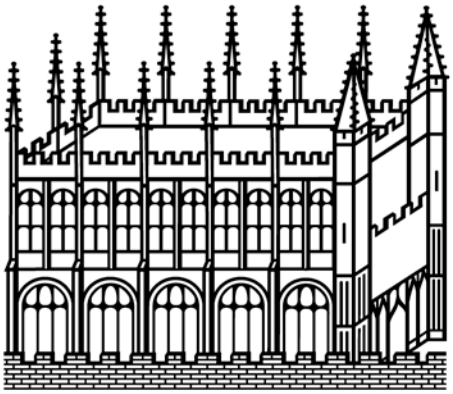

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A TREATISE

ON

ETHERIZATION IN CHILDBIRTH,

ILLUSTRATED BY

FIVE HUNDRED AND EIGHTY-ONE CASES.

BY WALTER CHANNING, M.D.

Professor of Midwifery and Medical Jurisprudence in the University at Cambridge.

ONE VOL. OCTAVO, 400 PAGES.

PUBLISHED AND FOR SALE BY

WILLIAM D. TICKNOR AND COMPANY,

Medical Booksellers,

CORNER OF WASHINGTON AND SCHOOL STREETS, BOSTON.

THE Publishers present the following note to a friend of the author, from an English surgeon, on account of its generous sentiment towards America, for a discovery for which the individual is daily and hourly giving thanks, and in which the whole world has a common interest: —

25, Church Row, Hampstead, March 16, 1849.

My dear Sir, — Only a few days ago, I received, with your kind inscription, the splendid volume on Etherization, by Dr. Walter Channing, and which I shall proceed to study forthwith. The gift was dated Oct. 31, 1848, so that a long interval has passed since you intended it for me. I have been for some time studying the subject of Sleep in its extent; and already I begin to see the old characters of nature, lines of latitude and longitude, climates and kingdoms, dimly visible upon it. The new developments afforded by etherization have afforded me material assistance in gaining a view of other parts of the subject. It is a matter on which America may well come forward with splendid books; for to her belongs this grandest victory of modern medicine, — a victory which, while it chases pain from the earth, also shatters all the dreadful dogmas that have been built upon physical pain. . . . . .

Will you present my most grateful thanks to Dr. Walter Channing, for his contribution to our age, and believe me, Yours, always faithfully,

J. J. G. WILKINSON.

OPINIONS OF THE PRESS.

FROM THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,

January, 1849.

Our warrant for a resort to etherization in childbirth must be based on the results, not of a few cases, nor even of a number of cases, but of a large accumulation of experience as to its usual effects. And until this experience has been attained, the advocates of etherization will certainly pardon the hesitation of the more cautious members of our profession, who, with Professor Meigs, though still unconvinced, hold themselves "in readiness to yield to conviction, upon sufficient evidence being adduced of the necessity and propriety of etherization in midwifery." To furnish that evidence is the object of Dr. Channing's publication. And we admit, that, although the body of facts which it presents are far from constituting all the data by which the necessity, propriety, and

safety of etherization in childbirth are to be fully established, they are nevertheless all-important, and deserving of the most serious and candid consideration.

. . . . . .

The volume closes with the correspondence elicited by Dr. C.'s circular; and, in an Appendix, are given the details of several cases in which puerperal fever occurred after the use of chloroform; of a case of etherization in nausea of early pregnancy, threatening life; of a case of etherization in vomiting, spasms, &c. in the sixth month of pregnancy, threatening life; of a case of cholera treated by etherization; of a case of typhoid fever, accompanied by spasms, in which etherization was employed; of a case of puerperal convulsions, in which chloroform was beneficially employed; and a number of extracts from medical journals bearing on the general subject of the treatise.

In the foregoing analysis of the work of Dr. Channing, we have endeavored to lay before our readers a clear, full, and candid view of the character of the evidence adduced by the author in favor of the employment of etherization in childbirth, and the leading deductions drawn by him from his own experience on this subject, and the facts he has collected from other sources. The subject is a highly important one. The certain means for the relief of the pangs of parturition is unquestionably to be hailed as a blessing that should not be rejected for any trivial cause or mere hypothesis. But, however desirable may be means for rendering childbirth painless, the simple fact that such means has been discovered cannot be received as any valid argument for its employment. The important point to be settled, as Dr. Channing very properly remarks, relates to its safety — can it be employed without injury to the mother and child? The question as to its safety is not alone, however, whether, under its use, labor, in the great majority of cases, will go on, and terminate favorably in respect to both parent and offspring; but whether, under its use, risk of injury will be incurred by the one or the other, in any case. For, inasmuch as a remedy whose only object is to quell pain is not absolutely necessary in natural labor at least, — shall it appear that in any given number of cases, be the number great or small, risk of injury will be incurred from the employment of etherization, — unless such cases can be determined beforehand, we are not warranted in its employment in any. Dr. Channing, by the facts he has collected, has certainly offered a very respectable amount of evidence in favor of the general safety and absence of risk in the employment of the anæsthetic agents to quell the pains of labor. . . . His views are stated fully and freely, and from a sincere belief that they have a legitimate basis in numerous and well-established facts.

. . . . . .

We return our thanks to Dr. Channing for having collected much of this evidence; for, adopting in part his own language, although the question "How generally should etherization be employed in midwifery, and what are the safe and proper limits of its use?" is still an open one; nevertheless "the time which has been occupied in the observation of the facts has not certainly been lost time."

FROM THE NEW YORK JOURNAL OF MEDICINE,

March, 1849.

The means, then, of appreciating the safety of etherization are multiplying every day; and to them Dr. Channing has made a most important and acceptable addition in his treatise. . . . We now come to the true pith and marrow of the treatise, — the cases: eighty-seven are given in more or less detail, and with remarks. Next we have three tables, No. 1, of 516 cases of natural labor — in 358 ether, and in 158 chloroform was given. No. 2, of 28 cases of non-natural labor seen by Dr. Channing. No. 3, 24 cases non-natural, for which Dr. Channing is indebted to friends who communicated them. Of these cases, all those in the first table terminated favorably for the mother; in none were any unfavorable effects of ether noted; and of the forty-six physicians in whose practice they occurred, thirty-six gave an opinion decidedly and unequivocally favorable to etherization; and of the remainder almost every one speaks favorably with restriction as to purity of the article, selection of case, &c. &c. Here, then, is an array of facts, and opinions founded on facts, which the profession will know how to value. . . . . .

on this subject is one of the first men in the practice of his profession in Boston, and of a grade of intellect in other fields of inquiry which entitles him to every credence and confidence necessary to a writer on such a vital topic. The book is one which the love for every mother should provide, and see examined. As the preface says, "It treats of a noble subject, the remedy of pain. After ages of suffering, and of frequently and long intermitted pursuit of such a remedy, one has been discovered. It remains with the profession to say, whether it shall take its place among the permanent and most important agents in the treatment of disease, and in abolishing pain; or whether it shall pass away with the unimportant and undeserving, until another and a truer age shall revive, and give it a wider sphere of usefulness and a surer perpetuity."

FROM THE BOSTON COURIER, OCT. 18, 1848.

This work is not only an important contribution to medical literature, but it contains matter to interest and instruct the general reader. Dr. Channing bases his argument for the use of etherization, in his own particular department of the profession, on undoubted facts, which have fallen within his own experience, or which have been contributed by eminent physicians. He goes thoroughly into the subject, weighs and scrutinizes every objection from every quarter, and gives evidence on every page of a complete mastery of the matter in its principles and details. The conclusion to which he arrives is, that etherization is certainly safe in obstetrics, whatever view may be taken of its use in other operations; and that it not only destroys the pain of labor, but also relieves the patient from injurious consequences, which often result from pain. The evidence for so important a deduction as this is contained in his volume.

FROM THE NEW YORK CHRISTIAN INQUIRER.

Here is a most valuable work, and which we should have noticed earlier, had we not determined to go through it before we should put pen to paper. We have read it with great admiration of the clear, lucid, vigorous style of the author; and with a profound feeling of gratitude, that he has pursued his investigations upon this subject with so much care, candor, and diligence. It seems, too, from beginning to end, as though he had been prompted and sustained by a simply humane spirit; as though professional ambition had been entirely laid aside, in a most disinterested desire to help or relieve our suffering humanity.

FROM THE BOSTON EVENING TRANSCRIPT, OCT. 1848.

The importance of the subject here treated of cannot be overstated. Five hundred and eighty-one cases are here published as illustrations of the great fact, that the use of ether in midwifery is now an established blessing. The question of *safety*, in administering either chloroform or ether, is put beyond the shadow of a doubt by the able investigations of Dr. Channing; and we are confident no book has appeared for years whose practical benefit on the community will be so largely felt as this one.

FROM THE NEW YORK TRIBUNE, DEC. 5, 1848.

The book with the above title ["Etherization in Childbirth"], lately published by Dr. Walter Channing, deserves to be widely read by the medical profession and by parents. It is illustrated by more than five hundred cases, enabling every reader to judge of the safety and expediency of employing this wonderful pain-removing agent. We shall merely condense some of the facts and conclusions stated by the author, whose long and varied experience in this special branch of professional duty entitles him to most respectful consideration. . . . . We close our extracts from this profoundly interesting and instructive book, with the following words of its benevolent author: — "This book treats of a noble subject, the remedy of pain. After ages of suffering, and of frequently

intermitted pursuit of such a remedy, one has been found. It remains with the medical profession to say, whether it shall take its place among the permanent and most important agents; or whether it shall pass away, till a truer age shall revive it, and give it a wider sphere of usefulness and a surer perpetuity."

FROM THE BOSTON CHRONOTYPE, OCT. 1848.

The zeal with which Dr. Channing has labored to make public the benefits of this great discovery is worthy of all praise. He has not been content with publishing the results of his own practice, but has, by a circular to his medical brethren, gathered a large mass of experience, and given the whole in this elegant volume. There can no longer be any excuse for allowing woman to pay so horrible a penalty for her civilization.

FROM THE PROVIDENCE DAILY JOURNAL, DEC. 1848.

This is a very handsome volume upon one of the most interesting and important subjects of medicine. Of all the marvellous inventions of the age, perhaps none is more wonderful than the application of ether for the prevention of suffering. The use of ether in midwifery naturally occurred to physicians soon after the properties of this remedy were discovered, and it has already been employed in many cases with the most satisfactory results. The views of so eminent a writer, illustrated by so great a range of cases, will naturally attract the attention of the profession, and will form the standard work upon the subject. It doubtless embodies the most authentic facts and the justest deductions which have appeared upon the subject. There is but one way to arrive at correct conclusions in medicine, or indeed in any other science; and that is from observation and experiment. The motto which the author has affixed to the titlepage is as true as it is modest: "Give me the facts, said my Lord Judge: your reasonings are the mere guess-work of the imagination." The above are for sale by Gladding & Proud.

FROM LITTLE'S LIVING AGE, No. 237,

Boston, Dec. 1848.

"Give me the facts, said my Lord Judge: your reasonings are the mere guess-work of the imagination." *Old Play.* — We do not know who my Lord Judge was; but on this subject everybody will agree with him. Like the introduction of inoculation or of vaccination, what is necessary to the general use of etherization is a *large* series of experiments. At first, with much difficulty, a few firm believers, and still fewer enterprising votaries of science, submit themselves to the untried dangers of a new process. Their success draws on others; the circle spreads, —

> First kindred, neighbors, friends, it will embrace;
> A country next; and next, the human race.

Thus the fearful railroad soon becomes the highway for all travellers.

Here are a great variety of cases, reported by the very highest authority. From this book, as a *new* starting point, the subject will again go round the world. We shall report to our readers, from time to time, what the reviewers in London, Japan, and Siberia, say of it. It will everywhere be read with intense interest.

It is printed and bound in a style which does credit to the publishers (Ticknor & Co. Boston), and we hope that this edition may have a good sale in England. On the continent of Europe it will necessarily be best known in translations.

PRINTED BY JOHN WILSON, 21, SCHOOL STREET, BOSTON.

A TREATISE

ON

ETHERIZATION IN CHILDBIRTH.

ILLUSTRATED BY

FIVE HUNDRED AND EIGHTY-ONE CASES.

BY WALTER CHANNING, M.D.

PROFESSOR OF MIDWIFERY AND MEDICAL JURISPRUDENCE IN THE UNIVERSITY AT CAMBRIDGE.

"Give me the facts, said my Lord Judge: your reasonings are the mere guess-work of the imagination." — OLD PLAY.

BOSTON:

WILLIAM D. TICKNOR AND COMPANY,

CORNER OF WASHINGTON AND SCHOOL STREETS.

M.DCCC.XLVIII.

A TREATISE

ON

PAIN IN CHILDBIRTH.

ILLUSTRATED BY

HUNDRED AND EIGHTY-ONE CASES.

WALTER CHANNING, M.D.

PROFESSOR OF MIDWIFERY AND MEDICAL JURISPRUDENCE IN THE UNIVERSITY AT CAMBRIDGE.

"Then said my Lord Judge: your reasonings are the mere guesswork of the imagination." — OLD PLAY.

BOSTON:

TICKNOR AND CO.

221 WASHINGTON AND SCHOOL STREETS.

M.DCCC.XLVIII.

Entered, according to Act of Congress, in the year 1848, by
WALTER CHANNING,
In the Clerk's Office of the District Court of the District of Massachusetts.

BOSTON:
PRINTED BY JOHN WILSON,
No. 21, School Street.

TO

JAMES JACKSON, M.D.

PROFESSOR EMERITUS OF THEORY AND PRACTICE OF PHYSIC IN THE UNIVERSITY AT CAMBRIDGE, HONORARY MEMBER OF THE ROYAL MEDICO-CHIRURGICAL SOCIETY OF LONDON, ETC. ETC.

DEAR SIR,

Please to accept the accompanying volume. It is written, not as I would, but as I have been able. The remedy of pain was discovered in this city, and has already taken its place among the most important agencies for the benefit of man. It is due to it, that what it has accomplished should have its earliest embodiment in our own literature. In relation to Surgery, this has already been done in the publications of JOHN C. WARREN, M.D. Professor Emeritus of Anatomy and Operative Surgery, and GEORGE HAYWARD, M.D. Professor of Surgery, in the University at Cambridge; and of J. MASON WARREN, M.D.

Occupying a somewhat public position as a teacher of Midwifery, — a department of medicine which has derived special and vast benefit from the discovery referred to, — it seemed not out of place for me to collect, and present to the profession, the results of its application, amongst ourselves and elsewhere, to that branch of the medical art. This I have attempted to do in the following pages.

In my labor, I have not forgotten — nor do I forget, now that my work is done — that I received from you my earliest and most important lessons in the study of medicine. I was then a young man; and, now that I am an old one, it is to me a most pleasant office to ask your acceptance of this, the latest product of my professional life, and, with it, assurances of a grateful memory and a sincere respect.

Very truly your obliged friend,

WALTER CHANNING.

BOSTON, *September*, 1848.

The APPENDIX is referred to in the body of the Work. But I would again solicit for it the reader's attention, as it contains both original and selected matter, which has an important bearing on the subject of the volume.

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ETHERIZATION IN CHILDBIRTH.

PLAN AND OBJECTS OF THE WORK.

In May, 1847, I published a pamphlet, containing a few cases of labor in which I had employed sulphuric ether with entire success. In July of the same year, a second edition of the same pamphlet, somewhat enlarged, appeared. Cases have gradually accumulated in my practice, in which etherization has been employed. They have been of the different classes of labor, and in sufficient variety and number too, to authorize a cautious generalization. It occurred to me, that these cases might be published, and possibly be of some service as guides, or authority, towards the farther employment of etherization. They were recorded as soon after the labor was over as circumstances allowed. I often wrote the case out immediately upon my return home from it, and the hour is sometimes mentioned. After some thought, it was determined to print the cases just as they were first put down. A different course might have improved their strictly literary character; but it could hardly have happened otherwise than that the freshness, if not the truth, of the impression made by the case, would have been affected by any new labor upon them.

In the meantime, etherization was in use here, and in different parts of the country, in midwifery practice. We were hearing of results through journals and newspapers. They existed alone. The thought occurred to me, that, with very little personal trouble, I might collect from various sources, facts in regard to etherization which would, in a much surer manner, make my work useful, than would any thing of my own which it might contain. A circular letter was prepared, and addressed to many physicians in Boston and vicinity, containing questions which embraced some of the most important points regarding the use of ether and chloroform.

My great, I had almost said my sole, object in this circular, — in short, in my whole efforts, — was to ascertain here at home, in the birthplace of etherization, what had been the precise results of many experiments, made by many physicians, of the employment of the remedy of pain. My object was to learn if this use of it had been *safe*, — safe both to *mother* and to *child;* and thus, as far as such results might reach, to contribute something towards settling the most important point concerning its further use, namely, that of its *safety.*

This matter of safety is especially dwelt upon, because much that is related to it, if not all else, has very little in it requiring present discussion or argument. I consider other questions as, in an important sense, settled, and therefore not demanding special attention. Thus we know that *pain* may be abolished by etherization. We know that voluntary or *animal power* is very much, if not wholly, suspended during this state. We know that *organic power* remains. Nay, more, we know that it is often increased, that of the womb for instance; and in the exceptional cases, in which uterine contraction is diminished, or in which it entirely ceases, we know that this is temporary, and that no danger to either mother or child has hence ensued. We know, finally, that during and in consequence

of etherization, circumstances highly favorable to safe as well as to easy labor arise. Among these may be enumerated the increase of secretions in the organs immediately concerned in labor, and a more perfect relaxation or dilatability than existed before its use. Dubois first made this last observation, and my latest experience of etherization confirms his early and important statement.

It was, then, to the question of safety, in our experience of etherization here, that my attention was directed in the questions in the circular. But do not for a moment, reader, consider this as a very simple or a single question. It has regard, indeed, to a single fact, — the well-being of mother and child. But to show that, in its uses here, etherization has been safe in midwifery practice, is to declare a most important fact. Safety in this matter involves whatever exists or is done in etherization, as a condition towards this great end. These conditions are few, and cannot be too often repeated. They are, 1st, Purity in the article used. 2d, Such an instrument as will allow the freest escape of the expired or *exhaled* air, and the due admixture of atmospheric air with the *inhaled.* A hollow sponge for ether answers every purpose; for its structure is such as to ensure these conditions. 3d, When *etherization* is produced, inhalation is to cease. This state is declared by the relaxed condition of the limbs, the inability to raise the eyelids at command, and cessation of complaint. The books are full of other conditions, and in these the diversity of individual observations and views is sufficiently declared. Suffice it to say concerning the mode of exhibiting ether-vapors, that, of the two methods recommended in midwifery, the one by Professor Simpson, which directs so much to be used, and after such a manner, as shall in the shortest time produce the fullest effects, — and the other recommended by observers here in the same practice, which seeks its object by a less quantity, and that moderately administered, — I think, of these the latter is decidedly to be preferred.

I am very glad to find, that my old friend and class-mate, Professor Mussey, of Cincinnati, takes the same view of the matter, and even extends its application to surgery.

With regard to contra-indications to etherization which are founded in other conditions, whether of co-existing functional or structural disease, — whether of heart, head, or lungs, — I have no experience or observation to offer. I have met with none. I believe I am borne out by fact, when I say, that, in the examinations which have been made of those who have died after etherization, it has not happened, in more than a single case, that any disease existed in any of the organs referred to, whereby to explain the death. The exception occurred lately in New York, and will be referred to more particularly hereafter. And farther it will hereafter be shown, by cases of known and grave structural disease, in which etherization has been employed as a remedy amongst us, that great relief has been afforded by it, and no suspicion, much less proof, furnished, that any untoward results have been produced or death accelerated by it. A case of confirmed phthisis is this moment under my care, in which chloroform has been very excessively and imprudently employed, and from which no other apparent troubles than nausea and vomiting have followed. These ceased when inhalation was omitted. Of contra-indications to etherization arising in diseases and lesions above alluded to, I have no experience to offer.

The object of the circular was to learn what had been the whole result of etherization, so far as it has been employed in midwifery amongst ourselves; and this in order especially to ascertain whether those who had used it had done well or ill, had lived or had died, — the question of *safety*.

The circular was addressed to many physicians. From some I learned that they had never employed etherization in midwifery; from others, that their experience furnished

nothing new. From one came the religious objection. One friend thus writes, and his short letter is a "whole history:" —

"Dear Doctor,

"I have used the ether in labor a considerable number of times, and with obvious benefit; but my observations have not been made with sufficient precision to be made the basis of statistical results.

"Yours, most truly,

"February 10." "ENOCH HALE.

I give this letter with great pleasure. It contains, as far as the writer's experience goes, a very important answer to the great question of the circular, namely, of the entire safety of etherization. It says that its author has employed ether "a considerable number of times, and with obvious benefit." The character, the intellectual habits, the deep interest in all questions of science, and the caution of the writer in stating results, give to this short testimony of my friend, in favor of ether, great value.

From some, to whom I took the liberty to address the circular, I have received no answer. Thinking that in some of these instances my communication had miscarried, I sent another; and this, because I had learned that the physicians so addressed had valuable information to impart. I regret that I sent my circular in these cases. I acknowledge I had no other right to do so than that which some interest in good science bestows. If I exceeded such privilege in the instances referred to, I here make my best apology, and promise to offend in like manner no more.

From a great many came answers, in more or less detail, to the questions proposed; and, more than this, letters often accompanied them, giving at some length important cases and deliberate opinions. At first it was my purpose to publish, along with my own cases, tabular views of what I had been so very kindly and liberally favored with, together with the accompanying letters, and here rest the case. It

was an after-thought to devote some pages to a few of the topics which my subject so directly involves. That subject forms one of the most important epochs in medical history. Was it not due to it to say something of its history, of what it is in itself, of what it has done, and what appears to be its destiny?

It will be perceived that from some of my friends the communication of facts is small, sometimes not exceeding a single case. But that single case, is it without its interest? I answer no. It has its place in what has been done with ether, and deserves a distinct record in its literature. In its entire success, it teaches that it does not stand alone because of a want of confidence in the *safety* and whole benefit of etherization, and so gives positive support to these facts in our history. From some I learn that they have used, and mean to use, ether or chloroform, only when desired by the patient. No one can question the propriety of this course; but in thus dividing the responsibleness, or laying its weight principally on the patient, I do not know of any one physician who has pursued this course because of his want of confidence in the perfect safety of etherization. Had he felt a doubt, had he had the smallest scruple concerning this its entire safety, would he have done that, or thought for a moment of doing it, which a sick and a most suffering woman asked for, nay demanded, but which to his mind involved the smallest danger? The whole question resolves into *safety* alone. It has nothing to do with men's notions of the value or the pleasure of pain. We dismiss this latter from the matter at once as wholly irrelevant. We know of *painless* labor, of labor wholly without *pain;* and in too many instances, not now to refer to them, in which the patient was unconscious of delivery, or knew nothing more of it in regard to suffering than of an ordinary defecation, which for the most part is pleasurable rather than painful, and who did not pay the penalty of death for the involuntary violation or temporary suspension of a natural law.

Let the reader, then, look at the true point at issue; and, above all, let him not be misled in his judgments by ignorance, by prejudice, or more especially by *a priori* reasoning.

Since receiving answers to the circular, I have, upon every opportunity, talked to my brethren of what has happened concerning etherization in their practice since they commenced it. I am told by all, that not an untoward occurrence has attended or followed its later use. From one, I learned that, since the newspaper accounts of alarming and even fatal cases in surgical operations, patients and their friends have sometimes held back from etherization in midwifery, and that he waits for it to be asked for. The influence is natural upon patient and physician. And it is both natural and wise to act accordingly. It, however, makes nothing against the use of the remedy of pain in childbirth, in which it is known never to have done harm, if an untoward result come of its use in some two or more cases of surgical practice, and in some diseases which are almost invariably fatal, as tetanus and hydrophobia.

The reader may look in this volume for the enunciation of principles concerning etherization which have come out of its facts, and which establish its place in practical medicine. I have examined the journals and papers in which these facts are scattered with a profusion which the importance of the subject certainly authorizes, and with a variety in reasoning or opinion which attaches to few other subjects, but which its novelty and extreme interest fully explain. We are told that every thing has two sides, and the one chosen depends on the point of sight. Etherization would seem to have as many sides as there are observers, and doctrines concerning it seem only limited by the number of observers. There is Dubois, with his faith and his fears so well nigh balanced, that one feels that he has been so taken with all sides of the matter, that he hardly seems to have looked thoroughly at any. And there is Simpson of Edin-

burgh, with his hosts of cases, the living witnesses of the safety of etherization, full of faith and of zeal. Mr. Travers says a man may die as well five days after etherization as twenty-four hours; and that he has known a limb, five days after death, smell of ether, the stump having become gangrenous. And this case has by some been elevated into a principle, that ether makes stumps gangrenous, and kills people in five days or twenty-four hours. How was it with Mr. Wells, of the English navy, who gives *one hundred and six* operations, in which he used ether-vapor? "No serious effects followed in any case." Not a case of gangrene occurred in a single stump of hundreds of amputations collected by Simpson, and not one after a single surgical operation in our own Hospital. Tetanus has been cured by ether, or recovery has followed its use. But it has not cured all. M. Roux has failed; and a writer says concerning this case, that "any such trials (namely, in cases of hydrophobia and tetanus) will assuredly end in disappointment; these diseases being *diseases of motion, not of sensation.*" The physiology may be true, but the fact is diverse. Patients do grow still, when etherized, both in hydrophobia and in tetanus. Spasms are controlled, nay, entirely overcome, by it. Positive *rest* ensues. We *infer* the abolition of *sensibility*. We *know* that *mobility* is abolished in etherization. Midwifery is full of teaching on this point. Muscles of voluntary motion become powerless. The limbs to which they are attached fall as dead, when raised and left to themselves; and, even when consciousness returns, this want of power sometimes remains. Ask a person in this condition of first waking after ether or chloroform, to raise the head to drink, or if he says he will do this, after handing him the vessel, witness his absolute, sure failure, and the question of the physiological action of ether, in this regard, is settled.

Mr. B. Cooper thinks much of the benefits of pain, which he calls a "*premonitory condition;* no doubt fitting parts,

the subject of lesions, to *reparatory action.*" He farther speaks of vessels losing the power of retraction, and so hemorrhage from small vessels follows. How wholly unlike this is the experience of other surgeons! How different are the results in midwifery! I mean established results, not such as come of mere conjecture, and which are offered as such.

M. Flourens shows the progress of etherization in regard to the nervous centres from the hemispheres to the medulla oblongata, with the inferential caution, that we must not let it reach the last. This knowledge is derived from countless experiments upon all sorts of animals, — men among the rest. The latter, I believe, have all survived, and so did not complete in themselves the experiment. But the poor lower orders have suffered terribly. Vivisections have been done without number and without mercy. It would seem, that ether had come to destroy life, not to save it. I have read the reports over and over, and doubt not for a moment that many animals have suffered, and many more have been killed, in the toil. But the end is not yet. Who is ready to determine, or have determined for him, a wholly practical question, by results of experiments on animals, which, in their whole history and proof, have no possible relation to the case of a suffering human being? It were easy to extend this narrative of effort and of result, of individual and multiplied fact, and of resulting individual opinion, concerning etherization abroad. But I refrain. A moment for home. How has it been with the etherization question here? The question has various answers. Men have tried etherization; and they who have done this most, whether in surgery or midwifery, have most advocated it. Men have not tried it at all; and it would seem, from the tone of their avowal, that they do not mean to try it. These show it little favor. There are whole communities in which nothing has been done with etherization in midwifery, and very little in surgery. Here, in

Boston, it has been tried in both. There has been no rush about it, however. The cautiousness in our sectional phrenological development, if M. Flourens will allow the allusion, has prevented a rush. Etherization in midwifery has been employed here now for a year; and, with some industry, my collections of cases do not much exceed five hundred. I have no doubt that many more exist; but, of the certain, I know of those only of which I give reports. The number is not large. But just add them to the hundreds and thousands which are furnished abroad, and they perform a distinguished part in a most important history. They, with all the rest, show that there has not been a case in which, during etherization in labor, any untoward circumstance has occurred. I cannot point to a single established case of disaster, during this state, for an exception even to the rule.

I had written thus far when I lighted upon two letters which much interested me, and from which I will make some extracts. The first is from Professor Simpson, of Edinburgh, to Professor Meigs, of Philadelphia. The extracts will occupy some space; but this matters little, if they will at all aid our inquiries.

Professor Simpson's letter is dated Edinburgh, January 23, 1848. He says: —

"The statements which I have already made, may show you to what an extent the chloroform is used in this country; and our chemists tell me that the demand for it steadily increases with them.

"In *surgery*, its use is quite general for operations, painful diagnosis, &c. My friend, Dr. Andrew Wood, has just been telling me of a beautiful application of it. A boy fell from a height, and severely injured his thigh. It was so painful that he shrieked when Dr. Wood tried to handle the limb; and would not allow of a proper examination. Dr. Wood immediately chloroformed him — at once ascertained that the femur was fractured — kept him anæsthetic till he sent for his splints — and did not allow his patient to awake till his limb was all properly set, bandaged, and adjusted.

"In *medicine*, its effects are being extensively tried as an anodyne, an anæsthetic, a diffusible stimulant, &c. Its anti-spasmodic powers in colic, asthma, &c. are everywhere recognized.

"In *midwifery*, most or all of my brethren in Edinburgh employ it constantly. The ladies themselves insist in not being doomed to suffer, when suffering is so totally unnecessary. In London, Dublin, &c. it every day gains converts to its obstetric employment; and I have no doubt that those who most bitterly oppose it now will be yet, in ten or twenty years hence, amazed at their own professional cruelty. They allow their medical prejudices to smother and over-rule the common dictates of their profession, and of humanity.

"No accidents have as yet happened under its use, though several hundred thousand must have already been under the influence of chloroform. Its use here has been a common amusement in drawing-room parties, for the last two or three months.

"I never now apply it with any thing but a silk handkerchief. In surgical cases and operations, the quantity given is not in general measured. We all judge more by the *effects* than the *quantity*. Generally, I believe, we pour two or three drachms on the handkerchief at once, and more in *a minute*, if no sufficient effect is produced, and we stop when sonorous respiration begins. Not unfrequently, spasms, rigidity, &c. come on; but they disappear as the effect increases, and none of us care for them any more than for hysteric symptoms; nor do they leave any bad effect. But the mere *appearance* of them is enough to terrify a beginner.

"I shall be glad to hear how the cause of anæsthesia gets on among you; and I remain, with great respect, very faithfully yours,

"J. Y. Simpson."

Professor Meigs, in reply, says: —

"I presume you will, ere this date, have received copies of Professor Warren's pamphlet on 'Etherization,' which may inform you very fully as to the use of the anæsthetic agent in the Massachusetts General Hospital and in Boston. That eminent gentleman is more reserved as to the obstetric employment of the agent; much more so, I understand, than either Dr. Channing, Dr. Homans, and other practitioners, who make use of it very commonly. In New York, as I learn, the surgical application of chloroform is common, while its obstetrical use has not as yet acquired a general vogue. . . . . .

"As to its employment in midwifery here [in Philadelphia], notwithstanding a few cases have been mentioned and reported, I think it has not yet begun to find favor with accoucheurs. I have not exhibited it in any case; nor do I, at present, know of any intention in that way,

entertained by the leading practitioners of obstetrical medicine and surgery, in this city. I have not yielded to several solicitations as to its exhibition addressed to me by my patients in labor. . . . .

"I freely admit — for I know it — that many thousands of persons are daily subjected to its power. Yet I feel that no law of succession of its action on the several distinct parts of the brain has been or can be hereafter ascertained, seeing that the succession is contingent. Many grave objections would perhaps vanish, could the law of the succession of influences on the parts of the brain be clearly made out, and its provisions ensured. There are, indubitably, certain cases in which the intellectual hemispheres are totally hebetized and deprived of power by it, while the co-ordinating lobes remain perfectly unaffected. In others the motor cords of the cerebro-spinal nerves are deprived of power, whilst the sensitive cords enjoy a full activity, and *vice versa*. . . .

"M. Flourens's experiments, and others, especially those by the younger Mr. Wakley, of the 'Lancet,' prove very conclusively that the aspiration of ether or chloroform, continued but a little longer than the period required for hebetizing the hemispheres, the cerebellum, the tubercula quadrigemina, and the cord, overthrows the medulla oblongata, and produces thereby sudden death. I fully believe, with M. Flourens, that the medulla oblongata is the *nœud vital;* and that, though later brought under the power of chloroformization, it is always reducible under it. Hence I fear, that, in all cases of chloroformal anæsthesia, there remains but one irrevocable step more to the grave.

"I readily hear, before your voice can reach me across the Atlantic, the triumphant reply, that an hundred thousand have taken it *without accident!* I am a witness that it is attended with alarming accidents, however rarely. But should I exhibit the remedy for pain to a thousand patients in labor, merely to prevent the physiological pain, and for no other motive, and if I should in consequence destroy only one of them, I should feel disposed to clothe me in sackcloth, and cast ashes on my head for the remainder of my days. What sufficient motive have I to risk the life or the death of one in a thousand, in a questionable attempt to abrogate one of the general conditions of man?"

As Professor Meigs's letter is on chloroform, it did not appear to me perfectly clear that his remarks concerning it were meant to be extended to sulphuric and chloric ether. To learn how this was, I at once sent to Professor Meigs a copy of my circular in a letter, in which I took the liberty to ask him such questions as particularly interested me, concerning his trials and his views on the whole subject.

It will be seen, in my first extract from Professor Meigs's reply to Professor Simpson, that reference is made to a work by Professor Warren, of Boston, on "Etherization," which speaks of his reserve as to its employment in midwifery, and of the freer use made of it by Dr. Homans and Dr. Channing, of Boston. In my very first effort to obtain facts from my professional brethren respecting etherization in childbirth, and I believe before Professor Warren's book was published, I addressed a copy of my circular to him; feeling particularly anxious to obtain a precise statement both of facts and opinions concerning the employment of etherization, in this application of it, derived directly from his own observations of its effects in midwifery. I was the more desirous to obtain this information from this source, as Professor Warren was among the first to use etherization in important operations in surgery, of which midwifery is a department, and because of the weight of his opinions with the community in which he lives, and abroad. I have not received his reply; but my impression is, that his remarks were intended as a lesson of caution, and not as the results of actual experience.

From Professor Meigs, almost by return of mail, I received the following reply to my letter. It is written in a spirit of so much kindness, so much courtesy, — is expressive of an interest so deep in the important and the true, — of so hearty a love of science, that I cannot withhold this public expression of my thanks to its honored author. As a mere matter of taste, it may be questioned if somewhat of that which is especially personal to myself might not have been left out of the print. But I prefer to publish the letter just as it is, and to take the chances with my reader concerning other and purely inferential matters.

"Philadelphia, April 26, 1848.

"Dear Sir, — I feel much honored by your letter of the 21st instant, covering certain interrogatories relative to the use of anæsthetic agents

in midwifery; and I beg you to accept my sincere thanks for the attention.

"I believe I have read all the articles, within my reach, that have appeared upon the anæsthetic practice; and I misconceive of my own motives, if the hesitation which hitherto has prevented me from employing either chloroform or ether arises from any other than a conscientious scruple as to the administration of remedial agents, that I do not deem it indispensably necessary to employ. I have as yet met with no such case, and have therefore remained an interested observer of what my brethren have deemed it expedient, and certain of them indispensable, to do in the matter. I am therefore incapable of answering your interrogatories; being without any clinical experience in the case.

"Seeing that so many thousands of persons have taken, and do daily take, advantage of the insensibility produced by etherization, to avoid the pain of surgical operations, one might well charge me with being cautious overmuch in so long refraining from adopting the remedy in my own practice; but it seemed to me, that the motives set forth for my recusancy, in a published letter to Professor Simpson, ought to be of weight sufficient to determine my action in the premises. The results thus far attained, although they are doubtless beneficent in most cases, are nevertheless mixed up with elements of distrust, as to the permanency of present opinions and indications of practice, so considerable, that I am most anxious to have a candid exposition of the motive for or against it; comprising an amount of intelligence, drawn from different sources, sufficient to lead the body of the profession to clear views of duty upon the point.

"I hold myself in readiness to yield to conviction upon sufficient evidence of the necessity and propriety of etherization in midwifery; but I beg leave to say, that this is a case in which I should hardly yield my opinions to the force of statistical returns, because I have no doubt of some physiological and therefore needful and useful connection of the pain and the powers of parturition, the inconveniences of which are really less considerable than has by some been supposed. If I am not here in error, I submit that no statistics ought to have a real power to convince. There are a few of my brethren here who have exhibited chloroform or ether in their obstetric cases. The instances are not numerous. Dr. Hodge and Dr. Huston, who enjoy a large share of the public confidence as obstetricians, tell me they have not yet resorted to the anæsthesia, nor do they at present feel inclined to do so. Perhaps, sir, when the volume you are preparing for the press shall have appeared, and we shall have become masters of the results obtained and collected by you, we may all give our adhesion to the recommendation. I shall take great pleasure in studying your work with care, as soon as I can get it from the booksellers.

"I have to-day received Ed. Wm. Murphy's pamphlet, which he was so good as to send me by the 'Acadia.' Dr. Murphy gives us accounts of *seven* cases, five of which were under his own observation. I cannot say, that any influence has been produced upon my mind, to change my purpose, by reading Dr. Murphy's cases and observations. In the seventh case particularly, I do not perceive any good fruits of the administration. The success was extraordinary, but can by no means be attributed to the chloroform.

"It is obviously, my dear sir, so much more agreeable to say yes than to say no to any honorable invitation, and it is so clear that you have many distinguished names to sustain the practice now common in Boston, that I could almost feel ashamed not to be on your side also; but if, after reading your forthcoming work, I shall find all my objections swept away by the power of truth, I shall hasten to confess my conversion, and my obligation to you. It is certain, that those who establish great practical truths, that are efficient in meliorating man's condition, are deserving of all honor and commendation.

"The motives that govern me thus far are connected with, or rather dependent upon, my views of the nature and offices of different parts of the brain. If you will do me the favor to look over Mons. Flourens's pamphlet, a copy of which I beg you to accept, you will perhaps see the course of my reasoning against etherization in obstetricy.

"We both seek the truth. I hope that you may find and establish it. In the meantime, I rest, with the greatest respect and esteem, your most obliged and very faithful servant, "CH. D. MEIGS."

"Professor Channing."

It will be perceived, that the objection of Professor Meigs is wholly and purely physiological. Etherization being given, this objection demands for its removal the law of succession of its action on the several portions of the brain, from the hemispheres to the medulla oblongata, should it happen to reach so far; while it is at the same time obvious, that no such law as this can be ascertained. It is hence an impossible objection, and the true question is whether it should for a moment influence practice. We know not what is the succession of events from the slightest impression made by ether or chloroform on the hemispheres, or upon any intervening point between them and the medulla oblongata. We know not, and cannot know, where safety ends, and danger begins, by any known action of the agent,

or by any law of its action. Examinations after death from etherization show every variety of results, from the slightest, or none at all, to the greatest. The heart is found in every condition of emptiness and fulness, and the blood is quite as remarkable for the varieties of lesion it presents. So is it with the lungs; and, in short, so is it everywhere. Then we have the results of vivisections, after etherization induced in animals expressly to produce death, that its lesions may be made manifest. Now, vivisections are accompanied by direct effects, which at once prevent all true reasoning from them to the medicinal uses of etherization. The transcendental physiology of Flourens, of Preisser and Melays, and the equally visionary teachings of Snow, have really no pertinence to such an issue. They explain nothing, and should not for a moment be allowed to touch the questions involved in etherization.

I have directed as much, if not more, attention to the state of the respiration and of the circulation, than to any other facts in the history of etherization. These functions have always seemed to me to demand the most attention. They depend on the integrity of the medulla oblongata for their regularity, and for their very continuance. Thus I have counted the pulse and the breathings before etherization. Then, while it was getting established, and during its most perfect state, I have known them to remain wholly undisturbed in the midst and pressure of the total abolition of consciousness and sensibility. The patient has been in a state of entire and perfect repose. It has been the completed work of a second. There has been no time for succession in action, or it has been too small to be measured, or the series of events noted. I have known labor to advance in this state of things and to terminate, and not a limb or a muscle to move, or the face to betray the slightest token of suffering. In another part of this volume, I have related a case in which volition and muscular power partially remained, or was regained during

deep etherization. The woman was evidently wearied with her position on the left side, and in the most methodical manner possible turned herself over to the right, and composed her limbs after such a manner as to secure to herself a most comfortable sleep; and sleep she did through the whole of the remainder of the labor. These cases have been perfectly safe.

I have said, that the law of succession of the action of etherization cannot be learned; and I will state some facts which show how impossible the attempt to learn this would, and must continue to be. This condition occurs in many, many instances in so short a time after inhalation as to make observation of any succession in events impossible. I have known it to take place completely after two full inspirations, so that not the least notice was taken of any thing said or done. I spoke of the state of the breathing of the pulse, and the subject will come up under other heads again. Let me here say, in addition to what was remarked of their general natural state, that sometimes we find the reverse. They are sometimes more rapid, sometimes slower, than natural. Sometimes the breathing is perfectly noiseless; at others it is a heavy, stertorous snoring. Professor Simpson speaks of this as occurring more frequently in his practice, than has been met with in the cases which have fallen under my own observation.

Not only has the physiological objection to the use of chloroform and ether prevented Professor Meigs employing them in midwifery practice, — and will continue to do so, since it is pretty clear that this objection cannot be obviated, — but it will be perceived, that this same objection has with the professor also destroyed the authority of statistics; a science which, in matters of fact, has been of the greatest practical regard and benefit. It makes no sort of odds, that a thousand or a million cases, duly reported and authenticated, have been most successfully and happily treated by etherization. The possibility, not the *proba-*

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this volume, I have related a case in which v
muscular power partially remained, or was regai

bility, — for this is denied in the very statement of the number who have safely used it, — the *possibility* of one case proving fatal *afterwards* (not in consequence of etherization, for this cannot be determined) would seem to be regarded as a valid objection by my highly respected correspondent to his ever employing it. At least, notwithstanding the thousands of cases in which etherization has been most successfully used by others, Professor Meigs, in amount, says he has not met with one in which he has thought this agency necessary, or in which it would have been usefully employed. The position of this distinguished professor, and the collateral support which that position, and especially his opinions in midwifery, get from the adhesion of Professors Hodge and Huston to the same, makes it a duty, in the discussion of our subject, to consider all the grounds of his not having employed the remedy of pain in labor. I do not understand, that his associates in doctrine and in practice, in this regard, have, any more than himself, employed ether or chloroform in childbirth. If they have not, is not the whole reasoning against their use strictly *a priori* in its whole nature? It is not only indifferent to, but wholly irrespective of facts, which are alike the sources and the basis of all inductive science. Its supporters do not ask, "What has occurred? — what has etherization done in childbirth? — how safe has it been to mother and child?" They ask what it *ought*, what it *should* do, upon certain physiological principles; and which show that, as far as we can see, it ought to be, or that it is very likely to be, fatal whenever used. The friends of etherization look to the simple fact, — to what actually has happened in childbirth, after using ether or chloroform. They can learn what this truly is, both from their own observation and from that of others. They know that these remedies of pain have been widely used, and with a success which attaches to no other known remedy in practical medicine. They look to the facts. They collect these;

and, when the time for philosophizing has come, they will with great pleasure use physiology, and all other collateral aid, in their important generalizations. While thus waiting, however, they do not reject the teachings of physiology. But in the very imperfect condition of this noble science, and more especially that department of it which concerns the nervous system, they are willing to take the guidance of simple fact, of daily observation, in the conviction that, if wisely followed, it will never lead them astray. It is simply and wholly in view of the great importance of our subject, that another opinion of Professor Meigs will now be referred to. It is a passage in his letter to Professor Simpson, and contains what seems to Professor Meigs a conclusive objection to the use of etherization in childbirth. We have already made the quotation, but repeat it for special remark: —

"I readily hear, before your voice can reach me across the Atlantic, the triumphant reply, that an hundred thousand have taken it *without accident!* I am a witness that it is attended with alarming accidents, however rarely. But should I exhibit the remedy for pain to a thousand patients in labor, merely to prevent the physiological pain, and for no other motive, and if I should in consequence destroy only one of them, I should feel disposed to clothe me in sackcloth, and cast ashes on my head for the remainder of my days. What sufficient motive have I to risk the life or the death of one in a thousand, in a questionable attempt to abrogate one of the general conditions of man?"

The "alarming accidents" are not stated to have happened in midwifery practice, and probably were not observed in childbirth in which etherization was employed. This opinion is partly derived from the statement of Professor Meigs, that he has never used this agency in labor, and partly from what is stated immediately after concerning the employment of chloroform for the pain of disease, and of surgical operations to which no objection is made. It will be perceived, that the objection to etherization is still a physiological one; for the *pain* of labor is obviously, from

the whole language and reasoning of Professor Meigs, a *functional* pain. Now, here we join issue, and state what will be met with elsewhere in this volume, that the *functional* department of labor is the *contraction* of the womb, the dilatation of its mouth, vagina, and external organs, which are no more necessarily painful than are those which carry forward, and expel the contents of the rectum or bladder. There is no pain in the pure functional actions of the uterus. Pain is the consequence of *resistance* to the contractions of the womb, which the moving body, the fœtus, encounters in its progress to birth. Pain in labor is the result, first, of the imperfect harmony of functional dilatability of the mouth of the womb, with the contractions of the organ; secondly, of a like state of the vagina; and, thirdly and specially, of a like condition of the perineum and external organs. It is in these contingencies, not natural elements of labor, that the whole *pain* of labor has its cause. The pressure of the unyielding head on the sacrum also takes its share in the production of the resistance which makes up the whole pain of labor. I do not refer to morbid conditions of the passages, such as excessive sensibility and others, with which all practitioners of midwifery are so well acquainted. I merely refer to functional conditions or disturbances, which are ordinarily met with, and which give rise to the agony of childbirth. Now, this state is one which demands relief. It does not necessarily belong to labor, since painless, or nearly painless, cases of labor are too common to allow of such a statement for a moment. It is to relieve the unnecessary suffering which results from those conditions referred to, that etherization is employed. And it gives the demanded relief, by increasing dilatability, diminishing or suspending sensibility, preventing exhaustion, increasing the secretions, taking away the disturbing action of the will; and thus produces results which strike the observer of the first case in which he witnesses it, as if a miracle had been performed in his presence.

A husband sat at the bedside of his wife, and witnessed her sufferings during labor for some hours. Soon after my arrival, and no contra-indications to etherization being present, she inhaled sulphuric ether-vapor. She very soon experienced its most happy effects, and expressed the positive pleasure which had replaced so much agony. The effect upon her husband was such, of this sudden and entire change in her whole state, that he became faint, left the room, and did not return to it till after the child was born.

Let it, then, be distinctly borne in mind, that etherization is not used to suspend *uterine contractions* (which it most rarely does), but to prevent *pain ;* and, in this way, to make labor safe and happy to both mother and child, and to secure a successful convalescence. The cases that follow will abundantly show how true and how general is this alleged effect of etherization, — the rapid recovery which follows its use. Perhaps no effect has been so frequently alluded to by patients as this. They may be unconscious of what happened during etherization, and are insensible to pain; but the after condition is matter of distinct consciousness, and is always referred to with entire satisfaction.

Professor Meigs speaks of the depth of the sorrow he should endure, should he destroy one in a thousand cases, by using etherization in labor. Whence would come that sorrow? Not on account of wrong-doing, certainly. For what better argument could he or anybody else have for employing the remedy of pain in the thousandth case, than the preceding nine hundred and ninety-nine perfectly successful ones? Would it not at once occur to such experience as this, that the untoward result was in no sense the product of professional delinquency in the employment of a remedy, but that it was a result not to be looked for or anticipated, — which stands as the solitary exception to the universal rule, for such would such an exception make it, — which has hence no relation to practice, — and the

[illegible] existence and whole history of which begins and ends [illegible]! Add to this the fact that in not a single [illegible] of the thousands of recorded cases of childbirth, has there been a single untoward result met with during etherization; and what further argument do we want to support the position, that this agency in painful labor is not only most reasonably demanded by the sufferer, but that it is the solemn duty of the profession to afford to such suffering its certain relief?

Do not for a single moment let the question be regarded as an impertinence; for it has a most important bearing on the subject. It is this. What becomes of the other physiological objection already noticed; namely, that etherization may quite unexpectedly reach the medulla oblongata, and so suddenly destroy life? I ask, what becomes of this objection, in view of the open recommendation of this agent in medical and surgical contingencies by the opponents of its use in childbirth? Certainly the risk is as great in these, as in the childbirth employment of the same agent. Nay, experience has shown it to be much greater; for fatal results have come of it, as I shall show by and by, in surgical operations, while etherization has never touched the medulla oblongata in any childbearing woman.

I do not mean to support my position regarding etherization in childbirth, by referring to the uncertainties of therapeutics in practical medicine. It may not, however, be out of place to observe, that, often in the gravest diseases, the correctness of the treatment is a matter of inference from its results, rather than of *a priori* reasoning, or mere experiment in other like cases. And yet who would or should question the propriety, the wisdom of that course which has its determination in such reasoning or in such experiment? Sydenham, in his noble writings on epidemics, especially new ones; and Gooch, in his admirable paper on puerperal fever, have settled the laws of practice in most important diseases, and, in their wise cautions in the

use of powerful means, have proved that their confidence in their remedies and in themselves has not been misplaced, but has made the ages long to come their grateful debtors.

I have not confined myself to etherization in childbirth. I have devoted some pages to its employment in surgery and general medicine. I have done this for illustration, and especially for its bearings on labor, both in regard to its agency, and in explanation, and as argument for its safety in this practice. This part of the inquiry seems to me exceedingly pertinent to the whole object in my undertaking, and is surely one of the deepest interest. It forms a most important portion of the teachings of the remedy of pain, and shows how wide is the domain of human suffering which it covers and controls.

Another subject, — the untoward results of etherization. Cases have been collected from home and abroad, in which these results have been alarming, and even fatal. Where original sources of information concerning these cases could be reached, they have been referred to, and the answers to inquiries are recorded. Thus I have published from authentic sources important facts concerning the Cincinnati case; others from Dr. Bartlett, of New Bedford, of a case in which chloroform was inhaled for amusement; from Dr. Flint, of Roxbury; from Professor Parker, of New York; and an important correction of a newspaper report of a case of crushed thigh, in which amputation was done during insensibility from chloroform. The correction is by Dr. S. D. Townsend, one of the surgeons of the Massachusetts General Hospital.

The numbers which the cases bear belong to an arrangement for a special object. They have been retained, as answering the purpose quite as well as would initials of names, and without the objection which might have attached to their use.

