pressure which is exerted upon the abdominal viscera." [2]

[1] Lehrbuch der Geburtshulfe, p. 104. See British and Foreign Medical Review, vol. xix. p. 64.

[2] System of Midwifery, p. 103.

Such is the description of the amount of pain and agony endured in natural parturition, given by some of our best and most esteemed authorities in obstetric literature.

Is it right for the physician to interfere with these fearful sufferings and agonies in order to save and shield his patients from the endurance of them? Is it proper for him to exercise the skill of his art so as to moderate and remove these "almost intolerable pains (*fere intolerabiles dolores?*") Would it be fit and meet in him to use human means to assuage the pangs and anguish attendant upon the process of parturition in the human mother?

These questions, and questions like these, I have often during the currency of the present year, heard complacently put by medical men,—men, too, whose opinions and actions in other matters, and in other respects, were fully and truly actuated by that great principle of emotion which both impels us to feel sympathy at the sight of suffering in any fellow creature,[1] and at the same time imparts to us delight and gratification in the exercise of any power by which we can mitigate and alleviate that suffering. Such questions, I repeat, are seriously asked by physicians and surgeons, the professed object of whose whole science and art is the relief of human disease and human suffering. They are questions propounded with all imaginable gravity and seriousness by individuals who (in a mere abstract point of view) would, no doubt, strongly object to being considered as anxious to patronize and abet human misery, or traffic in the perpetuation of human pain. Nay, probably, at the date at which I write, there is not one in twenty—perhaps not one in a hundred—of the physicians and surgeons of Great Britain who have, as yet, thought seriously upon the propriety of alleviating and annulling the tortures attendant on human parturition; or who have acknowledged to their own minds

[1] "Inditus est, ab ipsa Natura, homini, *misericordiæ* affectus nobilis et excellens." Bacon—"De Augmentis Scient.," Lib. viii. cap. ii.

the propriety of their bestirring themselves so as to be able, in the exercise of their profession, to secure for their patients an immunity from the throes and agonies of childbirth.

Perhaps, as an apology for their indolence and apathy, some may be ready to argue, that the pain and suffering attendant on parturition is not dangerous and destructive in its results, however agonizing and distressing it may be to the patient during its continuance. But the argument is fundamentally unsound. All pain is *per se*, and especially when in excess, destructive and even ultimately fatal in its action and effects. It "exhausts (says Mr Travers) the principle of life."[1] "It exhausts (says Mr Burns of Glasgow) both the system and the part."[2] "Mere pain (observed the late Dr Gooch) *can* destroy life."[3] And the great pain accompanying human parturition is no exception to this general pathological law. For, in fact, the maternal mortality attendant upon parturition, regularly increases in a ratio progressive with the increased duration of the woman's sufferings. The statistical data published by Dr Collins, in his Report of the Dublin Lying-in Hospital, affords ample proof of this general principle. According to calculations which I some time ago made from Dr Collins' data, I found that while in the women delivered in the Dublin Hospital, and whose sufferings were terminated within 2 hours, only 1 in 320 of the mothers died; where the labour varied in duration from 2 to 6 hours, 1 in 145 of the mothers died; in those in whom it continued from 7 to 12 hours, 1 in 80 died; where it endured from 12 to 24 hours, 1 in 26 died; where it lasted from 24 to 36 hours, 1 in 17 died; and out of all those whose parturient sufferings were prolonged beyond 36 hours, 1 in every 6 perished.

Again, some may possibly be inclined to reason, that any means by which we could produce a state of anæsthesia or insensibility to the physical pains of labour, must, of necessity, be of such a character as to add to the perils and dan-

[1] Inquiry concerning Constitutional Irritation, vol. i. p. 76.

[2] Principles of Surgery, vol. i. p. 502.