The word *etherization* has been used as a generic term,

and to express that condition which follows the use of ethers of whatever kind. I have, for the most part, designated the particular agent employed for its induction; and, where this has not been done, no necessity existed for doing it.

The first seven cases in the series were published in a pamphlet referred to in the beginning of this section. They are reprinted without alteration, because of the personal interest with which they are regarded, and because of their immediate relation to, and direct agency in, what I have since done concerning etherization.

It has not been easy, in the composition of this work, to avoid occasional repetition of thought, doctrine, or fact. Reports of cases, and statements of opinion, have been constantly reaching me while writing; and I was not willing to withhold either, though at times it has not been always easy to give them the best place. But the repetitions referred to have not been without design. They sometimes present important truths in different aspects. Sometimes, in their wider application, they involve new and useful practical suggestions. Sometimes they are used for illustration.

As to arrangement, very little attempt has been made to render this exact. Subjects follow each other in sufficient order, however, to indicate somewhat their mutual dependence, while each section is complete in regard to the subject discussed.

In offering this work to my profession, I have only to say that it was undertaken, and is finished, in the hope of adding something to useful medical literature. It has occupied more time than I supposed would have been necessary for its completion. It has been written in the uncertain leisure of a professional life, which makes a daily and like demand on physical and intellectual power. It treats of a noble subject, — the *remedy of pain*. After ages of suffering, and of frequently and long intermitted pursuit of such a remedy, one has been discovered. It remains with the

profession to say whether it shall take its place among the permanent and most important agents in the treatment of disease, and in abolishing pain; or whether it shall pass away with the unimportant and undeserving, until another and a truer age shall revive and give it a wider sphere of usefulness and a surer perpetuity.

I have stated my views fully and freely. They are believed to have a legitimate basis in numerous and well-established facts. These facts have been reported, not to sustain a vague opinion, or to give importance and currency to a poor and an unsafe hypothesis. It is no part of the purpose of the following treatise to teach, or to leave it to be inferred, that untoward results have not followed, or will not again follow, etherization. But I can and do say, that I have not met with an untoward result in any case of midwifery in which etherization has been induced, which, by any violence or ingenuity of explication, can be ascribed to this state as its cause. I have met with no record of such.

Sincerely do I hope, that what of earnestness may be discovered in the pages which follow, or in those which have preceded, will be ascribed to interest alone in the truth; and that I shall be saved from any thing approaching the charge of a partizanship, of which neither my subject nor my self-respect need, or I trust would allow, the indulgence.

W. C.

178, Tremont-street, Boston,
June, 1848.

DISCOVERY AND USE OF ETHERIZATION IN MEDICINE AND SURGERY.

In October, 1846, surgical operations were successfully performed in this city during *etherization*, or while patients were under the influence of sulphuric ether, and induced by inhaling its vapor. These operations were first performed in private practice, and immediately afterwards upon patients in the Massachusetts General Hospital.

The first of these operations in the Hospital was performed by Dr. John C. Warren, one of the surgeons of that institution, and professor of anatomy and operative surgery in Harvard University. This was on the 13th of October, 1846.

The second operation was performed the following day, October 14, by Dr. George Hayward, also a surgeon of the Hospital, and professor of the principles of surgery and of clinical surgery in the same University.

The anæsthetic power of sulphuric ether, when inhaled, was first used in childbirth in this city, in a case of natural labor, on the 7th April, 1847, by Dr. N. C. Keep, and was successful.*

Etherization in operative midwifery was first employed in America, in Boston, in a case which occurred here on the 5th of May, 1847; it being the second in which it had been at all used in this country in childbirth. This case had existed *forty-two* hours, and with extreme violence and great suffering, when inhalation was begun. Etherization was perfect, and the operations for accomplishing delivery were performed during complete insensibility. This case stands first in the following series. Recovery was perfect.

* For report of Dr. Keep's case, see Appendix, A.

The first case in which etherization was induced in this country for disease occurred July, 1846; and inhalation was employed the 4th of that month. This trial was perfectly successful, and the report of it is in the Appendix, B.

Such was the *time* and *place* of the introduction of ether by inhalation into the practice of medicine and surgery.

What was the *manner* of its discovery? and *how* was it introduced into practice?

The power of sulphuric ether to abolish pain during surgical operations was ascertained by actual experiment. It was a strictly philosophical induction, and thus takes its place with all other questionless and most important discoveries. It was tried in this city in a special way, namely, by inhalation, — in a special case, and for a special purpose. Inhalation was followed by insensibility. The operation was performed during this state. There was no consciousness of present suffering. There was no memory of pain afterwards. The operation was wholly successful.

The following on the discovery and introduction of sulphuric ether is quoted from a pamphlet by Dr. George Hayward, entitled, "Some Account of the First Use of Sulphuric Ether by Inhalation in Surgical Practice:" —

"It is understood, that Dr. C. T. Jackson, well known by his great attainments in geology and chemistry, first suggested the use of the ether; but to Dr. Morton, I think, must be awarded the credit of being the first who demonstrated, by actual experiment on the human subject, the existence of this wonderful property. . . . . The ether was administered at the Hospital by Dr. Morton, on the 16th of October, to a man upon whom Dr. Warren was to operate for a tumor on the face. The effect in this case was not complete. The suffering, however, was very much less than it would have been under ordinary circumstances; and the result was on the whole so satisfactory, that a second trial was made on the following day.

"The patient to whom the ether was administered on the 17th of October was a female, with a fatty tumor on the arm, between the shoulder and the elbow. At the request of Dr. Warren, I did the operation.

The patient was insensible during the whole time, and was entirely unconscious. The operation lasted about seven minutes, but could not be regarded as a very severe one."

We have thus made, of unsettled opinion, an established fact. We have done this by an experiment too widely and too wisely made, to admit of a moment's question. And this sure experience is our own. It is our own in its thought, its true conception. It is our own in its present and surely enduring life. With the feelings of a parent of a noble child, let us hold fast and cherish our own offspring. Its service, its blessing, we freely give to the world.

It is at home then, in this city, here, we find the true birthplace of a discovery which has received the gratitude of the world. By the agency of ether, we now actually control most important intellectual and physical functions or phenomena; we hold in check, so to speak, a vital function, — separate effect from cause, — restore harmony to the disturbed or disordered functions of an organ, the womb, to which disturbance I have ascribed the pain of labor, and so abolish its suffering; and all this without danger to life, and by the substitution of perfect ease, and often positive pleasure, for a pain, a suffering, an agony, which heretofore the universal experience had taught was as natural and as necessary as it was incidental to the circumstances under which it occurred.

Not many months after the discovery of the anæsthetic power of sulphuric ether, other agents, other ethers, were brought forward, possessing a like power with it, but under certain modifications, which, as it was supposed, would supply some of its deficiencies, or avoid some of its inconveniences. I will briefly allude here to such as have come to my knowledge. Future reference to them, in their practical relations, may be made.

1. Chloroform, the perchloride of formyle, was first used in the practice of midwifery, and, I believe, first employed at all for abolishing pain by Professor Simpson, of

Edinburgh, who deserves so much for his introduction of ether into the same department of medicine. The discovery of this substance is ascribed by Professor Simpson to Dumas, to Liebig, and to Soubeiran, well-known and distinguished chemists in Europe. By Soubeiran it was discovered in 1831, by Liebig in 1832, and by Dumas in 1835. In America it was discovered in 1832 by Samuel Guthrie, Esq. of Sackett's Harbor, New York; from whose letter to the editors of the "Commercial Advertiser" on the subject, I make the following extract: —

"In making experiments, some eighteen years ago, with chlorine and alcohol, I obtained a new product, having the properties of the chlorine ether of the Dutch chemists, with which I supposed it to be identical. As I first obtained it, it was in solution in alcohol. In consequence of its pleasant flavor, and the delightful sensation it produced when taken into the stomach, it was greatly sought for in my neighborhood as an exhilarating drink. After seeing its effects in producing a higher degree of jollification and mirth than I had ever seen from intoxicating drinks, and finding that I was introducing a dangerous auxiliary to the cause of intemperance, I refused peremptorily ever to sell another drop to be used as an exciting beverage.

"From seeing its surprising powers in restoring a daughter, nearly dead from the effects of burning charcoal in a close room, and other known qualities, I thought it might prove of much value in Asiatic cholera; and, while that disease was traversing this continent, I sent it into Canada, New York, New Haven, &c. in the hope that it might be tested in that frightful disease.

"When first obtained, it was in solution in alcohol; and my first object was to separate it from all foreign matter, and to present it in a state of absolute purity. This I effected on the 6th of January, 1832, by concentrating it to a specific gravity of 9.486. An account of the discovery and improvements in constructing it, up to that time, was published in the 'American Journal of Science and Art,' by Professor Silliman.

"It was important to find a more simple mode of concentration than any I had used; and, finding it was very sparingly soluble in water, I concluded that low proof-spirits might be used instead of alcohol in generating it, and that the product might be washed freely with water, and thus freed from alcohol. The trial was made, and resulted in complete success.

"To give an idea how easily and rapidly chloroform may be made,

and of great purity and strength, I will detail one operation made in 1832, from which course I have never since had occasion to deviate: — Into a 500-gallon copper still I poured 100 gallons of common whiskey, and then plunged in 240 lbs. of chloride of lime. The still became instantly hot; and, before I had luted on the head, I had a full stream of chloroform from the still worm. It continued to run freely for some time without fuel. When the product ceased to come over sweet, I removed the receiver, and ran off the remainder of the spirit for future use. The product was re-distilled from a profusion of water, or was well washed in some five or six waters, when it had reached a specific gravity of 1.473. From 2,000 lbs. of ordinary chloride of lime, I obtained nearly 100 lbs. of chloroform."

2. Chloric Ether, which is a solution of chloroform in spirit and water, was used to produce insensibility in surgical operations by Mr. Surgeon Lawrence in London, before chloroform was used by Professor Simpson in childbirth.

3. Compound Ether. — This is a solution of chloroform in *sulphuric ether;* and, from a newspaper report of its effects, it would seem to promise to replace its predecessors. Its introduction was not unlike that which brought chloric ether before the profession; namely, that some of the inconveniences and alleged grave results of ether, when used alone, might be prevented by their combination. There would almost seem to be something fanciful in the attempt to check the excesses of chloroform, by the moderation of sulphuric ether, by their intimate combination. A neutral, it seems, is the product of their union; and, if this want the whole force of ether, when used alone, and nothing be gained in power by the combination, it would appear to have properties of its own, which promise to it much popularity with profession and public.

The following is the only report I have met with of the new ether: —

"Chloroform: Successful Experiments. — Two amputations were performed yesterday at Bellevue Hospital: the one, that of an arm by Dr. Cox, one of the assistant physicians; and the other, that of a part

of the foot, by Dr. Childs, one of the visiting surgeons. In both cases, the patients were first rendered insensible to pain by the use of chloroform, diluted with four times its bulk of sulphuric ether, with which a sponge was moistened and held to the nostrils by the resident physician, Dr. Reese, who has had extensive experience in the use of both chloroform and ether, although we learn that this was the first time these agents had been used in combination. The complete success of the first trial of the mixture, in both cases, would seem to confirm the inference which suggested it, that the ether alone is too slow and uncertain, while the chloroform by itself is too rapid and hazardous in its effects; and hence the union of these two agencies has been considered as likely to be more gradual and safe. The result of these instances, if confirmed by subsequent trials, will go far to remove the terrors which have been excited by the few disastrous cases which have been reported from chloroform. Both these patients were kept in a state of complete insensibility during the operations, and both are doing well, having recovered from all the effects of chloroform in ten minutes afterward. The medical Board of the Hospital were present, as also many other physicians and surgeons, all of whom expressed themselves much gratified with the complete success of the inhalation of chloroform and ether, — a mixture which none of them had seen tried before, and one which promises to remove all the objections which have been urged against both. It is worthy of remark, that both these patients were over fifty years of age."

PHYSIOLOGICAL AGENCIES OF ETHERIZATION.

Feb. 16, 1848. — I witnessed an experiment to-day, which showed some effects of etherization not before met with. They were made upon the web of a frog's foot by my friend Dr. Perkins, of Newburyport. The frog was etherized by being put into a glass globe, into an opening of which a bit of sponge wet with sulphuric ether was placed, and kept there by the cork. The first effects were much leaping, then crawling, then slow projection of the limbs, then drawing the limbs together, and lastly entire rest. This frog, a young one, had been kept in *water* in the globe for about three months, for experiments. It had received no other food than water during this whole time, and had very often in that time been etherized. It seemed in perfect health. The water was poured off before etherization, as its presence lengthened this process. There was an abundant cuticular secretion afterwards.

When perfectly etherized, the frog was removed from the vessel, its head and body put in a bag, and its web brought into the field of a strong compound microscope. Looked at immediately, not the least motion was perceived. The capillaries were perfectly visible; but their contents presented nothing by which to distinguish them. Soon, however, you saw, at the edge of the portion nearest the body, a very slight movement in a vessel. It gradually increased, until you saw a fluid, the components of which were perfectly visible, slowly passing along the course of the vessel. Two of the components were sufficiently distinguished from each other, — the *blood* globules and the *lymph* globules. The first, the blood globules, were *depressed* discs or circles, with a very narrow black border or edge. They moved

along by the side of each other, in the centre of the capillaries, without the least confusion, or even touching one another. It was most striking to observe the *order*, so to speak, of their motion. The lymph globules were *circular*, of less diameter than the blood globules, having the same dark border, and so moving as to present their circular shape as in perspective. They moved as on their *surface*, along the *walls* of the capillaries, but without the least confusion among themselves, or between them and the blood globules. When the motion was slowest, it was interrupted, and at regular intervals, as if the movement were continued by a contraction of the vessel, as a pulse. But I could not discover in the vessel itself the least change of place. The vessel was quiescent, — perfectly still; and, when the circulation became brisk, which it soon did, you saw that the motion of the blood was *wavelike* or uninterrupted. The experiment was truly beautiful. The connections between the trunks and branches, the meeting of many currents, and their undisturbed progress in their proper places, — these things, in their novelty and perfectness, could not be seen without the liveliest satisfaction.

Now, what are inferences from these experiments? They show the state of the capillary circulation during etherization. This is placed beyond question. The microscope presented the organization of the web greatly magnified. Every vessel was most distinct. For a time the rest was perfect, as of an inorganic structure, — of something which had never had motion or life. Then you saw a movement, and of a mass of such size, and of constituents of such form and magnitudes, as allowed you to see them in the fullest manner. This was the first sign of recovery from etherization.

Not the least organic or physiological damage or lesion followed this state of things. This frog had been submitted for three months to a variety of experiments, and was still in perfect health. The circulation was as complete in every

vessel, in every part of the web, as it was when the trial was first made.

Dr. Perkins informed me, that he had met with a report of an experiment upon a translucent water-plant, the chara, with ether, in which the appearances corresponded with those observed in the web of the frog's foot. The plant was placed in a vessel, filled with ether-vapor, and then examined with the microscope. At first there was no motion perceived in its vessels. Soon after, a motion was seen in the capillary sap-vessels, which was ascribed to the movement of that fluid in these vessels.

In a letter on the first experiments above noticed on the frog, Dr. Perkins observes: —

"Under a *slight* dose of ether, the circulation in the capillaries is *uninterrupted:* under a *larger* dose, the circulation *stagnates* in them: that is, they are filled with blood, but not in motion. As the effects pass off, the motion of the globules is gradually renewed, and the circulation restored.

"Under the chloroform, that state of things occurs which you have described. The capillaries are *empty*. As its effects pass off, the blood and lymph globules appear coursing through the vessels, slowly and scatteringly at first; then in larger numbers, and a fuller current. This same effect would undoubtedly be the consequence of a large dose of ether."

What application have these facts to the observed results of etherization in man? It has been observed, after inspiring both ether and chloroform, that there is a sensation very exactly resembling that of a limb in the state of being asleep, as it is called, — a sense of tingling or prickling throughout the whole body, especially in the extremities. May not this be explained by the state of the capillary circulation, or non-circulation, or the condition accompanying its renewal? A very observing person, who was fully affected by chloroform, told me that the tingling, she thought, was observed before any other effect. All others who have spoken of it have referred it to the moment of

returning consciousness and sensibility. One individual, who was very slightly affected, felt the sensation referred to upon one side only, the left. It embraced the upper and lower extremity, and half of the trunk.

In looking back upon the experiment upon the web of the frog's foot, I could not but be profoundly impressed with the power, the agencies, of the capillary system. The artificer of the body, in every instant of time repairing its waste out of the same material, the blood, and in itself the same organ everywhere, — making various and essentially diverse organs the source of as diverse secretions, — producing animal heat, the very atmosphere, so to speak, in which all functions live and have their being, — the capillary system, so wonderful, so important, — is it not, asked I, the maker, the producer, of that very power, *sensibility*, which establishes the mysterious relations which subsist alike in the organs and in the functions of both animal and organic life, and which may be the foundation-principle or cause of that life itself?

Second, *Of the state of the head in etherization.* — A very common and immediate result of inhaling ether or chloroform is noise in the head. At times, this is very slight; at others, it is very considerable. I have never heard it spoken of as annoying. It is compared to many things, and especially to things in motion, as the noise of a rail-car, — of that which is heard in a machine shop, — a cotton mill, &c. &c. I have almost invariably heard it ascribed to any noise which has particularly attracted the notice of the person. One of the most common occupations in these persons, during etherization, is travelling on the railroad very rapidly and pleasantly. May not the imperfect associations of cerebral phenomena with some previous occupation or situation explain the frequency with which a particular position or occupation, during etherization, is referred to?

Dizziness, or rather confusion, is another of the cerebral

phenomena. Excitement, pleasurable or otherwise, occasionally occurs. At times, under the influence of one or the other, we observe strong opposition to or desire for inhalation. Whatever, however, may be the condition directly following, it does not last long, or very rarely does it so. Unconsciousness, apparent or real, and insensibility, put an end to these sensations, so far as they be disturbing; and a very pleasurable one succeeds. This last may be often resolved into the negative condition of absence of pain. But, in this case, this even becomes positively agreeable. Whatever, however, may have been the cerebral condition or functions during etherization, I can say with entire confidence, that I have never known it to continue beyond the state itself; namely, a few minutes after removal of its cause. I have never observed any loss of strength following its use. On the contrary, the absence of pain during labor has been attended and followed by a remarkable preservation of strength. The uterus has acted with more true power, and patients have returned sooner to ordinary duty, the family, than after any preceding labor. In this observation, I am sustained by that of almost every one who has employed inhalation in midwifery practice. I beg this to be especially understood and recollected; for it cannot but have a very decided and favorable effect upon the continued use of inhalation.

Of Consciousness during inhalation. — This presents a variety of phenomena. At times it is perfect. Every thing said is heard and remembered. The patient betrays no consciousness and no sensibility. The last is wanting: the first continues; and, more, what happened during etherization is remembered when it is entirely passed away. At other times, consciousness is disturbed. Persons are mistaken: still they are talked to with apparent perfect coherence, though an entire ignorance exists of the persons themselves. An instance may be named. I was called to attend a case, before I had seen the patient. I was a per-

fect stranger. She had been in labor many hours before I saw her, and was in severe pain when I reached the address. She very soon inhaled ether, and at once was etherized. She was without pain; but her mind was quite active. It was a pleasant condition altogether. She looked intently at me at one time, and said with emphasis, "Why, grandfather, how very, very old you *do* look! How long and how grey is your hair! Why, grandfather," &c. &c. The excitement continued for a minute or two after the labor was over, expressing itself in gentle singing.

At my morning visit, two or three hours after, I asked this patient if she remembered what happened during etherization. She said no. I asked if she remembered calling me grandfather; repeating what, in immediate connection, she said as above. She was surprised at the question; adding that, considering she had never before seen me, it would have been very improper for her to have asked such questions. There was a naturalness in all this so perfect, a truth, too, in this very quality, that at once proved to you how unconscious my patient had been. She had lived in true relations with the persons and things around her. She had recognized them, in a perfect misapprehension of others. She had spoken and acted in what, to her mental state, was in entire harmony with it; and still was there not the least memory of what she had said, or of what had happened. — Other cases present a very different state of things. There is consciousness; but nothing betrays it. A perfect repose exists. Not a word is said; not a voluntary act done. And yet, when the person comes out of this state, is there the most perfect memory of what has been said and done.

So diverse are results in what seems the same experiment, or which presents the like phenomena. It is in these, as well as in the abolition of sensibility, that we find in etherization a matter for the deepest thought and the widest interest. Physiology has a new agent for the prose-

cution of its inquiries; medicine, a new agent for the relief of suffering and the saving of life. Suppose we learn, in the progress of our researches, that the suspension of morbid processes, in the arrest of what is tending to the gravest results, may be the product of agents introduced by inhalation into the system. Do we not, in these facts alone, have that accomplished which will permit restorative processes, which are always at hand in the living being, however diseased, to exert their power, and to replace the diseased by the healthy, — to effect recovery? And may not the means of art, medicines so called, exert powers which under other circumstances they fail to do?

Of Sensibility. — This is the power by which impressions made upon the living body are perceived. Sensation is the product of the exertion of this power. It is painful or pleasurable. The same agent may produce either of these. The effect is wholly in harmony with the cause. The predisposition to be affected beyond proportion to the agency used is an exception to the rule. Pain is produced by external violence, by diseased actions within, and by mechanical resistance to the performance of a single natural function. As the consequence of external violence and of disease, pain gives immediate notice of danger by suffering, and makes immediate demand for relief. Labor is the function referred to. Uneasiness in women, and in all other animals, in labor, gives notice of the function. So far, it is useful. Beyond this, it will not be difficult to show that it is useless, and may be even injurious. This will be done hereafter.

Etherization suspends sensibility. Labor goes on, but is not perceived. It is without pain. During uterine contractions in etherization, it is very common to hear expressions indicating effort. Respiration becomes embarrassed by uterine contraction, and you perceive this often in the apparently voluntary effort which attends it. It is precisely what occurs during sleep, when, from an unfavorable posi-

tion of the body, or other cause, functions become embarrassed. The brain is at once informed of this, and as soon applies the remedy. During this effort, the breath is held; then is forced, alternately, until change of place is effected. Now, there is no pain in all this; nor is the effort nor the change of place remembered how much the necessity for both may be perceived by the sleeper. Etherization does just what sleep does. It is sleep, profound sleep; and, though effort is made, and because an impediment to easy performance of function exists, still is there no pain.

Of Muscular Action during etherization. — We have reached a most interesting part in our investigations. What is the condition of the muscular system under this power?

Volition *seems* to be suspended, and the organs of voluntary motion are at rest. I say seems, because there are facts which to some make the unqualified statement questionable. I think that there may be, and that there is, a degree of etherization which is not incompatible with voluntary muscular action; and still that there may be no sensibility, or, to be still more precise, no sensibility which is accompanied by pain, or pain which is remembered.

I find an argument for this in what was observed of sleep. There occurs in that state an occasion for motion, by muscles of voluntary power. Change of place here is effected at once without the consciousness of the sleeper, and is without pain. No one at all conversant with etherization has not had abundant opportunity to observe, that there are limits which may be placed by him to the power. Nay, what is still more remarkable is this: the patient may, and does, determine or place this limit herself, just when and where she pleases; and, in fact, frequently does this when the sponge or the inhaler is in her own hand. She *lets* it fall, when that point is reached. When she does not so by volition, the limit is exceeded, and the instrument falls by its own weight, and by muscular relaxation, from between the fingers. It is this which constitutes one of

the most important, I may add beautiful, facts in our subject; and it furnishes us with this practical rule, which should never be forgotten; namely, — *Entire etherization is unnecessary in midwifery, except in instrumental and other difficult cases.*

There is no danger in the completeness of this state. There is in its perfect induction no cause of alarm. But it is not necessary, as it is thought to be in severe surgical operations, during which the patient is kept perfectly etherized. In instrumental delivery, in turning, &c. where the suffering is great, and it is important to produce entire relaxation, and to have perfect control of the voluntary powers, then complete etherization should be reached. I have not often witnessed this state. I have seen a person apparently in the fullest state of etherization, preparatory to a very severe surgical operation. But, at the first stroke of the knife, which passed extensively through sensitive textures and at once, the patient forcibly drew up the limbs, tried to move the body, as if to get out of the reach of that which produced suffering; and, in cases of severe operative midwifery, I have at times observed the same thing. There has been no memory of uneasiness or pain, if the feeble struggles referred to were felt. Here again, as in profound sleep, where effort is for some cause made, there was probably no pain at all.

These brief notices of the relations of etherization to physiology, in its agency with voluntary functions, — its powers in regard to consciousness and sensibility, — give to it the deepest interest in the highest philosophy. The etherized person is not *drunk*, — is not *intoxicated.* There is the helplessness of sleep; but there are going on most important functions, and without the least disturbance, nay, with increased power. The person wakes from this state at once. The mind declares itself in its clearness, fullness, naturalness. There is not a moment of that apoplectic sleep which follows intoxication, — none of that

surfeited aspect, as if the person, in having been relieved of pain, had for the time become allied to the brute, and did not lose the relation when consciousness has returned. Especially is this true after chloroform. Etherization by this is at once followed by entire return of the faculties. Chloroform very soon disappears from the breath, and is found in none of the excretions, showing how evanescent is its agency, however important and grateful has been its power. He who witnesses the agencies now under consideration has before him facts which must command his attention; and I am not at all surprised to find how much the moral and intellectual aspects of etherization have arrested attention, and how much more vividly remembered are they and recorded than its more perfectly physical phenomena. I would, in passing, however, remark that, notwithstanding the interest in the psychological bearings of the subject, it is of extreme importance, that what pertains directly to physical functions, so to speak, should be carefully and habitually studied. Among these functions are the circulation; respiration; temperature; state of complexion; perspiration; state of limbs and body, as to motion or rest; secretions; dilatability of organs concerned in labor; state of uterine contraction, whether regular, or intermitted longer than before, or suspended, and how long. In short, nothing should be omitted which belongs to the physiological condition under notice, whether it be for personal knowledge and after-use, or for the advantage of the profession. Above all things, we owe it to our subject, to the public, and to ourselves, to state just what happens, whether favorable or otherwise, and alike during etherization and what follows.

I have spoken of the action of voluntary muscles during etherization. How is it with involuntary action during the same state?

The actions of the womb in labor are automatic. They are involuntary. The will may bring to its aid neighboring

organs or powers. The will may seem to retard the progress of labor; but it never produces contractions. A case is recorded in this volume, in which the agency of volition was strikingly seen. I had applied the forceps before etherization. A pain came on, and I was surprised to find the instrument forcibly drawn into the vagina, and almost out of my reach. The woman here was trying to diminish suffering. After ether was used, and its full effects produced, not the least effort of this kind was made. In another case, the patient was living some miles from town. When I reached the address, I found the case far advanced, and that my visit had been very anxiously looked for. I was told, that, by strong voluntary effort, the labor had been unquestionably retarded, lest it should have been over before my arrival. She inhaled ether at once, and in a very short time was delivered without pain.

Etherization has no necessary effect to diminish the organic action of the womb, any more than it has to stop the circulation or digestion. There have been cases in which uterine contraction is said to have ceased during the action of ether. It has occurred after etherization has ended, and again been checked by its reproduction. Are not these exceptional cases? and have they not proceeded from circumstances in individuals which are in no sense general? I have not, in my own practice, met with a single instance in which diminution or a suspension of contraction has occurred, which has differed from those in which these same things have happened without ether. In some of the following cases, ergot has been given. But it has been used when hemorrhage has followed a previous labor or labors, and to prevent its recurrence, just as we would use ergot, had etherization been unknown. I have given it in some, because the labor has been protracted, or the contractions, though accompanied by much pain, have been ineffectual, and because the pains following its use have been as easily controlled by ether as are normal efforts. Nay, I have

found the persistent contractions, so common and often so distressing from ergotism, perfectly controlled by the ether-power; and in no instance has still-birth been met with after etherization in these cases, which is so frequent an event after the use of ergot. These considerations are very important, and give to our subject the highest interest. Its physiological relations are novel and truly striking. We see in it the suspension of physiological laws, and still the economy suffers no harm. We hold pain, as it were, in our hands. It comes and it goes at our pleasure. One of the gravest inflictions of disease has lost its power, and remedial agents may now exert their influences without disturbance, and in quantities, and after periods, much more productive of beneficial results. We cannot yet see what are the limits of the powers so recently introduced into medicine. Let us try them wisely, and with the utmost scrutiny. Let us not fear them, until their power and tendency to do harm declare themselves with an emphasis which can neither be mistaken nor resisted. Thus far it may be said of etherization, that it has produced no such effects in midwifery practice as for a moment suggest the thought that it should be laid aside, or make its entire safety a question. I have not met with a case, either of personal observation or of record, in which any thing untoward has occurred in midwifery during etherization, which has not been explained without referring it to any malign influence of this condition. Labor has been met with having its gravest complications after the use of ether, just as these have occurred before its power was known. And, again, these very complications have been wanting after etherization, while they have occurred in a most alarming form after labor without it. Hemorrhage has been among these complications. It is the most frequent of all others. I have not met it with more frequently of late than formerly; and, of all the cases which have been communicated to me, or which I have met with in books, I have

not found one which without question should be ascribed to etherization. I have within the week met with a case of hemorrhage, and a grave one too, in which, during the labor, I offered ether because of the severity of the suffering, but which the patient refused to inspire. It was a perfectly natural and short labor, in a woman of the fullest health. How false might have been the teachings of this case, had ether been employed, and hemorrhage followed, and etherization put down as its cause!

In the Correspondence, the subject of the diminution or suspension of uterine contraction by ether will be found noticed. I think the weight of evidence is against the doctrine or opinion, that ether checks labor. On the contrary, we find it often recorded that dilatation has proceeded much more rapidly during etherization; that lubrication by secretion has become more abundant; that contractions have increased, and labor been more rapidly terminated. From one of my correspondents, and for whose opinions I have sincere respect, the doctrine that labor is retarded by etherization is so strongly put, that I have placed his communication here by itself for distinct notice. It is from Dr. Charles E. Ware, and is in answer to my circular formerly referred to.

"From my own limited experience, I should say, that the invariable effect of the ether was to diminish the force of the pains, and retard the labor, whenever the inhalation was carried sufficiently far to diminish materially the suffering. This consequence has been so unvarying, that it has been difficult for me to believe, that the experience of others should differ so widely from my own as has been represented to me by many. When the ether has been carried to entire insensibility, as it has been repeatedly, the consequence has been, that, for a considerable interval, I should say fifteen or twenty minutes at least, there has been an entire cessation of pains, when the intervals before had not been more than two or three minutes; and, when pains did occur, they would never bring the head down as low as it had been before. In the cases where I have used it, I have always experimented frequently at different stages of the labor, so as to leave no doubt as to the fact. Indeed, it has been so obvious to those around, that they have generally been urged to desist

from the use of it. This experience has deterred me from proposing the use of ether to patients, although I have never objected to it when it has been first suggested by them. Twice, in cases of first child, the use of the ether has been a source of great comfort to the mother, by giving her long intervals of entire repose; after which, she would wake up refreshed to go on with the labor, although the disappointment has been great to discover that it was not all over."

Dr. Ware adds in pencil: —

"Dear Sir, — I send you these remarks in their present state. Indeed, I don't know that I should have any thing essential to add, had I time; although I did intend, a fortnight or more since, when I commenced, to go into the subject a little more fully. I was interrupted, threw the paper into my drawer, and forgot it. — Yours truly,

"CHAS. E. WARE."

It will be perceived, that the intervals of contraction in Dr. Ware's cases were not very long, — from fifteen to twenty-five minutes. They were, however, much longer than were those which occurred before etherization, they being only two or three, and so were unusually short. In two of the cases, these intervals were very grateful to the patient, from the entire rest which accompanied and constituted them. The contractions, too, which followed were, I infer, as strong as those which had preceded them, — a necessary condition of delivery in these instances, and which, as was stated, very commonly happens.

In explanation of such results of etherization as are recorded by Dr. Ware, I would ask if the lengthened intervals and diminished uterine action of which he speaks are not the replacement of the irregular and violent, and so non-natural, uterine effort by normal or true action? During perfect etherization, — and it is to this that the facts recorded refer, — the will exerts no power; and its agency in stimulating to excessive and irregular action, either by shortening interval or increasing force, is taken away. That the will has such power is familiar to every one conversant with the phenomena and history of labor. I have already showed how it can retard labor; and this, too,

every physician has observed. Where animal and organic functions have become at all so associated, that one comes to be at all dependent upon the other, — the latter, for instance, upon the former, — is not the explanation perfectly easy of a temporary increase in interval, and diminution or even suspension of the organic, in the abolition of the animal, the voluntary function?

I have again and again witnessed this temporary and even lengthened interval of uterine effort, and diminution of its force during etherization. But it has not been a cause of discomfort or regret. It has seemed only the natural state of the function, and which etherization has produced, and so has been welcomed. The recurrence of uterine contraction has not been with diminished force, and it has been attended by speedy and painless delivery.

I have said, that during etherization it is not very uncommon to observe suspension of uterine effort; but is not the same thing true in natural labor, pursuing its course without any foreign agency? Pains very often slacken, nay, quite fade away; and this state of rest will continue for some time. It excites no uneasiness, unless when induced by protracted and violent labor. In the natural case, we wait patiently, or give secale or some other stimulant, which ordinarily produces the desired action.

I do not place Dr. Ware's cases among these; for they are too many to be resolved into mere coincidences. But still, as they differ from a wider experience, they are not intended to make an objection to the continued use of etherization. One fact in their history is very important. Hemorrhage was not a result of this intermission of uterine contraction. It did not extend beyond the stage of labor in which the child is delivered. The last stage, the delivery of the afterbirth, was without accident.

I have spoken, as was just said, of the power of ether and chloroform over sensibility and voluntary action. We know that the motory and sensory nerves have their origin

in different columns of the spinal cord; and, though they come together to form bundles, in which they pursue their course together without forming any direct union, no confusion of function comes from this arrangement. But in the organs of organic life, so called, over the functions of which the will has no control, we find chloroform and ether, selecting, as it were, which function it will suspend, and which it will leave untouched. Sensibility is diminished or suspended. Contraction continues unaffected. This is, however, true only in some functions. The heart, a muscle of the organic life, "gives as healthful music" under etherization, as when this state does not exist. You say this is a vital organ, and so is placed beyond the reach of agencies which may powerfully affect non-vital functions. Yes; but digestion goes on, and so do other non-vital actions under etherization; and, should they before have been performed with pain, etherization has been found to remove this, and so give to the function its healthful way. It selects, so to speak, the functions which it would control, and leaves others to pursue their ordinary course. It is this which gives to the discovery of this state, and of its power, its extreme interest. We know not of its limits in physiological and psychological science. We have these for special and most interesting study.

The foreign views entertained of this very important subject have not been yet noticed. Concerning it, Professor Simpson of Edinburgh says, "In every case, the uterine contractions continued as regular in their recurrence and duration after the state of etherization had been induced, as before the inhalation was begun. . . . . Indeed, in some cases, the pains have appeared to me to have become increased, as the consciousness of the patient became diminished. This has more particularly occurred with one or two patients, who breathed ether combined with tincture of ergot, or containing a solution of its oil." This was the result of his earliest observations. But now that Professor

Simpson numbers his cases by hundreds, he bears the same testimony to the happiest effects of etherization. I cannot refrain from making one quotation here from this writer. It is his answer to the question, "Will we ever be 'justified' in using the vapor of ether to assuage the pains of natural labor?" The answer comes from his observation of the whole results of etherization, and so has great authority.

"For, instead of determining in relation to it (natural labor), 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 presuppose this to be), provided he had the power by it of assuaging the agonies of the last stage of natural labor, and thus counteracting what Velpeau describes as 'those piercing cries, that agitation so lively, those excessive efforts, those inexpressible agonies, and those pains apparently intolerable,' which accompany the termination of natural parturition of the human mother." The answer to the question here given, or so clearly implied, has not, as far as my knowledge of Professor Simpson's writings goes, been in the least degree changed or modified by his latest experience.

What next are the opinions of Baron Paul Dubois, clinical professor of midwifery in the Faculty of Paris, concerning etherization in childbirth? They are, —

1. It has the power of preventing pain during obstetrical operations; such as turning, applications of forceps, &c.

2. It may momentarily suspend the pains of natural labor.

3. It does not suspend uterine contractions, nor impede the synergetic action of the abdominal muscles.

4. It appears to lessen the natural resistance which the perineal muscles oppose to the expulsion of the head.

5. It has not appeared to exert any bad influence over the life or health of the child.

These opinions or inferences are advanced with some caution, but are not the less valuable on that account. They belong to the earliest period of the history of etherization. They have been remarkably confirmed by a wider and later experience. Dubois had early witnessed some deaths by puerperal fever in his hospital, after etherization. These cases doubtlessly impressed his mind, and were calculated to influence his opinions, — perhaps more so than they would have affected others more remote from the scene of their occurrence, especially as it is known that puerperal fever was at that very time prevalent in that hospital.

But whatever of qualification of opinion these facts may have suggested to Dubois, our extracts give much confirmation to the views advanced of the physiological relations of etherization. One exception only occurs. It is in what is said of the continuance of voluntary power, — the action of the abdominal muscles during etherization. This might have been owing to the imperfect induction of this state in some cases, or the occasional *appearance* of such voluntary action might have led to some deception in some other cases. I have often witnessed the same thing, and can understand how they may be the sources of error. The person, in these instances, seems to be exerting voluntary power, because of the forced or embarrassed respiration which accompanies uterine contraction. This action of the womb has associated with it the voluntary action of the abdominal muscles, where inhalation is not practised, and is attended with an obvious effort. During etherization which is not perfect, the same thing occurs in various degrees. When it is perfect, the effort is only apparent, and is owing to embarrassment of respiration, as above stated.

I find the following question, touching the subject of our present inquiry, in a popular work: — "Has ether the

effect, as supposed by Velpeau, of suspending or diminishing the power of the uterine contractions, so far as to facilitate certain obstetrical operations, such as the version of the fœtus?" The following fact is given in the work referred to, as an answer to the question: —

"M. Stoltz, of Strasburg, was called to a primipara, Oct. 24, of strong constitution, and in the sixth month of pregnancy. She received a fall on the 1st of March; and, after suffering somewhat from pain in the abdomen and sacral region, she was taken in labor on the 5th of the same month. On examination, M. Stoltz found the right foot and right arm at the uterine orifice: from the shape of the uterus, it was concluded that the fœtal head was to the left and inferior portion of the uterus, and the pelvic extremity to the right and upper side. The absence of a battement showed the fœtus to be dead. M. Stoltz determined to deliver by turning: the patient was placed in the required position, and ether exhibited with the usual results. Seeing that sensibility had almost entirely ceased, M. Stoltz attempted the introduction of his hand into the vagina, when the woman immediately wakened up, and resisted with loud cries; he then desisted for two or three minutes, until insensibility was complete. From that moment he was enabled to introduce his hand into the vagina, and accomplish the necessary operation, without the patient at all resisting him or complaining, although the passage of his hand through the vulva was not effected with more ease than is usual in primiparæ. Having seized the foot which presented at the os uteri, M. Stoltz attempted to extract the fœtus; but so powerful were the uterine contractions, that the thighs could not be disengaged. Having applied a noose upon the right foot, M. Stoltz then introduced his hand again, in order to seize the other foot still in the uterus. He had at first great difficulty to pass his hand through the os uteri; and, even after having succeeded in this, he was unable, in consequence of the violence of the uterine contractions, to penetrate far enough into the uterus to reach the left foot. He found himself compelled to desist from this attempt, and at length with great difficulty succeeded in extracting the body of the fœtus from the uterus; but the os uteri still contracted so powerfully round the neck of the fœtus, that he could not proceed with the extraction. During the whole of this time, the ethereal inhalation had been continued, and the patient had remained in a state of complete and uninterrupted repose and insensibility. The patient at length showed an inclination to vomit, and without much effort ejected a large quantity of frothy mucus. About a minute thereafter, she woke up, and said she had dreamed that some one had attempted to deliver her, and thereby had

caused her pain. She gradually recovered, and complained only of a slight uneasiness in her head and throat. The head of the fœtus remained all this time encircled by the os uteri. In about an hour, uterine contractions were renewed, and a few slight extracting efforts sufficed to complete the birth of the fœtus." — *Monthly Journal of Med. Sciences, July*, 1847; *from Gaz. Med. de Strasburg, March*, 1847.

This seems to me an unfortunate case, either for the foundation or for the illustration of a doctrine. Rigby, — the elder Rigby, who, with his distinguished predecessor Levret, was an original discoverer of so much concerning uterine hemorrhage which is of permanent value, — Rigby shows how very difficult, if not impossible, it is to pass the hand into the uterus, for the purpose of turning, before the completion of the sixth month of pregnancy. The neck of the womb, up to this time, has undergone no change in its length, and remains as firm as in the unimpregnated state. The functional condition of the organ distinguishes it from that which characterizes it at the close of pregnancy. It is more sensitive. It is performing important functions. It is full of life and of power. Its cavity is too little developed, for no demand as yet has been made upon it, to allow of manipulation within it, without producing great suffering and resistance. Was not the resistance in M. Stoltz's case, or the difficulty of the operation, the consequence of a state of the organ incident to early pregnancy, rather than to excessive or unusual contractions? Does the case show more than this, *that uterine contraction is not suspended by ether?*

Another circumstance in the case may have a passing word. I refer to the contraction of the os uteri round the neck of the fœtus. There can be no question that this happened as stated. A case is given, in very interesting and valuable detail, by Dr. Fisher, in the Correspondence, in which the same kind of contraction occurred, and to a degree quite as remarkable as happened in the case of Stoltz. I refer to it here, because, when Dr. Fisher's case

was first communicated to the Society for Medical Improvement, it was thought that he might have made some mistake as to the state of the os uteri. I refer to it also as adding confirmation to the general opinion, that uterine contraction is not injuriously interfered with by etherization, and as further illustrating its physiological agencies. I very cheerfully take the risk of fatiguing my reader, in my desire and attempt to give to this part of our subject the fullest attention. I know of few points which demand a freer discussion, or more distinct enunciation.

In speaking to such questions as are involved in the views of MM. Velpeau and Stoltz, it is impossible not to refer to one's own experience. Turning is not so rare an operation as to leave any doubt of what was its difficulty before etherization was used. And, in the gravest conditions in which it may be called for, — namely, in those which accompany the presentation of the upper extremity, in any part of it, — who has not learned how fatal it has been to the child, and how much of agony, and often danger, it has inflicted upon the mother? Look now at the same operation, done in the same conditions, in the same presentation, during etherization. I can appeal to personal experience, and to that of most credible witnesses, of the difference in operation and in result which has come simply and solely of etherization. Where the fœtus is not dead before the operation is begun, it is now *born alive;* and, in the gravest cases which I have seen, and which have become so by long and most painful and exhausting labor, the mother has been at once relieved from suffering, and has uniformly done well. The ease and the success of the operation have not been at all the result of the suspension of *uterine contraction* by ether or chloroform. In some cases, indeed, the contractions have already lost much of their power by its waste in ineffectual labor; but in others this has not been the case. The contractions, and of course power to contract, have existed perfectly. In one of my own cases,

turning was done very early in labor, when the womb was acting vigorously. In this case, the child was born alive, under most adverse circumstances of presentation. The woman did well. M. Velpeau supposes, that the ease of turning in etherization is owing to the suspension of uterine contractions. This to me does not seem the explanation of the matter. I have rarely known it occur, that the contractions underwent this entire suspension. The ease of turning has been found in the perfect relaxation and non-resistance which attend entire etherization, — in the absence of volition, and in the muscular repose which accompanies this state of the will. I mean here *muscular* relaxation. Besides this, we have a striking change produced in the state of the passages, both external and internal. The os uteri declares this equally with the rest. The hand, when within the uterus, perceives contractions as under other circumstances, or when etherization does not exist. These are not, however, declared as in those cases. The organic sensibility, the irritability, of the womb is suspended, as is animal sensibility, and violent or spasmodic action is not perceived. At least, I know of no better explanation of the uterine condition during perfect etherization, and the consequent ease of turning.

I have referred to my own observation in this explanation of the ease and safety of turning during etherization. A reference to the Table of Cases of Instrumental and of other Labors, to their results, and to the Correspondence, will furnish the reader with the evidence of a wide and diversified experience in regard to the effect of etherization on uterine contraction.

How is it with *Respiration* and *Circulation* during etherization?

Respiration is, for the most part, hurried somewhat in the first inhalations; which is rather to be ascribed to the mental excitement which accompanies this moment in etherization, than to any direct effect of the agent used

to produce it. Breathing is slower during the state itself, and sometimes becomes exceedingly still, noiseless as well as slow. I have very rarely met with the stertorous breathing of chloroform, noticed by Professor Simpson, and never that condition, of which he speaks, in which etherization from chloroform is closely allied to the snoring of intoxication, or other conditions in which the brain is affected. I say I have rarely met with this state of respiration. I can remember but two or three cases of it, and in these it was hardly noticeable. This is thus distinctly stated, because the effects of choloform have been much more frequently induced in their most perfect degree, than have those from sulphuric ether; and because dyspnœa has been oftener observed after its use, than after that of the latter.

Pulse. — As with respiration, so with the pulse: At first there may be more rapid movement than before. This, too, is evidently mental, and belongs to that general excitement which is sometimes, and by some observers, thought so generally to characterize the state in which the nervous centres may be just reached, or somewhat disturbed in their functions, and the expression of which is not, and may not be, controlled. When this condition ceases, and quiet is restored, the pulse becomes calm too. It soon returns to its ordinary beat, and then not rarely falls below it, though I have known it to remain exactly the same as in ordinary health. To ascertain these facts, it is always useful to learn the number of the pulse before inhaling. Its comparative force is to be learned in the same way; and, of this, exact knowledge should always be obtained. This detail of professional duty or office, when etherization is to be practised, and during its induction and continuance, may by some seem trivial or useless; but he who thinks so had better not employ it. If he have not interest enough in such an agency, so curious in its phenomena, and so important in its effects, he had much better let it alone, as he may some-

times be indulging his ignorance at the expense of his patient's safety. He differs in this not much from him who gives an active medicine without knowing what is the safe dose, or what is the order in which its natural or excessive action manifests itself.

One change in the pulse is very striking. It is the diminution in frequency, and increase in force, which sometimes attend on etherization. I have known the pulse fall to between thirty and forty beats in the minute after chloroform. I have never observed this change to this extent after sulphuric ether. This slowness of pulse in different degrees almost always accompanies the perfect quiet and unconsciousness of full etherization. Whenever this state of pulse occurs, if you have not removed the inhaler, do it now. The whole state of the patient shows that our object is obtained. The labor goes on; contractions increase in effect; the child is advancing. There is no complaint; there is no pain. Stop inhalation. If the slowness of pulse be noticed in the *interval of contractions*, which is the time of its greatest intensity, a change in the circulation at once is declared, when uterine contraction returns; and we shall find that the natural state of the pulse will be restored, and this the more as the consciousness and sensibility return. In the farther use of inhalation, and especially the time of each trial of it, attend to the pulse in all cases, and especially in those in which the circulation is found to be most easily and decidedly influenced by etherization.

Of the Functions of the Abdominal Viscera. — The only organ which has been disturbed by etherization is the stomach. Nausea and vomiting have been particularly referred to. My observation in these regards has been singular. I do not remember to have met with more than a single case of vomiting, and this after chloric ether; and not more than once or twice with nausea. Among the "special effects" which are inquired for in my circular, I do not find that a single correspondent has stated that these conditions

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of the stomach were observed, or that either of them existed. There may be exceptions, but they are not striking ones. I have employed ether in cholera morbus, in which nausea and vomiting were most pressing symptoms, and had been so for full eleven hours; and there was vomiting but once after inhalation. What was striking in this case was this: ether was singularly disagreeable to this person, affecting the stomach very unpleasantly. In a case of vomiting in the early months of pregnancy, and which seriously threatened life, chloroform was very freely used, and, for a time, with much relief of sickness. A correspondent writes, that he has used ether with much benefit in a case of severe spasmodic affection of the stomach, produced by indigestible food. This person was a great sufferer from chronic dyspepsia. The only case in which I have known the stomach gravely disturbed was that of a nurse who was compelled to inhale chloroform, as the atmosphere of the lying-in chamber was filled with the vapor by the mode of inhalation adopted by the patient before my arrival. This nurse vomited freely. The patient was not at all sick. I am aware that my experience in this respect differs from that of others. But I have been quite well pleased to find, that, in the sixty or seventy cases in which I have witnessed etherization, its best advantages have been enjoyed with so large an absence of the disagreeable accompaniments which others have noticed.

How strikingly do these phenomena of the circulation in the patient during labor correspond to the discoveries revealed by the microscope, in the experiments which stand at the head of this section! In the frog, the circulation was actually suspended. The capillary circulation did not exist. And how slowly did it return? and by what rapidity was it characterized as the animal came out of the influence of ether? And all without the slightest lesion of function, or of blood. The blood and the lymph globules retained their perfect vitality, and the rapid recovery of the

little animal showed how untouched were the nervous centres.

It is with great pleasure that I insert here a letter from Dr. Perkins, which contains his observations of the effects of chloroform upon the capillaries of the web of the frog's foot. I was exceedingly desirous that these experiments should be made; for they are our best, if not only, means of ascertaining in what respects the action of chloroform upon the capillary system differs, if it differ at all, from that of sulphuric ether, and of thus learning its comparative influence upon the human organism. At the time that Dr. Perkins made his experiments with chloroform, he had not witnessed its effects upon the human system. Have these experiments any bearing upon some of the results of chloroform etherization in surgical practice? and may they not furnish an explanation — I had said the explanation — of some of the results of its minor operations?

"Dr. Channing. "Newburyport, Feb. 14, 1848.

"Dear Sir, — At your suggestion, I have watched the action of chloroform upon the circulation in the web of the frog's foot, and find it similar to that you saw as the effect of etherization. The only perceptible difference consists in its more rapid, energetic, and prolonged action upon the animal; a more marked and perfect annihilation, rather than suspension, of the capillary circulation (the smaller vessels appearing entirely empty); and in the more sudden and perfect restoration of muscular action as its influence passed away. — Yours respectfully,

"H. C. Perkins."

Before leaving this subject, which is of extreme interest, I make an extract from an article in the number of the "Boston Medical and Surgical Journal" for Feb. 16, 1848, entitled, "Philadelphia Medical Schools — Chloroform and Ether." It does not appear that these opinions are the results of any experiments of the effects of these agents upon the blood, and they certainly get no support from the experiments of Dr. Perkins.

"Dr. Gardner, professor of chemistry in the Philadelphia Medical College, gave the chloroform to a number of gentlemen of his class. He subsequently informed the class, in a lecture on the ether and chloroform, that its inhalation was followed by the same series of unpleasant symptoms which have been enumerated; and, in his own person, the feelings of prostration were sensibly felt the second day after inhaling it. The doctor asserted, that from the chemical constitution of chloroform, when it comes in contact with the blood globules, the chlorine, which it contains, will exert a destructive or decomposing effect upon these bodies; and this, in his opinion, is the solution of the phenomenon of the persistent nervous and muscular weakness; as it is now a well-settled fact, that muscular power and nervous energy are in the direct ratio of the proportional number and integrity of the red globules, circulating in the blood. The ether, when absorbed and taken into the circulating blood, Dr. Gardner affirmed, absorbed oxygen from the blood, and became converted into carbonic acid and water; and thus acted chemically on the blood, in extracting its oxygen and substituting carbonic acid and water, while the undecomposed portion of the ether was carried throughout the brain and nervous system, and at first frequently produced an exciting effect, but soon followed by stupor if it was continued."

In reply to this opinion of Prof. Gardner, the following remarks, communicated by a friend, are submitted:—

"Sulphuric ether, taken into the circulation through the lungs, is not decomposed, as is shown by its presence in respiration for hours, or even days, after administration; but it continues to circulate unchanged like alcohol, until apparently the whole is given out again by the lungs with the carbonic acid of respiration. It is possible that the kidneys or other glands may separate a portion of it also from the blood, either changed or unchanged. I repeat, the examination of the secretions, under the use of ether or chloroform, might give interesting results. The persistence of sulphuric ether in the circulation is a fact which should be taken advantage of, where it is desired to produce a continued sedative, or rather specific, effect upon the nervous system.

"Chloroform is evidently decomposed in the circulation, not, however, probably by re-acting on the blood, as Dr. Gardner supposes, but by the vital action to which all the fluids circulating in the body are subjected. This can be tested by a very simple experiment: — Add a few drops of chloroform to an ounce of blood, and, after standing, ascertain if the smell of the chloroform has disappeared. Concentrated chloroform may dissolve the blood globules introduced into it, and so might sulphuric ether; but this would be no proof as to what takes place in the body,

where a very minute portion of chloroform is present in the blood, and where the blood globules are protected by the vital influence. Dr. Perkins's experiment on the circulation in the frog's foot is conclusive on this point. As to chlorine, it is not a foreign ingredient, introduced into the system, but one of its general, probably essential, constituents; two of its combinations, chloride of sodium and muriatic acid, performing important functions in the system. Into what products the chloroform is decomposed must be ascertained by examining the various secretions and the blood. Its influence on the various organs, especially of secretion, is another branch of the general subject, deserving investigation. It apparently stimulates the perspiratory organs, and probably the kidneys. May it not have some influence upon the liver or digestive organs?"

ETHERIZATION, — ITS PRODUCTION, ITS CONDITIONS, ITS SIGNS, AND ITS RESULTS.

This volume treats of etherization in midwifery. This has interests peculiar to itself. It is not, however, without relations with other departments of the profession. In these, etherization has been employed, and in surgery some time before its use in midwifery. For illustration, and to show what is the present position of our subject in its history, — in the uses and results of etherization, — some references will be made in this chapter to such facts as may aid in the elucidation of its employment in midwifery, and indicate its earlier and later general history.

Sulphuric ether, chloric ether, and chloroform, are employed to abolish pain. Each has its advocates. With some, the longer tried, and so the better known, is preferred. By others, the newer, but the more convenient, is selected. The claims of pure sulphuric ether to confidence may be considered as having been settled, especially in regard to its use in midwifery, before chloric ether and chloroform were offered to the profession. It had been largely and fairly tried. Never perhaps has the new been more cordially received; and how rarely has been character so early established! It has been used in quantities varying from a few drams to a pound or more in the individual case; its use has been continued from a few minutes to many hours, and the result as to safety and success has been most remarkably uniform. A wise care has been observed in its use; and how well has this been rewarded! Untoward effects are recorded as having followed its use in surgical practice; but the thorough investigation of these under the highest and most authoritative sanctions of the law, in some of the earlier cases, showed how much cause there was, in

what had preceded and accompanied etherization, to explain the result. There has been no attempt made to conceal what has happened; and this has proved not only the wisest, but the most fortunate, course of procedure in regard to the progress of the remedy of pain. It has been grateful to see in this progress, that in midwifery practice, in which sulphuric ether has been so much employed, not a case has occurred in which a disastrous result has followed its use, which could by any violence of reasoning or of prejudice be ascribed to it. Four cases of puerperal fever occurred in a Paris hospital after etherization. These were explained, and without the least reference of them to ether, by the fact that this very fever existed in the hospital before ether was introduced into it. Everybody knows how fatal is it, and how rapid is the communication of it, in such situation, by its own mysterious agency.

Sulphuric ether was thus getting daily into wider use, when a new agent was tried. This was *chloric* ether. It was tried because in some cases the sulphuric produced dyspnœa and cough. Mr. Lawrence, the distinguished surgeon, made the substitution; and he says it answered perfectly well. It does not seem that it excited much, if any, attention. The cases are rare in which a proper use of sulphuric ether does produce the difficulties referred to. So far from it, it is used here, and has been for some time, in several cases of asthma and phthisis, in which the disease has almost reached its termination, in which distress from dyspnœa is extreme, and in which it seems impossible to sustain life without almost constant etherization. Chloric ether is the solution of the perchloride of formyle or chloroform in spirit and water; and, very soon after the trials with chloric ether by Mr. Lawrence, Professor Simpson, who, it seems, was experimenting on other vapors with a view to their powers of abolishing pain, employed chloroform for this purpose, and with satisfactory results. Its success in his hands was so complete, that it seems with

him to have entirely taken the place of sulphuric ether. By some this has been regretted. It has been felt that the latter was under fair trial; that new facts of great interest were daily coming to light concerning it; that the principles which should govern its use were to be the results of these facts. Finally, it was thought, that after this manner, a method truly philosophical, its place in medicine would have been ascertained, and thus its use thoroughly established.

The following extract from Mr. Holmes Coote's Report of Surgical Operations done upon patients rendered insensible to pain by the inhalation of chloroform, gives some account of the use of chloric ether in St. Bartholomew's Hospital, London: —

"Without wishing in any way to detract from the very great merit of Professor Simpson, in introducing this valuable agent, I may observe that for some considerable time Mr. Lawrence has used, in private practice, the chloric ether, which is chloroform in spirit and water. Patients with irritable lungs, who could not tolerate the violent paroxysms of coughing induced by the sulphuric ether, readily inhaled the chloric ether, the taste and smell of which are similar to those of chloroform: the anæsthetic effect was more gently induced, and there were fewer complaints, on recovery, of soreness of the chest, headache, &c. The less irritating effect of the chloric ether was noticed by Mr. Taylor and by myself, in some experiments (reported in this journal) performed upon animals. Their efforts to escape were most violent, when immersed in the vapor of sulphuric ether.

"One of the students of the hospital, who in the early part of the year was anxious to have some painful stumps of teeth removed from the jaw, kindly consented to take the ethers upon two different occasions, and to report the result. He described the taste of the chloric ether as much more agreeable than that of the sulphuric; the effect upon the lungs as less irritating and oppressive: but he thought that the state of unconsciousness was not equally complete. Mr. Lawrence has, however, performed many most severe operations upon patients rendered perfectly insensible to pain by the inhalation of the chloric ether; and he is now in the habit of directing its administration."

Chloric ether is in general use in the surgical department of our hospital. It is used very much after the same

manner and quantity as is sulphuric ether. A hollow sponge is a very good and convenient instrument. The article employed for inhalation differs from that which is taken internally for medicinal purposes, in being more concentrated. Let me ask in what does chloric ether, in producing etherization, differ from chloroform? It is a mixture of chloroform with spirit. Does not a separation of these occur in inhalation, and by pulmonary action? — so that, after all, chloroform is the sole agent in the production of that state. The process is slower with chloric ether; for the chloroform is slower in reaching its destination, and may be thus more manageable in regard to the time in which its effects are manifested. But it is chloroform alone which produces them. The following note, kindly placed in my hands by one of the surgeons of the hospital, and addressed to him by one of the resident officers, gives some information of its comparative agencies. Chloric ether is used in midwifery, and answers very well. I do not think there is as much satisfaction expressed with it as with the other ethers; and this may be because it is less faithfully used. It is certainly slower in its effects, as far as I have observed its operation; but as this, with many, will be a recommendation, it may gradually get into use.

"Dr. Townsend. "Boston, May 25, 1848.

"Dear Sir, — So far as I am able to judge, I should think that chloric ether differed from chloroform, principally in being less depressing in its effects; while the insensibility to pain is quite as complete. It is more depressing than sulphuric ether; but this disadvantage is perhaps compensated by its being, at the same time, much less irritating to the glottis; so that, on the whole, patients take it more readily. It requires about the same quantity and the same length of time to produce insensibility, as in the case of sulphuric ether. Nausea and vomiting, &c. occur, as secondary effects, about as frequently with the one as with the other. Both the chloric and sulphuric ethers are always given, at the hospital, on a sponge, without any inhaling apparatus.

"Yours respectfully,

"Jno. C. Dalton, Jun."

Chloroform was substituted for sulphuric ether, because it was found, that in much smaller quantities it produced abolition of pain; from six to one hundred drops being sufficient for the purpose. Second, it acts sooner, more completely, and more persistently, than sulphuric ether. Third, is more grateful to the patient, and less annoying to others. Fourth, Is less expensive. These are its comparative advantages, according to Professor Simpson. Professor W. Parker, of New York, gives similar testimony, and adds that it saves the nervous system from the shock of the operation, removes danger, and promotes recovery. Professor V. Mott, having highly spoken of it, says, — "In several of the patients, there has been slight vomiting, before the full effect was induced; but in no case have I seen any unpleasant consequences attend or follow its administration." Dr. Bartlett, of New Bedford, Mass. having used both ether and chloroform in a great number of cases, in speaking of them together, says, in his letter, which is published in full in the Appendix, — "I have perceived no material difference between ether and chloroform, except that the latter usually seems to act more promptly than the former, but more frequently produces nausea. My impression is, that the exhilarating effects of chloroform are less uniformly agreeable to the patient than those of ether." In a preceding paragraph, Dr. Bartlett says, — "I have used chloroform in a great number of instances, and never with any accident when it was given under my direction."

I introduce here an extract from the London "Athenæum," which contains some very important observations concerning ether and chloroform from distinguished men abroad: —

"Royal Institution. — Jan. 28. — The Duke of Northumberland, President, in the chair; Professor Brande, 'On the Composition of Ether and Chloroform, and their Physiological Effects.' Having given a succinct outline of the chemical history of ether, from the first notice of this

substance in the dispensatories of the sixteenth century to the present time, Professor Brande noticed the more recent discovery of the nature and composition of chloroform by Dumas, Liebig, and other continental philosophers. The formation of these bodies was traced from their ultimate elements. It was shown how growing vegetables elaborate starch from the carbon, hydrogen, and oxygen, which they derive from the soil, — how starch may be made to pass into sugar, — and how, in the process of fermentation, sugar is converted into alcohol, — how alcohol, as was experimentally demonstrated, is split up, as it were, into ether and water, when brought into contact with oil of vitriol at a particular temperature. The derivation of chloroform from the same substance (alcohol) by means of chlorine, with the aid of a basic oxide, was explained. The curious relation of this liquid to the acid derived from ants (from which its name originates), as well as the modern hypotheses in regard to organic metalloids, were briefly stated; and many experiments were made to demonstrate the physical and chemical properties of ether and chloroform. The remaining portion of Professor Brande's discourse was devoted to an inquiry into the physiological effects of the vapors of these substances. These effects were classified as being comprised in five definite and progressive stages: — 1. In the first stage, which is transient, the patient is exhilarated, but conscious of what passes before him, able to direct the motions of his limbs, and sensitive to pain. 2. In the second stage, mental functions, as well as voluntary movements, are performed, but irregularly. The patient knows not where he is; — is generally, but not always, ready to do what he is directed. This, according to Dr. Snow, who has investigated the whole subject with great accuracy, is the stage of dreams. 3. It is in the third stage that the mental functions and the voluntary movements become dormant, although external impressions may here produce involuntary action. Any pain inflicted in this stage might call forth a groan; but it would not be expressed by articulate words. 4. In the fourth stage, no movement, besides that occasioned by the action of the heart and lungs, takes place. This stage is characterized by the snoring of the patient, which indicates him to be in a condition of absolute insensibility. 5. In the fifth stage, which has been witnessed only in the inferior animals, the breathing becomes labored and irregular, involuntary and voluntary muscles are alike powerless, respiration and circulation successively cease, and death ensues. Having alluded to the psychological question whether (as, for example, in the second stage) it was possible that pain should be felt, but not remembered afterwards, Professor Brande concluded by remarking that this new application of chloroform exhibited organic chemistry from a point of view from which philosophers delighted to regard it; — that a proof was here afforded of the utility of every discovery; while the hope was

encouraged, that human researches in this branch of science might ere long be rewarded by obtaining something which, in its capability of benefiting mankind, might become in regard to chloroform what chloroform was to ether.

"At the French Academy, January 17, a letter was received from Dr. Plouviez, of Lille, with an account of an experiment on a dog with chloroform. A small dog, weighing about eight pounds, was made to inhale a gramme and a half of chloroform. At the expiration of ten to fifteen seconds, the animal was in a state of insensibility. The breathing was soon difficult, and in a short time the animal was dead. The time that elapsed between the exhibition of this dose (about the twentieth part of an ounce) and death was a minute and a half. On dissection, there was nothing to indicate the cause of death. Dr. Plouviez, in order to ascertain what course could be taken in the event of such an accident occurring to a human patient, made several experiments with various animals which were ceasing to breathe after the use of chloroform. He introduced air into the lungs in the same way as is done with persons who have been suffocated with the fumes of charcoal, by stimulating the act of respiration, and from time to time slightly compressing the chest. By adopting this means, all the animals speedily resumed their former state. In some cases, he even waited until the breathing had entirely ceased, and the animals were apparently dead. In various periods of time, from thirty seconds to four minutes, he was able to bring them to life.

"At the Medico-Botanical Society, on Thursday evening last, a Mr. Huttman stated his reasons for believing, that the extraordinary properties of chloroform — viz. the production of insensibility and the creation of dreams — were known in very remote times, but used most probably for magical purposes only. He first drew attention to the words *formica* and *myrmex*, the Latin and Greek names of the ant, the insect which yields the formic acid. These words, together with *morphe*, the Greek word for form, he stated to have a common origin, and to have reference to the property of creating dreams or immaterial forms. They also gave the name of Morpheus to the God of Dreams, and furnished the root of numerous words having reference to those things which produce sleep and dreams, as well as to the various phenomena connected therewith, and even to death itself, viz. Mors, which the ancients personified as the Brother of Sleep. Admitting these points, the speaker said they contained ample proof, that, in giving the names *formica* and *myrmex* to the ant, the ancients selected that distinguishing property which the insect possessed of inducing dreams or forms (*morphai*); and this would carry back the knowledge of this property to a very remote antiquity, probably to the time when the Magian College in Chaldea was in its zenith, and when chemistry and astronomy flourished under the influence of religious zeal."

It will be observed, that in the French experiment the animal was placed in an atmosphere of chloroform, without admixture of common air. This is inferred from the statement; for, if atmospheric air had been present, it is probable that the state of apparent death would not have been induced, from which afterwards recovery took place by forcing atmospheric air into the lungs.

From what is stated in the fifth stage, induced by chloroform, it is also probable, that in this the animal inhaled chloroform only; the experiment being to show the phenomena which are followed by death, where nothing is done to prevent its taking place. In the other four stages, I infer that chloroform was not inhaled *alone*, as in these it was inhaled by *patients*, and, of course, after a manner which would, as far as possible, not only produce insensibility, but also with the greatest safety.

It is exceedingly important, that these facts in the evidence be distinctly borne in mind; and it is sincerely to be regretted, that original papers, and frequently abstracts of them, which only may meet the professional or the public eye, are often so wanting in details which are of the utmost importance in regard to practice.

I copy, from a London print of Feb. 5, the following, which shows a result of an experiment in Mr. Brande's lecture, which is not referred to in the quotation: —

"When Mr. Brande's lecture on chloroform was reported on Saturday last, it was not known that the guinea-pig which was placed under its influence has died. The little animal had, some days before, been subjected to chloroform vapor, and had not, apparently, suffered from its effects after its recovery from insensibility. The same quantity of chloroform was used during the lecture that had before been employed, and in all respects the guinea-pig was similarly treated; but, upon being exposed to the air, it only partially rallied, and then relapsed and died; thus showing how completely in its infancy is the use of this agent, how dangerous are its effects under certain circumstances, the nature of which was yet unknown, and how necessary were the cautions regarding its employment given by the learned lecturer. The result is to be

esteemed most instructive, as indicating the difficulty that exists of knowing to what extent the inhalation may be carried without endangering life."

Everybody may not come to the same conclusion with regard to the safety of using chloroform in midwifery, in disease, or in surgery, which the London writer has reached. The guinea-pig, it seems, had been subjected to various experiments with chloroform before the fatal one. As in the case of experiments with other animals, it probably was placed in a situation in which common air did not reach it. It was worn out by previous trials, and died by the accumulated effects of a slow poison. Or, supposing it breathed no pure air along with the chloroform, death came in the usual way in which death by suffocation is ordinarily induced. Now, shall we reason from such experiments to such as are instituted when etherization is employed for remedial purposes in the human system? Shall we place the experiment upon the brute animal, so often made to gratify physiological curiosity, and often with little regard to such consequences as life or death, — shall we place such an experiment along side with that or those, existing as they now do in such vast numbers, and say that, because the animal died, it is no longer safe to use the remedy for pain with other animals, — namely, with men and women, — when not a case of death has occurred among the latter which was not much more probably owing to causes in which etherization in itself had no direct agency, than to that state? Shall we so question our experience in regard to etherization and its effects, — an experience so abundant, so various, so unequivocally successful, and resting upon indisputable evidence, — shall we so question such experience, as to leave the impression that we think it unworthy our confidence; and that, in this the "infancy" of our knowledge of the powers of the agent, we have no such assurance of its effects as will authorize us to use it at all? Safety in etherization can only come

of conditions; and the true question in such a discussion is this, What are these conditions?

These are found in the article used; the instrument, or inhaler; the mode of using it; the present state of the patient, and effects. The investigation would have been easier and more satisfactory, had professional attention not been turned from the observation and study of ether, by the introduction of chloroform and of chloric ether; and this before our knowledge of the whole agency of the first was fully established. The inquirer is now forced, whether he will or no, to make a comparison of the two or more ethers employed in the production of etherization; and this before the positive claims of either have been settled.

As to the article used, there can be little question that it should be *pure*. At least, the successful use of chloric ether, which is a solution of chloroform in spirit, as employed by Mr. Lawrence, in a few cases, is insufficient to show that an impure article is ever to be preferred to a pure one. In regard to sulphuric ether especially, there can be no question that the comfort of the patient in using it depends on its freedom from alcohol, and all other impurities; while the most perfect safety in its use can only proceed from the same condition of its purity. This need not be farther insisted on. It is abundantly proved by the whole history of the inhalation of ether.

Of chloroform, the same is true. This should be perfectly pure. Chloric ether is not chloroform; and it should have the same element of purity as a condition of its use, as has sulphuric ether or chloroform. As it seems to me, the alleged fatal results from using chloroform, which have been referred to, and which do not at all belong to the earlier period of its introduction, — these results, I say, should lead to a more careful consideration of this condition or element of purity in the article used. We may not be able to know why death has happened in these cases; but we could have known if the agent was pure.

Let me speak of the instruments used for inhalation, and of the mode of inducing etherization.

These instruments are numerous. At first a hollow sponge or a handkerchief is enough. Both are obtained with ease, and both are safe. For ether, sponge answers perfectly well by itself. It is used in the various instruments which have been made for inhalation. Chloroform requires for its easiest, or at least most comfortable exhibition, that the substance by means of which it is applied should not touch the lips or nose, as it irritates, and may inflame them. It will not be questioned, that the safest and best instrument is one which allows of the freest escape from it of the expired air. This should be effected by a *valvular apparatus* PLACED BETWEEN the sponge or other material which contains the ether or chloroform, and the mouth and nose, if both are covered by the inhaler, and so does not require that this impure air should pass through the sponge, or again enter the lungs. Another and a very important condition in any instrument is an opening of sufficient diameter to admit pure atmospheric air freely to the sponge. This is specially important. A person is inhaling ether, or especially chloroform. The apparatus admits no atmospheric air, or in insufficient quantities, and retains the expired air and pulmonary exhalation. He comes soon to have little else to breathe than impure air. He makes no complaint. He seems and is perfectly easy, and suddenly dies. You examine him after death, and may discover nothing to explain the disaster. A case of this kind, it is said, has actually occurred in this country lately, and has large place in the public press. Other cases of like termination are reported; and it is highly probable that many of them may be referred to the extreme ignorance or more culpable carelessness of those who have exhibited the vapors referred to. A diagram of a very simple instrument, which has the conditions of safety apparently well answered, is at the end of the chapter.

Various instruments were referred to. A very simple one is a ball of cotton wetted slightly with chloroform, and wrapped up in a narrow strip of cotton batting. This covers the mouth alone. This is perfectly safe, if the conditions for using such an instrument be observed. It must not be too thick or solid, to prevent the admission of pure air. The respired air must also be allowed the freest exit. With this cotton inhaler, I see no other mode of effecting this than through the cotton itself, upon which is dropped the ether or chloroform. A correspondent says, he has always used an old-fashioned steel tobacco-box, gilded on the inside to prevent rusting. A bit of sponge is put into the box, and upon it the ether or chloroform is poured. When taken from the patient, the box is closed; and evaporation, together with waste and the escape of the ether-vapor into the room, is prevented. The writer reports twenty-seven cases in which this apparatus was used, and in which there was no untoward result. It will be perceived, that an instrument so shaped will hardly exclude pure air from the lungs, on the free expiration of the foul. Other instruments are made of glass, and of many shapes. We have them of tin, of silver, and of other materials. From a roll of paper, or a bit of rag, up to silver gilt, we have instruments in every variety in shape, material, and price; and he must be difficult to suit, indeed, who, after all, finds it necessary to tax his own ingenuity to find out something which may throw into the shade all that has preceded it.

From the report of the few fatal cases which have occurred during etherization, may not most of them be ascribed to the presence of irrespirable air, retained by the instrument used? and in those which have been fatal some hours after, except where obvious organic disease of heart, lungs, or brain, has satisfactorily explained the death, may not this have been the result of the same agent, only occurring more slowly? The pulmonary, cerebral, or cardiac engorgements,

which have been noticed, do not diminish at all the correctness or importance of this explanation, since such engorgements are observed where death has been known to have been produced immediately by irrespirable gases.

If the opinion here given be correct, how easy will it be to prevent all future trouble from etherization? Let the instrument used be as perfect as it can be made, and let him who uses it know what are safe and what are unsafe symptoms of etherization. I am satisfied that safety mainly depends on the provision for admitting with the vapor so much atmospheric air as will make a respirable mixture. The quantities are easily regulated. The main point is not to exclude pure air. Sponge of an average quality of fineness will not do this. There collects in sponge in which ether or chloroform has been used (and perhaps most after the former), a substance which becomes fixed, more or less, in the sponge, and which may be perceived some time after its use. This residuum may clog the sponge, and render the ether-vapor less pure. It may be washed out with alcohol, and the sponge freed from this last, afterwards, by water. It should always be washed after use.

I am thus particular in this matter, because my subject demands even fastidious minuteness of detail concerning every point which relates to the use of what I am sure *may* do only good; but which, as in the case of every other powerful means of benefit, from ignorance or carelessness, may and will do harm; and, in this way, one of the most important discoveries may fail of accomplishing its mission to the world.

In the use of the inhaler, it should be remembered that the effect of ethers upon the lungs varies in different individuals. In some, dyspnœa and cough at once follow, and seem to contra-indicate their farther use. Other troublesome effects may be manifested. Thus there may be very disagreeable sensations in the head, distress more or less severe, noises, flashes of light, tingling of the limbs and

trunk, sometimes confined to one side, at others more general, nausea, vomiting, &c. &c. To avoid many of these, it is necessary to observe some rules in beginning inhalation. Let it be moderate at first. Approach the instrument slowly to the mouth and nose, if designed to cover both, which I believe to be the best mode of inhalation; and, if choking or other uneasy sensation or effect occur, remove the inhaler somewhat, and at length bring it where it is designed to be placed. If the lungs be previously emptied by a full expiration, the sooner is etherization established. Let the breathing now be full and slow, and observe its effects. Ask the person to raise the eyelids, to speak, or to move a limb. Raise a limb; and, if it fall suddenly and powerless, the desired effect is produced. Now remove the inhaler at once, and afterwards the person may indicate its application, apply it herself (I speak of its use in midwifery practice only), or we may re-apply it as circumstances indicate. It will be found almost without exception, that the continuance of etherization will be effected with a moderate use of its agents, after it has been once established. This remark is of much practical value in midwifery practice, since many hours may elapse before a labor is terminated from the first inhalations. In some, and in a majority, the state is induced easily, and continued with a very small amount of ether; while in others there is a strong antagonism in the system to its establishment and preservation.

In giving the experiment on the web of the frog's foot, which was made to show the fullest effects of etherization, its *physiological* agencies in their completest manifestation, its effects on the capillary circulation were distinctly pointed out. It was also showed, that they did not in the least interfere with its health or its life. Now, in the *medicinal* employment of the ethers, it is never necessary to produce their physiological effects in such extent of them. The diminution, and even the abolition, of sensibility, when

thought necessary, takes place far short of them. We know this by the *pulse*, the *respiration*, the *temperature*, the *complexion ;* all which functions remain undisturbed in this the medicinal, the pathological use of the remedy of pain. The cases, in which these facts are everywhere stated, and place all this beyond doubt, are particularly referred to for their important practical teachings.

A remark in this connection may be repeated here, and which is of great practical value. It is not necessary in midwifery practice to induce so full and perfect a state of etherization, namely, of *unconsciousness* and of *insensibility*, as is supposed to be demanded in surgical operations. I speak of the use of ether or chloroform in *natural labor*. In operative midwifery, it often becomes necessary to produce and sustain fuller etherization. The object in ordinary midwifery practice, or in the severer forms of labor pains, in the use of etherization, is to *diminish* suffering. There is much of this pain which is tolerated readily; and from this the patient does not demand relief from extraordinary agents. So true is this in practice, that cases daily occur in which etherization is induced, and in which the patient determines exactly its extent. In the intervals of uterine contractions, the instrument is removed by the patient, or by her direction given in some way, and which is at once understood. She knows when the pain is coming, and demands the inhaler. She graduates, so to speak, the supply exactly by the demand; and in this way is presented to the observation of the practitioner one of the most important and interesting agencies in operation for relieving suffering, sometimes agony, which he ever notices. He has seen nothing like, or approaching to the like of it before. His function is to see the patient the practitioner, while he is only to observe effects. I would appeal to the whole profession, and ask if he who has most employed inhalation in midwifery practice has ever seen any thing in the mode of using it, just now stated, which has at all

disturbed him, by making the safety of his patient a question. In my limited observation, I have met with no such case. If I have observed any thing, or any result of etherization, which for the moment has given me the least anxiety, it has been in those cases in which unconsciousness and insensibility have been so complete, that it has been necessary for me to direct the repetition of inhalation, when they were evidently returning. This has been judged necessary in some of those cases of great severity, which have demanded extraordinary assistance, and in which the most perfect repose or quiet of the patient has been demanded.

Of Pregnancy in its relations to Etherization. — In pregnancy, new and important agencies are at work. A new function, suddenly induced, and rapidly developing itself both in its local and general agencies, has been established. An extraordinary vitality prevails everywhere. The blood gets new characters, and those, too, of an intenser life. Respiration is more rapid and fuller. The temperature is increased. Excretions undergo very remarkable changes. A new being is growing, getting nourishment, and every hour developing a higher vitality, in this mysterious condition.

Now, do we not see enough in these facts of pregnancy, and which are lightly considered because so common, — do we not see in them something which may account for the entire safety and most happy consequences which accompany and which follow etherization? It matters not how this state is induced, whether by ether or chloroform, the same is the happy result. I think it is Professor Simpson who says, that it is highly probable that etherization may come, in process of time, to be confined to the practice of midwifery. Whether the remark be properly credited or not, I cannot but say, that, from the extraordinary fact, the safety of inhalation in midwifery, there seems to be one ground at least for the opinion. This may have been, and if so may continue to be in part, a result

of the condition previous to labor, above described, and of the comparatively imperfect etherization which childbirth requires.

Next, *Of Labor.* — This is a function of a living organ. It is the latest in a series of functions, and intimately related to them all, which began in conception, and has its end in childbirth. This is neither an accidental nor a mechanical function. It has its beginning in a law of nature, as well established as is any other law of living organs. This law is development, — a development of the uterine contents of pregnancy, — and especially of the uterine adaptation for their growth and accommodation. The body and fundus of the womb first grow for this fœtal accommodation and development. Between the sixth and seventh month, the cervix begins to contribute its share to the same objects. At the completion of the ninth, the neck with the os uteri have contributed their whole share; and a point is now reached, in which this process can only proceed by the opening of the os uteri. Now, this opening is wholly functional. It has no dependence at all on mechanical forces, — the contractions of the womb, for instance; and, besides, these are wholly functional. The os uteri opens itself before the least contraction manifests itself. It is upon its dilatation alone that natural labor depends. When it is complete before the womb begins to act to expel its contents, the labor is terminated suddenly, or wholly unexpectedly, and *without pain.* These are the cases of *painless* labor already referred to. Of these I have in memory notable instances. In one, upon my arrival at the address, the patient said, — "It is very rare for a physician to be present when I am ill; for I know too little about it to send in time, and the child is born without one." She was sitting in her chair, and I felt her pulse. Said she, "I have one of *my* pains now." There was not the least intimation of this in any motion of the hand. Not a muscle of the arm moved, and

the pulse beat as if nothing unusual were going on. I said I would visit a patient near by, and return to be ready to attend her. I went, and found her on the bed when I returned. She said the waters had come away, and she had gone to bed in consequence. I proposed to get what might be wanted after the child was born, a ligature, &c. when she said, in the most natural manner possible, that she thought I had better hurry; for she believed her child was born. And this was true. It was already born, and lustily crying. Here was a case of painless labor. Perfect dilatation had taken place in the uterus, and an almost unperceived contraction had expelled its contents. A continuous effort was made, and labor gently completed. The afterbirth came in the same way. In truth, the delivery of the child was precisely the same with the most silent delivery of the secundines. I might give other instances; but this is a fair specimen of the class.

It is, then, to a law, an established law of the economy, we are to ascribe the occurrence of natural labor, namely, labor at the full time. This law is development, which brings in its progress, or at its close, a most important change in the relations of the various portions of the gravid womb. This change is the separation of the edges of the mouth of the organ, by which it becomes open. A follower of Mr. John Hunter — and who that deserves a place in our profession is not in every important point his follower? — a disciple of Mr. Hunter might find in this state of the os uteri the "stimulus of imperfection," such as is a wound; and as this last produces those processes of inflammation by which the lesion may be repaired, so may the open state of the os uteri below produce contraction of the organ above, and so its contents be expelled. Without, however, insisting on this point, it cannot be denied that the most intimate connection subsists between the alleged cause and its effect. Who does not know that artificial dilatation of the os uteri is the surest means of exciting uterine con-

tractions, at whatever period of pregnancy? What practitioner is ignorant of the immediate effect in increasing pain, of the dilatation of the os uteri, whether this be effected by blood-letting, medicines, or mechanically, in protracted labor, with imperfect functional development? Every thing teaches this doctrine of function in the subject-matter of our inquiry. A professional inaccuracy in language sometimes misleads the inquirer, the student. I refer to the use of the word "rigidity," in its application to that state of the os uteri in which functional dilatability has not taken place. In these cases, there is no rigidity at all. *True labor* has not yet occurred. The womb is acting violently, but irregularly, morbidly, out of place. Its mouth remains just where and as it was before contractions happened; and so will it remain, unless you quiet these spasmodic morbid contractions, or until dilatation occurs of itself, which sometimes happens, before the woman is exhausted: oftener, however, these become cases of most difficult management and dangerous termination. Seriously do I hope, that this word "rigidity" will be dropped by the teacher of midwifery. It is false pathology, involves much suffering, and may lead to very grave results.

Now, what has etherization to do with these physiological views of pregnancy and labor? It has this to do with them, and shows how wide is the domain in midwifery to which it extends. It meets the whole case of difficulty and of suffering which belongs to it. It suspends those morbid, irregular, convulsive movements of the womb which constitute false labor, as by a charm, and hence is a most available remedy in accidental abortion. Especially does it the same thing in these cases of uterine contraction, which, from any cause, precede the dilatation, or state of functional dilatation of the mouth of the womb, and brings perfect rest. It does more: it suspends voluntary power, which, in its violent exercise, only increases the disturbance and suffering which accompany irregular and morbid uterine

muscular action. In the entire rest thus induced and sustained, labor is delayed till the time of its natural occurrence arrive, or till the os uteri has taken on and accomplished its preparatory office.

But, suppose true labor be present, disturbance in the order of its events may occur. The bony pelvis may not readily allow passage to the head, or this may not be of standard dimensions, these being exceeded; or its position and presentation may be unfavorable. Here we have a case in which there may be great suffering; and, to get relief, the will calls into action all muscular agencies which can be commanded. Consequently, strength is wasted; progress is impeded; organs become irritable and tender; secretions are diminished or are morbid; swelling occurs, &c. &c.; complications both very troublesome and absolutely alarming. Here, etherization, as in the last case, comes in with most happy influences. Contractions are controlled. They may even be suspended, for such will pretty surely be the case if the labor be wholly spurious; or, even when this is not the case, but where increased resistance is operating to prevent timely and healthful delivery, the same useful effect may be produced. If, however, violence be controlled, and dilatability and increased secretions take place, how much better is the prospect of a good delivery! Now, take into the account the *abolition of pain*, which is, among the most common, the safest and most welcome of the effects of etherization, — what more can be required of any medicinal agent than is offered to the profession by the *remedy of pain?*

Thus it is that both pregnancy and labor, alike and equally, present conditions, which, it may be, beyond all other possible states or kinds of human suffering, claim the profoundest attention and gratitude of the profession. In conclusion of this subject here, let me ask — what was in my mind to say when I began this inquiry concerning the comparative relations of etherization to labor — let me

ask if etherization does not produce cases of painless labor, exactly resembling that above described, as an instance in most important points, and differing only in this, that unconsciousness of true relations with persons and things around, sometimes, not always, exists during this state, while there is an entire unconsciousness of the moment and circumstances attendant on the birth of the child?

I have alluded to the state of entire health, and of the augmented vitality of pregnancy, as a reason for the uniform salutary uses of etherization, and in so diversified observation of them, in midwifery practice. I have done this because of the striking contrast which this condition exhibits, when compared with that of patients who have been deprived of sensibility while undergoing surgical operations. Such persons are not only suffering from some local affection, which must be removed by violence, in order to save life: they often are suffering from some internal disease, of which the external is only a sign. A notable case in illustration occurred recently in New York. A man at the Crosby-street Hospital was operated on for fistula in ano. Two fistulæ were cut, and on different days. The operations were done during etherization. He never came out of this state after the last, but soon died. It was discovered that his lungs were greatly diseased. His disease, in short, was phthisis; having, at its close, a frequent complication and consequence, namely, fistula. We see in such a case, in which life is with great difficulty sustained on any terms, how the sudden and continued, although it may be only a transient, derangement in the respiratory function and agencies, and such as etherization produces, may be fatal. But surgical operations have been, and continue to be, fatal occasionally, after etherization, in cases in which no grave organic lesion is discovered after death, or any lesion whatever. The explanation: — It is judged, in such operations, that *perfect etherization* should be induced before the operation is begun, and continued

without the least return of sensibility till the operation is over. Again, a surgical operation is not a function, a natural function, which may be performed with suffering; and which suffering merely accompanies the effort to overcome a mechanical resistance to the easy performance of that function. Such an operation is a violence done to sensitive textures, the most sensitive which enter into the composition of the body. There is no interval during which there is perfect rest from suffering, as in labor; and hence there may be no respite from inhalation. Much of the domain of surgery is disease; and how certain, and often how deep, is the extent of the influence of such disease over the whole system, and how often it is constitutional in its origin, is familiar to every professional man. It is not, then, at all to be wondered at, if we have not given the whole explanation,—it is not surprising, that occasionally, though very rarely does it happen, that a surgical operation, done during etherization, should be untoward in its result. I say, very rarely. There has been but a single fatal case in the Massachusetts General Hospital, after surgical operations, following etherization; and, in that case, there was nothing which could for a moment connect the death with etherization. It was in that hospital that the use of ether in surgery had its earliest trial, and its fullest success. In probably no institution in America or elsewhere, has a greater number of surgical operations been done during etherization.

Another suggestion occurs in regard to the fatal cases which have happened, whether at home or abroad. It is, that, in the cases referred to, some constitutional peculiarity, some individual predisposition, may have existed, which led to the fatal result. It has been suggested, that the condition under which surgical operations are occasionally done may influence the result, when etherization has been established; and so they may sometimes terminate unfortunately, when compared to midwifery cases.

There can be no sort of doubt, that the condition which is produced by sudden violence — the crushing of a limb by a rail car, by external injuries from powder explosions, &c. — is most unfavorable to the successful performance of a grave surgical operation, whether during etherization or not. It is not ether or chloroform which kills here. It is the shock to the nervous system which first perilled life; and the operation, which gave the only chance of recovery, would probably have been followed by death, let the circumstances under which it was done have been what they may. But, besides the condition referred to, there is frequently a state of mind, — an emotional state, so to speak, — which may in some cases explain the phenomena under notice. There is fear in this matter, — the greater, on account of the apprehended violence of the operation to which the persons to be operated on hardly supposed themselves liable under any circumstances. The heart beats tumultuously. The respiration is hurried, and otherwise embarrassed. The temperature is lessened. Exactly such a condition may thus exist, which is unfavorable, in the individual case, to the best effects of etherization. There is here, then, a shock to the nervous system, produced by mental violence, so to speak, which may have the issue referred to. I remember a case of this kind which impressed me very deeply. It was a woman who, during labor, had breathed ether with excellent effects. She went to a dentist, some months after, to have a tooth drawn. Etherization was readily produced, and the tooth taken out; but immediately a state followed which was exceedingly alarming. The pulse sunk. The skin became cold and deadly pale. She could not be roused. A state of complete catalepsy came on; and, for nearly four hours, she was apparently in much danger. She came out of this condition gradually, and with great distress. This was an extreme case of the morbid, nervous influence under consideration. In less degree it is not unfre-

quently noticed; sometimes only by the person who is its subject.

But, let the explanation be what it may, it is of the utmost consequence that the truth be stated alike in regard to the fortunate and untoward results of trials with ether and chloroform. This has been the experience, from the very first cases, both in France and in England; and it has been the same here. It is due to the public confidence, which has been so freely extended to these beneficent agents, that any ill success should always be recorded. The object should not be to make a case for or against ether or chloroform. The sole and important object of every trial which may be made with them should be, first, to prevent suffering; and, second, to learn thoroughly what are the precise results in every case in which these trials have been made, as it regards both safety and life to the parties concerned.

The success of etherization in midwifery has, I believe, been perfect. I do not remember a case in which it has been induced either by ether or chloroform, in which there has been the least reason to question its entirely useful agency, both in regard to mother and child. The cases which follow, whether of personal observation, or which have been communicated to me by others, fully sustain this assertion; and from Europe the news daily comes of its successful use.

In again alluding to the conditions which may influence the results of etherization in midwifery, I would remark, that cases occur (one of which is hereafter stated, and which is more particularly referred to because it was very striking) in which the first impression or effects of etherization are very unpromising; such, in short, as do not seem to authorize its farther employment. It is sometimes so exceedingly disagreeable in all its effects, that the patient will no longer employ it. In other cases, it is very urgently demanded, and any risk which seemed to be incurred in its first

use is not allowed by the patient to be of the least weight in the pressure of severe suffering. I have permitted inhalation in such cases, and with the happiest results. At times it has happened, from removing the inhaler before the desired effect has been produced or established, that etherization has suddenly disappeared; and this is often followed by expressions of much disappointment, and sometimes emphatic complaint. Said a patient to me one day, who was very abruptly roused by the sudden removal of the instrument, while under the happiest influences of inhalation, — "Why did you take that instrument away? I had just entered a rail car; the bell was ringing; it was just moving, and I should have had a beautiful ride; and you have ruined it all." This person remembered this fact, which made it still more remarkable; and said, after her child was born, which occurred during perfect insensibility, that she did not enter the car again.

Etherization is *continued* much more easily than it is *produced*. This imposes a caution in its use in midwifery. In grave surgical operations, in which, as we have seen, every stroke of the knife is the infliction of a new, and, it may be, very severe violence, inhalation is necessarily continued after a manner not demanded in midwifery. This matter is recurred to, as quite worthy notice in watching the effects as they are successively developed during inhalation; and for the purpose especially of preventing all excessive, and so unnecessary, etherization. The state certainly admits of or presents different degrees of perfectness; and that degree should be the aim of the physician which more or less completely removes sensibility, renders pain tolerable, and ensures the greatest safety.

With regard to the ease of inducing and continuing etherization, the evidence is very complete, that it is greatest, and so most striking, in those who have the fullest faith in its power to prevent pain. This is a highly favorable condition. I have been, perhaps, more frequently

struck with this fact in the history of our subject than with any other. Thus, in those cases in which it has been settled beforehand to employ ether or chloroform; among those persons especially who have beforehand tried upon themselves what inhalation will do, and who have also provided themselves with the article to be used, — I have almost always found in these individuals the happiest effects from etherization. The preparation is sometimes made with much forethought. Thus I have found ether and chloroform side by side on the table, "which to choose," — or one only, had either been already tried. It would seem from these facts, that the state of the mind in regard to the matter has some positive relation to the effects of inhalation, and should be regarded in its use. It certainly may be so far considered as to prevent an early or too rapid use of ether or chloroform; and so, by delaying it till the emergency for its employment is clear, its best agency may be secured. In the midst of severe suffering, the demand is pretty sure to come; and where it does not, pain does not so exist as to make demand for the remedy, and its use should certainly not be pressed. I have, however, introduced this subject here, rather with a view to show how far the state of the mind may affect the induction and the results of etherization, than for suggesting a rule of practice.

Of Disease in its relations to Etherization. — I have spoken of childbirth, and of surgical diseases, and of accidents, as furnishing conditions which may possibly influence the results of etherization. How is it with disease? It has often happened here, as in other questions which can be alone settled by experiment, that the result of such experiment has not always confirmed the preconceived opinion. Thus we were early told, that diseases of the head or brain, of the heart, of the lungs, were in themselves contra-indications for etherization. But how has it turned out here? What has trial showed? Both ether and chloroform have

been used in these very diseases as remedies, and I know of no sinister result. Thus in phthisis, and in its latest stages, ether has been tried; and so grateful has been its effects, that it has come to be demanded as the only and the sure means of relief. The quantity has been very large which, in some cases of this disease, has been employed, reaching to nearly or quite a quart in twenty-four hours. Asthma has been also greatly benefited by it; and it has happened in very grave cases of this most distressing disease, that etherization has been demanded, almost constantly, by asthmatic patients, as the only condition on which life has been tolerable. In spasmodic cough, the same thing has happened; and so has it in those coughs from irritation, in which the trouble has been in the larynx or trachea, and which has rendered the state of the sufferer most uncomfortable. In affections of the heart, or in those in which this organ has manifested much, and habitual or chronic disturbance, etherization has been safely used. I remember a case of childbirth, in which trouble of the heart had existed for some time, but of which I knew nothing; my attendance in labor being my first acquaintance with the patient. I gave ether under the strongest demand of the patient for its use, and for many hours, and in larger quantities than in any other case, but in which the only sensation was that of relief. The trouble of the heart declared itself, and this not in a severe way, two or three days after delivery.

In affections of the brain, or of the head so called, I have met with cases in which etherization has been freely used and without harm, and with its usual grateful effects. It has been a strictly remedial agent in cases of chronic, paroxysmal headach, and in very severe ones too; and in childbirth I have used it where the same thing has existed. In spasmodic affections, and in those too in which the lesion has appeared to be in the nervous centres, I have used etherization with benefit. Very recently, in a case of

chorea of eight years' standing, and which ended fatally, — a termination which I have not met with in any other case of this disease, — ether was inhaled with very great relief. Some months before, I used ether in the same case. It was then inhaled from a sponge. In that mode of administration, it gave great distress. It was at once rejected, and its further use abandoned. But now it was exceedingly grateful. It was applied on a handkerchief; this not being much wetted, and not held so near to the nose as to prevent large dilution of the vapor with common air. I have before observed the advantages of this use of ether. The symptoms for which it was now used did not exist when it was before inhaled. These were most distressing and tonic contractions of the muscles of the neck and back, and of those of the pharynx and larynx; making both breathing and swallowing exceedingly difficult, the latter at times impossible. The relief was showed in entire rest of the body, which at other times was in constant and most exhausting motion. The hand could be moved by the will, and extended that the pulse might be felt. Local spasms, as of the throat and neck, were also diminished and removed; and a most wretched condition in this aged woman, she being between sixty and seventy, was changed to one comparatively comfortable. I have used it in cholera, which, in its spasmodic symptoms and in its exhaustion, approached very nearly to the Asiatic form of the disease, as I saw it in 1832. The spasms existing in the extremities and trunk were universal. The vomiting, which had continued about eleven hours when I first saw the woman, was constant, and accompanied by extreme distress. She was etherized. The spasms almost immediately ceased, and at most there were but two vomitings afterwards.

I am acquainted with a case of cramp, chronic cramp, in a friend between eighty and ninety years of age, who has long suffered from gout; which last disease has pro-

duced its most embarrassing and painful effects in the hands and feet. My friend early tried etherization, and for some time with great benefit. Time and use have diminished its power. He uses always the same quantity, four ounces; and, to be exact, a phial containing this quantity is every day placed on his night-stand. This, with a large, hollow sponge, completes his arrangements for etherization. After he gets into bed, he empties the phial upon the sponge, lies down, and inhales till he is etherized. I have not heard from him, or from his family, that he has experienced the least inconvenience from this practice.

Acute disease, in which pain has been a symptom, has been treated in the same way, and with much advantage. And so has disease in which watchfulness has been a symptom: delirium tremens furnishes an example; and we see the same in other diseases with sleeplessness. In the cases alluded to in this paragraph, etherization has relieved pain or procured sleep, without any of the unfriendly results which so often attend opium, in all its forms, when used in like circumstances. The whole effect is temporary. When it has passed, nothing remains to mark that it has been. The functions of important organs are not disturbed. Nervous energy has been preserved, the strength not wasted; and, if cure do not follow, it certainly is not retarded.

I am here asked, if, by reference to such facts as these, I mean to recommend etherization as a means of removing the diseases in which it has been found useful; or to be more precise with the question, or to give it as it comes, — "Do you mean to use it in all cases or in all diseases in which trial has showed it to be useful and safe, and in others in which it has not yet been tried?" It has not been with any such purpose that I have stated results of tried experiments; I have stated them as facts in a most important history, — facts which are not the less interesting because of their recent observation, or because their number is no

greater. They stand just as do all facts which have their birth and being in a recent discovery. They are some of them solitary, but even here not absolutely alone, for they are nigh neighbors to kindred facts. Some of them are in sufficient numbers to establish principles, and thus to give to the domain of a noble philosophy a most interesting and valuable addition. It is not, then, to recommend etherization in all cases of disease, or in such as resemble those referred to, that the reference has been made. It is rather to state what has been done, and leave it to others to determine for themselves whether they will give to their patients the opportunity for obtaining a like good. Is not the use of a remedy in extreme cases, and which has resulted in good wholly, a reason for trying it before the extreme contingency arrives? Is not medical reasoning sufficiently established to show, that, where the evil is less, as in the beginning of a disease, a remedy may be useful in much smaller quantity than in a later period of it; and when, the disease being graver, it may be of perfectly safe experiment? To be sure, we may delay etherization in labor to its later or latest periods. But we do so, because labor is not a disease; and, as such, may be growing more difficult of relief, because of its longer continuance. We postpone etherization here; because, in the first place, pain is often very tolerable in the beginning of the process, and there is no accumulative difficulty to be apprehended, from the time the suffering may have existed, in procuring a remote relief.

To recur to and to conclude the discussion of a subject of great practical importance. Is etherization to be induced in all cases of labor? Professor Simpson, who introduced ether into midwifery practice, says,* "Since the latter part of January, I have employed etherization, with few and

* "Remarks on the Superinduction of Anæsthesia in Natural and Morbid Parturition. By J. Y. Simpson, M.D. F.R.S.E. Prof. Med. Univ. Edin. &c. Read, &c. Dec. 1847."

rare exceptions, in every case of labor which has been under my care; and the results, as I have already elsewhere stated, have been, indeed, most happy and gratifying."

A like answer to this of Professor Simpson can hardly be looked for from anybody else abroad; for he tells us that in London, in Dublin, and elsewhere, etherization in labor has been rarely induced, and that many physicians in very large practice do not employ it at all. He has been charged with an excessive, if not unsafe employment of it, and even with making out his case by suppressing unsuccessful results. It is not difficult to explain the frequent and free use of ether and chloroform in labor by Prof. Simpson. He first used them both, and both with entire success, in all his cases; and hence had an argument from experience for continuing this use, which very few, if any other, practitioners had. These latter persons, with their imaginary facts and *a priori* reasonings, denounced etherization as unnatural, unscriptural, and unsafe. And with them there the matter rested. Professor Simpson was daily, if not hourly, observing its salutary and safe uses; and from an experience to which success, enthusiasm, and gratitude, gave the warmest coloring, has he gone to patient after patient, and come before the public with essay upon essay, to prove the truth of his earliest statements; and to extend the blessings of etherization in childbirth, by newer, more numerous, and as successful results. One is not surprised, then, at the answer to our question which comes from him. From his own account of the matter, there would hardly seem to have been cases enough in his own practice, in which he has not employed it, to form exceptions to the rule of using it always.