[3] Dr Merriman's Synopsis of Parturition, p. 239.

gers of the patient. I believe this argument to be as futile and untenable as the one that I have just noticed. Indeed, judging from analogy, and from what is the fact in surgery, I believe that, as a counteraction to the morbific influence of pain, the state of artificial anæsthesia does not only imply a saving of human suffering, but a saving also of human life. Out of above 300 cases of the larger amputations performed during the current year, upon patients in an etherized or anæsthetic state, and which I have collated from different hospitals in Great Britain, Ireland, and France, a smaller proportion died than formerly used to perish in the same hospitals under the same operations without etherization. I shall take one of these amputations as an illustration of the whole—and that one the most severe of all—viz. amputation of the thigh. Malgaigne (1842) showed, that under amputations of the thigh, in the hospitals of Paris, 62 in every 100 died; in Edinburgh, the mortality from this operation, in the only years during which the hospital reports were published (1839–42), was 50 in every 100; Mr Phillips of London (1844), found the average mortality 40 in 100; Dr Lawrie at Glasgow (1839), found it also in the hospitals of that city to be 40 in 100.[1] I have notes of 135 cases in which this same operation has been performed in hospital practice upon patients in an etherized state. Out of these 135 cases 33 died, or only 24 in 100. Hence I repeat, that the condition of anæsthesia not only preserves the patient in surgical practice from agony

[1] The following table exhibits the actual number of the cases of amputation of the thigh referred to in the text, with their respective results :—

MORTALITY ACCOMPANYING AMPUTATION OF THE THIGH.

Name of Reporter.	Number of Cases.	Number of Deaths.	Per Centage of Deaths.
Malgaigne—Paris, ...	201	126	62 in 100
Peacock—Edinburgh, ...	43	21	50 in 100
Phillips' Collection of Cases, . . .	660	263	40 in 100
Lawrie—Glasgow, ...	184	73	40 in 100
Total, ...	1088	483	44 in 100
Upon Patients in an Anæsthetic state, ...	135	33	24 in 100

and torture, but actually preserves him too from the chances of danger and death. And I firmly believe, that the superinduction of anæsthesia in obstetric practice will yet be found to diminish and remove also, in some degree, the perils as well as the pains of labour.

In an essay which I wrote in February last, "On the Employment of the Inhalation of Sulphuric Ether in the Practice of Midwifery," (*Monthly Journal of Medical Science* for March 1847, p. 728), I offered some remarks on its application to cases of common as well as of morbid parturition, and took occasion to observe, "The question which I have been repeatedly asked is this—Will we ever be 'justified' in using the vapour of ether to assuage the pains of natural labour? Now, if experience betimes goes fully to prove to us the safety with which ether may, under proper precautions and management, be employed in the course of parturition, then, looking to the facts of the case, and considering the actual amount of pain usually endured, I believe that the question will require to be quite changed in its character. For, instead of determining in relation to it whether we shall be 'justified' in using this agent under the circumstances named, it will become, on the other hand, necessary to determine whether on any grounds, moral or medical, a professional man could deem himself 'justified' in withholding, and *not* using any such safe means (as we at present pre-suppose this to be), provided he had the power by it of assuaging the pangs and anguish of the last stage of natural labour, and thus counteracting what Velpeau describes as 'as those piercing cries, that agitation so lively, those excessive efforts, those inexpressible agonies, and those pains apparently intolerable,'[1] which accompany the termination of natural parturition in the human mother."

Since the latter part of January, I have employed etherization, with few and rare exceptions, in every case of labour

[1] Traité des Accouchemens, Vol. I. p. 449. "Ces cris percans, cette agitation si vive, ces efforts excessifs, ces angoisses inexprimables, ces douleurs qui parassaient intolerables," &c.