In this city, in which etherization was first tried in labor, in America, there has been, as we have seen, no excessive zeal in its use in midwifery. Some physicians have not tried it at all; others have employed it only when the patients have demanded it; others, in difficult cases only; and some

would seem to have been so little inclined to try it as to dissuade from its use altogether, or so imperfectly to have used it as to have formed no positive opinion concerning its agency. Many, however, have used it in many instances, too, with increasing confidence in its powers, and with the happiest results. I think the evidence which has been obtained here on the subject, and which is presented in this volume, derives much interest and importance from these facts in its history. There has been no such extravagant zeal or unwisely placed confidence, as so often comes from the partisan spirit with which sometimes even scientific investigations are conducted, and which so often direct attention from the thing to the person, and with injury to both. Are not the number and characters of those from whom the evidence comes, further cause for the public confidence? and, if the question be still an open one, how generally shall etherization be employed in midwifery? and what are the safe and proper limits of its use? — the time which has been occupied in the observation of the facts, has not certainly been lost time; and the result can only be regarded as happy both for the public and for the remedy.

But I am unwilling to leave the question just where these remarks may place it. A great many facts have been collected, and from many sources. These do settle some points. In my continued and increasing use of etherization in childbirth, I have been governed by the consideration of its present effects on the labor itself, — by its immediate results to the mother and to the child, and to the circumstances which attend the "getting up," or the puerperal condition of patients. From the very first case down to the latest, I have seen nothing in any of them to diminish my confidence, or to lead me to a conclusion that it is not proper in any case of labor, or that it has been injurious or unsafe in any one. The evidence from all others who have been consulted by me is to the same general purport. The

exceptions which have been reported to me do not disturb the rule. They are not designed to do this. They proceed from differences, not conflicts, of opinion, and are not stated to influence the practice of others. One only says, that he thinks that an equal number of cases of childbirth without ether have done better than have those which have been treated by it. But he offers no evidence, that the ether has done harm in any one.

I may be asked here why I do not refer to the fact, that some physicians have reported for this volume single or very few cases only, in which ether has been employed; and that from some I have received no reply to my circular. I answer, that, in regard to the first, not a word is said that would lead for a moment to the idea, that farther trials have not been made because the least untoward circumstance attended or followed the first. I think these single or few cases are of great value in answering our question. If danger in the first trial had been the reason why farther experiments have not been made, this most important fact would have been stated. The reason would surely have been given. But, in the instance of the physician who has reported but one case as the whole amount of his trial with ether, it is stated that the attendant symptoms and the whole result were most happy. In no case reported have they been said to have been more so. The single case stands alone indeed; but it stands so, without prejudice, without qualification, without a reason against it.

Again, are we asked, why any practical unwillingness, in any member of a profession whose mission it is to relieve suffering, to employ agents so safe and so successful? Why has he who, in the one case, has found such excellent results from etherization, stopped short at that one case? and why does another wait till the demand comes from the sufferer for the remedy of pain? There is a moral element to which we may refer the fact, and in which find its explanation. This is caution, called also prudence; and

which, in its higher or highest expression, has another designation. It is not difficult to see how this element may come to affect us, when the question concerns a new agent, and which is to be used in a natural process, child-birth; and, farther, which is to alter the whole character or manifestation of that function. Some risk is thought to be incurred, some chance of trouble; and this, though the whole history of obstetric etherization does not furnish a case of disaster or of apparent danger. Probably, men feel quite comfortable, nay, rejoice, that things have gone so well in the one or two cases in which they have ventured to try the new remedy, and do not care to run any risk of disturbing this agreeable self-complacency by a new experiment. The person has lived through it, and that is enough. Moral temperament may thus come in to affect medical practice, and great suffering be allowed to attend a function which might be perfectly and safely relieved of this most distressing accompaniment, because of a state of mind in the practitioner in which more respect is paid to moral indecision, than to those teachings of the intellect which come of abundant and sure experience. There can be no objection in the world to such course; for the moral state which leads to it is not a favorable one for employing etherization, or for observing its effects. It is the part of wisdom, as well as of duty, under such circumstances, not to attempt to induce etherization. But it makes no argument against it, that a few men or that many men hold such views. The single case, as we have seen, is, so far as it goes, evidence in favor of, certainly not against, the remedy of pain; and so it has value. And, again, such experience can make no possible objection to employing the remedy as freely as it may be thought necessary; since the widest, like the narrowest, experience shows, that its use has been wholly salutary. The no-experience should have no place in settling the question.

We have already considered the objection to etherization

which has its whole origin and continued being in theory, and have endeavored to show, that this should never be allowed, in a question which can be resolved only by direct experiment or observation, to influence general practice. In such cases, the determination should only proceed from facts.

If I am now asked what is my precise course in regard to etherization in midwifery practice, and in diseases in which pain is a distressing symptom, I answer: —

1. I generally take with me ether or chloroform, or both, and an instrument which I have found to be of easy and safe use.

2. If I am not desired to employ etherization, and the pains are very severe, I offer inhalation as a sure and safe means of abolishing pain; and this in perfectly natural labor, and when it is proceeding rapidly and favorably.

3. In protracted labor, in which dilatation goes on very slowly, and notwithstanding very severe contractions and great suffering, I recommend and employ inhalation.

4. In any labor, if along with imperfect dilatation, or when this is natural, but the secretions are deficient, and whether morbid irritability or sensibility exist or not, I use inhalation.

5. In protracted cases, if dilatation be slow, and the contractions defective, or the same character of contractions be accompanied with more ready dilatation or dilatability, I use inhalation.

6. In instrumental labor, I use inhalation; *applying always the instrument before etherization is begun.*

7. In those cases of preternatural labor in which turning is necessary, I employ etherization.

8. In any case in which increased contractions do not attend etherization, or in which they are diminished, and in cases in which hemorrhage has followed a preceding labor, I give an infusion of ergot; rarely, if ever, with

the powder; just as I would have prescribed secale, had etherization not been discovered.

9. If the patient object to inhalation, I do not press it. For the most part, the objection is made in terms sufficiently explicit, before the suggestion to employ etherization is made, to prevent its being offered. And, again, its forced use will probably fail to produce its desired effects; and so to the untoward, should that follow, will have to be added the consciousness of failure, and the sure memory of it by others.

In this enumeration of the circumstances in which I think etherization proper, and in which I feel disposed to suggest it, I have simply stated the facts or conditions in individual cases in which I have employed the remedy of pain. I need hardly stop to state particular results. Suffice it to say, that, in a far greater number of carefully observed cases, I have found anticipations realized, results produced from etherization, than I have met with from the use of any other remedy in medical practice. I have been less frequently disappointed in reaching in detail, so to say, effects actually looked for, than from other agencies. And let me add here, what is equally true, that the whole benefit has been obtained, not only without apparent danger, but with both safety and success.

These conclusions are stated in the consciousness of the whole responsibleness which must attend to the communication of them. They are not stated for the first time, and so the responsibleness is still individual. Many and pertinent facts have been brought out, and many collected, which have before only had their place in men's minds, or in uncertain records. They form a most important part of this volume. From such have our practical conclusions come, and such are ever their surest and safest foundations.

Under this head of the conditions for using or not using etherization, I put down its *effects*. I did so, because, although these are discoveries which trials with it have

made, and so may refer to what has happened, and not to the existing case in which we propose to employ etherization, still the experience practically will be felt to have a relation to it, which we cannot and should not avoid perceiving, and by which, consciously or otherwise, we shall be more or less governed. There is another reason for considering the effects of etherization, of whatever character, whether good or bad. It is this: — The popular mind is always reached by them, and, whether favourable or unfavorable, is more or less influenced by them in its opinion or employment of the new remedy. Thus we find the unfavorable, all of them, published. They are *items* of much value. The daily press collects and spreads them everywhere. And who is not glad that it has done so in the matter under notice? How deep is the public interest and welfare in the whole result of the experiment with the remedy of pain! How wide is the experiment! How successful the result! The exceptions, we have seen, are hardly in number large enough to prove the rule. I propose, then, by and by, briefly to give some account of these exceptions, to show in what circumstances the cases which make them, differ from all others, with a view to their bearings on the continued, the future use of etherization. In speaking of *effects* in this connection, I refer to what has attended and to what has followed, *come after*, the use of ether and chloroform, — to present symptoms and to remoter results. To no topic connected with our discussion has professional and public attention been more earnestly turned than to this, and none deserves a stricter or more unprejudiced regard.

The unknown syrup which cures *all* the consumptions, and the unknown lozenge which brings away *all* the worms, stand uncontradicted, and with daily accumulative testimony in their favor. Not a death has place in such people-loving records; not a death happens, we are told, to record. Every man is made his own physician;

and "physician heal thyself" is the prescription and the practice of every hour. I leave the lozenge and the syrup to enjoy their unqualified and their enlightened reputation. Let the physician, he who has given his mind and his heart, his moral and his intellectual nature, to noble works, — to the study of disease, and to the relief of suffering and the prevention of death, — let him be true to his great calling; let him use known means, and make them and their best uses the free property of a suffering world. If, in the individual case, untoward result come, let him find, in the care and wisdom with which he has used his remedies, and in their otherwise universal success, an abiding assurance that he has ever done his duty.

The popular mind sees in that which *follows* the use of an agent, the *effect* of that agent. *Post hoc, ergo propter hoc*, is often a safe, though not always the wisest or truest, philosophizing. It holds the agent as responsible for the untoward results, and, with great authority, says, Beware! when its subsequent use comes into question. In medicine, this reasoning has ever been common, and ever highly popular. I am not disposed to abate a jot of its salutary power. But the question is pertinent, if it have not sometimes an influence which does not, and should not, belong to it. Before giving the exceptions, however, our attention is both naturally and necessarily directed to the ordinary agencies of etherization, — to what we daily observe to be its effects. In speaking of its physiological phenomena or effects, I have alluded to some of those which are manifested by the brain, and which so refer to that earliest period of it in which consciousness is still present, and which so remarkably continues in cases in which sensibility is abolished. Sometimes, this effect of etherization, or this state in which consciousness remains, and insensibility is perfect, may lead to much embarrassment, and even to apprehension, on the part of friend or physician, and which is quite without true cause. The patient is

conscious of novel sensations, and of mental action, perhaps never before experienced. These, as we have seen, may be even distressing, — as noises, flashes of light, apprehension, dread, &c.; and we have exclamations corresponding to these states, "I am dying;" — "I am scared;" — "What shall I do?" — "What have you been doing?" &c. &c. Again, we have another series of effects referred to the brain, and in which unconsciousness exists, or of which no memory remains. Among these are excitement, generally pleasurable, laughing, talking, singing. There is in such effects as these no real cause of alarm. Ordinarily they soon pass off during the continued use of ether or chloroform, being the consequence of their imperfect action. If they do not go off, but rather increase, under the fair use of the agents, we then omit them entirely, or for a time, as the results of renewed trials may indicate. Cases like these are by no means very rare.

In further speaking of the *effects* of etherization, I shall take them up in such order as will, as it seems to me, make the statement and discussion most practically useful. I shall speak alike of the alleged effects, the doubtful, the untoward, which have been ascribed to etherization; and of those which daily experience declares to be its results.

Proceeding, then, with the subject above adverted to, — the effects of etherization upon the *brain* and its functions, — I would speak, in the first place, of a very important effect ascribed to it: I mean, *insanity*. It has been again and again asserted, that insanity may be produced by etherization. I find no cases which, in the smallest degree, confirm this *doctrine* or *theory*; for it is not advanced as a *fact*. I do not find such a case in the whole records of surgical practice, which, in the Massachusetts General Hospital alone, now embrace several hundred cases of the successful uses of ether, of chloric ether, and of chloroform. Nor does the wide experience of other parts of this country or of Europe furnish any fact to support the opinion.

Etherization in midwifery gives the same denial, and out of a wider experience too, to the same doctrine. So far from there being any known truth in it, I can declare here, that the only cases of puerperal mania which have come under my direct observation or knowledge since the introduction of etherization in midwifery have occurred in cases in which this was *not* used. Suppose for a moment that ether had been used in these cases, how wide would have been the report! They would have spread on "flying words" and with lightning-speed over this whole country, and by the first steamer they would have found their sure way to Europe. How false would have been the experience, and how much injury would its falsehood have done! I dwell upon this point here with the more emphasis, because puerperal mania is not a very rare disease, and because of the exceedingly free use which has been made of etherization in midwifery without the occurrence of a single case of that affection.

In the reports which follow of cases, a single one of insanity is recorded. It will be found in the Correspondence. This case is of great interest, being one of pregnancy and labor occurring in an insane person. She had been delivered before during insanity, and very great annoyance and embarrassment grew out of this state. In the last labor, ether was used, and with the effect to produce *perfect quiet*, a suspension of the insanity, and a comfort and ease in the process, before unknown in the same person. This case is full of interest. It shows how useful is etherization; and, more than this, and infinitely more important, does it not show that the mental excitement to which I shall next refer, as an effect of etherization, depends on circumstances wholly removed from those which lead to insanity, as it ordinarily shows itself, and from which we need have no apprehension as to the effect on the mind?

We occasionally, I may say not unfrequently, meet with

mental excitement in its different forms and degrees during etherization. We meet with this in general medical and surgical practice; and, in some rare cases, it has continued for a day or two. I know of no such continuance of morbid or excessive excitement from etherization in midwifery. The contrary has been observed. A very remarkable quiet is the rule, — an absence of pain, after-pain, and the coming on of tranquil sleep. It has been after trifling surgical operations, such as pulling a tooth, and after unprofessional uses of ether or chloroform, when it has been inhaled in large quantities, and without any observation of effects by competent persons, — it has been after and under these circumstances, that a state of continued unconsciousness, and even of spasm, has declared itself. Cases of this kind will be referred to. A very recent one has occurred in a neighboring city, in which inhalation from a few drops of chloroform was used to prevent the suffering of drawing a tooth. The operation was done while the patient was perfectly insensible. She left the physician's office, and called to see a friend, and was soon afterwards seized with violent spasmodic action, with mental disturbance, which threatened life or insanity. This state of things continued two or three days, when the woman became convalescent.

A friend, who is a highly accomplished surgeon, has recently suggested to me, that the occasional dangerous and fatal results of etherization in slight operations — as tooth-drawing, for instance — may be the result of the suddenness with which the operation is done, and the absence of hemorrhage; whereas in midwifery practice, and in surgical operations properly so called, there is more time taken, more excitability "used up," so to speak, less suddenness in the lesions produced, and much greater loss of blood. In the girl's case above given, repeated bloodlettings formed a part, and an important part, of the treatment for the disease which followed etherization. I think

the suggestion of my friend an important and valuable one, and that it may lead to useful methods of treating some of the accidents of etherization.

Among the alleged lesions of function of the nervous centres during or after etherization, is convulsive disease. Thus, we are told, puerperal convulsions may be produced by them. My attention has been particularly directed to this subject, because the diseases in question form the gravest complication of labor. I have not, however, met with a single instance of this complication from etherization, at home or from abroad. So far from this, I have cases of most grave puerperal convulsions, in which ether has been used as a remedy, and with excellent effects. In the first case I met with after the introduction of ether, and which was the third of the same disease in the same patient, ether was not used till after delivery. The disease was so severe, life was so strongly threatened, that it was not deemed prudent to try the remedy. It was tried after delivery, and there was no farther convulsion after its use. In a very important case communicated by Dr. Bartlett, of New Bedford, convulsions occurred during pregnancy, and ushered in labor. Bleeding was at once and freely employed, and then an opiate, with the happiest effects. The convulsions ceased. After some hours of rest, labor came on in earnest. Etherization was now induced, and was attended by the happiest effects. The child was born alive, and both it and the mother have done perfectly well.

A still more striking case is that of Dr. Cabot, of this city, given hereafter. In this the convulsions were very severe. They had continued some time before the case was seen. Blood-letting was at once freely employed, and repeated. The disease continued. Ether was inhaled. Its full effects were produced. The fits were suspended for between three and four hours, and in this time the child was born and living. Convulsions recurred. Ether did not now check them. Opium and asafœtida were pre-

scribed, and with excellent results. The mother and child have done perfectly well.

I have pretty recently witnessed a case which has an indirect bearing only on my subject, but is still so related to it as not to be wholly without interest in this connection. I attended a patient in labor, some months ago, to whom I exhibited ether-vapor with good effect. She was exceedingly exhausted, when labor occurred, by much disease, which had attended pregnancy; and it seemed especially important to diminish suffering, as far as it was safe, and so to preserve the remaining strength. She got through well. Her convalescence was slow. She had the constant care of her child, and chose to have it; and this kept her fatigued and feeble. Three or four months or more after her confinement, having occasion to have some operations on the teeth, which could not be done without great pain, and having experienced the safe and successful uses of etherization, she determined to use it again. This was done. After a few inhalations, — amounting, as the dentist said, to not more than five, — she was soon etherized. She was partially unconscious. The teeth were removed, but with great difficulty; the jaws requiring great force to separate them. This violence she was conscious of. It was observed, that she did not "come to" after the operation, but, on the contrary, exhibited appearances which were alarming. She could not be roused. The pulse had nearly ceased at the wrists. The face was livid. Respiration could scarcely be perceived. Physicians were sent for, and various means for restoration used. Air was freely admitted; friction to limbs; stimulants to nostrils and mouth. I saw her after some amendment began to appear. But the above symptoms continued more than an hour. They were replaced, soon after my arrival, by convulsive actions. There was complete rigidity, and a true cataleptic state soon showed itself. The limbs might be placed in any position, however forced, and it would be retained.

The fingers were bent in various directions, as in a lay-figure; and they remained so bent. There was as yet no return of consciousness. There was no groaning, no complaint. The pulse at length returned, but very feebly; and the skin became less livid, but remained deadly pale. In about four hours from etherization, she was sufficiently recovered to allow of her removal to her own house. She slowly became convalescent.

Within a week or two, I have been called to the same person. I found her recovering from an attack of convulsions, described, in many respects, to resemble the disease above narrated. There had been less rigidity; but, in its general characters, it was like the state which followed the etherization induced for the teeth-operations. The attack, in this last instance, was produced by fatigue only. There had been no error of diet, no moral cause, no medicine employed. It occurred suddenly, was produced by faintness, and ended as stated.

This patient is exceedingly sensitive. She bears pain badly, and has long suffered from very painful affections, such as are incident to irritable and displaced womb, tenderness of the spine, &c. I have said it was thought that the violence which was necessary for the separation of the jaws might have been the cause of the state which followed. I did not learn that the operation was painful, but that the great force necessary strongly impressed her. In this view of the matter, some mental state, independent or incidentally dependent only on etherization, might have been a cause of the apparent danger. One of the many physicians who were called in thought there was an obvious hysterical complication in the case. Does not the last attack show a disposition in this person to be gravely affected by causes which in others would produce no disturbance, and which should modify the judgment concerning the cause of the first and very alarming invasion of convulsive disease? In this inquiry into causes here, and in the questionings sug-

gested, I would not, for a moment, seek to divert attention from the known agency in operation, when the teeth were drawn. Ether was certainly used, and etherization was certainly induced.

Among the diseases allied to those just considered, and connected with lesions of the cerebral or nervous functions, or both, in which etherization has been used, is delirium tremens. In this, excellent effects have been reported from its use; and, among others, by Dr. Clark, of this city. Sleep has occurred under favorable circumstances in these cases, and delirium has disappeared.

In traumatic tetanus, etherization has been used with success. A case is reported in the January number, 1848, of "The American Journal of Medical Science," of the curative powers of ether in this disease, by Dr. E. W. Theobald: — J. F., aged twenty-seven, received a severe wound in the left hand from the accidental explosion of a blast, Sept. 17. Oct. 1, slight spasms in the hand whilst asleep. In night of Nov. 4, distinctive tetanic symptoms. Dr. Theobald was called early on morning of the 5th. Professor N. R. Smith called in. Amputation decided on, and done. On 7th, all symptoms being aggravated, sulphuric ether vapor inhaled. At first, choking, &c. Insensibility in two minutes. He slept fifteen minutes, when he was aroused by wiping face and forehead with cold water. Pulse accelerated ten beats during etherization; breathing perfectly easy; muscles relaxed; no lividity. Why it was thought proper that this patient should be roused when he was in the very condition of all others most devoutly to be wished in such a disease, and out of which relief ordinarily comes, is not stated. It was probably the result of some vague or settled apprehension, that evil of some kind would proceed from its continuance. 9th, ether administered. Etherization followed a few inspirations. "Pulse unaffected; expression of countenance greatly improved; no lividity or paleness of the lips and face; breath-

ing easy; the muscles relaxed. He slept in this condition fifteen minutes; drowsiness remained for half an hour after." Whether the patient was roused during this experiment or not, does not appear.

10th, "Superficial slough, about the size of a shilling, on the lips of that portion of the stump which had not united." — "Sulphuric ether administered with similar results."

11th, "Ether given."

12th, Ether asked for. Inhalation. Effects as marked, and as favorable as before. But having read in the October number of the Journal, that ether would make wounds slough, though no increase of this had occurred in his case, Dr. Theobald omitted inhalation. The paper referred to was by a Dr. J. H. Pickford.

13th, Symptoms all aggravated, and new ones have occurred. Hydrocyanic acid, acet. opii, &c. as before.

14th, Nothing better, but all things worse. Pulse, 118. It was obvious to Dr. Theobald, that his patient must die; and, as ether had given relief before, he determined to give it again, regardless of both Dr. Pickford and the stump. Effects in all respects as favorable as before. Pulse, eighty-two. Jaw easily separated. Stump doing well.

15th, Ether. Pulse fell from ninety-five to eighty-six. Effects, all that could be desired.

16th, Ether. 17th, ditto. 18th, ditto. 20th, ditto. 21st, ditto.

Nov. 4th, Well.

This case is of great interest. The whole agency of ether was striking and excellent. Other means were employed, and very actively. But we see in the record of every day, how ether takes the lead of them all. Calomel, in frequent and free doses, with and without opium; opium in various forms; hydrocyanic acid, — these were among the means used. In the midst of their failure to give relief, ether is used; and sleep, repose, perfect rest,

ensue. The man wakes up to a pleasant consciousness of being, and is free from the power of his terrible malady till etherization has disappeared. It does not appear how often ether was used, or through how many hours of the day etherization was enjoyed. I have known it to be continued for weeks, and employed in almost every hour of every day to procure sleep, and remove discomfort in hopeless and distressing disease, and with the happiest effects in relieving suffering. I do not see from Dr. Theobald's record, why it should not have been so used as to have kept the patient for most of the time under its power. Would it not have been well to have tried it before amputation? We find it one day given up, because of a small slough on the stump, and because a Dr. Pickford had said in his paper, that "ether would make wounds slough." The value of this writer as an authority may be somewhat gathered from an extract or two from his paper on the "Injurious Effects of the Inhalation of Ether," Edinburgh Medical and Surgical Journal, July, 1847: —

"This indisposition of the blood to coagulate, after the inhalation of ether, offers another very serious consideration. Fatal hemorrhages must occur, and do occur; and as the whole circulating fluid is deteriorated by the ether, is it matter of surprise that the lips of wounds evert, and the discharge is unhealthy; that stumps become flabby and gangrenous, and that patients sink and die?

"Etherization, *it is to be feared*, exerts also a baneful influence directly upon the respiratory organs.

"Pain during operations is, in the majority of cases, even desirable; its prevention or annihilation is, *for the most part*, hazardous to the patient. In the lying-in chamber, nothing is more true than this: *pain* is the mother's safety, its absence her destruction. Yet are there those bold enough to administer the vapor of ether at this critical juncture; forgetting it has been ordered, that in 'sorrow shall she bring forth.'"

Every question in the above quotations, and what portion of them is otherwise than questionable, is answered by a positive experience in the negative, both in America and in Europe. Blood does coagulate, and as firmly,

during and after etherization, as when it is not induced. Fatal hemorrhages do not occur any more frequently than under other circumstances. The lips of wounds are not everted. The discharge does not become unhealthy; nor do stumps become flabby or gangrenous; nor do patients sink and die from etherization; nor is respiration morbidly or permanently affected, nor its organs injured by etherization. I assert that perfect safety, as well as perfect success, is the *rule*, — the true induction from experience in this matter; and I appeal to the *hundreds* of cases of surgical diseases, in which operations have been done since the introduction of etherization amongst us, and to a like number of cases of midwifery which are recorded in this volume for the proof of the correctness of this induction, the establishment of this principle. Professor Simpson has, from his own practice, furnished abundant evidence to the same fact; and so has the best surgical authority in other parts of this country and in Europe. In our last quotation, Dr. Pickford appeals to the Bible against etherization, and also asserts that "*pain* is the mother's safety; its absence, her destruction." By a strange mistake in one who professes to settle some of the most important questions that now interest alike the professional and the public mind, Dr. Pickford confounds *pain* with *uterine contraction.* Uterine contraction does indirectly produce pain, as has been before shown. But it is not *pain* that is the mother's safety. It is *uterine contraction* which alone and always makes labor safe; and, more than this, this contraction contributes most to the mother's safety, when it is the least evident; namely, after the delivery of the child, in the third stage of labor, so called. This consists in the separation, by uterine contractions, of the afterbirth from the womb, — the expulsion of the afterbirth, and the accurate closing of the blood-vessels of the womb, by involuntary, painless contractions. To one at all acquainted with the process by which hemorrhage is effectually prevented

after delivery, this explanation will be hardly thought necessary.

Again. So far from uterine contractions — *pains*, in the popular use of the term — being diminished or suspended by ether, it is notorious that they are very often increased in force and efficacy by inhalation. This is stated by almost every observer. The action of the will being suspended, no effort is made voluntarily to impede the labor. The whole uterine power is exerted regularly and uniformly, and progress almost at once declares itself. Dilatation of the passages, as we have before seen, very soon becomes more perfect, and determines the amount of contractions. The secretions are increased. In short, a state most favorable to easy, rapid, and safe delivery is produced and sustained, — how successful to both mother and child, the tables hereafter will show. I cannot, then, either out of respect for his exegesis, for his questions or his reasonings, regard Dr. Pickford as any authority whatever in the matter, and cannot but regret that the author of the very interesting case of traumatic tetanus referred to, followed, for a moment, his vague and unsupported opinions.

"But do you say, that very alarming symptoms have not *accompanied* etherization, or that death has not *followed* it?" I say no such thing; and I do not mean that you, reader, should infer it. But, while I most freely make the admission, and would give to it its fullest bearing on the use of this agency in medicine, I at the same time further say, that I cannot but believe that the alarming symptoms sometimes, and not unfrequently, derive their character of threatening danger from the state of mind under which men use the remedy. They are apprehensive of results. They have been deeply impressed with the alleged untoward effects of etherization. They have read of them with avidity, and admitted their whole truth, and apparent accuracy, with very slight investigation, and so come to the application of the remedy for pain with a foregone conclusion, a strong

prejudice against etherization, and against all its means. The reports of untoward symptoms from the use of chloroform in experiments upon animals, and of trials with it for mere amusement made by wholly ignorant persons in perfect health upon themselves, and of its more proper, its medicinal uses, made, however, with little or no regard to the conditions of its employment, have done much to produce that moral condition which regards with alarm the attendant symptoms of imperfect or perfect etherization, whether from chloroform or ether, and of which a wider experience or a freer mind would have made but little account.

I admit, without any hesitation, that untoward results have *followed* etherization; and I mean to state them presently. But these must be seen in their relations, as well as in themselves; and, before it is determined that etherization, independently of all other circumstances, has caused them, we must accurately ascertain, if any thing in the isolated case has existed, which may have influenced the result; and also what was its nature, and what has been its agency.

I would ask pardon for that which is both digression and repetition. But the distinct reference made by Dr. Theobald to an opinion of a foreign writer, of the dangerous consequences of etherization in wounds, and his omission of ether on that authority, when its whole agency seems to have been all that could be looked for or desired, seemed to me a reason for stating and meeting questions which so loose an opinion might involve. The return to the remedy by Dr. Theobald, and its immediately useful effects, show how injurious, though temporary, had been the influence of the foreign, and mainly speculative authority upon practice here.

Another case of severe traumatic tetanus is in the "South. Jour. Med." for November, by Dr. Ogier. The relief was perfect during etherization. Ether was admin-

istered for *nine* days, the eleventh of the disease, with progressive improvement. The following is the report of that day: —

"Aug. 15. — The patient has had a good night, has taken the ether twice, and has slept well; the pulse is weak, and the breathing rather quick; the bowels were opened once during the night; he is now restless, and does not wish to remain in bed, but sits on the edge of the bed, and sometimes in an arm-chair. I ordered his nourishment to be given him frequently, and the ether to be discontinued, unless the spasms return; towards evening, he had one or two slight paroxysms of spasm, and his mouth became somewhat more closed; the ether was then given, and he went to bed and slept well for about two hours, when he awoke and became very restless, and continued so all night. About four o'clock, P.M. whilst getting out of bed, he was seized with a violent paroxysm of spasm of the muscles of the back and throat, fell backwards on the bed, and died, apparently of suffocation from continued spasm of the muscles of the glottis."

Here was not recovery. But life was sustained nine days, with repeated daily improvement. There is no reason to question the agency of ether in producing comfort and protracted life here; and no reason is furnished, by this case, against its use hereafter in tetanus. How rare is recovery in this terrible malady! and how intense the suffering in every moment of it! Is it not alike the demand of nature and of duty to afford relief, from whatever source it may be derived?

In another case of traumatic tetanus, recovery followed the use of ether. This is reported by M. Pertusio, in the "Gazette des Hôpitaux," March, 1847. In this case, the symptoms had attained their greatest intensity, when M. Pertusio tried etherization. At first, it was used six times a day; at the end of a week, once.

Dr. Chalmers, in the "Provincial Medical and Surgical Journal," gives a case of recovery from traumatic tetanus after etherization. Mr. Hawkesworth, in the same periodical, gives another case with the same result.

From other sources we have other and diverse results of

etherization in tetanus. Thus M. Roux gives an unsuccessful case, upon which the "Lancet" says, — "Any such trials will assuredly end in disappointment." Dr. Ranking gives a case, in which he says the symptoms were increased by ether. Dr. Brady, Mr. Bransby Cooper, and Mr. Broughton, report unsuccessful cases.

In various other related and dissimilar diseases, etherization has been found palliative of suffering, or curative. In hydrophobia, it has given some relief. The experience of its powers in this fatal malady is too limited for any practical inferences. In asthma, we have seen how grateful have been its effects. It has been used in dysmenorrhœa with varied results. I have met with no case of cure, such a change in function as replaces the morbid by the healthy. But cases are not wanting in which the suffering during the period has been diminished or suspended by etherization, and this without any untoward physical result. In one case, the patient continued the daily use of ether for its pleasurable excitement. Such moral effects are seriously to be deprecated. How wide, therefore, may be the use of etherization in disease, cannot be foreseen. It may be the occasion of employing other medicines by inhalation; and thus address to the lungs themselves, remedies, which may be of the greatest service in promoting present comfort, and even recovery. Various attempts have been made for these objects, and some of them with promise of success. The old may now be revived, and the new brought forward. The external application of chloroform in some painful diseases may have a passing notice. In rheumatic, neuralgic, and in some other local and painful affections, it has been usefully employed. I am making trials with it in some of those painful and long-standing affections of the back which are so troublesome, and which are but rarely or only slightly amenable to treatment, — which may have their origin in the seat of pain, or occur there through reflex action. I have, however, but a single result to record of

the external use of chloroform. It was applied to the spine, night and morning, on a bit of soft flannel. By the time an ounce had been used, the lady reported great diminution of suffering; and the continued use of chloroform was followed by what was regarded as a cure of a long-standing and very annoying affection.

Allusion has been made to unfavorable effects of etherization. I will refer to a few examples. They are from the newspapers, for the most part, and have, doubtless, much interested the public. It is but justice to the public press to say, that these do not alone find place in its columns. The favorable, at least abroad, has its place also. Thus, in a London print, we have a fortnight's insertion of the following, in January, 1847: —

"On the 27th of January, in Soho-square (under chloroform), Mrs. Lewis Hertslet, of a son."—"Chloroform again," says the New York "Tribune;" and then comes a case of tooth-drawing under its influence, in which much general prostration and local paralysis is said to have followed. In New York, a more serious accident, before alluded to, occurred: — A man with diseased lungs (phthisis?) suffered from two fistulæ in ano. An operation was done for one under chloroform, and with no untoward result. The second was operated on under chloroform, and death ensued. The notice which I met with of this case and result was so imperfect, that I wrote to my friend, Professor Parker, who is attached to the hospital in which the operation was done, and asked of him a statement of the facts in the case. Professor Parker, with great kindness, has favored me with the following reply: —

"Professor Channing. "New York, May 13, 1848.

"Dear Sir, — The case to which you refer in your letter presented itself at my clinique, Monday, Jan. 31, 1848.

"The patient had come from the country, in order to have the operation performed for the fistula in ano. He seemed well, and I saw nothing in his case to call my attention to the lungs. He very readily came

under the influence of the chloroform, and the operation was performed without pain. He soon recovered from its influence, and was taken a mile and a half to his lodgings; being placed under the care of an advanced student.

"In four weeks to a day, the gentleman in attendance proposed to cut a small sinus which did not granulate kindly, to which the patient would not assent without the chloroform. He was arranged, and *about thirty drops* put upon a sponge for him to inhale. In a short time, he became affected; and the moment the cut was made, he started, and attempted to carry his hand to the anus. A slight convulsive movement ensued, and he was dead.

"The autopsy was made by several scientific gentlemen, among whom was Dr. James R. Wood. The lungs were full of tubercles and vomicæ; and these, and *not the chloroform*, are believed to have caused his death.

"Very truly, your friend,

"W. PARKER."

The newspapers have lately published a case of alleged death from chloroform. It first appeared in the "Bunker Hill Aurora," of Charlestown, Mass. The following communication in a Boston paper, from a surgeon who was consulted in that case, gives an explanation of the death, which is derived directly from the circumstances of the case itself, and from parallel cases, and shows how careful should be both profession and public in forming opinions, from extra-professional sources, of the consequences of grave injuries, and serious surgical operations: —

"Mr. Editor, — Having seen, in your paper of last evening, a notice taken from the 'Bunker Hill Aurora,' stating that Andrew W. Oliver died from the effects of chloroform, I feel it my duty to state, that I was called in consultation, and was present and assisting at that operation; and that, in my opinion, the facts of the case warrant a different inference.

"Mr. Oliver was severely injured by a stone falling on his thigh, producing fracture of the bone and extensive laceration of the muscles. The chloroform was administered before the operation, that the wound might be properly examined. From this he experienced so much relief, that he desired it might be again given him, when the limb was removed. After the amputation, which was performed very near the body, he so far recovered as to frequently complain of severe pain in the lower part of the

bowels, from which he had not been relieved when I left him. The opinion I then expressed to the attending physician was, that there was a rupture of some internal organ, which would eventually cause his death. A short time before, I had a similar case at the hospital, in which death took place soon after the operation. A post-mortem examination showed that the cause of it was a rupture of the intestines, not chloroform. Moreover, it is well known to experienced surgeons, that death often takes place after severe injuries of the extremities, caused by the severe shock given to the whole system; and this occasionally happened before etherization was ever employed. "S. D. TOWNSEND.

"Boston, March 8, 1848."

How entirely altered is the whole aspect of this case, and its bearing on the use of chloroform, when the facts are known! The press stated, that this man died without at all recovering consciousness, or coming out of the state produced by inhalation. It seems he did come out of it, complained bitterly of his acute suffering in the abdomen, and died after Dr. Townsend left the house.

The following recent case from England has attracted much attention, especially from the opponents of chloroform. It deserves the careful thought of all. I have not at hand any medical reports of the case; but, from the verdict of the inquest, one may reasonably infer that there were circumstances in its history of much importance in explanation of the result: —

"An inquest has been held, near Newcastle-upon-Tyne, upon the body of a girl, fifteen years of age, named Greener, who died under the influence of chloroform, administered to allay sensibility, while her great toe nail was being taken off. The jury returned the following verdict: — 'We are unanimously of opinion, that the deceased Hannah Greener died from congestion of the lungs from the effect of chloroform, and that no blame can be attached to Mr. Megginson, surgeon, or to his assistant, Mr. Lloyd.'"

A case has recently occurred in our own neighbourhood, which shows how dangerous is the use of chloroform in health, for amusement. Such trifling with a powerful

medicine cannot but endanger the lives of those who practise it.

"Many thoughtless persons will inhale chloroform and ether, for the purpose of affording amusement to their acquaintances. We are informed, that a very respectable young lady in Roxbury is in an extremely dangerous condition, from inhaling chloroform on Saturday evening last. She was in company with a number of her young friends, and, after witnessing the effects of chloroform on them, determined to inhale it herself. She was thrown into convulsions; and, notwithstanding the attention of the most skilful physicians in the city, up to last evening no relief could be afforded her. If she escapes with her life, it will be almost a miracle. The physicians say that her system has sustained a radical injury."

A case, before referred to, has been reported, in which chloroform was used in dentistry, and which was followed by alarming symptoms. These occurred after the operation, and after the patient, a female, had reached the house of a friend, not far from the physician's office. Convulsions ensued soon after she reached the house; and, for two or three days, very alarming symptoms were manifested.

The Cincinnati case stands thus in the papers: —

"In the case of the woman who died in Cincinnati under the influence of chloroform, a post-mortem examination exhibited the whole system in a 'perfect state of health; the lungs, heart, and other important organs of life, all being in the most healthy condition. The committee are satisfied that her death was caused by the administration of chloroform. It is supposed it was given in too concentrated a form, and that insensibility was thus caused too rapidly. It was given by an inhaler (air-tight), a sponge saturated with chloroform being first deposited within it.'"

There is no difficulty in explaining the death in this case, as thus reported. The woman was *suffocated.* The chloroform was "given by an inhaler (air-tight)." — The parenthesis here makes the most important member of the sentence. It makes the rest useless. It explains the whole matter — tells the whole story.

Not satisfied with this report of a case so interesting as it is in the history of etherization, I wrote to a friend in Cincinnati for more authentic information concerning it.

In answer, I received a pamphlet,* in which the case is reported at length, and of which the following is an abstract: — Mrs. M. G. S., 35. "Nervous." "Neuralgic pains about face, ear;" "sick headach;" six children; last, two months old. Apparently well on the day on which she used chloroform to prevent pain during drawing some teeth.

"At three o'clock, fifteen minutes after her arrival, Mrs. S. commenced inhaling chloroform. Mrs. Pearson and Mrs. Cross, two female friends, were present, and report the following as the events which occurred: The respiratory movements appeared to be free — chest heaving. While inhaling, *the face became pale*. At the expiration of about *one minute*, the instruments were applied, and four roots of teeth extracted. The patient groaned, and manifested what they regarded as evidences of pain, while the teeth were being extracted, although she did not speak, or exhibit any other sign of consciousness. As the last root came out, — which was about two minutes from the beginning of the inhalation, — patient's head turned to one side, arms became slightly rigid, body drawn somewhat backwards, with a tendency to slide from the operating chair. At this instant, Mrs. Pearson states that she placed her finger upon the patient's pulse, observed that it was feeble and immediately ceased to beat; respiration also ceased *about* the same time. The face, which was previously pale, now became livid, as also did the finger nails; the lower jaw dropped, and the tongue projected a little at one corner of the mouth, and the arms were perfectly relaxed. The females regarded her as being then quite dead. Efforts were made to resuscitate the patient; ammonia was applied to the nostrils, cold water dashed in the face; mustard, brandy, &c. applied. The patient was now removed from the operating chair, and laid on a sofa; but she did not breathe, nor exhibit any sign of life, after being placed in the recumbent position.

"*Statement of the Dentists.* — Messrs. Meredith and Sexton, the dentists who operated in the above case, make the following statement: The patient took the chloroform vapor from Morton's inhaler; it contained a sponge (perhaps one-third filling the glass globe of four inches and a half diameter), saturated with the liquid; to this, twenty-five drops more were added when the patient began inhaling. Breathing at first slow; inhaled twelve or fifteen times, occupying from a minute to seventy-five

* "Chloroform: its Nature and Effects. Embracing a Series of Experiments made by a Committee of the Edinburgh Medico-chirurgical Society. Also a Full Report of a Fatal Case which occurred in Cincinnati. Reprinted from the 'Western Lancet.' Cincinnati, 1848."

seconds. One of the dentists thinks she remained about *ten* minutes in the operating chair, and that life was not extinct until the end of that time; the other estimates the time at *five* minutes. One says he does not know whether she breathed after being laid on the sofa or not; the other thinks she did not."

The appearances after death do not materially differ from those which follow universal death, suddenly induced. I would with pleasure give place here to details; but there has been as yet too little settled concerning the appearances after death following the fatal use of chloroform, to make this either interesting or useful. Every variety of lesion is recorded in the experiments on animals; and the same diversities are reported of the accidents of medical practice. With regard to the newspaper statement of the condition of the inhaler, — that it was "*air-tight*," and in the pamphlet, that "Morton's inhaler" was used, — we have light on the 31st page: —

"If, then, thirty cubic inches be made the basis of the calculation, fifteen inspirations would give four hundred and fifty cubic inches of air and chloroform inhaled by the patient. To determine exactly the relative proportions of air and chloroform is impossible; but it seems very clear that there was a large admixture of air, for the valve of the instrument is near three-fourths of an inch in diameter, and played very freely. It is very probable, however, taking every thing into consideration, that *one-fourth* of the volume respired was chloroform, which would make about two drams. This we offer rather as a *conjectural* calculation than one founded on any very certain data. It may be proper to add, however, that, admitting the quantity to have been large and rapidly administered, it is but carrying out the suggestion of Professor Simpson; and that those who gave it had not only their former experience to justify this mode of administering chloroform, but likewise the high authority of its discoverer.

"Finally, the following general rules and conclusions seem warranted by facts and principles: —

"1. The danger arising from the inhalation of chloroform depends very greatly on the *quantity* administered, and the *rapidity* with which it is introduced.

"2. Some constitutions are vastly more susceptible to its influence than others; hence the necessity for caution.

"3. It should be the object of the operator merely to suspend the cerebral function, and not to involve too deeply the excito-motory system.

"4. Small doses (say thirty drops) will generally be sufficient for ordinary operations, such as extracting teeth; and, in such doses, but little if any danger is to be apprehended, except in very unfavorable cases.

"5. Large doses are often somewhat hazardous; small ones, much less so.

"6. In skilful hands, it promises valuable results; in the hands of the ignorant, it is a dangerous agent.

"7. In addition to its use in surgery and obstetrics, chloroform promises valuable results in tetanus, delirium tremens, hydrophobia, and kindred affections.

"8. The effects of chloroform, so far as known, are very nearly similar to those of ether. The former acts more *rapidly* than the latter, and on that account *may be* more hazardous.

"9. The *safest* mode of administering chloroform is by means of a handkerchief or napkin.

"10. It becomes a dangerous agent in persons predisposed to apoplexy, in cases of great debility, in diseases of the lungs, inflammation, tubercle, and in some peculiar conditions of the nervous system which are inexplicable.

"11. Several facts seem to indicate, that the *recumbent* posture is more favorable than the erect.

"12. No particular danger seems to arise from even the *protracted* administration of chloroform; thus patients are kept under its effects for hours in succession.

"13. The *pulse* should be carefully watched. If it becomes feeble, the inhalation should be for a time suspended, and so on during its administration. — L."

The case is thus relieved of the embarrassments and grave inferences to which the newspaper account gave rise. The woman *was not suffocated*, by being cut off from atmospheric air. She was not, during etherization, breathing gases, which escaped from the lungs in the expirations which followed the inhalations of chloroform. She did not die from the grossest negligence in regard to the best known conditions of life. "A sponge, one-third filling the glass globe of 4½ inches diameter, was saturated with chloroform, and twenty-five drops were added when the patient

began to inhale." * This is certainly a very large quantity. To saturate such, a bit of sponge must have required, one would think, two ounces or more of chloroform. Why the additional drops were used does not appear. Professor Mussey's after remarks on quantity — for he was one of the committee on the case — may have come of the amount used in this case. Professor Simpson, who advises *rapid* etherization, uses a handkerchief for an inhaler, and speaks of *thirty drops*, and a larger number of drops in some cases, as sufficient to produce prompt, and *therefore* safe, etherization.

The safety in Professor Simpson's cases was doubtless owing to the small quantity of chloroform used, — the due admixture of atmospheric air with the chloroform vapor, — the skill of the operator, and the careful observation of effects as they manifested themselves. One at all conversant with etherization from chloroform must have been struck with the rapidity of its influence. I have again and again seen its full power declared after three, nay two, full inspirations. Inhalation was at once stopped in the midst of entire unconsciousness and repose, — the most perfect etherization. In midwifery, this is all we want. We are, in this practice, dealing with contingent pain; and the means we employ remove its conditions. In surgery, the operation is not a function. Pain is not limited by certain organic, vital conditions, either in its extent or in its degree. In a very grave operation, I have seen the patient inspire chloroform without harm for almost every moment, and there was no question of the demand. In midwifery, there is no such demand; and hence, it doubtless is, that no danger has *attended* its use in this practice; and no untoward circumstance, in a *single case*, has *followed* its employment, which could be ascribed to etherization.

* The inhaler was Morton's, made by him for sulphuric ether, long before chloroform was thought of for etherization, and which is used in quantities much greater than is chloroform.

The latest case I have seen of alleged harm from chloroform occurred in England. The newspapers say that Dr. Anderson, of Birkenhead, died after using chloroform. He was in usual health, — that being always delicate. Chloroform was used to render the extraction of a tooth painless. We are told, that, in *forty-eight hours after etherization*, a rush of blood to the lungs threatened instant death, and that he expired on the second day afterwards. That Dr. Anderson died *after* using chloroform as stated is probably true. But it certainly was an unusually long time, forty-eight hours, for chloroform to lie dormant, when it is known to disappear from the body almost as soon as inhaled, — being at once decomposed or animalized, and so rendered entirely innocuous. Had it been sulphuric ether which disappears so very slowly from the body, this might not have seemed so strange, though we do not remember a parallel case of such delayed action of this remedy of pain. "Rush of blood to the lungs" is very loose language, and of the fact I can bring to mind no example.

I am asked, "Why state these cases of ill success? You but extend, and so perpetuate, the power of such alleged facts to diminish the useful agencies of etherization, and so only do harm."

I answer, I state them because they have occurred. I state them because they are on record. They are collected with great care by reputable medical journals, here and abroad, and are "startling facts" for the daily press, both great and small. They are made occasions of professional conflict; and we have now just that result from the many and diverse views which have been taken of the subject, which such facts, in any such history, almost invariably produce. Thus there are formed two parties; namely, those who are *for*, and those who are *against*, etherization; and it is quite edifying to watch the progress of the consequent strife. It seems early for this consummation; and, though a very natural turn for the matter to take, it cannot

but be on some accounts regretted. Facts will ever be seen in the aspect which prejudice, or even a more just and philosophical method, may place them. In such a case as is the one under consideration, the power of party will very likely be stronger than a juster agency; and thus facts may get a character which will certainly not add to their value. One advantage, however, may come out of this state of things. An interest in the whole subject will be preserved to it. It will not die out, while there are many observers carefully watching results, however or whatever they may be; and it is quite as certain, that the public and the profession will be duly informed concerning them.

I state these adverse cases for another reason. I believe that etherization can, so to speak, bear them. I believe that, in surgery, properly so called, in midwifery, and in general medicine, so far as tried, it has done well; — that it now takes its place among the powerful, and for that reason the most useful and valuable, remedies. And, lastly, I state these same untoward cases, because it is the duty of him who attempts to give the history of any matter of wide and deep interest, to give, as far as he is able, all the facts. By doing so, the subject rests just where it should. It finds its defences, or the argument against it, just where such things must always be found, namely, in itself, — in what it has done, whether for good or for evil. Dr. Simpson, I have said, has been charged with concealing facts which might make against etherization, — with being a one-sided witness, — with an attempt to make out a case, and not to give a fair history. If he have withheld the unfavorable, if any such there have been in his midwifery engagements, he has done wrong. The imputation of unfairness came before he had used chloroform, and in the very midst and fullness of the success of sulphuric ether; and so referred alone to midwifery, — the branch of medicine to which he was directing his principal attention, and to which his remarks specially refer. It is unnecessary to defend Professor Simpson. His

professional position and his whole character, established as they are by most important services, make this wholly unnecessary. I have alluded to the part Professor Simpson has taken in the history of etherization, because of the importance and weight of his testimony, and to show that he has no concern whatever in any of that portion of the history of chloroform which refers to its alleged untoward agencies. His inquiries relate entirely to midwifery; and he has showed by facts which cannot be denied, and which are daily added to here, in our own city, that his confidence in etherization has not been misplaced; and that his recommendation of it came of honest philosophy, and in no sense of either a dangerous partizanship, or a narrow prejudice.

It should not be concealed, or kept from any report of what etherization has done in its short history, that, in a few surgical operations, untoward effects have been manifested. It is, however, quite curious to observe in what kind of operations these effects have been noticed. For the most part, these have been drawing teeth, and toe nails, cutting fistulæ, and the slighter or slightest operations, and for the most part in females. These facts are worth noticing. They almost wholly exclude important surgery from the alleged hazards of etherization, and midwifery entirely; for, in the latter, such results have not been witnessed.

But why untoward results after slight surgical operations, and in comparative health? and whence the alarming symptoms from using ether, and especially chloroform, for amusement? I have offered an answer to the surgical portion of the question, the first. The explanation which has been given of the very rare ill effects of etherization are confirmed by the almost numberless cases of like operations, in which nothing unfavorable has occurred. How rare the untoward! My latest inquiries of dentists, and who are in the largest practice, show the uniform safety which daily attends their operations during etherization.

But, again, why or whence the unfortunate result? It has been referred to the *constitution* of those in which it has occurred. What do we know of constitution, of that state or mode of being in which the elements of a body are so combined as to *constitute* it just what it is, and which combination in living organisms does so much to determine the precise mode in which foreign, external agents may affect it, — making to one, apparently constituted exactly as another, that perfectly harmless which may be poisonous and destructive to another? Is not the fact here, which we refer to constitution, in the position of an ultimate fact, of which we have no explanation, and which demands none?

Something may be expected concerning the comparative merits and claims of sulphuric and chloric ether, and chloroform. I have too little knowledge of the use of chloric ether in childbirth, to offer an opinion of its comparative value. It is pretty clear, from what Mr. Lawrence says of its employment in his hospital, that he did not look for its wide adoption by the profession. I have said that it is in very successful use in the Massachussetts General Hospital.

Of sulphuric ether, the claim for our confidence in it rests on its early and comparatively long use, — its favorable effects, — its easy management, — the more gradual and so noticeable progress of its agency, — the longer continuance of its effects, and so the smaller demand for its frequent and rapid repetition. Objections are found in the large quantity which is often required to secure its advantages, — the disagreeable odor which belongs to its vapor, and the length of time it continues to be exhaled from the lungs, — its effects on the lungs, exciting cough, &c. — the time it often takes before its effect is produced, and the length of time it continues after it has ceased to be desired; and, finally, the excitement, mental and physical, which frequently attends its use.

Chloroform has its claims to regard in the readiness with

which it produces its effects; the perfection of etherization which it induces; in the small quantity required; its pleasant odor; in its rapid, almost immediate, decomposition, and its consequent disappearance from the breath; in the short time its power continues; in the tranquillity which accompanies its use; and in its tolerance by the air passages. The objections are, that the rapidity of its effects makes it difficult, if not impossible, to measure its power; that these effects are not always in proportion to the quantity used, — a small quantity sometimes producing much effect; that the constitution has much to do with its agency, whether good or bad; and that hence we cannot tell which this may be; and, lastly, that untoward results have followed its use.

Such are some of the alleged facts in the two cases before us. Such are some of the reasons for and against the use of sulphuric ether and chloroform. From examining the following Tables and Correspondence, the opinions of many physicians, who have tried both ethers, of their comparative claims, may be gathered; and this, which is exceedingly important, from what they have actually seen of their effects in midwifery. From the evidence, it would seem that chloroform has the advantage of sulphuric ether. But since that evidence was given in, a few, very few, cases of minor surgical operations, as teeth-drawing for instance, have occurred, in which chloroform has been used; and which have been followed by alarming symptoms, and, in three or four, with death. These results have had an effect upon the use of chloroform in midwifery; and, notwithstanding the strong fact, that sulphuric ether and chloroform were so uniformly successful in our hospital, that a fatal case is not known to have occurred after etherization, these very results of chloroform, in an entirely different field of surgery, have probably affected opinion concerning its general safety. But, in midwifery, we are told that patient and practitioner have felt the power of the unto-

ward experience. There can be no possible objection to this. The practitioner of midwifery has no personal interest in the matter, beyond the pleasure he has in seeing labor without suffering and without danger; and this we must and should have.

It is not easy to settle the claims of the three ethers, which now divide the attention and interest of the profession and of the public; for the latter will have a judgment, however and whatever the claims of each may be. For myself, I may say, that I use both ether and chloroform. Sometimes, in the same case, I try both. My latest experience with chloroform belongs to that which has been the most grateful, both in itself and in its results. I shall continue to use it or ether, as circumstances may indicate.

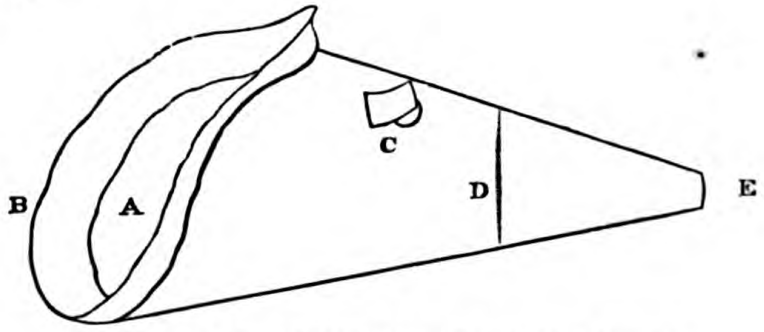
The time has hardly come to learn of those who have used etherization in labor, if they will try it again. But I have not met with a case in which the least question has been made of the great comfort and benefit which have been derived from etherization in childbirth.

The teachings of etherization, then, come from experience. They resolve into this. And he who has studied these in their diverse phases the most faithfully, is he who will most safely, because most wisely, employ it. How rarely has *a priori* reasoning established any fact in science, or introduced into medicine any useful remedy! The domain of quackery owes its whole creation to this mode of philosophizing; for the greater the ignorance of the power of medicinal agents, the greater has been felt to be the capacity for their best uses, and the wider and deeper the popular reverence. An insane man used to be a prophet. A true science is a *product.* It has its growth in *fact*, and is the highest generalization of the greatest number of the best established facts. Etherization is to be a science by its facts and its philosophy. It has been successful, thus far, beyond any other means which medicine has known. The accumulating experience concerning it is

giving to it new power and greater usefulness. The untoward has its deep lesson, and so has the successful. Let them both be faithfully studied.

CONICAL INHALER.

The following cut is just *half* the size of the instrument as used. The inhaler is made of stiff pasteboard, lined with tinfoil, and covered with paper.



MADE BY SILAS GOODRICH, 25, COURT-STREET, BOSTON.

REFERENCES.

A. Opening for receiving nose and mouth.
B. Edge of opening, surrounded with doe-skin leather, to make a better fit.
C. Valve and opening, to allow free exit to *expired* air.
D. Extent of conical sponge, for receiving chloroform or ether.
E. Opening at end, for free *entrance* of air into the inhaler.

THE TREATMENT OF ABNORMAL EFFECTS OF ETHERIZATION.

This has regard to immediate and to remoter effects of etherization. A predisposition to be morbidly affected by this state may be owing either to idiosyncracy, or to some accidental condition of the patient; and this distinction should be carefully borne in mind in treating the accidents of etherization. Thus a person may be constitutionally liable to be seriously affected by causes which, in the mass of people, would produce no disturbance. There may have been circumstances in the pregnancy, or they may belong to the labor, to cause a like disposition. We learn by inquiry how the fact in regard to the questions involved really is, or our attendance on the case may discover them to us. We thus become prepared for the untoward, should it occur.

What are the symptoms of the state under consideration? They are paleness; lividity, observable in the fingers, the lips, the face. The temperature is diminished. The pulse becomes rapid and feeble. Respiration at times is sighing, slow, deep. Occasionally it is noiseless, and so slight that we can hardly perceive it. The patient is perfectly still. There may be not the least appearance of distress, or the smallest change in the expression of the countenance. These symptoms may manifest themselves at once, suddenly, after beginning inhalation, and may surprise us by the rapidity of their development; or they may occur later, and seem to be the result of the long continuance only of etherization. In their first form, they resemble syncope; in the last, exhaustion.

If, now, we observe these phenomena, — and he who uses an active remedial agent should give himself to the obser-

vation of all its effects, — if we observe them, and, while inhalation is going on, stop this process at once, and for the most part the effects we have enumerated will pass away. Suppose, however, they continue, what effect have they upon the labor? None at all. This proceeds just as rapidly as before the symptoms showed themselves. The child advances — is born — is alive; the womb contracts, it separates, and expels the afterbirth; no hemorrhage ensues. The patient, in regard to the whole uterine function, has manifested most healthful labor. The treatment of the state under consideration is the question, and, for the time, has a paramount interest. It is quite aside from what the labor may require, and will probably engross the principal attention.

If inhalation be going on, it was said that this should at once be stopped. Next, provide for a free supply of fresh air. Fan the patient, if this be our only means of procuring a change of the air. An important caution occurs here. It is not to admit air so freely, especially if it be cold weather, as to produce *chill*. A friend, observing a patient during etherization, while under the hands of a dentist, to become very pale, opened a window for air. As soon as it reached the patient, it produced a chill, and so aggravated rather than diminished the trouble. The *temperature* is already too low. We introduce fresh air into the lungs, in order to favor the production of animal heat. The caution here is not to diminish it.

While we are making arrangements for pure, fresh air, let means be used for procuring warmth, and preserving the temperature produced. Heat, and dry heat is perhaps the best form, should be applied by flannel, heated, and placed in immediate contact with the skin. Bottles of warm water, or a heated iron, may be put to the feet, and inside of the legs. This forms an important part of the treatment. Friction is another very useful agent. This should not be violent, accompanied with excessive pres-

sure. It should be brisk and extensive, and made with just so much force as to reach the nerves and vessels of circulation, without compressing or preventing their functions. There is skill in this apparently simple operation, and its beneficial effects will be in proportion to the amount of this element in its employment.

In addition to these means, moderately stimulating drinks, warm, aromatic teas, or wine, alone, or with water, tincture of camphor, or rum to forehead and temples, Cologne water, and similar articles, may be used. The internal use of diffusible stimuli should be carefully conducted. Any excess — any such, namely, as much affects the brain — may increase the trouble, and even give some continuance to what, under judicious management, would have been shortened. It will be borne in mind, in the management of such symptoms, that they are of very rare occurrence. I do not remember more than one; and in that, the pulse, respiration, and temperature, being only very slightly disturbed, one felt assured that the case would do well: and so it did.

We sometimes find the above symptoms passing into others, which give a graver character to the case. I have never known it happen in childbirth. Tooth-pulling, especially, has furnished instances. These, however, have been so rare, and so manageable, that they have not been regarded as affecting the use of the remedy of pain. The symptoms now referred to are spasmodic affections of various kinds. These are occasionally hysteric in their character. There are great restlessness, tossing about, screaming, crying, laughing, &c. &c. There is no loss of power, and the skin becomes red, hot, swollen. The eyes are brilliant, and the hearing very acute. These symptoms may be treated with anti-spasmodics, and will, for the most part, disappear in the time of an ordinary attack of hysteria. There may be a repetition of the paroxysms.

The state of rest, of perfect quiet, with apparent faint-

ness, sometimes continues for an hour or more; and the uneasiness of friends may be very great, and embarrassing to the medical man in attendance. But let him bear himself calmly, and, without the least hurry or confusion, do what he thinks is demanded. Let him find in himself, in his knowledge, that which may be of good stead in this as in every other emergency; and he will never be unmanned by the occurrences of practice, however sudden or however alarming. If the popular mind sees in the self-possession of the surgeon a want of feeling, the physician should recollect that he is not always obliged to manifest emotion. His truest sympathy is ever found in the highest exercise of his art. And this can hardly come of any thing more surely than thorough preparation for duty, and a sincere purpose to do it.

A case occurs to me which may have led to this train of thought. A woman had a tooth drawn while etherized. After the operation, of which she betrayed no sensibility, she passed into a state of perfect repose. She seemed in a heavy sleep. (Was not this the fact?) Efforts were made to rouse her. Air was freely admitted. Frictions were used. Stimulants were administered. But all in vain. At length, she was placed upon her feet, and *walked* out, by assistants, into the yard. Here, again, means were employed; and, at length, after nearly an hour's time, she recovered her consciousness, and did perfectly well. What was quite interesting in this case, this young woman heard and remembered all that was done, and communicated it afterwards to those about her; although, at the time these events occurred, she was totally incapable of manifesting any relation whatever to the external world. She was incapable of speaking, or of performing any voluntary act.

In speaking of the spasmodic affections which have been noticed during etherization, I particularized hysteria. But this is not the only form which the affection assumes. Catalepsy has occurred in this state, and so have other and

very severe forms of convulsive disease. The treatment of these consists rather in care than in cure, and the directions under the first head of treatment apply very well here. From the descriptions of these affections, — from the circumstances under which they are reported to occur, and from the instances of them which have fallen under my own notice, they have seemed to me rather to be *mimotic* or imitative affections, than idiopathic diseases. I cannot but believe, that an *expectant* or palliative course will be found to best answer the indications.

It is stated, that certain morbid states occur *after* etherization. I have referred above to such as sometimes accompany it. The alleged sequents are sometimes recurrences of trouble, after the immediate effects have been suspended, or have disappeared. At other times, they appear rather to be an increase of what has attended etherization, or are disturbances produced by accidental causes acting upon a merely acquired predisposition. But, let the precise agency of etherization be what it may, it is pretty clear that the treatment of disturbances or diseases referred to resolves very much into that which would be resorted to for like affections, however they may have been induced; and unusual complications must be left to the judgment of the medical attendant.

I have spoken now of treatment of the untoward effects of etherization, let the circumstances under which they may occur be what they may. What is said can have only a very indirect relation to *childbirth*, since I know of no case of labor in which the various affections so distinctly referred to have ever been noticed. On the contrary, they have been confined almost exclusively to minor operations in surgery, as tooth-drawing, nail-drawing, &c. But as in certain constitutional or acquired predispositions, — of which, however, we may know nothing, — disturbances may occur, it is not out of place to refer to the practice which, under apparently similar circumstances, has been found most useful.

Among the abnormal effects of etherization, diminution and suspension of uterine contraction have been enumerated. It is believed that these are very rare accidents in this state. But the evidence upon which the statement of them rests is of a nature to secure to the subject careful regard. In a preceding chapter, they have received such consideration. They are there, however, looked upon as exceptional cases, and not as facts coming within a rule; and the reason for this is found in the general observation, that uterine contractions, during etherization, become much more efficient, and so apparently stronger, than when that condition has not been induced.

But, suppose contractions are diminished or suspended, what may be done? Precisely what is done when the same thing happens under other circumstances. We may give ergot, and wait for the manifestation of its ordinary power. A question may arise. It may be asked, if it is right to diminish pain at the expense of uterine contraction, and so protract labor, or make the employment of an article necessary which may do harm. It is by no means necessary to give secale in these cases. After a time, as we have seen, and in the Correspondence may further see, efficient contractions occur spontaneously. But, etherization having passed away, pain returns. Shall inhalation be used again? I say, yes, and give secale as afterwards recommended, and without any fear of ill result. I have repeatedly employed it in such emergencies, and so has Professor Simpson, and with no untoward effects. The tonic action of ergot, the state of strong and persistent contractions which follow its use under ordinary circumstances, are not produced when used to increase action during etherization. The intervals of contraction are as clear, as perfect, as during most natural, unaided labor. The womb is felt to undergo its normal relaxations at these suspensions of effort. The woman is relieved from the chances of exhaustion which ceaseless action may produce; and the child does not incur the

chance of still-birth, to which the permanent and strong pressure upon it, or upon the placenta, may lead. This fact in the history of etherization deserves particular notice. I was not prepared for it by any thing which I had seen before using ergot during etherization. Its truth was proved by many observations. Is not this a property or an effect of this state, which may have a wider application? It must be borne in mind, in entertaining this question, that the peculiar agency of ergot is not at all diminished by etherization. The womb acts under its use, and soon, too, with the energy which ergot so generally imparts. But its *continuous* action is not produced. Intervals occur between contractions, and there is no more suffering than there was before its use.

A practical question arises here. May not etherization be employed to allay the disturbances which occasionally occur from the exhibition of other remedies? May not excessive vomiting from an emetic be checked and removed by it, as it has been when occurring from other causes, as in cholera, &c.? We see at once how enlarged the domain of etherization may be in the progress of trial, and of investigation of its powers. Its safety being established, as by a proper use of it I believe to be the case, how easy and how successful may it be to ascertain its powers, wherever its peculiar and benign agency may be demanded!

Of the Mode of using Ergot during Etherization. — An infusion *without the powder* is the form which has best satisfied me. I have never seen in this mode some symptoms which the article in substance has produced. The principal of these are diminished pulse, diminished warmth of skin, and various cerebral disturbances; in other words, the symptoms of ergotism. I have known the pulse fall from between 70 and 80 to between 40 and 50. Delirium, or confusion of mind, cold skin, vomiting, have also been observed. From or after the infusion, none of these symptoms have been observed, and still the peculiar powers of the

article have been fully displayed. Professor Simpson recommends the addition of the tincture or the oil of secale to the ether, that it may be inhaled with its vapor. I have not used it in this way, and see no reason for departing from the ordinary method of its exhibition.

OBJECTIONS TO ETHERIZATION IN CHILDBIRTH.*

I HAVE in preceding pages discussed physiological or professional objections, which have been brought against etherization. Besides these, there are certain popular ones which have some influence, and which are here brought together in a place by themselves. The nature and the sources of these objections claim for them a distinct consideration.

I. *The pains of labor are not so severe as to authorize the use of an agent of known power to destroy sensibility.*

I do not ask if the author of this objection ever had a child; for this might be pertinent to no issue. But I do ask of him, if he ever attended one hundred cases of labor; and, if so, to say, not if in the *single* case, but if in ninety and nine, nay, in the whole hundred, he has not witnessed an amount of suffering which he would have been most happy to have even mitigated. Would he not with great joy have employed the means which in Europe and in America, in midwifery and other surgical practice, has been so often and so justly used as to deserve the fullest confidence, both on account of its safety, and its wonderful efficacy?

"But the pains of childbirth are really too trifling to demand relief." Who shall be authority in this case of alleged slight suffering? We have questioned, if the author of the opinion be such. The appeal, then, must be to real

* This chapter was begun some time ago, and before this work was undertaken. It was afterwards added to, and originally placed in the first part of the volume. Its destination has been changed, in order to give opportunity to consider such other objections as might be brought forward.

sufferers, — to those by whom this function is performed. Their experience leaves no question on the subject. Writers of the largest observation — on the testimony, the vehemently expressed testimony, of the sufferers themselves — agree in stating, that the pains of labor are always painful, and in the majority of cases are severely so. In many, they seem to be intolerable. Then, again, this suffering is very often greatly protracted. Hours, nay, days and nights, are filled with it; and we look on, wondering how so much physical effort, together with so much suffering, such demands on the whole system, can be so long endured. We are told of the anguish. We are asked, if it may not be mitigated or stayed for a moment, that one breath at least may be drawn in ease. In no part of his professional life, in no moment of duty, is the physician ever called on to witness so severe and such long-continued misery, as he is in his midwifery engagements. Take this along with the responsibleness of this office, which places two lives, so to speak, in his hands, and requires of him for both of them a safe deliverance; and tell me, if the demand of long ages for some means to mitigate this suffering has not had its being and its power in actual facts, — in an amount and continuance of pain which no other condition brings with it, as its necessary, its ordinary attendant. Single cases establish no rule; but they sometimes serve to illustrate a principle. I shall never forget a case of childbirth in a woman of great force of character, and of most perfect physical development and fullest health, and who could hardly have been driven from what she deemed propriety, to the violent expression of any emotion or sensation, however painful; but who once, in the midst and pressure of a suffering which had gradually been accumulating till the power to bear was yielding to its terrible violence, started up in bed, and, looking with an expression of bodily agony and mental terror, exclaimed, "I am scared!" and became at once as still as if death had taken

place. She was for the moment frighted, yes, overcome with the violence of her own sufferings, and seemed upon the borders of a fearful delirium. I have never witnessed such suffering, nor have I ever witnessed such an expression of it.

It will not do for our objector to talk of the trifling character of the pains of childbirth, and to bring this forward as a reason for not using ether or chloroform. It argues, to say the least of it, that his midwifery engagements have been very few, and that he is not aware of the only facts in such a case which permit any man to form judgments, especially in regard to matters which, to the parties concerned, are of the deepest interest, and about which he can really know nothing. Shall one sit by the hearth, and talk of what is done in the Capitol? Shall he make a question where none truly exists, and then decide it without the least knowledge of the facts?

Let us look, for a moment, at the effects of pain, or rather at the comparative results of important surgical operations, and of childbirth, in which etherization has been employed, and in which it has not been used. Professor Simpson, in the "Edinburgh Monthly Journal," on the results of thigh amputations, with and without ether, in twenty-three hospitals, gives the following table: —

	Thigh Amputations.	Deaths.
Without ether — Paris	100	62
„ „ — Edinburgh . .	100	50
„ „ — Glasgow . . .	100	40
„ „ — 20 other hospitals	100	40
With ether	100	24

Professor Simpson elsewhere remarks:*—

"Hence I repeat, that the condition of anæsthesia not only preserves the patient in surgical practice from agony and torture, but actually preserves him, too, from the chances of danger and death. And I firmly

* "Remarks on the Superinduction of Anæsthesia in Natural and Morbid Parturition. By J. Y. Simpson, M.D. F.R.S.E." &c.

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…or to talk of the trifling …birth, and to bring this for- …ether or chloroform. It …that his midwifery engage- …, and that he is not aware of the …which permit any man to form …ly in regard to matters which, to the …are of the deepest interest, and about …know nothing. Shall one sit by the …what is done in the Capitol! Shall …where none truly exists, and then …least knowledge of the facts!

…moment, at the effects of pain, or rather …results of important surgical operations, …which etherization has been employed, …not been used. Professor Simpson, in …Journal," on the results of thigh …without ether, in twenty-three hos- …table:—

	Thigh Amputations.	Deaths.
—	100	62
—	100	50
—	100	40
—	100	40
— Hospitals	100	24
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…remarks:*—

…tion of insensibility not only …agony and torture, but …danger and death. …

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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 labor."

Now, how are these facts to be explained? There they stand in relations allowing ready comparison. They are numerous enough for conclusive inference. And how are they to be explained? I see no other explanation than that which is furnished by the established fact, that in them sensibility was abolished, and that the nervous power experienced no waste, and the great centres whence proceeds that power, no disturbance in their important functions. The will was wholly at rest; and the patient, while suffering, was not called upon to resist what was suffered, or what was feared; or, what is more (and to resist which makes so great a demand upon the nervous system), the expression of pain. There was no such expression to be suppressed. I recollect, as if it were but yesterday, what Mr., afterwards Sir Astley, Cooper said to us in St. Thomas's Hospital Lecture-room, on the effects of the suppression of the natural expression of pain in an operation of great length, and of most severe suffering. It was the operation of lithotomy, and the subject a military man of high rank. He bore the agony without a groan. He was exceedingly exhausted by what he had suffered. Re-action never occurred, and he sunk and died, as if by the shock which the whole nervous system had experienced by the operation, and by the manner in which it had been endured. How forcibly such a case illustrates the principle which the effects of etherization are developing! May we not ascribe much of the safety of the operations, as collected above, to this agency, and ascribe to our American discovery one of the most important facts in the whole domain of surgery and of medicine? We wait with impatience for the proof, — the additional evidence which the surgical practice of our own hospital will bring to this subject.

How is it with midwifery practice, in regard to conva-

lescence after childbirth following etherization? The answer is just what it is in the figures above, in regard to the result of thigh amputations with ether. The same freedom from exhaustion; the same rapid convalescence; the same naturalness in all the functions. I have made this matter a subject of special regard and question. The answer has been, — "I have none of that weakness, that weariness, that soreness and pain of the limbs and back, which have so severely troubled me in former labor; and *afterpains* have been in comparison as nothing. It seems absolutely ridiculous to me to be lying here in bed. I am conscious of a degree of health and strength which fit me for my whole duties in my family." With regard to the several functions, the appetite has remained natural. Food has been taken, cautiously indeed, but without injury. The bowels have often acted without medicine. Nursing has been early and kindly established. I regret that I have not ascertained what has been the observation of medical men here on this point in a detail which would have given it greater authority. I can say, however, that, as far as I have made inquiry, my own observation has been confirmed. I refer, in the above remarks, to cases of labor in which ether has been used *early*. By early, I mean before pain has produced exhaustion; and, to be still more precise, in that stage of labor in which the will is called into requisition, and when the whole mind and whole body are vehemently working to the same end, the completion of the process. In the first stage of labor, demand for relief is rarely so pressing as to demand ether. When, however, this demand is made by severity of suffering, *in whatever stage*, then should it be used, if our purpose in managing such cases is to make them safe, and convalescence sure and rapid.

II. *Etherization is not certain, and it may be unsafe.*

This objection asserts, that the means used for abolishing

the pain of childbirth are uncertain in their operation, and intimates that they may be injurious or unsafe. In speaking of the power of any new medicinal agent, it is perfectly fair to compare it with others of alleged or known powers; and, in admitting it into the materia medica, or in allowing it to supersede other articles, we are not to lose sight of, but to be governed by, its comparative effects. Regarding ether and chloroform in this light, we say that we know no medicinal agents which even approach to them in the power they exert. So to speak, they drive every thing out of the market. They stand alone in their power; and every day brings new proof of the certainty of result which attends their exhibition. Cautious observers sometimes say, that, *after* using such and such medicine, such and such effects followed. They prefer to leave the determination of relations between the two facts, the medicine given and the after phenomena, either to a wider observation, or to some other observer. The objection now under consideration has been abundantly met; and we know that both ether and chloroform do, under circumstances most unpromising, destroy sensibility, and as surely as do any other medicinal agents produce their peculiar effects. Surgery is full of proof, that pain is abolished in the most severe operations; and they who furnish this proof, and stand pledged for its truth, are among the foremost men of modern surgery. Then, again, in midwifery, how full is the evidence of this power! It comes to us from abroad, and at home it is with us on every side. Professor Simpson, of Edinburgh, who has lately introduced chloroform into use in surgery, midwifery, and various diseases, has, by the number, the variety, and results of his trials, placed beyond doubt the certainty of its important agencies. I shall, by and by, furnish like authority for the like decision from among our own medical men. It will no longer do for individuals, by *a priori* reasoning, to decide what are the powers of any medicinal agent. The uncertainty of the action of ether and chloroform must be

made manifest beyond doubt by facts; and until these are furnished, has any one a right to attempt to set aside their use, or to attempt to diminish professional or public confidence in the means of so much good? Further evidence of the futility of such objections will shortly be adduced.

Then, again, the safety of etherization rests upon the same evidence as the certainty of its operation. It is sustained by facts. This subject will have its abundant argument and satisfactory proof in the large experience to which the reader will presently be referred.

III. *The Religious Objection to Etherization.*

Discoveries in science and morals have found hindrance in the use which has been made of certain passages of the Old and New Testaments. Thus Galileo recanted principle and fact by command of the Church, on the authority of Moses. War has found its defences in the destruction of the Canaanites by the Israelites, acting in obedience to divine command, and the like directions to David and others to fight. The principle of total abstinence is opposed by the marriage of Cana; and moderate drinking has its qualification in Paul's direction to Timothy to drink *a little wine.* The old prophecy, that men would kill murderers, is, by a somewhat liberal exegesis, made a paramount authority for capital punishment. The payment of the tax to Cæsar is argument enough for submission to government, whatever it may be. And, finally, etherization has, with some, its insuperable obstacle in the third chapter of Genesis.

In October, 1846, as we have seen, it was discovered in this city, that surgical operations might be performed, without suffering, by inhaling the vapor of sulphuric ether. In Edinburgh, it was soon after ascertained that labor might be accomplished without pain by a like use of the same vapor. In Boston, the same thing was done a few months after the trials in Scotland.

In the midst of the investigation, an objection is started which has arrested attention. It was first brought forward in Scotland, and has at length appeared here. It is the religious objection; and, as we have seen, it has its origin and defence in Scripture, as have the principal objections which have been brought against other efforts, founded in important moral and physical discoveries, and which have had in view social and individual good.

The alleged Scripture authority against etherization in childbirth is in Gen. iii. 16: "Unto the woman he said, . . . In sorrow thou shalt bring forth children."

I had heard of this objection, and knew that Professor Simpson had published a pamphlet about it. But, supposing it to be confined very much to the clergy, as the Scripture arguments against other reforms, as intemperance, war, &c. have so often been, I had determined to say nothing about it. But I had very soon occasion to learn, that the people were receiving the doctrine, and that medical men were among its advocates. An instance will best show this.

I addressed a letter to a medical friend, asking him to furnish me with the results of his observations concerning the use of ether and chloroform in childbirth. My friend very promptly and kindly replied, and as follows: —

"Dear Sir, — I have never employed ether in any obstetric case, since its introduction as an agent for procuring insensibility. Many of my cases, during the last year, have been long and tedious; but no untoward circumstances have presented themselves, and I have declined to use it. God has said, 'In sorrow shalt thou bring forth children;' and the very suffering which a woman undergoes in labor is one of the strongest elements in the love she bears her offspring. I have fears for the moral effect of this discovery, both on the patient and on the physician. Still, I participate in the enthusiasm incident to its discovery; and in some cases, and under certain conditions, should not object to its use. Sincerely sympathizing with you in all your efforts for the cause of philanthropy, I shall ever remain, with sentiments of friendly respect,

"Your obedient servant,

"Boston, Jan. 22, 1848." —— ——

One may regret, that so much suffering was endured, when certain and entirely safe means were at hand for annulling it; and another may question, if the writer of the letter can ever, and under any circumstances, administer ether or chloroform, since their whole agency goes to the abolition of a "curse of God." But, whatever may be the impression made on any mind or heart by the letter, no one can question the entire sincerity of the writer, or do otherwise than respect a decision which had its argument and authority in the highest convictions of individual or personal and relative duty. I felt at once called upon to consider the Scripture objection, and to inquire if the alleged "curse" is an argument for such disregard to human suffering and agony, as to allow the physician to omit using the means which may diminish or entirely remove the pains of childbirth.

While reading the passage from Genesis, and the context, it occurred to me, that the word *sorrow*, so rarely used to express a *physical* state, had a *moral* meaning; and that the first woman's "sorrow" would proceed from the conduct of her children. The violent death which followed in her family, and which was so terrible and so grievous, seemed to me to authorize this construction of the alleged "curse."

Then, again, the earth was cursed; but, in its result, this became a motive to industry, and a most important agency in developing the intellectual and moral nature, and in the preservation of physical health.

Then, again, ether and chloroform are not accidental products, made out of uncertain proportions of their constituent elements. On the contrary, they are the products of laws, discovered by man in the highest uses of his intellect, as authoritative and as certain as are any other laws in the universe. Chloroform and ether can be made in no other manner than by the most exact operation of natural laws upon the elements which enter into their essential being.

And, now, the law referred to being discovered, and the agents produced, by this wise and legitimate cultivation and use of powers of our own intellectual nature, active in their very nature and being, and always acting in the truest harmony with themselves, when engaged in discoveries which are most elevating and noble, and which, in their wise and legitimate uses, can only do good, the only question which remains is this, — Shall not pain be diminished or abolished, and pain in all its kinds, by means which man may discover, and which, in accomplishing their object, do present good, and diminish future evil?

Feeling uncertain about the precise meaning of the sentence in Genesis referred to, and doubtful whether it meant *doom* or *prophecy*, but at the same time seeing no theological or religious reason for not diminishing the pain of childbirth, I addressed a letter to a scholar and a theologian of the highest eminence, requesting of him the precise interpretation of the passage referred to. To my request, an answer was soon given in the most friendly manner, and with it some exceedingly valuable and pertinent remarks on the subject of employing a remedy of pain. The letter follows: —

"Cambridge, Feb. 3, 1848.

"Dear Sir, — I received your note to-day, in which you ask my opinion of the text in Gen. iii. 16: 'I will greatly multiply thy sorrow and thy conception: in sorrow thou shalt bring forth children,' &c. I think the common mode of understanding the verse must be retained for several reasons: —

"1. The Hebrew term translated 'sorrow' in the phrase, 'thy sorrow and thy conception,' does not usually occur in the sense of *mental* sorrow in the Old Testament. The root of it denotes *labor;* and the term is commonly used to denote wearisome labor, trouble, pain.

"2. The terms, 'thy sorrow, or trouble, and thy conception, or pregnancy,' seem more naturally to denote the troubles of pregnancy, i.e. those immediately connected with it and caused by it, than the sorrow which might be caused many years after conception by wicked children.*

* This and some of the following observations were made in answer to a question proposed to Professor Noyes, whether the sorrow of parturition might not refer to the sorrow caused by the wickedness of children, when grown up.

"3. The epexegetical sentence, 'In sorrow shalt thou bring forth children,' seems also to refer naturally to the pain immediately attendant on pregnancy and delivery.

"4. In point of fact, the birth of children seems to have been an occasion of joy to Eve on the whole. See Gen. iv. 1, &c. and iv. 25.

"5. It is not analogous to the threatenings of Scripture, that Eve should be threatened with sorrow from *wicked* children. It would seem to imply too much agency on the part of God in making them wicked.

"In regard to the bearing of the passage on the use of means for preventing or diminishing pain in childbirth, it appears to me, that God could not have intended, by any thing in the Scriptures, to oppose the development of any of the laws of nature; which are his own laws. The application of the agents of nature, by human ingenuity, to the relief of pain, is also the use of God-given means by God-given powers. How, then, can such a course be irreconcilable with any intimations of the divine will whatever? I should as soon believe, that labor-saving machines were in opposition to the declaration, 'In the sweat of thy face shalt thou eat bread;' or that the cultivation and clearing of land was opposed to the declaration, 'Thorns also and thistles shall it bring forth to thee.'

"Other illustrations and arguments of a similar kind will readily occur to you. In the hope, therefore, that medical science and art may go on, and prevent or diminish human pain of every kind, without fear of thwarting the purposes of the Deity by the knowledge and application of his own laws,

"I remain yours, with best regards,

"G. R. Noyes."

"Prof. Walter Channing, M.D. Boston."

At this time, I read Professor Simpson's pamphlet, entitled an "Answer to the Religious Objections advanced against the Employment of Anæsthetic Agents in Midwifery and Surgery." On p. 12, it is said: —

"The context, I repeat, in these six Biblical passages [Prov. xiv. 23; v. 10; xv. 1; x. 22. Ps. cxxvii. 2. Jer. xxii. 28] in which the noun 'ETZEBH' recurs, shows that in *them* the word is not, in any respect, employed to designate the *sensation* of pain which accompanies the act of parturition in the human female. And it is surely not an unfair or illegitimate deduction to infer, that, in the only *one* remaining, or seventh, instance in which the word occurs in the Bible, — viz. in Gen. iii. 16, — it would be used in the sense in which it is generally elsewhere used — of effort, toil, or labor — and not in a new sense, in which it is

nowhere else used — of the *feeling* or perception of excruciating suffering, or bodily anguish."

Again, at p. 13: —

"From what I have stated under the two preceding heads, we are then, I believe, justly entitled to infer that the Hebrew term which, in our English translation of the primeval curse, is rendered 'sorrow' (Gen. iii. 16), principally signifies the severe muscular *efforts* and *struggles* of which parturition — and more particularly human parturition — essentially consists; and does not specially signify the *feelings* or *sensations* of pain to which these muscular efforts or contractions give rise. And, 2. On the other hand, the *feelings* or *sensations* of excruciating pain, accompanying the process of parturition, are designated throughout the Bible by two Hebrew words, which are entirely and essentially different from that term which is translated 'sorrow,' the oft-repeated expression — 'In sorrow thou shalt bring forth children.'"

I immediately enclosed Professor Simpson's pamphlet to the writer of the above letter, and received from him the following answer: —

"Cambridge, Feb. 22, 1848.

"Dear Sir, — I have received the pamphlet of Professor Simpson, together with your note, and am sorry to be obliged to retain the opinion, that the cause of science and benevolence, in which Professor Simpson and yourself are engaged, is not likely to be relieved, by mere Hebrew philology, from the opposition which is made to it. More general considerations must be relied on.

"I cannot agree with Professor Simpson, that the Hebrew terms, 'ITZTZABHON,' 'ETZEBH,' in Gen. iii. 16, refer merely or chiefly to the muscular exertion with which the child is expelled, without regard to the pain and trouble which attend it. 1. From the nature of the case, it is natural to expect, that some allusion would be made to the trouble and pain which are everywhere in the Old Testament represented as the concomitants of childbirth; so that the severest pain which man endures is commonly compared to the pangs of a woman in travail. 2. Simple labor or effort, enduring but a short time, would not be so likely to be threatened as a punishment to the woman, as the pains with which the labor of parturition is accompanied. 3. The fact that Dr. Simpson's view was never thought of, until a scientific exigency called for it, by any Jewish or Christian critic, renders it doubtful: at least, it will be likely to prevent its reception. 4. A full view of the words in question, and of the verb from which they are derived, seems to me to confirm the

opinion, that the common version of the passage is substantially correct. If I were to translate it, I should read, — 'I will greatly increase the painfulness of thy conception. In pain shalt thou bring forth children,' &c.

"It is true that the words in question are sometimes used in the sense of mere labor or toil. But they are used more frequently as implying pain or sorrow. So, in English, 'pains' sometimes means 'efforts;' sometimes, 'distress.' So the phrases, 'a woman in labor,' and 'a laboring woman,' express very different ideas.

"In order that you may form your own judgment on the subject, I will enumerate, so far as my Hebrew Concordance may be depended upon, all the passages in which not only the nouns in question, but the verb from which they are derived, are contained in the Old Testament; giving the translation of the Common Version: — Job x. 8: 'Thy hands *have made* me;' as it were, 'wrought me with labor.' Eccles. x. 9: 'Whoso removeth stones *shall be hurt* therewith.' Ps. lvi. 5: 'Every day *they wrest* my words.' 1 Kings i. 6: 'His father *had* not *displeased* him.' Isa. liv. 6: '*Grieved* in spirit.' 1 Chron. iv. 10: 'That it may not *grieve* me.' 1 Sam. xx. 34: 'For he *was grieved* for David.' 2 Sam. xix. 2: 'The king *was grieved* for his son.' 1 Sam. xx. 3: 'Lest he *be grieved*.' Gen. xlv. 5: 'Be not *grieved*.' Neh. viii. 10: 'Neither be ye *sorry*.' Ver. 11: 'Neither be ye *grieved*.' Isa. lxiii. 10: 'And *vexed* his holy spirit.' Jer. xliv. 19: '*To worship* her.' This is a singular meaning, but not inexplicable; — the primary meaning of the word being *to labor*, hence *to serve*, hence *to worship*. Gen. vi. 6: 'And it *grieved* him at his heart.' Gen. xxxiv. 7: 'And the men were *grieved*.'

"I have thus quoted all the instances in which the verb, from which the nouns in question were derived, is used in the Old Testament. You will observe, that the secondary meaning, denoting pain of body or mind, greatly predominates. Now for the nouns. The first, 'ITZTZABHON,' occurs only three times: 1st, in Gen. iii. 16: '*Thy sorrow* and thy conception;' — 2d, in Gen. iii. 17: '*In sorrow* shalt thou eat of it,' &c. — 3d, Gen. v. 29: 'Concerning our work and *toil* of our hands.' The second word, 'ETZEBH,' occurs first in Gen. iii. 16: '*In sorrow* shalt thou bring forth,' &c. 1 Chron. iv. 9: 'His mother called his name Jabez, saying, Because I bare him with *sorrow*.' Isa. xiv. 3: 'From *thy sorrow*.' Prov. x. 22: 'And he addeth no *sorrow* with it.' Prov. xiv. 23: 'In all *labor* there is profit.' Prov. xv. 1: '*Grievous* words;' literally, 'words of *grievousness*, or *harshness*.' Professor Simpson is mistaken when he says, p. 11, that the word is translated *anger* in this verse. Ps. cxxvii. 2: 'To eat the bread of *sorrows*.' Prov. v. 10: 'And *thy labors* be in the house of the stranger.' Isa. lviii. 3: 'And

exact all *your labors*.' Jer. xxii. 28: 'Is this man Coniah a despised broken *idol?*' i. e. something wrought with *labor*.

"There is still another noun, which is merely the last with a feminine termination, 'ETZEBHETH:' — Prov. x. 10: 'He that winketh with the eye causeth *sorrow*.' Prov. xv. 13: '*By sorrow* of the heart,' &c. Job ix. 28: 'I am afraid of all my *sorrows*.' Ps. xvi. 4: 'Their *sorrows* shall be multiplied.' Ps. cxlvii. 3: 'Bindeth up their *wounds*.' Isa. l. 11: 'Ye shall lie down in *sorrow*.'

"I have thus given all the cases in which the words occur. You will thus perceive, that the instances much predominate in which they imply pain of body or mind. Thus the usage of the words, in connection with the considerations mentioned in the beginning of my letter, seems to render the essential correctness of the common version of the passage in question in a high degree probable.

"As to Professor Simpson's remark, that there are other Hebrew words denoting the pangs or writhings experienced in parturition, it is correct. But it is not at all inconsistent with the opinion, that, in Gen. iii. 16, milder terms are used to denote the trouble and pain connected with parturition.

"One other remark occurs in addition to those in my last letter. No one will pretend, that there is any thing *preceptive* in Gen. iii. 16. It is of the nature of prediction. But the duty of relieving distress is the express dictate of nature and revelation. It would seem, therefore, to be wisdom to follow the dictates of nature and revelation, and leave predictions and threatenings to be fulfilled by Him who made them.

"Yours, with regards,

"G. R. NOYES.

"P.S. Should there be any inconsistency between this and my last, you must attribute it to my not having investigated the matter so fully when I wrote before."

"Prof. Walter Channing, M.D. Boston."

I need hardly apologize for having referred to the religious objections against employing ether and chloroform. This subject has to some too important a place in our history to be passed in silence. The following extract from Professor Simpson's pamphlet, p. 18, shows how it struck one of the most eloquent and profound theologians of our age: —

"Probably I may here be excused adding, that my friend Professor Miller informs me, that, when reluctantly consenting to write the elabo-

rate article on Etherization, which he afterwards penned for the 'North British Review' (No. for May, 1847), he stated to the late Dr. Chalmers, who solicited him to undertake the task, that, if he 'wrote the medical, Dr. Chalmers should himself write the theological, part.' Dr. Chalmers at once professed, that he did not see any theological part pertaining to it. Mr. Miller then explained to him, that some had been urging objections against the use of ether in midwifery, on the ground of its so far improperly enabling woman to avoid one part of the primeval curse. At last, when Mr. Miller was enabled to convince him that he was in earnest in saying that such ground *had* been taken, Dr. Chalmers thought quietly for a minute or two; and then added, that, if some 'small theologians' really took such an improper view of the subject, he would certainly advise Mr. Miller not to 'heed them' in his article."

The interest of our subject has extended beyond the medical profession, and has even reached the pulpit. A sermon was preached here, a few weeks since, on the introduction of etherization, and excited some interest. The text was, "Deliver us from evil." Said one to a friend, as he left the church, "How did you like our sermon?" — "Very well" was the reply. "It is not wholly wrong to lessen or destroy pain. *We may eat peppermints!*"

It is with great pleasure that I quote here, from the writings of an early and most earnest and faithful cultivator of medical and moral science in our country, an opinion and an argument in favor of abolishing pain in childbirth. The author of these writings is the late Benjamin Rush, who, for so many years, was professor of the institutes and practice of medicine and of clinical practice in the University of Pennsylvania. His views, which follow, were very fully stated in his lectures, which it was my privilege to attend. May I not say here, that this reminiscence carries me back between forty and fifty years, and places me again in the presence of the distinguished colleagues of Professor Rush, of Wistar, of Barton, of Woodhouse, of Physic, and of Dorsey, all of whom have been long dead, but to whose excellent and important teachings it was my privilege also to listen; and the memory of which is as fresh, nay fresher

than much of that which at a long distance has come after them?

It is grateful to recur to the opinions of our distinguished countryman on a point which he approached with sentiments of the profoundest reverence, on account of the authority on which it is supposed to rest, whilst he successfully controverted the popular inference, namely, the penal character, involving a physical necessity, of pain in labor. Of the symptoms of labor, Dr. Rush says,* —

"By some divines, these symptoms, and particularly pain, have been considered as a standing and unchangeable punishment of the original disobedience of woman, and, by some physicians, as indispensably necessary to enable the uterus to relieve itself of its burden. By contemplating the numerous instances in which it has pleased God to bless the labors and ingenuity of man, in lessening or destroying the effects of the curse inflicted upon the earth, and by attending to the histories of the total exemption from pain in child-bearing that are recorded of the women in the Brazils, Calabria, and some parts of Africa, and of the small degrees of it which are felt by the Turkish women, who reduce their systems by frequent purges of sweet oil during pregnancy, I was induced to believe pain does not accompany child-bearing by an immutable decree of Heaven."

Again I quote from the same author: †—

"I have expressed a hope in another place ('Medical Repository,' vol. vi.), that a medicine would be discovered that should suspend sensibility altogether, and leave irritability, or the powers of motion, unimpaired, and thereby destroy labor-pains altogether. I was encouraged to cherish this hope, by having known delivery to take place, in one instance, during a paroxysm of epilepsy, and having heard of another, during a fit of drunkenness, in a woman attended by Dr. Church, in both of which there was neither consciousness, nor recollection of pain."

This was the expression of "a hope." Was it not *prophecy?* Had it not so much of truth as its basis, that the great discovery of our own day seems to be the revelation of that truth? Dr. Rush had his own prejudices, but he had the least possible respect for the prejudices of others.

* "Medical Inquiries and Observations," vol. iv. pp. 373, 374. † Ib. p. 376.

He had his theory, indeed; and what philosopher has been without one? and how could he well be a philosopher without it? But Dr. Rush used to tell us he would give us abundant facts in support of his theory, and so he did. I should say, that his doctrines were rather inductions, or the generalizations of facts, than theories, in the ordinary use of the word. But our last extract expresses "a hope" of the discovery of a remedy of pain. The former one contains the reasonableness, the moral evidence, of that hope, so that it becomes faith.

It is only necessary to refer here to the early ground taken by Dr. Rush, that yellow fever is not a contagious disease; and to bring to mind with what insult and derision was that doctrine received in his own city and elsewhere, and the universal professional opinion now held on that subject, to show how far was its author above the times in which he lived, and how stable and how true was his elevation.

Is it not singular to find, that, in the city of our distinguished countryman, where was his fame, and where is his grave, that the great discovery of the age, the remedy of pain, should meet with the most uncompromising opposition? Is it not singular, that the power of fact, the origin and the nutriment of all true philosophy, should not be felt and acknowledged in the very atmosphere of medicine and its collateral sciences? Upon those who sit in the seats of the prophets, their mantle has fallen so gently, that it seems hardly to be felt. The shadow of the apostle healed those by the way-side upon whom it fell. The shade of the past comes to us in its beauty and its power. It passes by us, and we hear its gentle, its noiseless word; but we have not faith, and shrink from its important teachings.

It were not difficult to meet the Scripture objection by further argument of a like kind. The ground is "cursed" for the disobedience of man, and so is human labor: — "Cursed be the ground for thy sake."—"Thorns also and

thistles shall it bring forth."—"In the sweat of thy face shalt thou eat bread, till thou return to the ground."

Now, has it ever been thought wrong, as abolishing a "curse of God," to manure and to till the earth? The word *also* implies, that other things than thorns and thistles may be successfully cultivated; and men have toiled early and late to make the thorns as scarce as possible.

And, then, with regard to the word "sweat" in another verse. How many are there living, and eating, and drinking too, but in whom the "sweat of their face" hardly exceeds insensible perspiration! And your true and noble worker, — he who does use his good bones and muscles in hardy and hearty encounter with elements aeriform or solid; how does your worker task his own intellect and the minds of others to lighten his toil, and diminish his sweat! He subjects the brute animal to his will in his labor-saving strife, and makes wind and steam tributary to his service and to his good. And why? Because he would preserve health and lengthen life; because, better than both these, he would redeem a few moments of a noble gift, his mind, that he may think as well as eat, — reach to the thought of an intellectual and a moral nature within him, and make wise and true use of the great revelation.

What more fitting labor for man than to abolish pain, preserve health, soften toil, develope mind and heart, and so make some approach to that spiritual elevation which is the inspiration of our religion, and the object and end of our highest aspirations?

IV. *The Moral Objection to Etherization.*

The *religious* objection which has now been noticed suggests another closely allied to it, namely, the *moral.* We are told that ether and chloroform will be, nay, are, used by persons in health, and for the purpose of the pleasurable excitement they produce. An English paper, the "Lincoln Mercury," says: — "The practice of taking opium, lauda-

num, *ether*, and morphia, has increased, and is still increasing, amongst the population of the fens of Cambridgeshire and Lincolnshire to a frightful extent." Ether, it is said, is inhaled for the intellectual excitement it produces, as a preparation for social intercourse. I was in a house in which were employed many girls. An employer said, "Some of the girls have had operations done on the teeth after inhaling chloroform; and they now get small bottles of it, and, when not at work, they drop some on their handkerchief, and breathe it with much pleasure to themselves, and amusement to others." A case has recently occurred in a neighbouring city, in which this use of chloroform was made, and to the imminent hazard of life. It is contained in the following communication from Dr. Lyman Bartlett, of New Bedford, to whom I am further indebted for an article in the Correspondence bearing his name. The case was sent by Dr. Bartlett to the Boston Society of Medical Improvement, of which he is an efficient member, and which he has kindly allowed me to publish.

This case shows the advantages of bleeding in the diseased condition produced by etherization. It shows the folly and the danger of the extra-professional use of any of the agents for producing this condition, especially of the most powerful of them. Such use or abuse of medicines has an effect beyond those who so employ and suffer by them. They hurt or destroy professional and public confidence in the most important means of doing good, so that physicians may shrink from employing them in practice, and the sick and the suffering refuse to use them.

I have again and again referred to this subject. I do it once more, because of its extreme importance. My remarks may not reach those who will suffer from their imprudence; but they may lead the physician to suggest what he may to prevent it.

"On the 17th instant, a young man by the name of Henry W. Butler, clerk to one of our apothecaries, undertook to amuse some of his friends by taking chloroform. Having passed the phial to the rest of the party, he poured about six drams upon a sponge, and applied it to his own mouth. He took, it is thought, but three or four inspirations, and then removed the sponge, and 'began to talk strangely;' whether from the effects of chloroform or from design could not be determined. Attempts were made to take the sponge from him; but he resisted, grasping it firmly in his hand, and thrusting it into his coat pocket, where he held it for about half an hour. During this time, he gradually became more and more excited and violent. The sponge was then forcibly taken from him. He soon complained of severe distress in his chest; his respiration was spasmodic; his countenance, lead-colored. He was raving, furious, convulsed, and not conscious when spoken to. This state continued without an interval for about two hours, when he was bled to the extent of three pints. After the bleeding, his convulsive efforts yielded in some measure, or at least occurred in paroxysms, at intervals of from one to fifteen minutes (the intervals increasing towards the last), until sixteen hours from the commencement of the first paroxysms, when he had one more violent than any of the preceding. In about fifteen minutes after this, he came to, as persons usually do who have been under the influence of chloroform; conscious, and without knowledge of any thing having happened, but felt extremely weak and prostrated. He has had no return of paroxysms since; although so weak on the third day after the paroxysms ceased, that he could not raise himself in bed. The paroxysms were more violent than any thing I have ever before witnessed; requiring, from first to last, the combined efforts of five strong men to restrain him. In the intervals of the paroxysms, any new impression made upon his body would excite a new paroxysm, as suddenly as a shock of galvanism. Applying a cold finger, or a single drop of water, to the face or hand, would instantly provoke a violent paroxysm.

"He is now, at this date, just able to walk about his room.

"The pulse, previous to the bleeding, was too rapid to be counted; the heart's action, fluttering. The pulse became moderately frequent and regular under the venesection, and continued so afterwards."

The successful use of etherization for painful disease, at least where it is so far successful that it temporarily removes pain, has led to the habitual use of its means. Thus has it happened, as I have been told, in regard to ether, that a daily use of it in large quantities has come of its successful professional employment; and a most debasing dependence upon

it, for mere pleasurable excitement, has thus been allowed to be produced. Chloroform has been much abused in this way, and with less present embarrassment than has ether. But we have seen, that there is great and imminent danger in this use of both ether and chloroform. Those who thus employ them are wholly ignorant of their powers, and take their lives in their hands when they so abuse these powerful agents. A man or a woman may drink intoxicating liquors with present impunity. The effects they produce approach slowly, and are known by what precedes them. They are rarely directly fatal. How far the constitution is affected by them, their subject knows; and, when disease comes, its treatment is understood. With ether, and with chloroform, it is no such thing. A very small quantity, a few drops only of the latter, taken for mere experiment, have produced embarrassing effects. They have, in these instances, been taken in full health, when all such agents most surely produce their effects. Their medicinal uses differ wholly from this. Judicious men administer them. Their effects are watched. Their subjects are diseased persons, or are suffering from severe pain. These facts render etherization safer, and separate its employment in disease, entirely from that use of it which has been somewhat practised under such totally different states of the body, and for such unworthy purposes.