which has been under my care. And the results, as I have already elsewhere stated, have been, indeed, most happy and gratifying. I never had the pleasure of watching over a series of more perfect or more rapid recoveries; nor have I once witnessed any disagreeable result to either mother or child. I have kept up the anæsthetic state during periods varying from a few minutes to three, four, five, and six hours. I do not remember a single patient to have taken it who has not afterwards declared her sincere gratitude for its employment, and her indubitable determination to have recourse again to similar means under similar circumstances. All who happened to have formerly entertained any dread respecting the inhalation, or its effects, have afterwards looked back, both amazed at, and amused with, their previous absurd fears and groundless terrors. Most, indeed, have subsequently set out, like zealous missionaries, to persuade other friends to avail themselves of the same measure of relief in their hour of trial and travail; and a number of my most esteemed professional brethren in Edinburgh have adopted it with success, and results equal to my own. All of us, I most sincerely believe, are called upon to employ it by every principle of true humanity, as well as by every principle of true religion.[1] Medical men may oppose for a time the superinduction of anæsthesia in parturition, but they will oppose it in vain; for certainly our patients themselves will force the use of it upon the profession. The whole question is, even now, one merely of time. It is not—Shall the practice come to be generally adopted? but, When shall it come to be generally adopted? Of course, it will meet from various quarters with all due and determinate opposition. Medical men will, no doubt, earnestly argue that their established medical opinions and medical practices should not be harshly interfered with by any violent innovations of doctrine regarding the non-necessity and non-propriety of maternal suffering. They will insist

[1] See "Answer to the Religious Objections urged against the employment of Anæsthetic Agents in Midwifery and Surgery."

on mothers continuing to endure, in all their primitive intensity, all the agonies of childbirth, as a proper sacrifice to the conservatism of the doctrine of the desirability of pain. They will perhaps attempt to frighten their patients into the medical propriety of this sacrifice of their feelings; [1]

[1] We can all recollect the many absurd stories of apocryphal disasters and deaths that the opponents of etherization busily and anxiously reported towards the commencement of the present year, as having occurred from the employment of ether-inhalation in surgery. Dr Forbes, in his excellent article on etherization, in treating of these unscrupulous and disreputable pieces of professional gossip, observes—"One day we had death from asphyxia; another from coma; another from hemoptysis; some from convulsions; a few from pneumonia; and one or two from actual incremation, or explosion, through the accidental firing of the ethereal vapour within the air passages. We have not had time to investigate all these terrible cases; but we may state that we traced *the one* which seemed the *best* authenticated—that from hemoptysis—from its full-blown majesty in after-dinner gossip, to its humble source in the hospital. And this was the case, as the man himself detailed it to us:—A day or two after a successful operation for hernia, under etherization, the man pricked his gums while picking his teeth with a pin; and it was the product of *this* operation, not of the ether, seen in the spitting-pot by the patient's bedside, that was bruited about town, as of itself sufficient to settle the question in all future time!—(*British and Foreign Medical Review*, No. XLVI. April 1847, p. 564).—When first employing etherization in midwifery, I met with no small number of similar strange tales and accusations. For example, in February last, a patient who happened to be severely frightened had, in consequence, a premature labour. The child presented preternaturally; and died a day or two after birth. The mother was attacked with phlegmasia dolens, and made a very long and protracted recovery. Various kind friends, anxious about the results of etherization in midwifery, warned me of the professional odium which this case was bringing upon the new practice, and of the strong argument which t was affording to others against the safety of ether-inhalation in obstetrics. I was repeatedly and credibly told that ladies had informed their physicians, that the quantity used was *so* great that they had felt the odour of it perfectly oppressive when calling, even days afterwards, at the house of my patient. The answer to all this was sufficiently simple. The danger

and some may be found who will unscrupulously ascribe to the new agency any misadventures, from any causes whatever, that may happen to occur in practice. But husbands will scarcely permit the sufferings of their wives to be perpetuated merely in order that the tranquillity of this or that medical dogma be not rudely disturbed. Women themselves will betimes rebel against enduring the usual tortures and miseries of childbirth, merely to subserve the caprice of their medical attendants. And I more than doubt if any physician is really justified, on any grounds, medical or moral, in deliberately desiring and asking his patients to shriek and writhe on in their agonies for a few months—or a few years longer—in order that, by doing so, they may defer to his professional apathy, or pander to his professional prejudices.

Two agents have the power of producing anæsthesia during labour, viz. the inhalation of sulphuric ether, and the inhalation of chloroform. With most, if not all, of my professional brethren, I believe that the latter agent possesses various important advantages over the former, particularly in obstetric practice; and that, in particular, it is far more portable; more manageable and powerful; more agreeable to inhale; is less exciting than ether; and gives us far greater

of death to the child from its prematurity and preternatural presentation appeared to be from the first so imminent, that I did not choose to peril the character of the new practice by following it in this case. The ether had not only not been used: but not a drop of it had ever been in the house.—One of my patients was zealously attempted, some months ago, to be persuaded against the "horrors of ether," on the strong and round assertion, that some dozen ladies or more in Dublin, upon whom the practice had been tried, had indubitably perished from the effects of it. Unfortunately for the veracity of this statement, ether-inhalation had never once been used, or attempted to be used in obstetric practice in Dublin, up to that date, or for a long time afterwards. Indeed, the first case in which ether was employed in midwifery in Dublin only occurred this week (28th Nov.); as I am informed in a letter of that date, which I have just received regarding it, from Dr Tyler.

control and command over the superinduction of the anæsthetic state. In the remaining part of these observations I shall detail briefly some instances illustrative of its effects and utility in the production of anæsthesia in cases of natural and morbid parturition.

Case I.—The patient to whom it was first exhibited had been previously delivered in the country by craniotomy after a very long labour. Her second confinement took place a fortnight before the full time. Chloroform was begun to be inhaled when the os uteri was becoming well expanded, and the pains very severe. In twenty-five minutes the child was born. The crying of the infant did not rouse the mother, nor did she awake till after the placenta was removed. She was then perfectly unaware that her child was born. She stated her sensations to be those of awaking from "a very comfortable sleep." It was, for a time, a matter of no small difficulty to persuade her that the labour was over, and that the living child presented to her was her own.

Case II.—I exhibited it, with Mr Carmichael, to a patient who had, at her preceding confinement, been in severe labour for twenty hours—followed by flooding. She began the inhalation when the dilatation of the os uteri was half completed. The child was born in fifty minutes afterwards. She was kept under its influence for a quarter of an hour longer, till the placenta was removed, and the binder, body, and bed-clothes, all adjusted. On awaking, she declared she had been sleeping refreshingly; and was quite unconscious that the child was born, till she suddenly heard it squalling at its first toilet in the next room. No flooding. An hour afterwards, she declared she felt perfectly unfatigued, and not as if she had borne a child at all.

Case III.—Patient unmarried. A first labour. Twins. The first child presented by the pelvis, the second with the hand and head. The chloroform was exhibited when the os uteri was nearly fully dilated. The passages speedily became greatly relaxed (as has happened in other cases placed

under its full influence); and in a few pains the first child was born, assisted by some traction. I broke the membranes of the second, pushed up the hand, and secured the more complete presentation of the head. Three pains expelled the child. The mother was then bound up; her clothes were changed; and she was lifted into another bed. During all this time she slept on soundly, and for a full hour afterwards; the chloroform acting in this, as in other cases of its prolonged employment, as a soporific. The patient recollected nothing from the time of the first inhalations; and was in no small degree distressed when not one—but two—living children were brought by the nurse to her. Dr Christison accompanied me to this case.

Case IV.—Primipara of full habit. When the first examination was made, the passages were rigid, and the os uteri difficult to reach. Between six and seven hours after labour began, the patient, who was complaining much, was apathized with the chloroform. In about two hours afterwards, the os uteri was fully dilated, and in four hours and a half after the inhalation was begun, a large child was expelled. The placenta was removed, and the patient bound up and dressed before she was allowed to awake. This patient required an unusual quantity of chloroform; and Dr Williamson, who remained beside her, states to me in his notes of the case, "the handkerchief was moistened often in order to keep up the soporific effect. On one occasion, I allowed her to emerge from this state for a short time; but on the accession of the first pain she called out so for the chloroform, that it was necessary to pacify her by giving her some immediately. In all, four ounces of chloroform were used." Like the others, she was quite unconscious of what had gone on during her anæsthetic state; and awoke altogether unaware that her child was born.