Let it, then, be distinctly understood, that the popular, unprofessional use of ether and chloroform is both immoral and injurious; that it is highly dangerous, and may produce death!

But is not the temptation to such use of etherization, and the readiness with which it has been yielded to, a valid objection to its medicinal employment? Is not the argument from abuse sound against use, in this connection? I say, no. What important article of the materia medica would remain to profession or to public, if such an argument were for a moment admitted? Ether and chloroform

are among the most important of these articles. They do the most obvious and most immediate good. They are the most precious gifts to the age, and they are to be among its richest legacies to the time to come. Their medicinal uses must not be jeopardized by the untoward, which occasionally, but most rarely, follows their professional use. The evil, the deaths, which come of their wanton and wholly unprincipled employment, should not for a moment disturb the public or the professional confidence. The amusement which may be sought in their physical and intellectual excitement, from their inhalation in health, in frolic, and by the young, is no argument against their medicinal employment. Its use by older persons for exhilaration is alike dangerous. I have, in another place, referred to facts which have already had an influence — is it not a salutary one? — upon the employment of etherization, even in the least exceptional cases, and in the hands of the most experienced men. These facts show, that a remedy powerful for good has, in that very fact in its history, the important lesson, that it may be also powerful for evil. They have led to a salutary caution in the use of the remedy of pain. If, in any instance, it has been given up, on account of its abuses, is it not probable that both profession and public have been gainers by the omission?

V. *Etherization may injure the Child.*

Etherization, we are told, may mentally or physically affect the infant. It may be weakened in mind or body; and particular diseases are named, which may be looked for from the agency of the remedy of pain.

This objection rests upon hypothesis alone. It has no facts for its origin, and none for its support. Little more than a year has passed by since the first trial of ether in childbirth was made; and it is surely too early to argue against its further use, from the physical or intellectual developments of those born under its auspices. I have

some experience to offer in regard to this matter. It has been to me a matter of some attention and real interest to inquire concerning these children, how it is with their bodies and their minds; and I have not met with a single instance of either mental or physical peculiarity, which has distinguished them from other infants of their age and opportunities. They are truly as sprightly and as well-behaved persons, for their age, as you will see in a summer's day.

There has been, now and then, some amusement manifested by the mothers to whom I propounded my questions as to the condition of their latest born. But I have not met with a moment's hesitation in the expression of the fullest assurance, that the children in question are, on all hands, fully equal, in health, growth, and mind, to those who have been born in the midst and pressure of the severest pain.

It may be thought that this objection is hardly deserving a place in a sober inquiry concerning a very important matter. It is alluded to, not so much because it has sometimes assumed quite a definite form, but because opinions and practice sometimes turn upon the merest trifles, so that one who really has not and does not deserve very serious regard for any thing he may say or do in some matters comes to have very important influence in regard to others, — and those, too, in which many important and serious interests are deeply involved. When, therefore, I was told the other day that etherization in childbirth would produce grave pulmonary disease in the child, and that therefore it should be abandoned, I did not for a moment feel, that a practice which a most wide experience now entirely sanctions could be seriously affected by the assertion; but I did think it of sufficient importance to say then, and I repeat it now, that there is not the smallest evidence of any such injurious agency in store for the child born during etherization; and that, so far from this being

the case, or is to be apprehended, it is notorious that children born during this state are much more rarely *still born* than are those born without its agency, and that they have continued to do perfectly well. I refer confidently to the following Tables for the evidence of the well-being of the child born during etherization.

CASES.*

CASE I. — *Instrumental Labor.*

No. 124, aged twenty-three, was taken in labor, for the first time, May 5th, at 12 o'clock at night. I saw her between 9 and 10 of the morning of the 7th, in consultation with her medical attendant, Dr. W. E. Townsend. His pupil, Mr. J. Dwelley, was present, and who with him from the beginning had faithfully attended to the case. The pains had been frequent and very severe. Some diminution of suffering had followed the exhibition of an opiate. Patient was well purged with castor oil, day before labor. I found, on examination, the head fairly in the pelvis, where, I was told, it had been many hours. There was no *show*. The vagina was swollen, rough, hot, especially about the urethra, or anterior part of the pelvis. The os uteri was somewhat dilated, but less in its anterior portion than elsewhere, though in no part of its circumference had it cleared the head. It was swollen, smooth, hard, undilatable. It gave just that feel which so strongly intimates, that the labor will be protracted, and accompanied by much suffering. The scalp was swollen, and protruded as a tumor of a conical shape through the firm ring formed by the undilated and undilatable os uteri.

Mrs. —— was comparatively easy, from the opiate apparently. Her pulse was natural. Her strength was not much exhausted. Her stomach bore food well. There was no cerebral trouble, and the bladder had been duly

* It was originally my purpose to print the seven following cases from my pamphlet before mentioned, as they first appeared. I have, however, made some omissions, and such slight alterations as the present publication seemed to require.

emptied by the catheter. Under these circumstances, I suggested delay; and it was agreed to wait and observe the changes which might occur in the present rest, and on the recurrence of pains. I saw her again at noon. Belladonna ointment was recommended, as no important change had occurred in the state of the os uteri. I was called to see her at about 6, P.M. about forty-two hours since labor began. I learned, on reaching the address, that the ointment had been used, and a solution of tartarized antimony exhibited; and that some change had occurred in the os uteri, namely, that it was more dilatable. Her pulse was now 120 in the minute. It was less strong than at noon. She could speak only in a whisper, and with great difficulty even so. She complained of great distress, and most earnestly entreated to be relieved of her terrible suffering. On examination, I found the os uteri somewhat more dilatable, and it was agreed that the forceps should be used.

Dr. Townsend called on me to make the visit just related. I said to him, in my study, that this seemed a very fair case for the use of ether. He agreed with me in this opinion, and added that he had a quantity of pure ether at home, and a sponge of suitable size for its inhalation, and that he would meet me at his patient's house. We soon met there, and I proceeded to apply the forceps. I selected Davis's solid forceps, because they are narrow, thin, and very easily introduced, and seemed less likely to injure the os uteri than a broader and a thicker instrument. The application was perfectly easy, and I made an extracting effort, which was attended with very severe pain. Mrs. —— soon became quiet, and I desired Dr. Townsend to apply the sponge, saturated with ether, to the mouth and nose. This he did, and in about a minute she was under the full influence of the ether. The first inspiration produced a slight cough, as if the larynx had been irritated. It was like the sound by which an effort to remove some irritating matter

from the air-passages is commonly accompanied. The next noticeable effect, and which was quite an early one, was a sudden movement of the body, such as is made sometimes when one is falling asleep, and has consciousness enough to know this, and to rouse the will into sufficient action to prevent it. It was involuntary: still it did not convey the idea of being spasmodic, in the strictly morbid sense of the term. She was directed to open her eyes, to answer questions, &c. but gave not the least evidence of consciousness of any thing said. I now proceeded to extract. The os uteri at once came down again, and much embarrassed the operation; so that I desired Mr. Dwelley to pass his fingers between the shoulders of the forceps and the symphysis pubis, and gently press the protruding os uteri upwards. He did so, and thus removed that part from the chance of injury. The extraction was continued at intervals. Not the smallest complaint was uttered. The womb was roused to action, and strong expulsatory efforts were made. The head advanced, and every thing promised well. But at length the head became again firmly fixed, and this to a degree which prevented its being moved by any such force as I believed it safe to employ. I removed the forceps. The effects of the ether passed off; but, as soon as consciousness returned, most earnest demands were made for more: "Put it to my mouth — I shall faint — you must." In short, all forms of entreaty were made use of to obtain the entire relief that the ether had produced. She had at first refused to employ it. The ether had now been used up, and a short delay took place while a further supply was sent for. I perforated the cranium, fixed the hook, and made some extracting effort. Again was complaint made of the suffering which was immediately produced by the traction. The repose had been entire since consciousness had returned. She thought she was delivered. Said that she had *sense*, knew that she was alive, after the sponge was put to her mouth, but that

she had no *feeling* after, and knew not what had happened. She had passed the time in most entire freedom from all pain. She said that there had been light before her eyes, and buzzing in her ears; and that she had been in another world. The aphonia had entirely disappeared, and her voice was natural. The ether was again applied to the mouth and nose; and, when it was ascertained that its full effects were present, extracting effort was made by the hook. Again did the womb act, and the head advance. Its progress was very slow. Much effort was demanded to bring the head along. The ether was used several times before the labor was over. In fact, she was most of the time inspiring the vapor, largely mixed with atmospheric air; for her pillow and bedclothes were necessarily kept wet with it, from the mode of using it. There was no accident, or the least untoward circumstance, attending the delivery. There was no pain — no complaint — no resistance of the effort used for delivery. The limbs were perfectly flaccid, and it was necessary that they should be kept separate by an assistant, and the whole weight of the upper one was to be supported. She came to herself soon after the child was born, and again expressed her entire ignorance as to every thing that had been done. The placenta was separated, and reached the outlet by the unaided efforts of the womb, and no hemorrhage followed. A swathe was applied to the abdomen, and the patient made comfortable in her bed. I left soon after, having ascertained that her pulse was as good as it had been for some hours, and that every thing promised well. It was impossible to determine what injury, if any, so long continued pressure of the head had produced. The bladder had been carefully attended to; and the least possible amount of examination, I was told, had been made during the whole attendance on the case. The child had been dead some hours.

May 8th, 9, A.M. — I learned that, soon after I left, the womb expelled from its cavity a large mass of coagula, with

a gush of liquid blood. Cold was immediately applied to the abdomen, and the flow ceased. It was not so great as to affect at all her strength or her pulse. I learned that she had passed an excellent night, and had slept as tranquilly as if under the kindest influence of opium. Her pulse was 108, of good strength and volume; tongue moist, head clear, and her whole state perfectly comfortable. We were particularly struck with these facts, in the distinct recollection of the long-continued suffering which a short time before she had endured. She had passed no water. The catheter was introduced with great ease, but got clogged with blood in its passage, so as to admit very little, if any, urine. Mrs. —— said, soon after, that she felt a strong inclination to pass water; and, in making an effort to do so, there was expelled from the vagina a firm coagulum; and, immediately after, the urine followed voluntarily, and with perfect relief. Directions were given, that the greatest quiet should be preserved, and sleep encouraged. Liquid farinaceous diet was ordered.

9th, A.M. 9 o'clock. — Mrs. —— slept most of yesterday, and less well last night. That is, was awake, but comfortable the first part of night, and slept the latter part. Pulse now 104. Skin natural. No pain in abdomen, and no tenderness on pressure. Urine natural. Somewhat thirsty. Tongue slightly dry. No appearance of milk.

10th, 10, A.M. — Patient very comfortable. Pulse 108. Skin warm. Breasts distended and painful. Abdomen soft. Two dejections from two drams ol. ric., and as much lemon juice. In all respects doing well.

Remarks. — The ether was applied by a sponge. It was very easily applied. The effect was produced very soon, in about a minute, say after about fourteen inhalations; and, when consciousness was returning, one or two inhalations were enough to re-induce insensibility.

The agencies by which labor was accomplished in this

case were very striking. Not only was there the ordinary uterine expulsatory effort made, but there was also the associated *bearing-down* action; and this, too, quite strongly marked in the apparent absence of all active power. I was strongly reminded of the same thing in a case of severe puerperal convulsions, in which unconsciousness and insensibility were perfect, but in which uterine and associated actions were as strikingly manifested as if voluntary power had been in the fullest action. How often is the child born under these circumstances without foreign aid, and without the least maternal consciousness of the event at the time, or memory of it afterwards? This was strikingly shown in the present case. In other instances of etherization, the only apparent power is uterine contraction; the patient lying as if in most perfect sleep.

Case II. — *Instrumental Labor.*

No. 126, aged twenty-three, first labor. Was taken at 12, midnight, May 15th. I saw her in consultation, 16th, about 9, P.M. I learned that her pains had been very severe, — that the child advanced well until it reached the bony outlet, and that there it stopped, — that vehement pains had continued, but without making any progress in the labor. The pains were now losing power, and appearances of approaching exhaustion were present. The pulse was compressible. The os uteri had not disappeared. The presentation was natural. The occiput was towards the right acetabulum, the forehead towards the opposite sacro-iliac synchondrosis.

After a very careful examination of the case, it was agreed that the forceps should be used, and the ether exhibited. The instrument selected was a modification of Hamilton's and Smellie's, less curved than the first named, and rather longer than the last. It was applied with ease.

There was tenderness about the inferior commissure of the external organs, and much complaint made of the pressure of the instrument there. Of its presence within the pelvis no complaint was made. The ether was now exhibited, by means of a sponge, as in the case reported above. In about a minute, the full effects of the ether became apparent. Consciousness was entirely abolished. Extracting efforts were now made, and the child soon began to descend. The womb acted powerfully. In the first efforts with the instrument, instead of a *bearing-down* effort, an opposite one was made by the patient. The lower limbs were straightened out with much force, and the instrument drawn inwards into the pelvis, so that it was difficult to retain hold of the handles. This was very striking. But a very short re-application of the sponge obviated this difficulty entirely, and the child favorably descended, and no further resistance to delivery occurred. The head was born. The child breathed, and every thing promised well. But pains did not occur for some time. As happens not unfrequently after the accomplishment of delivery thus far, after very severe labor, contractions cease as from exhaustion, and the child remains in great peril. Perhaps, as many children are lost in this way as from any other accident in delivery. At length, however, an arm was brought down, the womb acted, and very slowly the child was born. Some time elapsed before the placenta was detached, but this came naturally away. The child was alive, and cried sufficiently. It was a boy, and weighed nine pounds.

Mrs. —— was now asked of her state during labor. She expressed her entire satisfaction with the effects of the ether. She said, how wonderful it was that she should have got through without the least suffering, and how grateful she was. She asked earnestly why the ether had not been used earlier in her case. She said she had called on a friend, naming her, — that she had been into ——— street, called at a milliner's shop, and there had talked and

laughed with the rest, and made a good deal of noise, too. Her manner was perfectly natural. There was much vivacity in it, — a freedom from the least idea that what she related had been other than a matter of recent and entire experience, which was exceedingly striking.

May 17th. — Comfortable; good night; pulse 104, of good strength; skin warm; color natural. At the moment of my coming into her room, Mrs. —— was complaining of uneasiness at the lower part of the abdomen. I found that the bladder was distended, and this probably caused the complaint. A successful effort was made to empty it, and relief at once followed. I asked again concerning her state during the labor, while under the power of the ether. She said she remembered nothing from the first inhalation to the moment when the afterbirth was taken away. I told her she had talked, had described her feelings after inhalation, had told us where she had been, &c. &c. Well, she said, she did not know any thing about that. She could only repeat what she had just said, that she remembered nothing about it, not a word, not a syllable. I asked, if she did not recollect that I was there, and used instruments, and endeavoured to bring to her remembrance other matters. She said, again and again, she remembered nothing about it. In Mrs. ——'s case, No. 124, I stated that she said she had *sense*, but not *feeling;* that she knew she was alive, and that people were about her, and assisting her labor, &c. but that she felt nothing — had no pain. And this experience of Mrs. —— corresponds with that of the cases of many others who have inhaled ether, and which have been reported. A case is now in my memory of an intelligent woman who had several teeth removed by my advice after inhaling ether. She had no pain, but still knew what the dentist was about.

Remarks. — The success of the above case furnishes additional evidence of the beneficial uses of ether in labor.

A sponge was again used. It was partially covered by a strong bit of brown paper. This prevented evaporation and waste, and, in some degree, the diffusion of the vaporized ether in the chamber. One who has made much use of ether in surgical practice, says he covers the sponge with a bit of cloth, or folded towel. Another covers it with a cup or a saucer. Whatever may be used, it is very important that it does not prevent atmospheric air entering the lungs along with the vapor. A portion only of the sponge should be covered; the air will find its way through its uncovered edges. The sponge is to be removed as soon as the effects of the ether have been produced, by speaking to the patient, bidding him to open his eyes, to answer questions, &c. The state is so obvious, so wholly different from what existed before the sponge was applied, that the observer can hardly fail to make it out. Afterwards, the effect may be continued, if need be, by very slight or short applications of the sponge. Let it be especially borne in mind, that insensibility to pain, a perfect unconsciousness in regard to suffering, may be present, while the patient may be perfectly conscious of other things, namely, of persons about him, what is doing, &c. This it is which makes one of the most curious facts in etherization, and demands the special notice of the practitioner. The application of ether to labor has been made, because its fullest agency does not interfere with the involuntary agencies, the action of the womb, on which delivery depends. The womb acts under the fullest effects of ether, just as regularly as does the heart or the lungs. Nay, I have observed obviously good effects during etherization, in the absence of voluntary efforts, the *bearing down*, to which the patient is so strongly tempted, in order to bring to a more speedy close the extreme suffering that is experienced. There has been far less exhaustion after labor, from the absence of the voluntary effort, and the danger of graver accidents has been much diminished. Effort is, in an important sense, propor-

tionate to the demand, and relaxation goes on steadily, and in harmony with the pressure that demands it. Professor Simpson thinks he has seen, that an increase of uterine effort, where it was demanded, has been the result of etherization.

Again. I would strongly advise, in instrumental labor, the application of the instrument *before* the ether is inhaled. In this way, it will be ascertained, if any, what injury the patient is suffering by its introduction. In general, may I not say always, when the instrument is inapplicable, or unskilfully used, that some obstruction to its progress is encountered. This produces pain. The patient complains, and the error should be at once corrected, or measures taken for its correction. There will be complaint in many, it may be in all, cases. But there is a difference in that expression of pain which comes merely of the novelty of impression made by the instrument, and the sensitiveness which long-continued suffering produces, — there is a difference between this and that suffering which comes directly of injury, and is so striking that any one at all acquainted with instrumental labor will at once observe it, and govern himself accordingly. I remember a caution growing out of like chance of doing unnecessary injury in a surgical operation, viz. by including a portion of the bladder in the instrument which seizes the stone in *lithotrity*. It is advised in this operation not to use ether, lest, during the state of insensibility, the bladder may be injured. The most dangerous lesion may be done an organ in this state, of which the surgeon may be as unconscious as is the patient. I dwell upon this caution in our midwifery engagements as of serious importance, and to which there can be no reasonable objection.

Case III. — *Natural Labor.*

No. 135, aged eighteen; first child. Taken with uterine contraction, June 10, at 5, A.M. Saw her between 3 and 4, P.M. Labor well marked; pains severe; complaint of suffering emphatic. Examination showed natural presentation, and good progress. Contraction increased gradually in strength, and the head reached the outlet favorably. It here made slight, if any, progress. At length, notwithstanding very severe efforts, it hardly advanced at all. Between 8 and 9, it reached the external organs, and the perineum was pressed somewhat forward. Here again it rested. The perineum was very slightly dilatable. Uterine action now diminished in force, and the intervals became longer. Still distress was great. I sent for and exhibited ether. The pulse, respiration, and temperature, were natural. At first, Mrs. —— refused the sponge, and this with much determination. At length she consented to breathe at it, and was in about a minute fairly under the influence of the vapor. The sponge was removed, and placed at a distance from her in the bed. Efforts continued regular, and soon became stronger, and intervals shorter. The perineum became dilatable, and the head advanced. Some return of consciousness took place, it seems of pain, and of the relief she had experienced from the inhalation; for, without being seen, she got possession of the sponge, and breathed at it with the greatest avidity; so that, when discovered, it was with much difficulty forced away. The child was born in four or five pains after etherization. The placenta was soon thrown off; the womb contracted well, and a swathe was carefully applied.

The return to consciousness was slow. There was exhibited more excitement than I have before met with. There was a full expression of perfect freedom from suffering during labor. A state of entire pleasure was expressed.

She sung, talked, raised her arms high in the air. She did not recollect me, or anybody about her. Her child's cries, which were very loud, attracted strongly her notice. She passed her hand over her abdomen firmly, as if to learn what had happened, and her countenance expressed much surprise. Pulse continued natural; complexion good; temperature as during labor. Some hemorrhage, but not enough to do harm. She said she was very hungry and thirsty, and took, with much relish, gruel and water. After-pains occurred in about half an hour after labor was over, with much severity, and for which I prescribed camphor and opium in pills. I left her otherwise comfortable. Slight hemorrhage.

June 11th, 9, A.M. — Pulse, &c. good; no tenderness of abdomen. After-pains increased, and troubled her all night. Exist now. Great increase of pain by motion, so that I removed urine by catheter; as motion for this function, she feared, would give great distress. Felt better after operation. Hemorrhage considerable in night. 6, P.M. — More comfortable; less pain. Prescribed Dover's powder for pill. Ol. ric. in the morning.

12th, 6, P.M. — Detained by obstetric case all day, and could not see Mrs. —— earlier. I found her very comfortable. Oil had operated well. Night had been perfectly good. Looks remarkably well. Pulse good. Abdomen soft, free from soreness or pain.

13th. — Perfectly well. Some milk in breasts. I now inquired particularly as to consciousness during labor, and immediately after. Remembers nothing.

CASE IV. — *Natural Labor.*

June 11th. — No. 121, aged twenty-five; first labor. For three weeks last past, she has suffered much from pain referred to womb; at times so severe, that she thought

of sending for nurse and physician. Last night at 12, in absence of contraction, membranes broke, and a large quantity of water was discharged. I was called to see her between 1 and 2, as labor had begun. I found the os uteri dilated somewhat, dilatable, very thin at its edges, and continuing so some distance towards neck. Action regular, but slight. I went to bed, to be called when needed. At 6, I found contractions had continued all night. Os uteri more dilated. Went home. Was called again between 8 and 9. I now found much change had occurred. Os uteri had nearly disappeared, and yielded to very small pressure. Head presenting well, and quite low in pelvis. From the severity of the pains, and the generally favorable state of things, I resolved to use ether. This was done about 9, A.M. Its first effect was excitement. There were startings, exclamations; the arms were projected. "I am dying, I am dying," said Mrs. ——. I had my finger on the wrist, and carefully examined the pulse. It was about 90 before etherization. It rose to 98; and this was its number, with temporary changes, during the whole of the labor after ether. Excitement soon passed by, and a pleasant calm succeeded. The expressions were now of pleasure only. "How beautiful! how beautiful!" was the language of the labor. The state of etherization was moderately sustained during the whole day, or about nine hours. Mrs. —— had some latent feeling about the remedy, which much influenced the case. She would vehemently demand the sponge, and that it should be thoroughly wet with ether. She would put it aside, as soon as she began to feel its effects. At times, however, she would experience its full effects. She was thus by no means always unconscious; I mean, in that degree of it as to be unaware of people and things around her. Sometimes she would say, "I know you, Dr. C.;" "I know you, Mrs. F." &c. &c.; as if to let us understand, that, though she was unconscious of pain, she knew all other things. She would say, when demand-

ing the sponge, " Do n't be afraid of hurting me. I know just how much I want, and will tell you when to take it away." And this was done after a manner which I have seen in no other case. The labor was delayed by the state of the perineum. It was very wide, leaving the os externum very small. Through this protruded a round mass of scalp, and a conical-shaped bony mass of scull. The occiput had fairly cleared the arch of the pubis, and still delivery did not take place. After an ointment of ext. of belladonna and simple cerate was liberally used, inside the vagina, and over the perineum, dilatation took place readily, and the child was born. There was perfect abolition of pain in this closing period of labor, and when suffering is, I may say, always so great. The womb contracted well. The placenta was easily detached by natural effort, and, with some coagula, was expelled. A swathe was applied. Child, a female, weighing seven and a half pounds. It did not breathe immediately after its head was born, but soon breathed after cold water was dashed on its face and breast, and did perfectly well. During the labor, one dram ergot was infused in about six ounces boiling water, and the tea without the powder taken. Some increase of pain undoubtedly followed its use. The bladder was emptied with the catheter once during the day.

Labor began in this case at 12 the preceding night, and was ended at 6, P.M. the following day. The ether was first inhaled between 8 and 9, A.M.; and its influence was sustained, as above described, till about 5, P.M. Mrs. —— described her state, when consciousness returned after labor, as one of perfect ease and enjoyment. She had hardly had a pain. She had little memory of pain. The ether had made tolerable what she thought she could hardly have lived through without. She had been in pain, she said, during the three preceding weeks; her nights disturbed, and her days most uncomfortable. She expressed her gratitude for the comfort which she had enjoyed through a

whole day, after a manner which I have not heard paralleled. I left her with a calm pulse, manner perfectly natural, skin temperate, head free from pain, abdomen easy, eyes closed, and sleep approaching.

13th, 10, A.M. — Night good. Slight pain in abdomen in night occurred three times. Five grains of Dover's powder were given, and perfect quiet followed. Pulse 84; abdomen soft; lochia natural; no urine, — has attempted to pass it, but failed. Catheter, about twenty ounces taken away. In all respects doing well. 10, P.M. — Day very comfortable. Has slight uneasiness in the region of the heart, to which she has long been subject. Has failed to pass urine, and catheter was again used. Ol. ric., suc. limon, each one dram, in the morning.

14th, 9, A.M. — Excellent night. Urine natural. Two free dejections from oil. Pulse, &c. natural. Milk, without any precursory disturbance or excitement. Is nursing her child.

15th. — Quite as well, except some trouble about lactation.

CASE V. — *Instrumental Labor.*

June 14th. — No. 136, aged thirty-six; fourth child. Labor began Friday, 11th. Physician called Saturday, 12th, at 8, A.M. Labor distinct, strong; head at upper part of pelvis, or rather a cushiony tumor of which the diagnosis was not easy. This state of things continued. He passed Saturday night with his patient, because of the severity of the labor. Sunday, 13th, things much the same. Membranes broke P.M. and a large quantity of water came away. Still the head remained much where it was. The os uteri dilatable, soft, spongy, as if infiltrated. He passed the night again with his patient. Monday morning I saw her at about 8, A.M. about sixty hours from beginning of labor, and forty-eight of continued and very severe suffering.

The presentation was just what and where it was when first discovered. A firm, somewhat elastic, tumor filled part of the pelvis. I did not, at my first examination, feel any portion of the cranium. The tumor felt very much like a blood tumor of great size. It remained tense in *the intervals* of contractions, but did not seem more tense during their continuance than at other times. I advised the use of ether at once, to lessen the severe suffering of the patient; and, having directed how it was to be used, left, to see a patient whose situation made an early visit very important. I returned between 8 and 9. Partial relief had been gained by the ether; suffering was less. I examined again with much care, and could make out towards the right sacro-iliac synchondrosis, the well-defined *edge of a bone.* I pressed the presenting tumor here very firmly, and could find no bone opposite to or in the neighborhood of that part against which my finger rested. I now felt satisfied that the case was one of hydrocephalus, and that it was water which I felt behind the scalp, and which formed the tumor. The ether was used. Perfect unconsciousness did not take place more than once; but the diminution of suffering was most striking, and the ether more and more emphatically demanded. The perforator was now carried through the distended scalp, and a gush of water at once followed. Nearly a quart was received into a vessel, while a very large quantity escaped into the bed and guard. Extraction was now made; and, after a few ineffectual efforts, the head advanced. The difficulty was in the loose condition of the bones, and the thinness of the scalp. The hook, from these circumstances, frequently broke itself away. The ether was still used. Entire abolition of consciousness was produced. The pulse continued steadily at about 100, the number when first examined. If any thing, it was quicker at my first visit, than during the use of the ether, and while extraction was proceeding. The child was born slowly, and easily after the head had entered the pelvis.

The placenta followed readily. A swathe was applied, and the patient made easy and comfortable in her bed. Child's head consisted of loose cranial bones, thin scalp, and a large cavity. Spina bifida at lower part of spine. It seemed impossible for Mrs. —— to express the gratitude she felt for the pleasure and the ease afforded to her by the ether. It was astonishing to her, that she who had always suffered so much in labor, and for so many nights and days in this last one, and who after former labors had been in such distress, — it seemed most wonderful to her to feel now so easy and so happy. I left her in this state at about 11, A.M.

5, P.M. — Saw Mrs. ——. She has been perfectly comfortable all day, has slept much, passed water twice; no after-pains; much meteorism, but no hardness, soreness, or pain of abdomen. Respiration easy; countenance easy, and has lost that contraction which the long experience of acute pain gave it, and has acquired the appearance of healthy fullness. Complexion natural. Pulse 108, soft. Says she is perfectly free from uneasiness of any kind. Is provisionally to take two drams ol. ric. and suc. lim. each, in morning; and five grains pulv. Dover, if need be, to-night.

15th, 10, A.M. — Pulse 108. Abdomen less full. Respiration easy. Temperature natural. Night good. Has taken oil. No dejection.

16th, 9, A.M. — Pulse 104. Two dejections. Urine natural. Without any uneasiness when at rest. Is annoyed by motion, the whole body being sore from long-continued and violent labor.

20th. — Without complaint. Reports herself to be well.

Remarks. — No. 135 presents the full effects of ether, perhaps more strikingly than either of the others. That is, in her they were more perfectly produced. Still the time was short of their continuance, and not any cause for

uneasiness marked any of its periods. The sponge, which she reached and held with so much force, had become almost or quite dry, as some time had passed from its first application. Her case is also striking, as presenting, perhaps, the most perfect want of memory met with in any case I have witnessed.

In No. 121, ether was used nearly or quite nine hours. But except in its first inhalation, and the latest, nothing like its full effect was manifested. The patient managed the use of it herself; that is, she asked for it when she thought it was needed, namely, when a pain was coming on, and threw it by her as soon as she felt its influence approaching. Again and again she has assured me that her suffering after etherization was as nothing compared with her former state, and the *last pains were not felt at all.* I have never known so much ether used as in this case, and certainly its effects could not have been happier. The consciousness of the period when ether was used has been matter of distinct memory since. There were misgivings among her friends as to the expediency of its use, for they knew that she had formerly suffered from headach; but this was never stated to me. She had suffered also from pain in the region of the heart; but of this, also, I knew nothing till it occurred slightly the day after labor, when it was referred to by Mrs. ——.

No. 136 differs from the others. But its history leaves very little to be added. Relief of suffering was as marked in her case as in any I have met with. I have never seen insensibility more strikingly produced by ether. She was for a short time as in the deepest, most tranquil sleep. This was at the close of the labor. It saved her all pain in the time of ordinarily the greatest suffering. She is recovering, though less rapidly than the others, but still quite as fast as the early history of her case would have led one to expect.

Case VI. — *Complicated Labor.*

June 23. — No. ——. I was desired to see this patient, between five and six o'clock this morning. On reaching the address, I learned that Mrs. —— was twenty-four years old; that this was her first labor; that she had been in labor about sixty hours; and that such had been the severity of the symptoms, that her physician had passed the last forty-eight hours constantly in her chamber, both nights, and most of both days. I further learned that on Sunday there had been slight hemorrhage, more on Monday; but, the water coming away on that day, the hemorrhage ceased, and had not returned. There had been vomiting just before my visit. Notwithstanding the violence of the efforts, and the extreme suffering of the patient, the head of the child remained just where it was ten hours before my being called.

Upon examination, I found the head presenting perfectly well, and just within the bony outlet. It was not all engaged under the arch, and the movements of the child were strong and distinct. The os uteri was partially dilated and dilatable; the functions of neighboring organs natural; head free from pain; face pale, and somewhat sunken; and an obvious loss of power had been observed within the last few hours. During a contraction, I could not discover any such effect upon the head, as led me to suppose that labor was any nearer its termination than it had been, as represented to me, for many preceding hours. Here was the case. Between two and three days of suffering, sleepless nights, and sleepless days. Obvious symptoms of exhaustion. The stomach had begun to fail. I thought at first of using the forceps. But the os uteri was in the way, and I felt no assurance that it would not continue to follow the head, and so produce serious present embarrassment and future trouble. The suffering was hourly increasing, and

the uterine effort losing power. I suggested the ether to the medical attendant, and he agreed that it should be tried. Inhalation was at first but awkwardly accomplished, and with imperfect results; but, in a short time, the patient inspired the vapor more perfectly, and very soon manifested its power. The process was begun a little after 6, and the child was born at a little past 8. The uterine effort *increased* very soon after inhalation was begun. Contractions grew stronger and stronger, and advanced the child slowly and steadily. Belladonna ointment was also used, and dilatation went on satisfactorily. The intervals of effort were passed in quiet sleep for the most part. They had been exceedingly distressing, before using ether. Voluntary effort was obviously wanting often, and always when full etherization occurred. There was groaning, bearing down, strong effort. But you saw that it was just in proportion to the demand, and so obviously increased the uterine agency. There was no voluntary shrinking from pains, which often does much to retard delivery; and any exertion made was beneficial.

The child, a boy weighing seven pounds, was born alive. Soon after delivery of child, the uterus contracted, and expelled a quantity of coagula, and much liquid blood. I found the placenta beyond reach, and hemorrhage going on. I at once passed my hand into the womb, to ascertain the situation of the placenta, why it was retained, and to bring it away. I found a portion of it detached, and the remainder firmly adherent to the womb. I proceeded cautiously to separate and remove it. The womb contracted well, and the hemorrhage ceased. The contraction was again ascertained by pressure upon the abdomen, and a swathe carefully applied. Relaxation, however, occurred, and more bleeding. This was again checked, and ice internally and externally used. Mrs. —— was now much exhausted, but did not lose her pulse at all. Stimulants were employed; and, at half-past 10, I left her with a pulse of

128, much slower than it had been, — firm, regular; temperature natural; respiration easy; no sighing, no jactitations; and quiet sleep coming on. I saw her again between 11 and 12, and between 12 and 1, and found her comfortable.

5, P.M. — In all respects better. Pulse of sufficient strength, between 80 and 90. No return of hemorrhage. Lips, tongue, and cheeks, have sufficient color. Re-action well enough established to allow of moving her, and arranging her dress for the night. This was done without producing the least exhaustion or faintness. Speaks of the relief of pain from the ether. Says she was aware of uterine efforts; but it seemed to her like simple straining, with a sense of something advancing, and not at all like pain. She strongly commended ether to all women who might suffer the pains of labor.

24th, 9, A.M. — Night perfectly good. No complaint this morning. Renal and other functions natural. Perfect and moderate re-action, with excellent prospects of doing well.

25th, 9, A.M. — Through yesterday very comfortable. In night, some occasional pain in abdomen, for which gave five grains Dover's powder, and afterwards ten drops of laudanum. Milk has come freely, with scarce any of the usual precursors of lactation: a slight chill and slight headach only. Nursing, as is usual at this period from labor, causes uterine contraction. Womb now fairly contracted. Pulse 96, soft, of good strength; respirations 20 in minute, perfectly easy. Urine and lochia natural. Some heaviness from opium last night, and from five grains of Dover's powder taken about an hour ago.

Remarks. — The symptoms in this case were rather those of *collapse*, than those which are the results of hemorrhage. The quantity lost was not great. But the loss of power, from long and most exhausting labor, was marked. Hence the difficulty of preserving the contraction of the womb,

which at times was very perfect, and the immediate sinking which followed relaxation. The means for maintaining contraction were carefully continued. Aqua ammoniæ; pressure; cold, applied externally and internally; ergot; tinctures of cinnamon and cinchona combined, formed the principal of these means, and were at length sufficient for the purpose. The fact which showed how much the symptoms depended on collapse was the occurrence of sinking, death-like faintness, and expression of countenance, which so marks relaxation of the womb, without the occurrence of internal or external hemorrhage. This state imposed the necessity of most constant vigilance. The medical attendant, who had passed forty-eight hours with his patient, did not leave her till 6, P.M. of the day she was confined, nearly ten hours after that event, and, during that whole time, was using means to carry on life or its functions, till re-action showed itself. For hours, he preserved by direct pressure the contraction of the womb, almost without interruption, and without changing his place. It is by services like these that the practitioner of midwifery truly and faithfully serves his patient. By neglect of such services, life must be often jeopardized.

The state of collapse is further to be inferred from the length and severity of the labor, and the loss of power which such a process is calculated to produce. And finally, it is proved by the early and free re-action which followed entire rest, and nourishment, and stimuli. When re-action occurs, you feel assured that the patient is safe. How long is the solicitude concerning that condition which hemorrhage induces, and how often during that state are seemingly well-laid hopes frustrated!

It should have been stated, that severe pain and soreness had been felt in the last weeks of pregnancy in that spot, corresponding to which adhesion of the placenta was met with.

I look back upon the agency of ether in this case as

very important. It stopped pain, suffering, and so checked threatening prostration. It would seem also to have made labor shorter; for in *two hours* that was accomplished, which, before etherization, whole days did so little to advance. In this way it did excellent service in diminishing exhaustion, or further waste of power.

Case VII. — *Natural Labor.*

No. ——, aged 27; first labor. Taken Friday night, June 9th. Pains very strong between 10 and 11, P.M. Presentation natural. Head just within outlet. Pains strong, with much suffering. Very little, if any, progress. Pulse, &c. natural. In two hours, pains slackened. I gave an infusion of ergot. Pains stronger, but with clear intervals. Complaints vehement. Inhalation of ether. Great reluctance was expressed to use of ether. "It makes me drunk," said Mrs. ——, "and I will use it no more." She was asked if she suffered as much as before inhalation. She said no. Expressed herself much comforted by it. When the effects passed away, and suffering increased, she inhaled again. This course was pursued for about two hours, when the child was born. As the head was passing, infusion of ergot was given. The labor was finished very happily to mother and child. It has been objected, that the child may suffer from etherization, and that ether may be detected in its circulation. I examined by smell the cut ends of the cord, before the placenta was separated, and immediately after separating the child; but the odor of ether was not detected in either.

11th. — Slept perfectly well all night. Complains of nothing but hunger. Smell of ether in breath. In Case VI. it was noticed as late as the seventh day after labor.

12th, 7, A.M. — Is perfectly well, nursing her child, for whom she has abundant food.

Case VIII. — *Natural Labor.*

No. 145, age twenty-four; first child. Inhaled ether. Recovery perfect.

Case IX. — *Natural Labor.*

No. 152. First called thirty hours after labor had begun. Pains very severe. Progress very slow. Ether was recommended, but imperfectly inhaled. The first effect was relief of pain. Uterus then became quiet, and remained at rest for an hour. Contractions now returned, and the child was born about six hours after my first seeing her. Mother and child did well.

Case X. — *Instrumental Labor.*

July 30th. — No. 156, age twenty-four; first child. I was called about forty hours after beginning of labor, and twenty since severe pains occurred. Is fleshy, fresh colored, and in excellent health. I learned that ether was inhaled in the morning (I was called between 5 and 6, P.M.) for about three hours, but with no satisfactory results. The brain was disturbed; but pain was very imperfectly, if at all, diminished. I found the head low in pelvis; so that, during a pain, it would part the labia somewhat. But under great effort, both voluntary and organic, you were satisfied that no progress was made. It was a protrusion of the scalp, and not of the cranium, which constituted the apparent descent of the head. This, I was told by the medical attendant, had been the case some hours. One symptom was extremely distressing. I have never known it more so. This was pain referred exactly to the coccyx, and

to its lowest portion. The slightest touch here produced an expression of agony from the patient; and this more especially was the case when contraction was present. The demand for delivery was urgent, and I saw no reason for resisting it. Upon examination, I found the right ear of fœtus towards right acetabulum, or ramus of os pubis, and quite high up, showing that the cranium was still very obliquely situated, and indicating what should be the direction of the first-applied branch of the forceps. The instrument was passed with much ease; locked without difficulty; and ether was administered. I saw how slowly was its power manifested; but, at length, Mrs. —— said, "I am losing consciousness." A foot, which had been supported by her against the foot of the bedstead, fell suddenly; and the hand and arm, which had been used in pulling, became at once powerless and relaxed. The sponge was now removed.

The womb soon contracted powerfully. I drew with the forceps, and the child advanced in the most favourable manner. I asked, if there was pain. "Yes," said Mrs. ——, "exquisite pain." "Where?" "In that same spot. It is terrible there, but no where else. I have no other pain." The child was delivered with the next effort. There was some delay after the head was born. To secure contractions, inf. secale was given as the head was passing, and soon after it was born. The child did not immediately breathe. But soon efficient effort occurred, when the shoulders, trunk, &c. slowly but steadily followed. Child now breathed well. The placenta was soon thrown off and delivered. There was no hemorrhage, or the least succeeding accident. Before the placenta came away, a mass of *firmly coagulated blood* was expelled from the womb by a pain.

31st, 9, A.M. — Night perfectly good. Urine has been removed by catheter. No pain. Is still disposed to sleep. Recovery perfect.

When the question was asked concerning pain, the patient was perfectly quiet, making no complaint; the head being about to pass the perineum. It was asked to ascertain the condition as to *consciousness*, rather than *sensibility*. The answer seemed to be rather from the *remembrance* of *pain*, than from *actual*, *present suffering*. How often do we meet with the expression of great suffering, even when etherization is apparently perfect, of which afterwards there is not the least memory!

Case XI. — *Natural Labor.*

No. 141 was taken in labor, Tuesday, 3 A.M. August 3. She is nineteen years old, and this is her first labor. I saw her at about 8, P.M. having been called in the forenoon, but did not get the message.

Upon examination, I found the os uteri much dilated, and perfectly dilatable. The head was low, and every thing denoted a favorable case. The water had not come away, and the membranes were in close contact with the scalp. Her pains were not severe, and had but slight effect upon the presentation. The position was natural. An infusion was made of one dram of ergot to six ounces of boiling water, and half an ounce given. Contractions became stronger — water collected. The membranes were broken. The head descended.

Pain became violent, and the expression of suffering was vehement. Ether was now administered. It was inhaled fairly and readily, and very soon showed its full effect. The muscles became relaxed. All voluntary effort ceased. Most perfect repose took the place of the immediately preceding distress and restlessness. Her first expressions were of pleasure. She spoke in the most pleasant tone; laughed moderately at what was going on around her; and said, "How curious, how strange, how wonderful, every

thing seems!" She said she had no pain, and this when strong uterine efforts were forcing the head upon the perineum. A friend, who had been present during the whole case, became so faint and so much distressed by the changes which followed inhalation, that it became necessary to leave the chamber. Mrs. —— spoke of her sufferings before she went "to sleep," as she called the state produced by the ether, and of her great comfort now. Inhalation was used very slightly once again; as some complaint, very small indeed, was made of returning pain. The head was now born, and in the midst of entire absence of suffering. To secure contraction of the womb, an ounce of the ergot tea was now given; and the child was soon born, a girl, and living. The child's cries at once arrested her attention. "What's that?" was the first word. Then great joy was expressed, and especially when she learned it was a girl.

The placenta soon followed. No hemorrhage occurred; no coagula; scarcely any liquid blood. There was none when the placenta came away. It was almost free from moisture. There was not the least odor of ether in or about it. The womb contracted firmly. A swathe was applied, and pinned closely around the abdomen; and Mrs. —— made comfortable in bed. She now lay as in sleep. She breathed with entire ease. There was no sign of fatigue. Her pulse was 72 in the minute, and of good strength. This was its character through the labor, or while I witnessed it. The temperature was natural, and the complexion also. I left Mrs. —— about an hour after delivery, having first learned that there was not the least hemorrhage present, and that every thing promised well, between 11 and 12 o'clock.

Aug. 4th. — Remained very quiet through night; but sleep was disturbed by noise in the court. She exhibits the same repose which marked her condition last evening. She spoke of herself as being very well, — of the ease of her labor. Said she had nursed her infant; and the nurse

said, the child had had a fair meal. Mrs. —— had passed water, and the lochia was natural. Child weighs eight pounds.

5th. — Doing perfectly well. Pulse 72.

6th. — As well. Milk in abundance, and with no precursory disturbance. Pulse 72. No digestion. Oil and suc. lim. one dram each in morning.

Case XII. — *Instrumental Labor.*

No. 160, age about thirty; third labor. Called to visit Mrs. ——, in consultation, about 12, noon, August 6th. Was taken in labor about 4, P.M. of the 5th. Two former labors were laborious, instrumental, with children still-born. As the head was still high up in the pelvis; but, according to Dr. ——, lower than at his morning visit; and as pains were good, as were pulse and strength, I advised delay, and agreed to call again with Dr. —— at 6, P.M.

Six, P.M. saw Mrs. ——. The head is rather lower in pelvis; or rather, the scalp, much swollen, is lower, but still above outlet. The base of the cranium is probably not fairly through the brim. The head was firmly impacted in the pelvis. It was agreed to apply the forceps, and to administer ether. The instruments went as easily as usual over sides of the head, and locked without any difficulty. I used Hodge's long forceps, which I much prefer to any other, and which of late I have most used. The ether was now used. At first, Mrs. —— strongly resisted its use, notwithstanding her previous demand for it. But, after a short time, she consented to try it. She now persisted in its use, so that it was difficult to remove it, though she was fairly under its power. She spoke of the perfect relief it gave — of the pleasure it afforded. Upon making an effort with the forceps, I saw, by the kind of complaint and

effort she made, that etherization was not perfect, and again applied the sponge. This was necessary twice more, when the full effect of ether was produced. The child was delivered without the least consciousness on her part. It was born alive, and soon breathed, and cried strongly. There was above the right temple a depression of the bone, produced either by the forceps, or by the projecting promontory of the sacrum, of some depth. But there was not the least evidence of compressed brain. The afterbirth did not come away; and, some flowing occurring, I introduced my hand to learn what was the condition of the placenta. I found a part of it separated, the womb well contracted upon it. Upon passing the hand beyond this, the rest of the placenta was found firmly adherent, and required some time and effort to bring it away. This, however, was done; and, after applying a swathe, we left Mrs. —— with a good pulse, and as comfortable as are women in general after labor.

A friend was present who had been with Mrs. —— in her previous labors. She said she never had so short a time; had never been so manageable, and never so comfortable after labor. The statement was made by a woman whose manner during the labor showed excellent judgment, and whose opinion evidently deserved credit.

Aug. 7. — Reports very comfortable. Slept well. Urine natural. No hemorrhage. Pulse more rapid than natural. Tongue coated, as from old coat. Her manner is very bright, showing entire freedom from uneasiness. After-pains slight — much less than usual. I now asked about effects of ether. She says she recollects asking for ether, then resisting its use, and then holding to it with all her might; all of which was true. I asked now if she had any recollection of pain after she had fully used it, and after the sponge was forced away from her face. She said no, most emphatically. She knew nothing after that; she felt nothing after that; her attention first being raised by some

one saying that the child was alive. That she heard said, and she heard the child cry. So that, during the whole use of the forceps, which was unusually long and severe, she knew nothing, but was still making vehement complaints as of great suffering. This makes the interest of the case; and I have never seen the want of harmony between extreme suffering and recollection of it more striking.

The child does well. The depression of the bones of the cranium has disappeared.

Case XIII. — *Natural Labor.*

No. 154, by reckoning, was to be in labor, August 9. I was called to her, Aug. 8, at 12, noon. She was taken sick on 7th. Pains moderate; intervals clear; sitting up, pulse, &c. good. Examination showed fair progress. Head low in pelvis. Os uteri dilated and dilatable. No water between scalp and membranes. Pains continued; but very little progress was made. Half an ounce of the infusion of ergot was given; and, in an hour, an ounce. Pains increased, and the labor advanced. When the process was obviously near to its close, and the sufferings great, ether was inhaled. At first, this was imperfectly done. Then came its full effects, and the relief of pain. With the last pains there was no suffering. The child was born alive. The placenta soon followed. The womb contracted perfectly, and there was not the least hemorrhage. I left her, about an hour after delivery, perfectly quiet, with the appearance of approaching sleep.

This case is recorded on account of two circumstances of interest which occurred. One of these was a sense of *faintness*, which attended the first inhalations. Mrs. —— has been always prone to faint on very slight occasions, and this showed itself now. The pulse remained firm, and

there was no pallor; but still such was the complaint of being faint, that inhalation was suspended. At length, however, this faintness ceased, and inhalation was very perfectly performed.

The second fact I would state was the effect on the pulse. Before inhalation, it was natural in force and frequency; but it became *slower* and *stronger* afterwards. After delivery, it remained strong, at sixty beats in the minute. It has been remarked, that the pulse becomes quicker during etherization; and I have certainly observed this to be the case. In Mrs. —— it was entirely the reverse of this. I have observed a diminished frequency in the beat before; but I do not remember to have observed, that this has been so striking as in the above instance.

9th. — Doing well.

10th. — Doing well. Pulse 60. Is without complaint. Is well enough, strong enough, to rise, and go about house, as she says.

Case XIV. — *Natural Labor.*

No. 163, twenty-two; first child. I first saw Mrs. ——, Sunday, Aug. 15th, when she was in labor. The waters came away at 9, A.M. at beginning of the process. I saw her about 2, P.M. She is very small, short, thin, pale. Has been ill during the whole of pregnancy. Her complaints refer most to the stomach. Nausea, but no *vomiting;* acid stomach; severe heartburn; oppression from all sorts of food; flatulence, — these and associated symptoms have been almost constant. Her pulse was small, but not frequent.

Examination showed presentation natural. Os uteri about size of a cent, but firm, thin, and undilatable. Very little show. Very little pressure during pains. I left her to be called when pains demanded.

Saw her again about 6, P.M. Progress good. Pains

[illegible] saying that the child was alive. That she h[illegible] had heard the child cry. So that, during t[illegible] [illegible] of the forceps, which was unusually long an[illegible] she knew nothing, but was still making vehem[illegible] efforts of great suffering. This makes the i[illegible] [illegible] and I have never seen the want of [illegible] between entire suffering and recollection o[illegible] nothing.

The child does well. The depression of the b[illegible] [illegible] has disappeared.

Case XIII — *Natural Labor.*

Mrs. [illegible], by reckoning, was to be in labo[illegible] I was called to her, Aug. 8, at 12, noon. Sh[illegible] [illegible] Pains moderate; intervals clear[illegible] [illegible] good. Examination showed fair pr[illegible] [illegible] pains. Os uteri dilated and dilatabl[illegible] between scalp and membranes. Pains contin[illegible] little progress was made. Half an ounce of t[illegible] [illegible] was given, and in an hour, an oun[illegible] more, and the labor advanced. When t[illegible] [illegible] came to its close, and the suffering [illegible] [illegible]. At first, this was imperfectl[illegible] [illegible] its full effects, and the relief of pain. [illegible] [illegible] was no suffering. The child [illegible] [illegible] soon followed. The womb [illegible] [illegible] and there was not the least hemorrh[illegible] [illegible] of any kind after delivery, perfectly [illegible] [illegible] [illegible] approximating sleep.