Case V.—Second labour. This patient, after being several hours in labour, was brought to the Maternity Hospital. I saw her some time afterwards, and found the first stage protracted by the right side of the cervix uteri being thick,

œdematous, and undilatable. The inhalation of chloroform was begun, and the first stage was terminated in about a couple of hours. Two or three pains drove the child through the pelvic canal, and completed the second stage. Fifteen minutes in all elapsed from the termination of the first to the termination of the third stage, or the expulsion of the placenta. The patient was dressed and removed into a dry bed, where she slept on for a short time before awaking, and being conscious of her delivery.

Case VI.—Second labour. The patient, a person of small form and delicate constitution; bore her first child prematurely at the seventh month. After being six hours in labour, the os uteri was fully expanded, and the head well down in the pelvic cavity. For two hours subsequently, it remained fixed in nearly the same position, and scarcely if at all advanced, although the pains were very distressing, and the patient becoming faint and exhausted. She entertained some mistaken religious feelings against ether or chloroform, which had made her object to the earlier use of the latter; but I now placed her under its influence. She lay as usual like a person soundly asleep under it, and I was now able, without any suffering on her part, to increase the intensity and force of each recurring pain, by exciting the uterus and abdominal muscles through pressure on the lower part of the vagina and perineum. The child was expelled in about fifteen minutes after the inhalation was commenced. In a few minutes she awoke to ask if it was really possible that her child had been born; and was overjoyed to be told that it was so. I had the conviction that in this case the forceps would in all probability have been ultimately required, perhaps hours subsequently, provided I had not been able to have interfered in the way mentioned. I might, it is true, have followed the same proceeding though the patient was not in an anæsthetic state, but I could not have done so without inflicting great misery and agony upon her, and meeting with great resistance.

Case VII.—A third labour. The patient had been twice

before confined of dead premature children; once of twins, under the care of Mr Stone of London; the second time of a single child, under my own charge. The liquor amnii began to escape about one o'clock A.M., but no pains followed for some time. I saw her between three and four, with the pains commencing, and the os uteri beginning to dilate. In two hours afterwards the first stage was well advanced, and, the pains becoming severe, she had the chloroform exhibited to her, and slept soundly under its influence. In twenty minutes the child was born, and cried very loudly without rousing the mother. In about twelve or fifteen minutes more she awoke, as the application of the binder was going on, and immediately demanded if her child was really born and alive, as she thought she had some recollection of hearing the nurse say so. She was rejoiced beyond measure on her son being brought in and presented to her.

CASE VIII.—Fourth labour. The patient had born three dead children prematurely, about the sixth and seventh months of utero-gestation. During her present pregnancy I placed her under strict rules and discipline; and she used, from an early period, small doses of chlorate of potass several times a-day. She carried her child to the full time. Labour came on about one o'clock A.M. The membranes broke at eight A.M., when the os uteri was still very slightly open. It had made very little progress till ten o'clock, when Dr Keith exhibited the chloroform to her. The pains continued very strong and regular, the passages relaxed, and at half-past eleven she was delivered of a large living child. The placenta came away immediately; and she was bound up, and her soiled clothes removed, before she awoke. She remembered nothing whatever that had occurred after she began to inhale the chloroform till the period of her awaking.

The preceding instances afford, perhaps, a sufficient number of examples of the use of chloroform in natural labour. In these and in all others which I have seen, or that have been reported to me, the immediate effects of the chloroform

have been delightful. The mothers, instead of crying and suffering under the strong agonies and throes of labour, have lain in a state of quiet, placid slumber, made more or less deep at the will of the medical attendant, and, if disturbed at all, disturbed only unconsciously from time to time by the recurring uterine contractions producing some reflex or automatic movements on the part of the patient—like those of a person moving under any irritation of the surface, or from the touch of another, though still in a state of sleep. Nor have the ultimate consequences and results been less happy. No difficulties have been met with in the third stage; and the uterus has contracted perfectly after delivery. I never saw mothers recover more satisfactorily or rapidly,—or children that looked more vitable. And the practice is not a great blessing to the patient merely; it is a great boon also to the practitioner. For whilst it relieves the former from the dread and endurance of agony and pain, it both relieves the latter from the disagreeable necessity of witnessing such agony and pain in a fellow-creature, and imparts to him the proud power of being able to cancel and remove pangs and torture that would otherwise be inevitable. It transforms a work of physical anguish into one of painless muscular effort; and changes into a scene of sleep and comparative repose, that anxious hour of female existence, which has ever been proverbially cited as the hour of the greatest of mortal suffering.

The effects of the superinduction of anæsthesia in parturition are, if possible, still more marked and beneficial in cases of morbid labour and operative delivery. In proof of its influence in this respect, I shall cite some examples of its employment in cases of turning, of the application of the forceps, and of embryulsio.

Case IX.—Fourth labour. The mother deformed, and the conjugate diameter of the brim of the pelvis contracted from the projection inwards and forwards of the promontory of the sacrum. Her first child was delivered by embryulsio; the second by the long forceps; the third was small,

and passed without artificial assistance. On the present occasion, after suffering slight pains during the whole night, labour set in with greater severity towards morning. After being in strong labour for some hours, she was seen first by Mr Figg, and afterwards by Dr Peddie, her ordinary medical attendant. I was called to her about four o'clock P.M. The pains were then enormously powerful and straining, imparting to the mind the dread of the uterus rupturing under their influence; but the head of the child was still altogether above the brim, and only an œdematous ridge of the scalp pressed through the superior and contracted pelvic opening. The passages had become heated, the mother's pulse raised, &c., and Dr Peddie had tried two different pairs of long forceps. After I arrived he applied, with great skill, another pair of long forceps which I had with me; but it was found impossible to move the head in the least degree forwards. The urgency and power of the uterine contractions, the immobility of the head upon the brim of a deformed pelvis, and the state of the patient and of the parts, all showed the necessity of relief being obtained by artificial delivery. In her first labour I had assisted Dr Peddie in delivering her under similar circumstances by perforation of the head. But here the child's heart was heard distinctly with the stethescope, and he at once agreed to my proposition, that I should try to deliver her by turning the infant, —compressing and indenting the flexible skull of the fœtus, instead of perforating it, and thus affording (as I have for some time past taught and believed) some chance of life to the child, and more chance of safety to the mother. The patient was placed under the influence of chloroform still more deeply than when the forceps were used, in order, if possible, entirely to arrest the uterine contractions. I passed up my hand into the uterus, seized a knee, and easily turned the infant; but very great exertion and pulling was required to extract the child's head through the distorted brim. At last it passed, much compressed and elongated. The child was still-born, but, by applying the usual restorative means,

it speedily began to breathe and cry. The child continues well, and the mother has made a rapid recovery.

Case X.—In the Maternity Hospital; first child. Labour began at ten P.M. (21st Nov.) I was desired to see her at six A.M. (22d). The os uteri was well dilated, but it was evident that the pelvic canal was contracted throughout, and the head was passing with unusual difficulty through the brim. The patient was complaining much of her sufferings. It was clear that it would be a very tedious and probably at last an instrumental case, and one therefore calculated to test the length of time during which chloroform might be used. She began to inhale it at a quarter past six A.M., and was kept under its influence till a quarter past seven P.M., the date of her delivery; thirteen hours in all. From the time it was begun to the time delivery was completed, her cries and complaints ceased, and she slept soundly on throughout the day. The bladder required to be emptied several times with the catheter. The head passed the os uteri at ten A.M.; and, during the day, gradually descended through the pelvis. At seven A.M. I at last deemed it proper to deliver her by the forceps; the head, which was now elongated and œdematous, having by that time rested for some hours against the contracted pelvic outlet with little or no evidence of advancement, the bones of the fœtal cranium overlapping each other, and the fœtal heart becoming less strong and distinct in its pulsations. A warm bath, irritation of the chest, &c., were necessary to excite full and perfect respiration in the infant. Whilst we were all busied with the infant the mother lost some blood; but the placenta was immediately removed, and the uterus contracted perfectly. On afterwards measuring the quantity of blood lost, it was calculated to amount to 15 or 18 ounces. The mother's clothes were changed; she was bound up and removed to a dry bed before she awoke. She had at first no idea that the child was born, and was in no respect conscious of being delivered. In fact she had been "sleeping," according to her own account, from the time she