This case is recorded on account of tw[illegible] [illegible] [illegible] occurred. One of these [illegible] [illegible] [illegible] attended the first inhalati[illegible] [illegible] [illegible] [illegible] to faint on very [illegible] [illegible] [illegible] [illegible] [illegible] The pulse re[illegible]

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stronger. Os uteri dilatable. Much complaint of pains. Begs for ether. I soon found, that the progress was not in proportion to effort and state of os uteri, and gave an ounce of infusion of secale, *without the powder.* Change followed this, both in the force or character and effects of contraction. Inhalation was now allowed, and it produced excellent effects. Pains continued good: complaint of them almost ceased. Quiet marked the process. The intervals were passed in entire repose. There was scarcely any consciousness at the last; and, though pain in the back was remembered, it was barely alluded to. It seemed more like the memory of a dream of past trouble, than the consciousness of a present grievance. The child, a boy, weighing about eight pounds, was born with great ease. The afterbirth soon followed. The womb contracted well, and no hemorrhage occurred. Pulse 72; respiration natural; complexion and temperature as at beginning of labor. Soon after she was made comfortable in bed, she began to complain of very severe distress at the stomach. It was like that which had troubled her so much during pregnancy. Sometimes it extended to the throat, by the œsophagus; sometimes *a ball* seemed to swell into and fill that passage to and from the stomach. I now asked what she had eaten. She said, for her, very bad food. It was *baked beans* at breakfast, and *huckleberry pie* for dinner. She could hardly have selected more unsuitable food for her state of stomach. She took for this trouble, which was accompanied by constant eructations, *salæratus.* Tincture of peppermint, and other things, she had tried before.

As this distress declined, after-pains in the night declared themselves, and were very troublesome. I saw her early in the morning of the 16th. I found the abdomen very full, and not resonant anywhere on percussion. The uterus was well contracted, but unusually high in the abdomen. The bladder, greatly distended, had carried it into its novel situation, and was doubtless an agent in her sufferings.

She had passed water naturally, Sunday, during labor. I used the catheter, and drew away more than a quart of water; and a good deal did not enter the vessel. Great relief followed. The abdomen acquired its usual size, and the womb its usual situation. It was well contracted. At noon, or 2, P.M. I saw Mrs. —— again. Her troubles had returned, and the bladder was again full. She was raised on to a vessel in bed, and passed quite as much urine, in a full stream, as had been drawn off a few hours before. Again relief. The distress in stomach entirely gone. Pulse of good strength, 72 in the minute. Relieved of all trouble. Dover's powder directed, should pains recur.

7, P.M. — Nursing her child. Is more comfortable; pains less. In all respects doing well.

17th. — Got Dover's powder with relief. Ol. ric. and suc. lim. two drams each, in the morning.

18th. — Got physic, which has operated well, and general condition good. Milk sufficient.

24th. — Gradually improved. Pains continued an unusual time, and were often very severe. Has long suffered prolapsus uteri; very painful catamenia; with much and very distressing bearing-down. These symptoms have troubled her since labor. Great care has been taken, by continued rest in horizontal position, to save her from her old troubles.

CASE XV. — *Protracted Labor.*

No. 161 was to have been confined in September, but was taken in labor, Aug. 15th. Says she has had pains occasionally for a week; is thirty-four years old; has had five labors, and suffered greatly in them all. As her pains are slight — no show — and as she has very troublesome diarrhœa with much straining attending evacuations, I prescribed an opiate, and left her.

16th, 4, P.M. — Saw Mrs. —— again. Pains stronger, but still only the precursory efforts of labor; and I left to be called, if she grew worse. Was called between one and two of the morning of the 17th. Labor was now present, as manifested by positive symptoms, and as proved by examination. I now ascertained what had been her previous condition. She had suffered, during the whole of pregnancy, most severe dyspepsia. Her stomach had been in constant distress. She had observed the most rigid rules of diet, and had given the strictest attention to time, quantity, and quality, in using food. She had suffered from numbness of the lower extremities, and occasional loss of power over them. As her friends said, had been frequently paralyzed. Her pulse was rapid, small. Her strength little — emaciation striking. She looked to labor with deep anxiety about the result, and her friends sympathized with her in foreboding of ill. Pains increased in strength soon after my arrival, and I found labor had made good progress. The os uteri was dilated well, and dilatable. Show abundant, and water filling the membranes, and protruding them during a pain. In the height of her suffering, she asked for ether. It was used. She inhaled it with unusual avidity, and insisted on being well supplied with it. Its effects were diminution, or almost a cessation, of complaint; repose in the intervals entire. It was obvious, that the happiest effects of etherization were present. Pains increased. Relaxation of perineum was more perfect than I have long noticed it to be. The child was born alive and vigorous; and the placenta, in about half an hour, was expelled. The womb contracted well, and no hemorrhage occurred.

Mrs. —— was asked of her sensations during labor. She said she did not entirely lose consciousness of pain; but it was easily borne. She was most struck with her feeling of strength. She had looked for exhaustion, she said, but had more strength than she had known for weeks.

The effects of the diarrhœa had passed by, and she felt as if she had been well during the whole of pregnancy. The pulse was less frequent, and of better strength. She spoke with a firmer voice, and asked to be taken from bed, or to be permitted to sit up, that her bed might be made up, and so her comfort increased. I left her at about 4 o'clock, A.M. quite as well as women commonly appear after delivery.

17th. — Quite as well generally. Diarrhœa more troublesome, but no weakness complained of from it. Pulse rapid; skin warm. Suffers not at all. Tinct. opii, p. r. n.

18th. — As yesterday, except diarrhœa is less. Pulse and skin as before. Says, in former labors, not only has labor been very distressing, but after-pains have been excessive, and for many days. Last labor, they lasted five days. Has not suffered from these pains at all since ether; and but for the diarrhœa, she would be well.

24th. — Diarrhœa has continued, but is gradually decreasing. Pulse is slower. Has milk. Very little pain in abdomen. Soreness, which is relieved by flaxseed meal poultice.

31st. — Mrs. —— has gradually improved. At times has had dysenteric discharges. Has been much benefited by a mixture of one part diluted nitric acid, and two of tinct. opium, in twenty-drop doses, three or more times a day. Discharges, after this medicine, have become less frequent and of better character.

Sept. 2d. — Still better than on 31st. Milk has disappeared entirely.

CASE XVI. — *Natural Labor.*

No. 159, confined August 30th. Boy, weight seven pounds; third child. Was taken in labor in evening. I was called about 10, P.M. Pains present, but slight. Found

her sitting up. She soon went to bed. Pains rapidly increased. She asked for ether. This was administered. It was used at her request, as pains came on, and always with marked relief of suffering. The last pains were not at all complained of, so unconscious was she of these. A swathe was applied. Afterbirth came readily away. Some after-pains. The womb expelled a firm coagulum as large as a fist, and with much relief. I left her perfectly quiet, and with scarce any pain, towards 1, A.M.

31st. — Pulse 72. Perfectly comfortable. No after-pains. Some sleep in night. Says she felt *weak* under etherization. Could make little exertion, voluntary power being sensibly diminished. No milk.

Sept. 1. — Doing well. 2d. — Milk coming. Some excitement. Slight after-pain. Two coagula, firm, from womb in night.

Case XVII. — *Natural Labor.*

No. 143, fourth child. Taken in labor, Aug. 31, at noon. Called to her between 2 and 3, P.M. Saw her between 4 and 5, same afternoon. Left her sitting up, with light pains. Examined. Head presenting. Called again between 9 and 10, or about 10. Found labor advancing. Examined, and found head descending, and os uteri dilated and very dilatable. At a quarter before 12, administered ether; and its effects soon declared themselves, in gradual diminution, and soon entire abolition, of suffering. She was entirely ignorant about events; did not know whether she was delivered or not, and was entirely happy. This was very striking, when the pains are ordinarily most distressing, viz. when perineal tumor is fully formed, and the head is forcibly separating labia. The contractions were very strong at this time, but no apparent voluntary effort present. She was still, and making no other sound than that

which accompanied forcible inhalation of the ether. The child was born in this state of things. It cried lustily, and the cord was divided. A swathe was now passed round the abdomen and perineum. The womb contracted, and first threw off a small *firm* coagulum; and the afterbirth soon followed. The child, a girl, weighed fully ten pounds, the weight of her former children. I now asked of her state during labor. She expressed herself wholly delighted. She had been in a railroad car all the time, and had had a beautiful ride. She said, again and again, that she could hardly believe she was delivered. She had always suffered so severely in former labors, and now the most she could recollect of suffering was a little uneasiness; but where situated, or what, she could not possibly tell. She hoped every woman would be allowed the use of ether. She made me promise always to use it. She was surprised, that its effects had not been known years and years before. In this case, as in others, the natural lubrication was abundant, making all other unnecessary. The os uteri, which had not disappeared when ether was first administered, was gone in a pain or two afterwards. Her temperament declared itself strikingly. She is remarkably calm always, not at all *nervous;* and such was her condition now. Her pulse, at the time ether was used, — for it was counted accurately just before inhalation, — was 116 in a minute. It soon fell to 96, and was 84 exactly when the afterbirth came away. I left her, between 1 and 2, entirely free from after-pains, with her child on her arm, about to take the breast. She suffered after her last labor, five days and nights, from most severe and uncontrollable after-pains. I close this record at ten minutes past 2, A.M. in the fullest memory of the case, and after witnessing the happiest effects of ether.

Sept. 2d. — Night good; pulse 72; one dejection, natural; scarce any after-pains. Has nursed her child. Urine free. Every thing in condition of patient good.

5th. — Perfectly well. Says she feels as much better

than after any other confinement, as her late labor was easier than any preceding one. "I have none of those *wrenching* pains which have always troubled me before. I feel well." Her bowels have been regular daily, without medicine. Has not taken any medicine since confinement. No trouble about nursing.

Case XVIII.

Natural Labor. Hemorrhage before Labor.

No. 158, age twenty-four; third labor. Sept. 1st, took a long walk at noon, about a mile. Got home to dinner. At the table, was taken with uterine hemorrhage. Lost much blood in a short time, and was carried to her chamber; being too weak and faint to walk up stairs. I saw her soon after. She was still faint; required to be fanned; was pale; pulse feeble. I prescribed stimulants moderately; examined and found os uteri closed; head of child distinctly to be felt through uterus. The hemorrhage had ceased. Positive rest in the horizontal position was enjoined. Her chamber was to be kept quiet, and her children were put into another room.

Sept. 6th. — Nothing has happened since the 1st. Mrs. —— has had no return of hemorrhage. Was taken in labor this morning. Has had pains before, like the precursory ones of true labor. Now there is much pressure about the pelvis, and a constant discharge of a colorless liquid. The pains continued through the day, becoming more severe in the evening; and at length, becoming intolerable, Mrs. —— asked to inhale ether. She did so, and soon came under its kindest influence. It was necessary to repeat inhalation not more than four or five times in the hour and half before delivery. The child, a boy weighing eight pounds, was born alive, without her being at all conscious of the event. She asked when it would be born, some

minutes after its birth. Before return of entire consciousness, a slight hysteric state occurred. There was smiling, and moderate laughing. Questions were readily answered, and entire freedom from pain manifested. The afterbirth soon followed, without difficulty.

The pulse was more rapid before etherization than afterwards. It fell to 72, its natural beat, and remained at this. There was an obvious effect produced on the os uteri, soon after inhalation. It became softer and more dilatable. The pains were more efficient, and the os soon disappeared. There had been abundant lubrication during the case, and I was not aware of any increase in it. The aqueous discharge continued, but *no blood.* The hemorrhage which occurred on the 1st led to some uneasiness; but I had met with the same occurrence in other cases, and, no subsequent trouble happening in them, I did not look for any in this. Before the placenta came away, there was a *firm coagulum* thrown off, but no *flowing;* nor did any happen afterwards.

7th. — Pulse 72. After-pains but slight. After last labor, and during a whole day, these pains were very severe, Mrs. —— saying, more so than those of the labor. Lest present pains should increase, I directed inhalation, and to repeat it as it might be necessary. This she did, and was soon relieved of all suffering. Had a good night. Urine natural; lochia natural.

8th. — Pulse 72. One after-pain only, this morning. In all respects doing and feeling well. Milk abundant.

9th. — Pulse 72. One dejection, without medicine.

10th. — As well. One dejection, without medicine. Pulse as before.

Case XIX. — *Preternatural Labor.*

No. 168. — Second labor. Breech presentation. I was called to see this patient just after labor was over, on

account of sinking after hemorrhage. The flow was sudden; much blood, coagulated and liquid, was lost; and sinking and fainting at once induced. This patient had inhaled ether-vapor, but not after such manner as to produce its full effects. The labor was long and exhausting. I record it because of the hemorrhage which followed the use of ether, not because for a moment have I believed ether produced it, but because of the importance of every untoward fact which may have the least apparent connection with the employment of ether, however imperfectly used.

This case occurred in August. Mother and child did well.

Case XX. — *Labor with Convulsions.*

Sept. 13th. — No. 170 was taken with pain in abdomen, resembling labor, but more like colic. Had severe cholera morbus in night. Next morning, got castor oil; and, in forenoon, an injection, and was thoroughly purged. At 12, noon, was taken with convulsions. This is her third pregnancy, period seven months. In her first, she had convulsions at the seventh month, and was delivered by natural effort. In the second, at about eight months, had convulsions, and was delivered by the womb. Her physician, finding she had suffered before fits with severe headach, and was deeply red in the face, bled her largely. Her fits, however, continued very strong, not at all diminished by bleeding and previous purging.

I saw her about 6, P.M. She was in a very excited state, talking constantly, and tossing herself about vehemently. Her face and lips deadly pale; skin cold; pulse rapid, 150 in a minute. Every thing showed a state of extreme exhaustion, still with remaining power to make great *muscular* exertions. No pains; slight dilatation of os uteri; os uteri soft, dilatable; show abundant. I have never known the

ordinary attendants of labor more abundantly present, and still no contractions, or so slight as hardly to deserve the name. An attempt had been made to break the membranes, before I saw the patient, and to induce labor.

She soon had a fit, a violent convulsion, followed by deep stertor and stupor. She came out of this in about seven minutes, and began again to talk, and to throw herself about. This state continued. At length, I ruptured the membranes; but no relief came. The womb did not act. The intervals of convulsions lessened. The pulse sunk. She lost power to speak or to move, and lay wholly unconscious on her bed. It seemed impossible that she should long survive this state of things, and it was decided that an attempt should be made to deliver. The os uteri admitted readily two fingers, and was dilatable. I was further encouraged to make an attempt to save life, because of the smallness of the uterine tumor, and the belief hence that the fœtus was very small. The head was perforated, and the brain removed; and, after a long trial, effort being occasionally suspended, the fœtus was removed. It was very small for the time of pregnancy. The placenta followed. The womb contracted, and no hemorrhage ensued. She had two convulsions during the operation. I left her quiet at 2, A.M. of the 14th.

14th. — Fits occurred after I left. This had happened to her before, and is not an uncommon occurrence in such cases. In the morning, she was very much exhausted. Pulse very rapid. Great restlessness. Apparently threatened convulsions. *Ether* was *now*, for the first time, employed. She soon became calm. Had two slight fits afterwards; but, in the course of two or three hours, fell asleep, and had a long and quiet repose. No more fits; but, as they were again threatened, inhalation was employed, and with the best effects.

I saw her about 7, P.M. I found her sleeping very quietly. Pulse 112, soft, and of good strength. Skin

warm, soft. Expression and complexion natural, good. No urine. Catheter recommended in the morning, or earlier, if need be.

15th. — Report favorable of state in morning. Urine, during operation of an enema, very copious.

16th. — Report same. Has consciousness; knows who is about her. Continued comfortable throughout yesterday; night good. To-day, urine natural. No milk. Abdomen entirely free from soreness or pain. Is surprised to find herself in bed. Knows of nothing which has happened. Feels perfectly well, and wishes to get up, and be about as usual. Is cheerful.

17th. — Doing well this morning. Every thing promises well. Is very cheerful. Is without any complaint. Abdomen without tenderness; external organs without swelling. No difficulty of urine; no scalding; no appearance of any lesion of structure or function.

18th. — In all respects as well as yesterday. Recovery perfect.

Case XXI. — *Instrumental Labor.*

No. 172, first child. Began to have pains, Friday, Sept. 17th. She had intervals of hours between pains, till Sunday, the 19th; then went to bed. Pains very severe in night. So, on Monday, most suffering at night.

Tuesday, 21st. — Cramps in lower extremities very severe. Uterine effort comparatively slight. I was called to see her between 12 and 1, noon. Found head low in pelvis. Membranes had ruptured some time before. No uterine effort. Cranium strongly compressed, and impacted in pelvis. Sagittal suture strongly marked by overlapping of bones. Bladder somewhat distended. Catheter used. Had taken oil lately. Bowels well emptied. Pulse good. By auscultation, placentary murmur well marked at times. Fœtal heart not heard. It was decided to employ forceps. Some

difficulty of application, from os uteri not having entirely disappeared. Ether was now inhaled. At first, ether produced much excitement. Its use was resisted. Unusual restlessness occurred. But shortly its full power was manifested, and extraction begun. The os uteri descended with head. Soon, however, entire relaxation took place, and os disappeared. Perineal tumor began to form. Dilatation went on well, and the head was born without the least laceration; the woman being entirely unconscious of pain. The child, a girl, was still-born; but the heart was beating, and respiration was soon established. Mrs. —— asked for ether, while placenta was coming away, and was greatly pleased with its effects. She begged for it afterwards again, and was gratified. She said she had been in a dream, and was perfectly happy. I left her free from complaint soon after.

23d. — Has done perfectly well since delivery, and continues to do so.

Case XXII. — *Natural Labor.*

Sept. 23d. — No. 167. Labor came on to-day in the morning. I was called between 8 and 9, A.M. Process completed at half-past 9, A.M. A boy, weighing nine pounds. Ether was asked for at the close, and produced its wonted relief. This was the fourth labor. Severe after-pains in two last.

24th. — No after-pains; night good; and dejection without medicine. Has had mammary abscess in both breasts. As yet, breasts give no trouble. Pulse 72.

26th. — Doing very well. No after-pains.

30th. — Has continued well till to-day. To-day I was desired to see her on account of some tenderness in one breast, which much troubled her on account of her former suffering. Prescribed flaxseed meal poultice, and,

in the evening, a mixture of nitre, tart. antimonii, and tr. opii.

31st. — Breast relieved. Has had perfect recovery.

Case XXIII. — *Instrumental Labor.*

No. 175, second labor; first premature. I was called to see Mrs. ——, in consultation, about 2, A.M. Sept. 26th. I learned she had been in labor seventy-two hours, not constantly, but for the most part, in pain. I found the scalp just within external organs. Presentation good. Head firmly fixed; the parietal protuberances resting closely against the rami, and apparently allowing no room for any thing to pass between them. Here it had been for many hours, and this notwithstanding very strong pains. These had, however, begun to subside. The bladder was emptied by the catheter, and Hodge's forceps applied. This required great care. As soon as the first branch had gained its position, and a passage been made into the womb, a gush of lig. am. strongly colored by meconium, followed. This continued to flow. The head descended kindly, and was delivered. The child did not breathe. The cord was firmly round the neck twice. The uterus soon contracted, and the shoulders descended. The child was born through the loops of the cord. Pulsation continued, and the heart beat, though feebly. The cord was tied and divided, and various means were used to animate the child, but in vain.

Ether was used in this case, and insensibility produced. The patient made no resistance to instruments, and increased relaxation soon followed etherization. The pulse, respiration, and temperature, continued natural, and no hemorrhage followed. There was no smell of ether in the placenta. Recovery perfect.

Case XXIV. — *Natural Labor.*

No. 153. Labor occurred in this case, 9, P.M. Sept. 29th. I was called, 2, A.M. of the 30th. Much pain in back, cutting, grinding; in no sense expulsatory. Examined. Excessive tenderness of external organs, and vagina. Os uteri reached with difficulty; very slightly open, admitting a finger. Uterine tumor very low in pelvis. Head felt through uterus, presenting. I went to bed, and was called between 3 and 4. Very little alteration in character of pains, except they were more severe. Things went on thus not long, pains becoming decidedly forcing. Still, os uteri and external organs remained much as before. I should have said there was no show. This was a first labor, and without question at the fullest time. Person very small. Abdominal tumor very large. At 7, ether. The changes which soon followed were softening of organs, dilatability of os uteri, abundant show, and diminished sensitiveness of external organs. Expulsatory efforts now increased. Etherization was produced, but at no time so decidedly as in many cases. At length, pains slackened; the head was very low; every thing favorable; and a third part of an infusion of pulv. secale, one dram to teacup boiling water, was given. Pains soon increased. Head descended, and the child was delivered. The perineum was very slow in yielding, and some laceration was produced. She was delivered between 12 and 1, noon. Child, a girl, weighed ten pounds. No hemorrhage, — no pain followed. Uterus contracted firmly and permanently.

Oct. 1st. — Doing well. No urine since delivery. Night good.

2d. — Report good. Urine abundant. No dejection. Pulse good, as it has been from beginning of labor. Altogether comfortable.

3d. — Milk abundant. In all respects doing well. No

dejection. One dram ol. ric. and as much lemon juice in the morning, if no dejection before.

4th. — Bowels moved. No disease.

Case XXV. — *Natural Labor.*

No. 165 was taken in labor early on Friday morning, Oct. 1. I was called Sunday morning, Oct. 3d. Says pain was slight on Friday, and did not prevent sleep in night. Saturday, pains more decided; and no sleep, Saturday night. This is the fourth labor. Patient very fleshy, strong; has been unusually well during pregnancy. Last labor very painful, and of forty-eight hours' continuance. Upon examination, os uteri high in pelvis, not at all dilated. General softness of organs, and some show. I left, to be called when pains were more decided.

Called at 2, P.M. Now very severe pains. More show. Os uteri dilatable. Waters have come away. Head presents well. Pains so severe, that I gave ether at half-past 2. Its best effects soon followed. Strong pains, more dilatation, and more show. For nearly three hours, the best effects of inhalation were manifested. "How beautiful!" "Do always use ether." "Beautiful," &c. &c. in same strain. At end of three hours, less favorable effects of ether appeared. *Numbness* was complained of, to which she is subject; confusion of head; says she is dying, &c. &c. The ether was at once laid aside. It was obvious that its favorable effects were not present. In meantime, labor-pains were very strong. I have hardly met with them more so. The vagina was forced down before the head in folds. The soft parts about symphysis pubis became much swollen. The pelvis was nearly filled by the congestion of the vagina. Os uteri nearly disappeared, and then remained, at the anterior part of pelvis, strongly compressed between head and symphysis and rami pubis. The ether was again in-

haled freely, but was still followed by disagreeable results, as before. I now waited between two and three hours. The pains were efficient. The head came down, cleared the os uteri, and pressed away the soft parts which had so long been before it. So much suffering was now declared, that I again gave the ether. Now its best effects appeared. The pain in the back, which before had been most distressing, and for which firm pressure and friction were emphatically demanded, passed entirely away. The pleasurable feelings from the ether were as strongly expressed as upon its first inhalation. It was demanded; and the patient chose to hold the sponge herself, that she might get the whole benefit of it. If it was removed, as was now and then done, she continued to inspire rapidly and deeply, as if it were still over her mouth and nose, just as happens so often when the gas bag, containing nitrous oxide gas, is pulled away. The pains were as strong as ever. No complaint was made of the back, and pressure was omitted there. The head was born under full etherization, and the trunk and limbs soon followed. The child, a girl, cried soon after birth, and was separated from the placenta. A swathe was applied. Contractions soon came on; the sponge was at once seized by the patient, and inhalation begun. The placenta soon followed. No hemorrhage. The patient was soon made comfortable by removal of things about her, and was easily placed in bed. Pulse, temperature, color, perfectly natural.

I now asked as to her sensations in the last hour of her labor, this being the time about during which ether was last used. She said her sufferings were as nothing. She knew what had happened. She knew when labor was over; but so slight had been the uneasiness during the time, and especially when the head and body passed, that she hardly remembered it. She was glad she had not been more unconscious, as it would have been disagreeable to her to have been wholly ignorant of the birth of her child.

I have met with no case in which such entire satisfaction has been expressed with the use of ether. She had felt certain that her child was dead; but it was alive and doing well. She had had fearful forebodings of what might happen to herself; she was well, and perfectly comfortable. It was truly grateful to be the witness of such a termination of a case which had, for so many hours, been so unpromising; and new confidence in etherization was its result. Record made, Oct. 3d, half-past 10, P.M.

4th. — After-pains; got forty drops of laudanum. Slept afterwards. Now some re-action; skin warm; pulse rapid. No pain, and thinks symptoms proportionate to suffering of labor. Recovery perfect.

CASE XXVI. — *Natural Labor.*

No. 149, third child. Labor began Oct. 3d, after midnight. I was called between 7 and 8, Oct. 4th. I found natural presentation; pains moderate, but expulsatory; pulse, &c. good. Rapid increase of pains soon took place; and, at a quarter past 10, ether was asked for. Etherization occurred very soon, and was sustained with great ease, that is, with occasional applications only of the sponge, and for a very short time. Labor was happily ended in about two hours from first inhalation. The child, a girl, weighed about eleven pounds, and has, with the mother, done very well. In this case, for a time, pains were very severe. They, however, did not advance the child, but were accompanied by a forcing effort, much of it voluntary, which projected forward rectum and neighboring parts with very little progress of the head. Infus. secale was given with very manifest advantage. The head began to descend soon after its use, and suffering was prevented by ether. I have rarely met with a case in which a larger child has been born with less suffering, and in which every thing at the

close of the process promised better. I saw this patient again in course of day, and found every thing comfortable.

5th. — Pulse, &c. well; good night. No after-pains, or one or two only, and so slight as hardly to deserve notice. Child very lively, and doing well. Recovery perfect.

Case XXVII. — *Natural Labor.*

No. 131. Labor began Saturday, Oct. 2d. I was called Sunday evening, 11 o'clock, and found pains present. These had increased from Saturday, so that it was thought necessary to send for me. This is the third labor. Two first were of breech presentations, and, in both, child irrecoverably still-born. Great desire for children, and much anxiety in regard to present labor (age between thirty and forty, patient exceedingly fleshy). Examination showed head *at* brim of pelvis, not at all *in* the brim. Os uteri perfectly dilated, as were vagina and external organs. Lubrication abundant. I left in the morning, as the pains did not produce the least effect on child or head. Monday, Oct. 4th, things exactly the same. Pains strong, constantly promising progress; but none was made. An opiate (two gr. op. two gr. sapon.) was given at bedtime. Tuesday morning, Oct. 5th, some sleep; but pains continue; no descent of head. Urine free; pulse rapid, 120. Skin warm. Pelvic viscera in good state, — moist, cool, not swollen. No headach; stomach hardly at all disturbed. No dejection since 2d. Ol. ricin. and suc. limon. of each half an ounce. Was called between 4 and 5, P.M. I now found very severe contractions present. They had begun about 3, P.M.; and the head was descending, and every thing promised well. Ether was not asked for; and, when proposed, it was not accepted. I was not sorry for this. Former labors had been so untoward, their terminations so unhappy, that I was not disposed to interpose an agent of

so much known power as is ether, in the midst of occurrences so entirely promising. Things went on well for an hour or two, when cramps in the lower extremities occurred of a most severe and singularly distressing character. I had gone below, but was soon called up to do something to mitigate the suffering. Ether was used. It produced its effects on consciousness less strikingly than is frequently observed; but on the pain its effects were very noticeable. The cramps first yielded, and in a short time were hardly alluded to. So with pain in the back, this was relieved. Contractions became very strong. Ether was continued. I have rarely known pains stronger after the use of ergot. The head came down rapidly, and soon entered the arch. It passed this with great ease. The child was born without any complaint from the mother. It was a boy, of large size, weighing ten pounds and a half. At first it breathed feebly. Its eyes were opened, and very bright; much mucus was in the nose and mouth, and was wiped away; and in a minute or two he cried, and the cord was tied and cut. A swathe was at once applied to the mother, firmly and largely. Two firm and large coagula preceded the birth of the placenta. This last soon followed, and the patient was made comfortable. The swathe was tightened; and I left mother and child, an hour after, doing well.

I speak particularly of the use of a swathe in this case, immediately after delivery of child, and again after delivery of placenta. I think this use of it very important in all cases, and does most to prevent such relaxation of the womb as may give rise to hemorrhage.

6th. — Comfortable. No after-pains; has not had them after former labors. Pulse rapid; skin warm and moist; whole manner shows fair re-action.

7th. - Pulse slower. In all respects doing well.

Case XXVIII. — *Natural Labor.*

Oct. 4th. — No. 177, aged thirty-seven; sixth pregnancy. I was called early in evening of the 5th. Night before, pain preventing sleep; slighter through early part of the day. In afternoon, contractions strong; and I was called suddenly, in the belief that labor would soon be completed. Upon examination, I could not reach the os uteri, so high was it, and so strongly turned towards promontory of sacrum. Through the womb I felt a firm tumor, which I believed to be the head. The pains were very strong, but made no pressure on head, or presenting part. I left with directions that an opiate pill should be given, if sleep did not occur, and labor did not advance.

I was called between 1 and 2 of the 6th, and found head advancing. Os uteri soft, dilated somewhat, and dilatable. Presentation natural, and every thing promising well. Pain became more and more distressing, and cramps were soon added to them. I suggested ether; but it was objected to. The smallest stimulus always greatly disturbs the head; and opium, in all forms, produces wildness and delirium. My pill had not been taken. At length, however, suffering became so severe, that she desired ether. It was tried. It first caused choking, and was very imperfectly inhaled afterwards. It produced no pleasant effects, but excited and distressed the patient. After a fair trial, it was abandoned as promising no benefit. There was no reason whatever to continue further a doubtful experiment. Labor continued, and a girl was born about 4, A.M. The placenta soon followed, and the mother and child left comfortable in an hour after.

7th and 8th. — Doing well. On the 8th, got one dram ol. ric. and suc. limon. and had many discharges.

9th. — In morning, comfortable. Much disturbed yesterday with protracted and violent crying and screaming of

infant. 9th, P.M. — Less well. About an hour ago, felt faint, weak, exhausted. Has constantly attended her child; sitting up in bed on elbow to nurse it, and fatiguing herself excessively by other care of it. Nurse does not satisfy her. Pulse as good as in morning. Milk coming. State doubtless owing to fatigue. Recovery perfect.

CASE XXIX. — *Natural Labor.*

No. 178, age twenty-seven; first labor. Says she was married nine months to-morrow, Oct. 9th. Has not had catamenia since. Was taken in labor this morning, the 8th, at about 5, A.M. Was at dinner with the family. Lig. amnii came away at 1, P.M. I saw her between 2 and 3. She was sitting up, but lay down that an examination might be made. She was much disturbed morally, on account of this process. She had not expected to be taken ill so soon; nothing was ready. She wept vehemently, and showed an unusual nervous impressibility. Os uteri barely admitted the finger. It was very high up, and was reached with difficulty. There being no occasion for my staying, I left, to be called when uterine effort occurred of a more decided character. I was called again between 3 and 4. Contractions were now urgent. On examination, no other change had occured in the os uteri, except its being more dilatable. The ether was asked for; and, at about a quarter past 4, it was exhibited. It very soon produced its effects. First, loquacity; laughing; expressions of relief; strange feelings; &c. &c. Contractions soon became stronger than they had been. Ether was more emphatically demanded. Os uteri dilated rapidly; show became abundant; head descended. At length, full etherization showed itself, viz. a heavy, sleepy, perfectly quiet state. Not the least voluntary effort during uterine contractions. She could be roused to bear down. Some

warm tea was offered her, which she expressed a desire for; but she had no power to raise or to move her head. She could make the effort, but said listlessly she had no power to do it. Her face became exceedingly pale and cold; pulse distinct, not rapid nor slow; respiration natural; temperature, except of skin of face, good. Now, in the midst of all this perfect repose, the contractions went on. The head descended into the bony outlet. She still asked for ether, rather by signs than words, but with that faintness in enunciation that showed it did not proceed from acute suffering, and so was strikingly contrasted with the manner in which ether was demanded in the earlier part of the labor. No more ether was used. The head came upon the perineum. It formed its tumor, and began to separate the external labia. It receded very suddenly when contraction ceased. At length it was pressed by most vigorous contraction nearly through, and then would retreat by a bound so sudden as to rouse the patient. After two or three such efforts, the head was born. I passed my finger to the neck, and found the cord drawn twice tightly round it. This, which may have delayed the head at the close of the labor, much embarrassed the delivery of the trunk. The child, however, was soon entirely born, alive, before 6, P.M. an hour and a half after etherization was begun, and about four from the beginning of true labor. The child, a girl, cried stoutly, and was soon separated from the placenta. This last soon followed under and by firm contractions of the womb, without pain and without hemorrhage.

It was not stated above, that Mrs. ——, about two months before delivery, had fallen down stairs, had recovered herself, and fallen again, producing a bruise on the anterior and lower part of the abdomen; and which spot was the seat of the only pain complained of during labor. This gave much interest to the case. A complication of labor might have occurred of the most serious character, —

rupture of the womb; which lesion has of late been by some writers ascribed to previous disease, or injury of the organ, during pregnancy.

Record made, Oct. 8th, at half-past 8, P.M.

Oct. 9th, A.M. — Very comfortable. Night somewhat disturbed by after-pains, which probably were owing to distended bladder; for they disappeared entirely after voluntary and free discharge of urine. Pulse 84. Skin warm, of natural color. Respiration perfectly easy, and all things doing well. Child's weight, seven pounds and a half. Patient says to question, that before marriage she has always suffered severe pain at the catamenial period, accompanied with very large discharge.

Recovery rapid and perfect.

CASE XXX. — *Natural Labor.*

Oct. 17th. — No. 176, first labor; age twenty-two. Exceedingly diminutive person; arms so small that you might suppose she would break them in her efforts during labor. No show. Dilatation not wanting, though slight. No expulsatory efforts, though much suffering. I was called at 1, A.M. 17th, Sunday morning. Between 2 and 3, took ether-vapor. Contractions were distressing and expulsatory. Soon after inhalation, show abundant. Water came away by puncture of membranes, which were very thick and firm, and os uteri well dilated. Much relief after ether. Pain in back, before very urgent, no longer complained of. Outcry entirely omitted in contractions. Urgent demands for ether, if at all withheld. Great relief acknowledged. Effects on muscular action very pronounced. Labor over between 4 and 5, A.M. Every thing favorable. No hemorrhage. Uterus well contracted. After-pains soon set in. Increased, accompanied by strong desire to pass urine. Failure. I used catheter, and at once relieved after-pains.

and removed all suffering. More than a quart taken away. Has suffered dysuria during close of pregnancy. — Are not after-pains more frequently the consequence of state of bladder than is commonly supposed?

Case XXXI. — *Natural Labor.*

No. 171. Engaged for Sept. 27th. Labor begun night of Oct. 28th. I was called about 9, A.M. 29th. Examination showed the head coming down, but still at or just below the brim. Os uteri dilated; a large bag of water filling pelvis. Contractions were very strong; suffering great. Nausea; choking; vomiting. Great distress at stomach. She breathed ether between 10 and 11. *Stomach soon and entirely relieved.* Less influence of ether on suffering, though this became gradually less and less. The last contractions were very strong, as the effort became stronger as the ether was more freely used. But suffering less. Pulse, temperature, color of skin, complexion, respiration, remained perfectly natural. Child born about 12, noon; a girl, crying lustily at once, and weighing eight pounds. I saw her two hours after, and found her perfectly comfortable. No hemorrhage. After-pains very slight, as she still, when she pleased, used ether. Recovered well.

Case XXXII. — *Natural Labor.*

No. 180, thirty-six years old; mother of two children. Labors, twenty-four hours long, very severe, attended with much distress in head, dizziness, confusion, pain, a *lifting* sensation as if top of head were in motion, and rising up. Labor occurred 1, A.M. Oct. 30th, by waters coming away before contractions had taken place. These soon followed, and became severe. I was called between 6 and 7, A.M.

Efforts strong; much suffering. Head of patient in state above described, requiring pressure constantly; as this was said to afford some relief. Pulse rapid, not full. Examination discovered head far up in pelvis, scarcely to be reached. Os uteri dilated and dilatable. Vagina and external organs dilatable; very little show. Demand for ether was not gratified till between 8 and 9. Effect produced very soon, after about eight inspirations. Great comfort reported from its use. It was given in less than usual quantity, and at considerable intervals; the times between contractions being passed in perfect quiet. The uneasiness of head entirely disappeared under its use, and pains accompanied by much less suffering than before etherization was produced. Contractions became more and more pronounced; the head descended; the scalp became corrugated; show abundant; and relaxation of organs as great as could be desired. I learned that, in former labors, more than usual hemorrhage had followed the delivery of the placenta; and, to prevent this, one dram of ergot was infused in six ounces hot water, and one ounce of the clear tea given. As the labor approached its close, and the pressure and pain increased, the ether was inspired more freely, and its whole effect produced. The child was born at about 10, A.M. and with no apparent suffering to mother, or certainly with none which was expressed by complaint. The child cried strongly at once upon being born, and was separated from the placenta. The placenta soon followed, and no hemorrhage occurred. The child was a boy, weighing ten pounds.

I saw her two hours after labor. Has had some after-pains, with strong demand for emptying the bladder, which she did freely. I now learned she had before suffered from strangury. The trouble occurred with the pains. A large coagulum came away during one of these. Ether was again inspired. Valerian, the liquid extract, given; and, at my evening call, I learned there had been very little

suffering since my previous visit, and that now her head was well. One circumstance particularly interested me. This was the fact as stated, that there was no feeling of weakness, of exhaustion, which had so strikingly followed previous labors. She said she felt able to get up, and to go about as if nothing had happened. This has been again and again stated by others who have inspired ether in labor. This case occupied about nine hours, dating from rupture of membranes; contractions coming on after that event. The preceding labors had been twenty-four hours each. The suffering was as nothing compared with that which accompanied the preceding cases. The condition afterwards was strikingly different.

31st. — Comfortable; one dejection without medicine. Some uneasiness occasionally in head.

Nov. 1st. — Perfectly well. One dejection, natural. Feels strong as in ordinary health; head well.

4th. — Quite as well. Milk abundant; no precursory trouble. Bowels as regular as in ordinary health. Says again her health is as good, her strength the same, as it ever is.

In about a fortnight after labor, this patient made a journey, with her infant, of about forty miles; being in perfect health and strength. After former labors, convalescence very slow; after one, keeping her in bed five weeks.

Case XXXIII. — *Natural Labor.*

No. 184, aged thirty-nine; third labor. Has suffered much in former labors. Pains distressing to an extraordinary degree, and of long continuance. Her present labor begun, Nov. 2d, at 10, P.M. Her physician was called early in the morning of the 3d. He found but slight progress had been made, and left to be called when wanted. Was called about 12, noon. Suffering now, — and is also

most severe. He has never seen contractions stronger. They are almost without interval, resembling those produced by ergot. At a quarter to one, he administered ether-vapor. He did it, as he believed, thoroughly, but with no effect to diminish pain or consciousness. He believed something more was necessary, and asked my aid. I found this woman in the extremity of suffering, not judging by outcries and violent movements, but by that excessive effort, and the suppressed groans and screams, which so well indicate how much is patiently endured. On examination, I found the head well down; bones strongly overlapping each other. The presentation was natural; position good. The pains had no such effect as led me to look for speedy labor, though every thing seemed to favor it. A small portion of the os uteri was pressed down between the head and symphysis pubis, but, being returned, did not prolapse again.

Here was a fair case of the power of ether. I begged Dr. —— to wet his sponge thoroughly, and to apply it carefully over the mouth and nose. This was done and repeated; and, in a very few minutes, it was clear she was under its full influence. She was quiet in the intervals of effort. These intervals were more strongly marked. She was first incoherent in what she said, talking of "fowls," &c. &c. and at length not talking at all. Voluntary effort was obviously diminished, if not entirely wanting. Dr. —— was desired to press firmly upon the uterine tumor. The head descended, and was at length born. The child was alive. The body soon followed; the placenta came away by uterine effort; no hemorrhage. The woman, upon recovering consciousness, said that the first thing she heard or knew after the ether was used, after I came in, was the crying of her child. She was perfectly insensible during the last hour or more that passed before her child was born. It was a boy, and weighed ten pounds and a half. Recovery perfect.

Case XXXIV. — *Natural Labor.*

No. 173. This case was to me of much interest. Mrs. —— is aged twenty-four; has been married twenty-two months. First menstruated at eighteen; then was without a *period* for eighteen months. Swelled much in abdomen. Suffered ordinary symptoms of amenorrhea. Took strong emenagogues, and menstruated. After a time, function again ceased for seven months, with ordinary troubles; then re-appeared, while using stimulants of various kinds. Since marriage, has been irregular; has had swelling, resembling pregnancy, as before, but distinguished from the enlargement of pregnancy, by absence of all other signs, and by the rapidity and irregularity of its increase, and the great amount of it. Ten months anterior to the 5th Nov., catamenia, having been more or less regular before that time, again ceased; being absent, during marriage, four months without pregnancy. This was not attended by any other sign of pregnancy than the increased size of the abdomen, which took place much after the manner which has been noticed above. Her health was now good. Had abundant flesh and perfectly healthy complexion.

Mrs. —— called on me for advice occasionally in the last ten months. I examined her carefully, felt no fœtal motion, nor did she; and the sounds of the fœtal heart, and of the placenta, were not perceived. The os uteri and neck had undergone no change, the examination being made before the sixth month. I saw Mrs. —— again after this time. I now examined her again. She called, because of a new symptom, a bloody discharge from the nipples, which had occurred at the catamenial period, at what she considered the sixth month from the last suppression of the function, and had occurred at the seventh. I felt now distinctly the fœtal motion. She felt it also for the first time. She had before felt a *waving* sensation in the abdomen, which she had

ascribed to wind. I examined the breasts, and found well-marked areolæ, and the glands within them strongly developed. I told her then, that, dating from the middle period between the last, and what should have been a catamenial flow, I thought she would be taken in labor the last of October. I saw some of the bloody fluid discharged in a small vessel, which had been applied to the nipple to receive it. This appeared again at the eighth month, when the catamenia should have appeared, and was replaced soon after by a discharge of a fluid resembling milk.

Mrs. —— continued in her usual state; many of her friends disbelieving entirely that pregnancy existed, until Nov. 5th. She was taken early in the morning with pain in the abdomen, which she regarded as colic. Regular uterine effort soon declared itself, and I was called to see her at noon. I found her in labor, but that so little progress had been made that it was not necessary for me to remain. I was called again between 5 and 6, P.M. I now found the os uteri partially dilated, and the head descending favorably. One thing especially attracted attention. This was the extreme sensitiveness of the external and internal organs. Examination, made with the greatest care, gave exquisite pain. The suffering was described as infinitely greater than that which accompanied uterine effort, though this was very severe. There was abundant show, and sufficient dilatability; but, from the os externum to the os uteri, every line of substance was in a state of tenderness, never before met with by me. Again, Mrs. —— had, in addition to uterine pain, contractions, a deep-seated pain, referred to the left side, reaching to the groin, and more distressing than was uterine contraction. This existed during the interval, and was quite as severe then as during regular effort. She described this trouble not clearly. She said it was an indescribable misery.

At about 8, the patient's distress having much increased, I proposed she should inhale ether-vapor. To this she

objected. She had no fear of it, but was desirous to have her first child naturally, that she might know what childbirth was. There was a sentiment wrapped up in this which I was not willing to disturb. At length, the various suffering of this woman imperiously demanded abatement, if this could be safely obtained. She inhaled ether. Its full effect, and soon after beginning its use, was produced; and this very suddenly, she passing at once into a state of perfect insensibility. She was quiet, — involuntary effort ceased, — she was unable to raise the eyelids, or to answer any question, or to show at all that she heard or knew of any thing said or done around her. Pulse natural. Breathing easy. Temperature and complexion as usual. She passed as suddenly out of this state as she did into it. First, breathing became strong, hurried, then short and labored. She moved the head suddenly, and at length began to speak. At first, I could not understand what was said. I then learned that she was in distress; her head was confused; that the effects of ether had been only distressing; that she had heard what had been said, but could give no answer; that she had tried, and her suffering was greater, because she could not communicate with those around her. She felt, she said, so sadly, such a deep melancholy was over her spirit, that she could only weep. Examination showed greater descent of head, more dilatation, bag of water, &c. Labor was evidently advancing. Tenderness of organs, pain in side, and suffering during pains, as great as ever. Some relief was produced by the catheter, and a mustard plaster to side. Ether was again tried, with very little unpleasant effect, except an uneasiness of head, for which it was again laid aside.

To relieve the side, change of position was resorted to; and, at length, Mrs. —— got off the bed, and had some pains on the floor. She was soon tired of this position, and desired to be again placed on the bed. Examination showed satisfactory progress. Pains now became vehement,

and relief was demanded by the patient with its least equivocal expression. She demanded ether. She cared not for its previous effects, or for her previous disinclination to its use. She was in agony, and must be relieved. I gave it to her. She inhaled it freely. She now experienced from it only its kindest effects. She could not be easy a moment without it. It was constantly inhaled. Labor advanced. The side was reported free from pain. The tenderness of the organs was no longer felt. The child was born without her consciousness, and its cries were heard with strongly expressed satisfaction. In the midst of these latest effects of ether, she was asked, when consciousness recurred, if she suffered as she did at first. She said she knew nothing about that. She believed her head was well enough. She did not care. She only wanted to be relieved, and cared not how.

Mrs. —— continued to inhale ether during the delivery of the afterbirth, and for great soreness and distress in the vagina and external organs, which followed the birth of her child. Relief of this trouble followed this use of it. Pain, resembling after-pains, soon followed delivery. This disappeared entirely by emptying the bladder by voluntary effort, and by the passage of some coagula along with the urine. I left her between 11 and 12 at night. Child, a girl; weight about eight pounds.

Nov. 6th. — Night tolerably good. Sleep troubled by outward disturbance, noise in street, and fire alarm. Has passed water. Pulse 72. Sleepy, quiet, without any pain. Report altogether comfortable. No dejection.

7th. — Quite as comfortable, except the pain in left side, as during labor, and soreness in abdomen, as at that time. The first has the character of after-pain in its periodical attacks, and the last is referred to flatus. Pulse 72; urine natural.

8th. — Much as yesterday. Prescribed ol. ricin. and suc. limon. one dram each. Mix. Take now, and repeat if need

be; afterwards, if uneasiness, pulv. Dov. five grains; and repeat p. r. n.

9th. — One dose of oil operated once, and well. Pain much relieved; not complained of. Slept well. Milk abundant. Pulse 72. Appetite good. Recovery perfect.

Case XXXV. — *Natural Labor.*

No. 155. Labor, Nov. 11th. Age thirty-nine; has had three children. First is eighteen; last, thirteen years old. Has been in much doubt concerning time of pregnancy. Engaged a nurse to attend her more than two months ago. Labor began in the forenoon. Contractions slight. Some show, night before. I was called between 2 and 3, P.M. of 11th. Head high up. Show abundant. Much relaxation of organs. Mouth, or rather neck, of womb loose, flabby, hanging down, and as if period of pregnancy was not accomplished. Finger did not detect opening of os; and this because of the great looseness of neck, it passing from finger wherever pressure upon it was made. Her previous labors have been very soon over; a few pains suddenly finishing them, or when not at all looked for. On this account, I remained with the patient.

Contractions gradually increased till about 6, P.M. when they were so urgent that ether was strongly desired. Ether was now inhaled. It did not as soon produce its effects as in other cases, requiring two or three minutes. But when these effects occurred, they were of the most favorable kind. The pains, first, were diminished in suffering; the intervals were without suffering; and, at length, a state more nearly resembling sleep than any thing else occurred. This was showed after this wise. She would be without complaint; pains strong, advancing the child; but not a word would be said. If the inhalation was too long interrupted, she would come out of the state of unconsciousness, and ask

with emphasis *why we woke her up.* This occurred a few times in the two hours in which she used ether. She said, "This is the greatest invention in the world." — "I will work every day I live, to make money to buy ether with for the poor." — "Who invented it?" &c. &c. This word *invent* was invariably used when she spoke of the discovery of the power of ether to abolish pain. She was delivered about 8, P.M. and was first conscious of this on hearing the cry of the child. She said there was a baby there, but had no notion that it was hers. The placenta soon followed, preceded by a large mass of coagula, firm, and of different sizes. The womb contracted strongly. A swathe was applied with a compress of soft cloth between the skin and itself, as she complained of soreness of the abdomen on pressure. Pulse, temperature, &c. well. Child, a boy, weighing nine pounds.

I left her about 7 in a quiet sleep, waking easily when I was leaving her chamber, and then at once falling off to sleep again.

12th. — Comfortable. Pulse 72. Some after-pain in night, but slept. Renal excretion free, three times since delivery. Strength unimpaired. Appetite good.

13th. — Quite as well. Pulse 68. No dejection. Nurses her child. Respiration, &c. well. Now speaks more of her labor. Says she was wholly unconscious of the birth of her child. First sensation was pain, while I was pinning the swathe. Knew when the afterbirth came away. Was altogether comfortable during the whole, or recollects nothing of its events. Is most struck now, however, with the continuance and consciousness of strength. Says she could do what she ordinarily does, and with pleasure. As far as power of action is concerned, knows no difference from ordinary health. The expression of countenance, voice, and manner, perfectly natural. Recovery perfect.

Case XXXVI. — *Preternatural Labor.*

No. 192, aged thirty-five; third labor. First labor, arm presented; child dead. Second, natural presentation, child dead. In both, process between two and three days, and accompanied with great suffering. Was taken in present labor, Dec. 2d. I was called to see her in the country, Dec. 4th. Shoulder presentation. Cord largely prolapsed, and pulsation had ceased many hours before my arrival. It was livid. Pains have entirely ceased. Pulse rapid; skin hot; face flushed. Bowels and bladder have been attended to. Hand had been brought down, and reduced.

I advised ether, and then turning. Etherization was readily induced. I passed the hand into the vagina with very little trouble, before ether was inspired. Some pain was complained of. Previous manipulations to turn had produced good dilatability. In state of perfect etherization, I reached a foot, and brought it down. Some difficulty occurring in the turning, I passed the hook into the ham, and it advanced as rapidly as usual.

The child soon followed, and then the placenta; the whole being completed in less than an hour after my arrival. The child had obviously been dead some time.