had begun the inhalation, and only thought she once or twice remembered or dreamed that she heard Dr Williamson, the house surgeon, speak near her. Dr Beilby, Dr Zeigler, &c., saw the case with me. The mother and child have continued perfectly well.

In this, as in other cases, I have watched and noted the effects of the chloroform upon the duration of the pains and of the intervals, the rate of the fœtal and maternal pulse, &c.

Case XI.—Patient with a deformed spine and contracted pelvic outlet. At her first confinement two different medical gentlemen had failed in effecting delivery by the forceps. At this her second confinement, she placed herself under the care of Dr Paterson of Leith. After being very long in labour, and the symptoms of the case becoming urgent, I saw her with Dr Paterson. The head was low down in the pelvis; but it was placed in the right occipito-posterior position (the third of Naegele), and the forehead instead of the vertex was presenting, one orbit being easily felt behind the symphysis pubis. It had been lodged in nearly the same position for many hours. The fœtal heart was still distinct, but weak. I applied the forceps—turned the head round with them a quarter of a circle, into an occipito-anterior position (the second of Naegele); and, after being so adjusted, it still required considerable force to extract it. Before applying the forceps the patient was sent into a state of deep anæsthesia by the inhalation of chloroform; and subsequently, when she wakened out of it, she was in no small degree surprised to find that she had really been delivered while she was sleeping and resting so soundly. The placenta separated, and the uterus contracted firmly. The child, which was large, lived for eight hours after delivery; but, despite of all the measures tried, full and perfect respiration was never established in it, apparently in consequence of some effusion or injury about the base of the brain. Unfortunately a post-mortem examination was not obtained. The mother has made an excellent recovery.

I quote the following instance of craniotomy under chlo-

roform from a letter (dated 29th November), which I have received from my friend, Professor Murphy of London. I give the case in Dr Murphy's own words :—

CASE XII.—"I have tried the chloroform with great success in a case of distorted pelvis. It was the ovate deformity, the conjugate measurement being only 2½ inches; the head of the child could not enter the brim: and I was obliged to perforate. I got Dr Snow to assist me in bringing her under the influence of chloroform. She made some resistance, and struggled a good deal at first, chiefly I think from apprehension that we were going to do something very dreadful; however she soon began to inhale quietly, and gradually fell into a kind of dreamy sleep. I perforated the head, and laboured with the crochet (sometimes with the craniotomy forceps) for three quarters of an hour before I could get the head through the brim. She was at length delivered; the placenta was separated in about ten minutes; the bandage applied, soiled clothes removed, and she was made 'clean and comfortable,' as the midwives say. My patient was perfectly unconscious all this time, and did not awake for about a quarter of an hour after the operation; she did so then quite quietly, and was greatly surprised to find that all her miseries were over. There was no hemorrhage, but the uterus felt rather spongy and large. She is now recovering most favourably. I never had a case recover so far, so well."

Other cases, both of natural and morbid labour, in which the patients were delivered in an anæsthetic state from the inhalation of chloroform, have been reported to me by Dr Protheroe Smith, Dr Imlach, Dr Robertson of Birkenhead, Dr Malcolm, Dr Buchanan, &c.; but as these, and some other instances which I have myself seen, presented nothing new or different in their phenomena from the cases which I have already detailed, I have thought it unnecessary to overload the present communication by the details of them.

THE END