In this case, ether was singularly useful. There was not the least voluntary resistance. The womb had been empty of water many hours. Pains had ceased, and the contractility of texture and muscular action had brought the womb into close contact with the child. This I learned in the operation. There was most perfect quiet of the body, and not a complaint uttered. The patient says she was conscious of what was doing, but betrayed none; and sensibility was entirely suspended. It was perhaps the most satisfactory case I have met with.

Remarks. — A case of attempted turning, during etheri-

zation, is reported in a French journal, and is said to have have been unsuccessful, or presented nothing which distinguished it from the operation when done under common circumstances. A case of arm presentation is inserted in Appendix, from Dr. Putnam's paper in "Boston Medical Journal."

Case XXXVII. — *Internal Hemorrhage.*

No. 194. In this patient, whom I saw in consultation, ether was used, during labor, to diminish pain, and had the desired effect. Her labor was perfectly easy. Mrs. —— continued comfortable for an hour after delivery. She then began to fail. Her pulse flagged; skin became pale and cold, and great faintness was complained of. No external hemorrhage. Stimulants were given, and the hand passed into the womb. It was full of coagula: these were broken down and removed, and a great flow of liquid blood followed. Attempts were made by friction of the womb inside, and pressure outside, to produce contraction; and, failing, a bit of ice was carried into the organ, which now at once contracted, and for the moment seemed to have accomplished its whole work. But, soon after, the womb relaxed again; and the re-action which had begun was at once checked, and the alarming symptoms recurred. I was now asked to see the patient, and learned above particulars. I found her, as described, extremely sunken; pulse not at all perceptible in left wrist, and very feeble in the right. The face pale and cold. A constant and urgent demand for air, by fanning, and from abroad through an open window. The womb was alternately contracting and relaxing, notwithstanding constant pressure. Applications of ice to abdomen; internal use of ergot; stimulants, &c. I learned that delivery had taken place more than two hours before my arrival; that there had been no hemorrhage for some time; and that the state of the patient, as

described, was rather the result of what had happened, than of what was going on.

I found the womb, at one moment, firmly contracted; then becoming soft, and disappearing from pressure. The walls of the abdomen were pendulous, loose, and fat; and pressure by the hand was not easily or usefully made. It was suggested to place graduated thin compresses over the womb, and keep them in their place; and the whole abdomen under firm pressure by a wide, strong swathe. A strong sinapism was applied over the epigastrium. Warm gruel was advised in place of other and cold drinks before used; and aqua ammoniæ and tinct. cinnam. for other diffusible stimulants. Pulv. ergot, one dram, in tea-cup warm gruel, was given.

These means were soon followed by some improvement. Copious vomiting occurred, preceded by much distress, but succeeded by re-action. The pulse earliest manifested change for the better. The skin grew warm. The lips got color. Mrs. —— took the vessel into her own hand to drink from, &c. &c. I left her about 11, P.M. promising well, four hours after my arrival; recommending that she should not be removed till morning.

Dec. 11th, A.M. — Has gradually improved. Pulse, skin, &c. fair. It was agreed to move her, and change her dress. This was done by lifting and moving her on a sheet in the horizontal posture. She bore the process well. Child, a girl, full size.

Dec. 12th and 13th. — Doing well.

CASE XXXVIII. — *Natural Labor.*

No. 190. I was engaged to attend on the 15th Dec. I was called between 12 and 1, A.M. of that day. Labor began half-past 11, P.M. of the 14th. I am particular about these facts, as this is one of the *few cases* in which I have

been engaged for a particular day, so far as my memory serves, and in which delivery has been accomplished at the time predicted.

This is a fifth labor. Patient is about thirty, small, delicate, and suffers exceedingly during parturition. I found the child advancing with the pains.* The waters discharged, and os uteri very well dilated. I proposed ether, merely to relieve pain. She readily inspired it. It slightly diminished the suffering of the first and second pain I witnessed. But, from these till delivery, she had no more pain. The first thing she heard, after etherization, was the cry of her child. She was delivered about half-past 1, the whole process being over in about two hours.

Why, in such a case, use ether? Why let a woman suffer?

In this case the pain was most intense. Mrs. —— has great power of patient endurance; but the sufferings in her labors have always seemed insupportable. I was most grateful for an agent which, without the least injury, or approach to it, so entirely checked this agony.

Case XXXIX. — *Natural Labor.*

No. 198. Dec. 20th. — Called eight miles from the city this morning, between 8 and 9, A.M. This is the third labor, and began last night at about 12. I found the labor well advanced. The os uteri dilated; the head entering the outlet, and a full bag of water before it during pain. She had looked for my arrival with much interest; feared I would not reach; had resisted pains as far as was in her power, and was still doing it. She desired the ether to be administered. This was done. She came almost imme-

* The word *pains* used here, and elsewhere in this work, means *contractions; uterine contractions*; and never *suffering*. This explanation should have been given before. It will, however, answer its purpose as well now.

diately under its influence; was perfectly still, and, during a very strong pain, made no complaint. The water came away. Upon recurrence of another contraction, she inhaled again; and this a third time, when the child was born — a son — alive and vigorous, and of more than average size. Mrs. —— was unconscious. She said that the first thing she heard, after inhaling, was the cry of her child. Her recovery has been perfectly good.

Case XL. — *Instrumental Labor.*

No. 200. Dec. 26th, 3, P.M. — I received a note desiring me to meet a professional friend in consultation, closing thus: "Suppose you bring your forceps and ether." Upon reaching the address, I learned that the patient was twenty-six years of age; that the case was one of first labor, of about fifteen hours' duration; that the head had advanced to the outlet, and there it had rested for some hours. The pains had been extremely severe for most of the time; but they made no change in the position of the head. About three hours before my arrival, one dram and a half of powdered ergot, in infusion, had been given. It had produced the characteristic action of ergot in its severest form; but the head remained unmoved. The same strong, violent contractions still manifested themselves. I examined, and ascertained that the statement of the attending physician was entirely correct. It was agreed to use ether. It was at once resorted to. It was used freely. The sponge was saturated with it. Very soon its effects declared themselves in the fullest manner. The patient was wholly unconscious; she grew very pale, but not livid; remained perfectly at rest. The pulse was natural, and the breathing easy. Contractions continued, but produced no complaint, and no effect on head of child. It was now agreed that the forceps should be used. The instrument was applied

with perfect ease. The head soon began to descend, and delivery was accomplished slowly, but in an average time. The face and scalp were black. The cord was found tightly drawn about the neck, feebly pulsating. Much time, regarding the effects of delay, under the circumstances, as making that long which under other circumstances might have occasioned but little uneasiness, — much time passed before the labor was completed. The child struggled slightly once in its progress through the external organs; but, by the time it was delivered, the heart had ceased to beat, and efforts at animation failed. The perineum did not suffer any lesion; and the head was free from marks of unusual pressure, or injury, from the instrument. Unconsciousness remained some minutes after delivery. The pulse was good. The breathing easy. The color was natural. A quiet sleep had taken the place of the condition of unrest and pain which had preceded the action of the ether. At length, she, roused somewhat, opened her eyes. She was asked if she was in pain, and her answer was — no. She was asked if she knew that her child was born; she answered with marked distinctness, no. The womb contracted well, and there was no hemorrhage. A bandage was applied, and the patient made comfortable, with as little disturbance as possible.

I said to the physician, that the forceps had been introduced during insensibility. Said he, "I am glad this was done; for you would hardly have been able to apply them, had she been sensible to pain." And said further, that such was the acute suffering of the patient, during examinations conducted with the greatest care, that it was hardly possible to make them.

Pallor was alluded to above, as very striking in this case. This is not the only case in which this has been noticed. In one, it existed to a degree which was alarming to the bystanders. The face was as white as the sheet upon which the cheek rested. The lips were livid. The temperature

was sensibly diminished. The quiet of the patient was profound. You might have supposed her dead. The case occurred in the day, as did the above; and phenomena like these, change in complexion, &c. were strikingly apparent. But the pulse continued good in that case, as it did in this. Respiration was steady and natural. The womb acted with its best energy, and the child was delivered as if by its own volitions, so wanting was all evidence of any agency of the mother in that event. When the patient was sufficiently recovered to take drink, and to show that she wished to drink, it was impossible for her to raise the head enough to bring the mouth within reach of the vessel; and when raised, and left to itself, it fell; and so suddenly, too, that for a moment you might question if it would ever move again. The means used were free ventilation; warmth to the trunk and extremities; entire rest; gentle friction; volatile alkali to the nose; and weak brandy and water, when deglutition was possible. What was said was in no sense of a depressing tendency, but was hopeful and cheering. This was attended to, because I knew of cases in which insensibility and apparent unconsciousness continued nearly an hour after etherization, but in which patients afterward declared they had heard and understood every thing that was said; were conscious of the brisk friction which had been practised; and, especially, of the remarks which were made of diagnosis and prognosis.

The means used in the case alluded to (No. 178) might not have been necessary. The patient would probably have done perfectly well without them. But, in such circumstances, the physician must do something. He cannot remain a spectator merely, where there are many witnesses, and where interest in what is going on is too deep to allow of his inaction. Let him be collected and calm, and he will probably do little he will afterwards look upon with regret.

The patient did perfectly well, and was a striking in-

stance of that rapid recovery which is so generally observed to follow judicious etherization.*

Case XLI. — *Instrumental Labor.*

No. 201. I was called to this number about 3, A.M. Dec. 31st. The messenger said the patient had been some time in labor. I learned from the attending physician that Mrs. —— was thirty-two years old; that she had been more than twenty-four hours in labor; and that this was her first child; that, when he first examined, the os uteri was dilated equal to a five-cent piece, was very firm, and looked strongly to the hollow of the sacrum. Dilatation proceeded slowly; but such was the strength and the severity of the contractions, that he began to use ether at 2, P.M. Mrs. —— had been more or less under its influence ever since. About a dram answered at first to diminish or stop pain; but so great had been the demand for it, and so long continued its use, that he had used nearly a quart, when I first saw the patient. He had bled her, and was afterwards able to slip the os uteri over the head. Still the head did not advance. The pains lost none of their power, though the suffering was much diminished, and often entirely wanting. Dr. —— had, during etherization, succeeded in passing his hand beyond the head to the neck, and found that closely surrounded by the firm os uteri. I asked what had been the state of the pulse, and learned that, before venesection, it was 90 in the minute. I counted it accurately, and it was now 160. I watched the pains and their effects for some time. No progress was made by the strongest; and, at length, it was agreed to try the forceps. They were applied with ease;

* Since writing above, I have met with a case in which wiping the face and forehead with cold water was quite sufficient to produce consciousness, and entire recovery from etherization.

and the patient then brought under the full power of ether. The delivery was accomplished very slowly. Slight laceration of the perineum occurred. The child, a male, was born alive. The womb contracted well; separated and expelled the placenta. Usual flowing afterwards. The labor was completed at 5, A.M. twenty-seven hours from the beginning. I left the patient very comfortable at 7.

Remarks. — Ether had been used in this case from 2, P.M. of Dec. 30th to 5, A.M. Dec. 31st, about fifteen hours. It produced not the slightest unpleasant effect. It was regularly asked for, and its uniform good effects were constantly acknowledged. This is the longest time, during which ether was employed, I have met with; and it certainly did no harm. I am satisfied that it was only useful.

Dr. —— asked if the delay of delivery was not probably the result of the close contraction of the os uteri round the child's neck. I have certainly seen cases of delay of delivery which would seem had an explanation in the condition of the os uteri referred to. Did not etherization produce such change in the before-unyielding mouth of the womb, as allowed of early and safe delivery? See Appendix, for Dr. Fisher's report of this case.

CASE XLII. — *Natural Labor.*

No. 202, aged twenty-two; second labor. Evening, 25th March, membranes broke, and much water came away. Pains followed, and I was called between 11 and 12. Os uteri well dilated; head low, pains very strong, and suffering much; cannot prevent groans and outcries. When head was so far advanced, that it was obvious a few pains would terminate the case, inhalation (sulphuric ether) was advised. Very fair etherization soon followed. The patient was perfectly still, the limbs relaxed, and no apparent

consciousness. In a minute or two, consciousness returned, and with it the most distinct perception of the state of etherization. "I am dying," was said more than once. Pulse, respiration, temperature, good. I said ***hush***, and not a word more was said. Pain recurred after usual interval, and with increased force; and, after a second uterine effort, the child was born.

In a former labor, the first, and before ether was used to abolish pain, there came on, in an hour more or less, after the child was born, and after I had left, faintings, which were very alarming to bystanders. I was sent for, as also a neighbor physician. I found her pale, sunken, faint. Pulse very feeble; abdomen large, womb large. No external hemorrhage. Hand passed into the uterus; discharged a large mass of coagula. Contraction at once took place, and was permanent. Re-action was soon established.

I remained after the present, the second labor, an hour or more, when fainting declared itself. Pulse remained, however, at the wrist, and the womb was felt to be well contracted. Some external hemorrhage. A second swathe was applied without removing the first, and drawn very tight. This afforded immediate relief, and there was no more trouble.

26th. — Very comfortable and bright. Slight after-pains, when child draws the breast. Pulse, &c. well.

Case XLIII. — *Natural Labor.*

Jan. 10th. — No. 203 was taken in labor this day, between 7 and 8, A.M. I saw her first at half-past 2, P.M. She is nineteen, and this her first labor; in excellent health. The pains were, as expressed, of great severity; the back suffered most; and she would not, for a moment, allow the hand to be removed from it. Her outcry became stronger as her pains increased. Os uteri dilated to size of a dollar;

bag of water pushing strongly through it during pain; os firm, but dilatable. I suggested chloroform. She refused it. She was too much engrossed by her suffering to listen to any thing. I poured half a tea-spoonful on the sponge in the inhaler, and applied the instrument over the nose and mouth. She inhaled imperfectly; and, for a few minutes, no effect was observed. At length, she inhaled pretty freely, and became calm. She ceased to complain, and the hand was not required at her back. There was no effect whatever observed from the chloroform but quiet. At times there was sleep, but no continuous sleeping. With regard to the progress of the labor, the facts were of great interest. The pains rapidly increased. The show, which was at first very small indeed, became abundant, and of the true character. The os uteri rapidly dilated. The waters came away, and the child was born alive, twenty-five minutes past 3, about an hour and twenty minutes from the first use of chloroform. It was a boy, and weighed nine pounds and three quarters. The cord was three times round the neck; and it was necessary to cut it, before the shoulders passed, such was the struggling and danger of the child.

Mrs. —— was asked what were her recollections of the effects of chloroform, especially at the close of the labor. She said, she knew what was going on most of the time, — at times was fast asleep; and, at the last, though she knew when the child was born, her feeling was like what occurred in the beginning of labor, a slight pain only in her back. There was no suffering.

11th. — Perfectly well.

Case XLIV. — *Natural Labor.*

No. 209 was taken in labor, Jan. 21st. She is about thirty, and this her first pregnancy. General health very good. Pulse natural.

Slight pains through the day; more strong towards evening. I was called about 1, A.M. of the 22d. She was making great complaint. Pain in back severe; patient requiring an attendant constantly to "shove it," as she expresses it. Is very uneasy during intervals of pain, being no time free from suffering. Os uteri dilated to size of dollar, — dilatable, — bag of water protruding largely from it. Pains very strong, making a very decided impression upon the head, which was the presenting part. I advised chloroform. The patient at first refused to use it; at length unwillingly consented to try it. Inhaled imperfectly with frequent interruptions. Complaints soon became less emphatic. Intervals of pain passed without complaint, in apparently sound sleep. She, however, still demanded pressure to the back. The contractions became manifestly stronger. The lig. am. was discharged, and in large quantity. The head soon passed through the os uteri, and the scalp became strongly corrugated, the bones overlapping each other broadly. Inhalation was at length practised better than at any earlier period, and the full effects of chloroform were manifested. A sound sleep, accompanied with loud and deep snoring, occupied the intervals of pains; and the pains were not at all noticed by the patient. I note this, more especially because of the rapidly increased force of the contractions, while under the fullest effects of chloroform. The woman's disinclination to the use of the remedy now showed itself soon after these effects disappeared, and after a manner too disagreeable to lead to any considerable further use of it, and, in a short time after, to its entire discontinuance. I was satisfied with this, for I had witnessed the effects of chloroform in this case in their best manifestation. Not the least excitement preceded, accompanied, or followed them. A state of entire tranquillity, as in profound and grateful sleep, accompanied them, and gave to me increased confidence in the agent, and in the means of using it.

CASE XLV. — *Natural Labor.*

No. —— has had two children; is in excellent health. Was taken in labor at 6, A.M. Jan. 28th. I saw her in about an hour after. She had resolved to inhale ether or chloroform; and I found both of these in her chamber. The os uteri was largely dilated; show abundant; and pains strong and expulsatory. She begged me at once to exhibit either chloroform or ether, as I preferred. The sponge in my conical inhaler was made thoroughly wet with chloroform; and inhalation, deep and regular, was begun. Almost at once an effect was noticed, which showed the influence of the chloroform. A strong effort was manifested on the part of the womb; *but no complaint was uttered.* In the interval there was sleep. This was accompanied by the same placidness of countenance; the expression of that pleasurable repose which I have before noticed, after using this agent. As soon as contraction began, a demand was made for the chloroform, and the same results were noticed. In the mean time, the womb acted with increasing energy in every succeeding contraction. The perineal tumor soon formed, and the child was delivered without the least apparent suffering, in about an hour from beginning the inhalation. The afterbirth soon followed. The uterus contracted perfectly, and not the least hemorrhage occurred. The child was a male, weighing eight pounds, and cried lustily at birth.

When the patient, if this term can be applied to such a case, had recovered, so as to state what had been her feelings during inhalation and her present consciousness, she said that *insensibility* occurred with the very first inhalation; and that she had not suffered a moment since. She had at times consciousness of what was going on about her; heard what was said, &c.; but that this was not accompanied by any return of sensibility. This her statement is in perfect

correspondence with her apparent state. The countenance remained tranquil during uterine contractions of great force, and the body almost at rest. She expressed her gratitude for the relief she had experienced. Her first labor had been forty-eight hours in length, and was attended with great suffering. Her second was short, but very painful. With this, her third, she had experienced nothing but pleasure.

She was asked of her present sensations. She described these as very singular, but not at all unpleasant. There was a universal tingling, such as is felt when a limb is "asleep," as it is called. This attracted her attention a good deal, but gave her not the least uneasiness, and soon passed of. Her pulse was decidedly *slower* than before inhalation.

Jan. 29th. — In all respects doing well.

Jan. 30th. — Sitting up. Appearance of perfect health. Manner natural, and as if nothing had happened. Had eaten her ordinary breakfast. Sleep good. Bowels moved yesterday, without medicine. Milk abundant.

The after-pains in this case have been so slight as hardly to attract attention. The inhaler was left, that chloroform might be used if desired; but it was not thought necessary.

Case XLVI. — *Natural Labor.*

No. 187 was taken in labor this morning, Feb. 11th, about 3 o'clock. Third mature labor. Has flooded severely in former labors, and has much suffered from pains. I saw her between 8 and 9, A.M. Water came away early this morning in great quantity, and has continued to flow so largely that a vessel is constantly used in bed to receive it. Child has advanced well into the pelvis. Os uteri still partly covers head, but is perfectly dilatable. Pain soon growing very severe, chloroform was inhaled. It produced its full effects in less than a minute; the inspirations being four or five, and not remarkably deep. She was spoken to

with clear full voice, but gave no answer; was told to raise eyelids, but did not at all move them. Strong pains. In interval, became conscious. Said she had felt no pain since inhalation. As soon as pain began, demand was made for the inhaler, and so for about six times before the labor ended. She did not know by pain when the child was born. The womb contracted well. Placenta was readily thrown off. Moderate discharge of blood followed. Labor was completed in about an hour after my arrival. She said that, at first, there was noise and confusion in head, but not such as at all interfered with consciousness. She knew what was said and done, but had had no pain. There was tingling, principally confined to hands, and slight cramp in right leg. This occurred after moving the limb. She had good color, good pulse, no flowing; still felt that voluntary power was very slight. She did not move her limbs when requested to do this, not feeling she had power to do so. Her eyes were very sensible to light, and the room was darkened.

I was desirous to learn what was the state of the breath as to odor. The odor of ether-vapor remains so long, even for days in some cases, I was anxious to know how it was with chloroform. The breath was perfectly free from any smell whatever; that state which accompanies perfect health of the teeth, gums, throat, and lungs. I think the least trace of chloroform would have been detected, if one had existed. The examination was made as soon after perfect consciousness was restored as was convenient, which was in a few minutes after the afterbirth came away. I left her after 10, A.M. without hemorrhage, or any existing trouble.

This case more nearly resembled, in the heavy sleep and snoring during intervals of pains, the cases reported by Professor Simpson, than any I have met with.

12th. — Very comfortable. Pulse and respiration natural. Has still a feeling in head, resembling what followed

inhalation and delivery. Not disagreeable, but singular. Still says muscular power diminished; or she feels as if she should try to walk, she might fail. Chloroform has produced the same effect in experiments with it on persons in perfect health, men and women. Has milk; no dejection; urine natural.

13th. — To-day, reports very well. All feeling connected with inhalation gone. Has excellent appetite. Feels that she could get up and walk about as usual. Has not been so well after previous labors. Pulse, &c. well. No dejection. In morning take early ol. ric. and suc. limon. each one dram. Recovery perfect.

Case XLVII. — *Natural Labor.*

Feb. 13th. — No. 215, aged thirty; third pregnancy; taken in labor about noon. Contractions strong towards evening. I was called between 5 and 6, P.M. I found head at brim. Os uteri perfectly dilated. Bag of water formed. Organs soft, dilatable; pulse good; health perfect. Contraction, soon after arrival, very strong, causing outcry. Pain in back very severe.

Chloroform inhaled well, and soon came fairly, but moderately, under its influence. Outcry ceased. Back scarcely complained of. Bag broke, head descended rapidly, and without pain; and child, a girl, was born alive, and with scarce any consciousness of the event. Four inhalations in intervals of so many contractions; child born after fifth. Not the smallest untoward circumstance occurred; and she was left perfectly comfortable, and rapidly recovered.

Case XLVIII. — *Instrumental Labor.*

Feb. 14th. — No. 216, aged thirty-one; first labor. I first saw this patient between thirty and forty hours from the be-

ginning of the labor. For more than twenty-four hours, severe and urgent contractions. Bag broke about 10, P.M. of the 13th. Progress very slow and very painful. Vomiting in day. No sleep. No urine during the day. Yesterday, frequent and sufficient micturition. I found the skin hot and dry. The organs very much in the same state. No show; but, on the contrary, that ichorous discharge which always gives the sensation of *hard water*. Contractions now slight; a short effort, quickly over, and accompanied by a jerking grunt; a sound which always says, that, however distressing the condition or pain which produces it, it does no sort of good. No tumor in ordinary situation of bladder; but, in the right iliac fossa, quite to the right of the linea alba, a swelling, distinct from the uterine, was felt, and which evidently contained a fluid. A long, flat, and nearly straight, female catheter was introduced, but did not bring away a drop of urine. A very small curved catheter, exactly shaped like the male instrument, but shorter, was now used, and its point directed towards the right iliac fossa. The urine now flowed freely, and the fullness there disappeared.

The woman was now carefully examined. The os uteri had not disappeared. The head was at the very outlet, with the scalp much swollen, so as to prevent the sutures from being felt. The anterior part of the pelvis was entirely filled by the cranium. The back part less filled, as when the face is to the symphysis pubis; and the os uteri being still low in front, and that part so full that you might have supposed that the *face* was there. The pains grew slighter, with longer intervals. What was to be done? The attending physician suggested ergot, and I saw no reason against trying it. It was used, and some increase of effect followed. This, however, produced but little, if any, effect upon the head; and this increase of contraction soon passed away. Upon consultation, neither the beat of the fœtal heart, nor the placentary *bruit*, was heard. I believed

I felt a faint movement of the fœtus. The womb was firmly and constantly contracted. Its hardness was very striking.

Under these circumstances, I recommended the forceps. The patient was asking, in a very faint voice, but with all she could command, "When shall I be relieved?" "Shall I get well?" I used the common English forceps, made after Smellie's. I chose this, because space was so exceedingly small in the sides of the pelvis, and towards which the parietal protuberances looked. The branches were introduced without difficulty, and were locked easily, near the perineum. The usual examinations were made to ascertain that the instrument was well applied; and, every thing being satisfactory, the chloroform was inhaled. The sponge in the conical inhaler was wetted, by inverting upon it quickly the mouth of a small-necked phial three times, and a sufficient quantity was received by the sponge to moisten it thoroughly. The instrument was applied over the mouth and nose, and inhalation freely performed. In less than a minute, etherization was fully established. Not the smallest consciousness could be discovered. The breathing was low, gentle, inaudible. The pulse was fuller than before the experiment, and natural in beat. The stillness was so entire that I asked if breathing was performed. Complexion perfectly good. The arm, being raised, fell powerless on the bed. No nausea, though vomiting was present just before inhalation.

Extraction was now made. It was made steadily, but firmly, and the instrument kept its place. Effort and interval went on, and the head very kindly descended. The perineal tumor formed; the head came upon it. The womb acted well; and, in about half an hour from beginning the operation, it was completed, without the slightest accident. The inhaler was used *once* only after the first, because the patient made a slight movement of a hand. It was used for a moment only, and then the same quiet occurred as after its first use. During the whole delivery,

and the force required was as great as I have ordinarily noticed it to be, and which heretofore has been so exquisitely painful, — during the whole of the operation, not the least noise was heard, not a groan nor a grunt, nor the least observable motion of the head or of a limb. I have seen many persons during etherization. I have seen natural and instrumental labor, when its influence seemed perfect; but my observation has given to me no such case as this. It seemed to be the silence, the repose of death, which we were witnessing, and not simply the suspension of voluntary functions, which to the common observer declare the fact of living.

The child, a girl, was born alive. Its motions were at first feeble, but soon became sufficiently pronounced. Its cries were clear and loud. The womb contracted perfectly, separating and expelling the placenta readily, and without any hemorrhage. The patient, if such a term can be used in such a case, soon began to revive. Consciousness gradually, and without the least distress, returned. She heard her child cry, and immediately expressed her joy, and an extreme solicitude that it should be taken good care of. She was asked how she had been during labor. She declared she knew nothing about it. She had not felt a pain since inhalation. Her head had been perfectly well. Not the least noise in, or ringing in the ears, flashings of light, &c. Nothing to disturb her had for a moment been felt. "I heard a word said sometimes," she said, and this was all. She had been in profound sleep, and still had not been without the enjoyment with which such sleep, after such fatigue, seems to have accompanying it. There are doubters in the profession, of the propriety or expediency of etherization; and there are clergymen who say it is a violation of the "curse of God" — if such language be not blasphemy — to mitigate or remove human suffering. From my heart do I wish that such had been in that poor woman's *only room*, and witnessed what occurred in it, — its perfect peace and

pleasure, where before was agony; and the joy which so largely and richly replaced that former wretchedness and fear!

15th. — Night very comfortable. Pulse 80. Urine natural. Says she feels perfectly well. Has had no trouble whatever since delivery. Recovery perfect.

Case XLIX. — *Natural Labor.*

Feb. 17th. — No. 218, aged twenty-two; first child. Taken in night of 16th. Awake all night. Pains severe at 3, A.M. 17th. I was called between 7 and 8, A.M. I found her in a chair, pale, and apparently much exhausted. She spoke very feebly, saying she had been in hard labor since 3 o'clock, and awake all night. Her bed was prepared, and she went to it. Os uteri dilated to size of dollar; very thin, and this thinness extending an inch or more towards the body of the uterus. Edge sharp, but somewhat dilatable. During a pain which came on, it yielded a little, but was felt drawn tight round the cranium. There was no bag of water formed. When contraction had subsided, and during its greatest pressure, she lay with her eyes closed, face very pale, without making any effort, and as if asleep. Pulse small, frequent.

I asked if she suffered. She said, in a faint whisper, that she did excessively. Between 9 and 10, the labor had advanced; and, her suffering being great, and her appearance exhausted, she inhaled chloroform. She soon said that it made her faint, and she could not use it longer. I now learned that she fainted often in ordinary health. The pulse showed no sign of diseased heart. She now suffered less during pains, which were rather increased than lessened after inhalation. She still looked as if in profound sleep. Suffering returned; and in about an hour she inhaled again, and, at about the same intervals, five times

more. After one of them, before the last, she was entirely insensible and partially unconscious. Pains continued, and the head reached the perineum. This yielded very slowly, and at length became greatly distended; a portion of the scalp, with a very little of the cranium, only protruding. The distress from this cause soon became extreme. She now inhaled freely, and in less than a minute was under the full influence of the chloroform. She very slowly turned from her left to right side, adjusted her limbs, and fell into a profound sleep, whispering for a moment or two, as the sleeper often does. I have never seen a movement like this during etherization. You see sometimes the arms move somewhat freely up and down, or from side to side, and now and then other involuntary movements. But, in this case, the whole action resembled that which occurs now and then in sleep, and simply because of uneasiness of the position. The will determines these motions, and the muscles obey. This is in no sense spasmodic, involuntary, convulsive; nor did it seem at all so in my patient. The perineum yielded most readily under a strong uterine contraction, and without the least effort of a muscle which was not its own. The natural lubrication was abundant. The head passed with perfect ease, not suddenly, but after a manner which prevented injury. The trunk soon followed, and the placenta was delivered, and the swathe put on before any appearance of consciousness. A moderate flow preceded the placenta, but none followed. The child, a male, was alive, cried lustily, and weighed ten pounds and six ounces. This was just before 2, P.M. about six hours from my reaching the address.

On account of the appearance of exhaustion, I directed nourishment, as gruel, and stimulants when they seemed indicated. An infusion of two drams of secale powder was made by pouring the powder into hot coffee, of the clear tea of which she now and then drank. This was given, not because pains were at any time wanting, — they "running

together," before, as the nurse said, — but because of the slow progress of the head, and the appearance of the woman. It was also very desirable to provide, if possible, for good contraction after delivery. At no time was the ordinary action of secale present. The pains remained much as they were, gradually increasing as labor drew nearer to a close. There was no continuous effort. The intervals of pains were as strongly marked as in any case in which the infusion has not been taken. During the almost entire unconsciousness after one inhalation, and its entire absence during the latest contractions, the pains were as strong, nay, stronger than at any other time. I did not leave this patient from the time of entering the chamber, till she was made comfortable after delivery in bed. I wished to observe the effects of etherization, especially in regard to its effects on uterine action. I can now say, that I never saw it more salutary.

I called about 6, P.M. and found the patient quiet and very comfortable. She had nursed her child, having had milk for some weeks. She had slept most of the time, being only now and then disturbed by slight after-pains.

18th. — Reports a good night, and is now perfectly comfortable. Renal excretion free. Pulse 80, of good strength. Was taken out of bed last evening, while her bed was made, and without being at all faint or fatigued, and has been up this morning. I regretted this had been done. But, as an experiment upon the condition of the woman in regard to strength, it was not without interest.

19th. — Report good. No dejection. Ol. ric. two drams, suc. lim. two drams. Mix. Morning.

20th. — Night good. Some headach in day. Milk abundant. No dejection. Enema. Recovery slow, but perfect.

Case L. — *Presentation of Hand and Cord.*

No. 217, age thirty. Has had — as I learned at this my first visit, Feb. 20th — four children. The first was born alive; the three following were dead-born. Was taken in labor this day, 20th. After dinner, at 6 o'clock, pains were urgent. I was desired to visit her at a little past 10. She was sitting up, but soon lay down. Examined. External organs soft, dilatable, with abundant show. At the brim of the pelvis, the vagina being perfectly relaxed and empty, a loose bagging texture was felt, which was the os uteri and a portion of the neck, with the flaccid membranes within. Os uteri perfectly dilatable. No presenting part was at first reached. At length, what was thought the head was felt, though so imperfectly made out that it was questionable if it were the head. A pain came on, and the bag of water became very tense, and protruded strongly and largely into the vagina. Examined again when the pain ceased. A hand was felt in the bag; the head, if such it were, having passed beyond reach.

Under all the circumstances, the previous long and painful labors, and the many disappointments of my patient, — for the child, which was born alive, did not live long, — I determined to proceed at once to deliver by turning. The water came away during a pain; and now, in addition to a hand, I found the cord was presenting. Its pulsation was slow, say about 60 in a minute, but firm and unintermitting. Etherization was now produced by chloroform. At first it was accompanied by some intellectual excitement, which showed itself by talking of her former labors and other matters, and by some movements of the body. There was no violence or extravagance in either, and they soon passed away. The left hand was carried into the womb, and with great ease. The head was lying in the right iliac fossa, or near to it. A foot was easily felt, seized, and

slowly brought down. The breech soon followed; then the trunk and upper extremities. The last were aided in their descent. The head was slow in its progress; but the womb, acting vigorously during the whole operation of turning, together with careful traction, soon accomplished the delivery. There was no pain from the establishment of etherization. The child, a girl, breathed feebly at first; but cold water to the chest, and friction, were soon followed by free respiration.

I first saw this patient a few minutes past 10; and at 11 the labor was accomplished, and about thirty minutes from beginning the use of chloroform. The placenta was expelled in the usual time, and without hemorrhage. I left the patient very comfortable a little after 11.

21st. — Perfectly comfortable. Slept well. Slight after-pains. Says she has never felt so strong after any previous labor. Pulse well; lochia natural. Recovery perfect.

Case LI. — *Natural Labor.*

No. 222, age twenty-two; third labor. Taken with slight pains, afternoon of Feb. 24th. I saw her at a quarter to 11, P.M. Os uteri somewhat dilated, and dilatable. Pains slight; soon increased in strength. Bag formed, very large; head slowly descended. I told her I had chloroform with me; and, if she found her sufferings to be so severe as to lead her to desire their diminution, she might breathe it. At 12 she asked for it, and at once inhaled it. A small tea-spoonful was poured upon the sponge, and she inhaled freely. In about a minute, its effect was manifested. She could not raise her eyelids, but seemed aware of my direction that she should do so. Contractions very soon showed great increase in strength, and the head reached the bony outlet. Another spoonful of chloroform was poured on the sponge. Contractions became not only very strong, but

soon were almost continuous. The head advanced rapidly. The perineal tumor formed, and the delivery was completed. The child, a girl, cried lustily. This took place at twenty-five minutes past 12, just so many minutes from beginning inhalation. There was imperfect consciousness of delivery; but insensibility was so nearly complete, that suffering was not in the least experienced. The afterbirth soon followed. The womb contracted well. There was no hemorrhage. The pulse was full and strong, and entire satisfaction expressed with the chloroform.

In this case, the quantity of water was much larger than usual, so that it flowed over the bed upon the floor. This has been the case in both of the preceding cases. I left her at a few minutes before one.

25th. — Night good. Slight after-pains; more flowing after I left than in former labors; but no faintness nor exhaustion. Now good pulse; temperature natural; no pain; general feelings good. Child well. It weighs eight pounds.

26th. — Doing perfectly well. I examined the breath immediately after the labor was over. There was not the least odor of chloroform observed.

Case LII. — *Preternatural Labor. Presentation of Hand.*

No. 224, age thirty; seventh labor. In preceding six, only one child born alive. Taken in labor, Feb. 28th. Waters coming away. Attended by a midwife till this morning, March 3d, at 12 o'clock, midnight. Dr. —— was then called. Had attended her in former labors. These had been long, severe, very painful, and had resulted as above stated. He found the hand presenting. The womb strongly contracted upon the body of the fœtus, and the waters entirely drained away. He attempted to turn; got a foot down to the neighborhood of the symphysis pubis,

where it stopped, and from which situation no effort of his could move it.

I was called in consultation between 3 and 4, A.M. Found hand in vagina, within external organs; — latter swollen, hot, dry, tender. I advised etherization. Not because of severity of pains was this recommended, for contractions had nearly ceased, but because of the suffering which the most careful examination produced, and which could not but be immediately increased by the difficulties incident to turning. I did advise it. The ether was to be sent for, and I had time to make observations. The woman breathed heavily, — sometimes with slight groaning, as if from lurking pain. The skin was bathed in heavy sweat; but the pulse had force, was steady, and not above a hundred in the minute. There was time to prepare and to administer some nourishment. It was taken with relish, and was well borne. There had been no vomiting. The renal and alvine functions were not much disturbed. There was no hemorrhage.

The ether was brought. It was willingly and freely inhaled; for the patient knew one who in childbirth had recently used it, and with benefit. She was soon under its power. I now proceeded to turn. The hand was first felt, and next the foot. It was firm in its place. I could not move it with the finger and thumb, with which I with difficulty reached it. It was now embraced by an appropriate instrument, and was brought down low enough to be reached and surrounded by a fillet. Extraction was now made, with difficulty indeed; but progress was evident. At length, the feet, and then a part of the trunk, appeared. Great difficulty now occurred. It was removed by bringing down one arm; and then, by an instrument, the other came along, and with it the head quite easily. The womb contracted well; but it was judged best to remove the afterbirth, while the effects of ether lasted; and so the labor was accomplished without any complaint during most of the

process. The time required was less than an hour. A swathe was applied, and the woman was made as comfortable as circumstances allowed.

She soon came out of the state of etherization. The pulse was as firm as before it was induced. She took some nourishment with pleasure, and was left in a perfectly quiet state, disposed to sleep, having for days and nights been without rest. Recovery perfect.

Case LIII. — *Preternatural Labor. Upper Extremity.*

No. 225, age thirty; third labor. Says present labor began, Monday, Feb. 29th. I saw her first this evening about 7, March 4th. Hand, forearm, humerus, and part of the shoulder, fill the pelvis; neither protruding. During first two or three days, has been attended by a woman, and has been seen by three physicians since. Two met me this evening. I learned from the first, that he was called to see her last evening, the 3d; that the pelvis was filled by the membranes containing the waters; and that, after the contraction ceased, and the bag became flaccid, the finger detected no part of the fœtus below the brim of the pelvis; and, at that strait, the portion felt seemed to resemble a hip, more than any thing else. The other medical attendant felt the hand in the pelvis, when he examined to-day.

I found the brim of the pelvis perfectly filled by the shoulder and a portion of the chest. Had not the pains almost subsided, spontaneous evolution might have been expected, and with safety waited for. As it was, exhaustion was present, and labor without aid impracticable. What was the aid to be? The fœtal motions had not been felt for two days. There was no pulse in the arm of the fœtus, and it was enormously swollen. Ether was inhaled; and, under its imperfect influence, an attempt was made to turn. This was impracticable. The brim of the pelvis was

crowded full, and would not admit any thing through it. It was agreed, that the arm should be removed at the shoulder, and the chest opened, and its contents removed. This was done, and the thorax now allowed of sufficient compression to permit the hand to enter the uterine cavity. A foot was reached and brought down during complete etherization, and very easily was the delivery completed. The arm which was removed was perfectly black, and full twice the size of the other. The womb contracted, and separated and expelled the placenta. No hemorrhage. I left her, soon after, in a tranquil sleep, with easy respiration, good temperature, and firm, and not morbidly frequent pulse.

March 12th. — I have not made a daily record; for it has not been necessary on account of any trouble from chloroform. She had severe cough immediately following delivery, and, I learned, had suffered from this some days before labor began. It was masked during labor, as far as I witnessed this: at least, it did not attract my attention in the graver troubles present. She had rusty and copious expectoration for a few days. This pulmonary trouble did not produce any other, and gradually decreased. The milk came, and was abundant, and continues now. Lochia has been perfectly natural. Is this day without complaint, and says she was never better at this time after delivery.

Case LIV. — *Premature Labor.*

March 14th. — No. 228. Without known cause, water came away in evening of 13th. Has aborted before, and was in great danger from flooding. Has had two natural labors. Is of feeble health, and of very nervous, irritable temperament.

I was called between 11 and 12, P.M. of 13th. Has pains, with large discharge of colored fluid. Presentation not

within reach. Abdomen very pendulous, and uterine tumor largely thrust forward. Pains gradually increased, and became very severe. When presentation was determined, it was found to be head, somewhat squeezed into the os uteri. The latter very firm, with hard, unyielding edge. At first, ether was not desired. It was offered because it has been safely used during some operations on the teeth. At length, it was willingly inhaled. It was used because of the severity of pain, the sense of exhaustion, and the undilatable state of os uteri. Its effects were what they were when used as referred to by the dentist. The lower limbs felt as asleep. They were moved rapidly, but not excessively. There was confusion in the head, and generally not pleasant consciousness. But pain was diminished. When this latter was greatest, a desire was expressed to sit up, in the belief that this would facilitate delivery. This was done, and the womb speedily expelled its contents. No hemorrhage; no after-pains. Was seen between 5 and 6, P.M. entirely comfortable, with a pulse of 72, and good strength.

14th. — Doing well. Recovery perfect.*

CASE LV. — *Convulsions.*

No. 229, age twenty-eight; fifth labor. Seized with convulsions about 8, P.M. March 13th, there having been severe headach through day. Œdematous. I saw her at about 10. Venesection had been used, and with excellent effect. Ice constantly to head. Fits have not appeared since. I left with her medical attendant, to go again if deemed necessary. It was agreed that venesection should be repeated, if necessary; afterwards ether, if convulsions. My engagement with No. 228 prevented my keeping my appointment,

* In some cases, this statement does not occur. It is, however, always to be understood, unless some other manner of termination is given.

till early in the morning of 14th. I now learned that the venesection had been repeated freely, and then sulphuric ether was inhaled. The effect was perfectly salutary. The convulsions ceased. The labor advanced rapidly; sensibility and consciousness being entirely absent, and still voluntary effort apparently as strong as in any labor without etherization. The child was alive. It was born in about three hours after inhalation, and without the least convulsive complication. In half an hour after delivery, fits returned. I went in just after the first was over. Ether had been tried again, and without effect; and it was judged best to lay it aside. An enema of asafœtida and tinct. opii was now directed. It was followed by perfect quiet, lasting about three hours; the time being passed in quiet, noiseless sleep. This state was followed, between 11 and 12, with return of convulsions, which continued when I left about 1, P.M. The pulse was good; and, in intervals, there was natural expression of countenance, and good color and respiration. It was agreed to continue the antispasmodics. A full dose of hyd. submur. had been given in the forenoon; and it was further agreed, that an infusion of senna, with sulphate of magnesia, should be prepared, and given as circumstances might allow.

15th, 10, A.M. — No convulsion from about 1 yesterday, when I left, till 5, P.M. Then a fit, and four more before 8. Copious dejections then took place, with great apparent relief. The pulse was more natural; respiration easy; skin, of good appearance and temperature. I learned there had been threatenings of convulsions, in their interval, in the preceding afternoon; but the antispasmodic remedy at once produced, or was followed by, quiet. Is now in perfectly tranquil sleep. Has had body and bed clothes changed, and in every respect made comfortable. Has answered by monosyllables. Pulse 72, soft, good. Skin moist. Takes gruel readily.

16th. — Consciousness returned perfectly, soon after

morning visit of yesterday. To-day perfectly comfortable. Child well.

19th. — Well.

Case LVI. — *Natural Labor.*

No. 212. During a very severe attack of vomiting, accompanied with intense headach, the membranes broke, and the liquor amnii was discharged. The stomach became quiet under the use of the hydrocyanic acid, and the headach disappeared. This happened about a week ago. Labor began this morning, April 4th, at 4, P.M. The contractions were strong at 6, and I was called about 7. Head low; anterior fontanelle to right acetabulum; os uteri dilated; and promise of a speedy delivery. Very little progress, however, was made, though the contractions continued strong, and accompanied by much pain. The pulse was natural in number, and very firm. Respiration good, and no complaint but of the uterine action. After waiting towards two hours, and every thing being favorable, I gave an infusion of secale. Contractions were soon stronger, but with regular intervals; the continuous tonic contractions which accompany the specific action of secale being quite wanting. When the pains had reached a point of such severity as to make the demand for relief very strong, and this coming from the patient, chloroform was used, about two drams in the whole, and etherization produced. The passage of the head was felt; but it was without pain. The strongest expressions were made of gratitude for this good deliverance. The child, a male, was born, vigorously living, in twenty minutes from beginning to inhale chloroform. Placenta followed, and no hemorrhage.

In the first labor, — this being the second, — much excitement followed immediately upon delivery. A similar state of things followed this.

I left the patient very comfortable. Recovery perfect.

Case LVII. — *Convulsions.*

No. 234, age thirty-three; three children at full time, one at seven months, accompanied by profuse hemorrhage; and three abortions. Is now seven months pregnant. Has had poor health during whole time. Asthma has much annoyed her, and, within three or four weeks, has suffered from severe attack of influenza. Has gradually become universally and greatly anasarcous.

On 9th, severe headach, but was down to dinner. Took very little food. Headach increased, P.M.; and, at about 1, A.M. of 10th, was seized with convulsion. Got active enemata soon, and inhaled sulphuric ether. Great excitement followed, becoming almost uncontrollable. Chloroform was substituted for ether, and the change in things was almost immediate. Great quiet took place; and, though fits continued, their intervals were long, and she was partially conscious during them. Headach continued. Attempts had been made to bleed, but failed. Leeches were applied to temple. Chloroform continued. I first saw patient between 4 and 5, A.M. The convulsions recurred at long intervals, retaining their character of violence. Some consciousness still in intervals. Os uteri closed, very high up. Organs generally very dilatable. Mucus secretion sufficient. Another attempt was made to bleed, and successfully. About twenty ounces of blood were drawn from a large orifice, and in a very short time, when it was judged best to stop the flow. When the leeches came off, the bites continued to discharge blood quite freely. Chloroform was in use at the time; and, after an inhalation, the bleeding entirely ceased, and did not at all recur. Convulsions continued as before, and it was now agreed to employ antispasmodic and narcotic remedies; the tinct. opii, and an emulsion of asafœtida, one dram to an enema, and from thirty to forty drops of the former. These obviously, for a

time, checked the convulsions; and at length, after various experiences of their use, the fits ceased about 10, P.M. and did not recur. She had a perfectly quiet night; and this morning, Apr. 11, she was found comfortable and conscious. She took yesterday fifteen grains of hyd. submur. with ten of fine sugar and gum-arabic, by floating them on water, and putting them into the mouth before they were dissolved. No dejection. Renal excretion natural. Comp. inf. sennæ, directed till catharsis.

12th. — Senna has operated sufficiently. Night comfortable, and so is this morning. Pulse good. Tongue very sore. I was called to see her at 10, A.M. in the absence of her physician, but did not get the message till nearly 12, noon. The child (the head presenting) was born just before I arrived. The placenta soon followed. The child was still-born, and, from appearances, had been some time dead. Extensive cuticular abrasion had taken place, and the whole seemed as if it had undergone long maceration.

Recovery perfect.

CASE LVIII. — *Natural Labor.*

No. 197, age twenty-four; first labor. Short; strong. Black hair and eyes; florid brunette. Before pregnancy, always well. Latter months, occasional severe vomiting, which may continue many hours. For some days before labor, great tenderness and soreness over abdomen; diffused. Can scarcely bear weight of clothes. Labor, April 18th. For two or three days before, precursory symptoms more or less pronounced. At 2, A.M. of 18th, contractions strong, colored show, &c. I was called at 4, A.M. Pains good; not frequent. Os uteri of size of quarter of a dollar, thin at edges, generally *soft*, but still, at extreme edge, *firm* or *sharp;* a state easily recognized, but not easily described. Contractions increase in force,; intervals fair, but no progress.

Case LVII. — *Convulsions.*

[illegible] thirty-three: three children at full time. [illegible] fits, accompanied by profuse hemorrhage, [illegible] blood-vessels. Is now seven months pregnant. Has had good health during whole time. Asthma has much [illegible] last, and within three or four weeks, has suffered [illegible] attack of influenza. Has gradually become [illegible] dropsical, and slightly albuminous.

[illegible] breakfast, but was down to dinner. Took [illegible] Headache increased, P.M.; and, at about [illegible] she was seized with convulsion. Got active emetic [illegible] and inhaled sulphuric ether. Great excitement [illegible] struggling almost uncontrollable. Chloroform was [illegible] for ether, and the change in things was almost [illegible] that took place; and, though fits continued [illegible] intervals were long, and she was partially [illegible] during them. Headache continued. Attempt [illegible] bleed, but failed. Leeches were applied [illegible] chloroform continued. I first saw patient [illegible] The convulsions recurred at long [illegible] losing their character of violence. Some coma [illegible] at intervals. Os uteri closed, very high up, [illegible] externally very dilatable. Mucus secretion scanty. [illegible] attempt was made to bleed, and successful [illegible] twenty ounces of blood were drawn from [illegible] and in a very short time, when it was judged [illegible] stop the flow. When the leeches came off, the bites [illegible] to exchange blood quite freely. Chloroform was [illegible] time, and, after an inhalation, the bleeding [illegible] and did not at all recur. Convulsions ceased [illegible] and it was now agreed to employ anodyne [illegible] remedies: the tinct. opii, and [illegible] of asafœtida, one dram to an enema, and from [illegible] doses of the former. These obviously, for

... the convul... ...
... ...ences of their use. ...
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...III. — *Natural Labor*

... ...four; first labor. Short, stout ...
... florid brunette. Before pregnancy ...
... ...nths, occasional severe vomiting ...
... ...ny hours. For some days before ...
... ... soreness over abdomen; difficul... ...
... ... of clothes. Labor, April 16th ...
... ... precursory symptoms more ...
... ...M. of 18th, contractions ...
... ... called at 4, A.M. Pains ...
... ...ize of quarter of a dollar, thin ...
... ... at extreme edge, *firm* ...
... ... but not easily *described* ...
... ... intervals fair, but no ...

Os uteri as before. Water bag protrudes through os. At half-past 12, I exhibited chloroform. It was inhaled well, and produced not the least unpleasant result. Etherization occurred after very few inhalations, sometimes not more than two. It, for the most part, continued a very short time, only making frequent inhalation necessary. The quantity of chloroform at a time on the sponge, in the conical inhaler, was from half a dram to a dram and a half. Great relief always experienced and expressed. At times, unconsciousness and insensibility were complete; and it was during these that *uterine action was strongest and most efficacious.* Pulse, at beginning of etherization, was about 80, soft, strong. It was examined about every half-hour. It fell once to 68; but, for the most part, was at from 72 to 74. Breathing was throughout good. Warmth and perspiration natural. At times pale, at others flushed. Demands for chloroform unusually urgent, and some irritability when not promptly allowed. Renal function natural. No confusion of head. Some numbness, and more tingling of extremities; phenomena exceedingly common during etherization. During *complete action of chloroform*, any proper amount of pressure of abdomen perfectly tolerated. *At all other times*, sensibility here very acute, and strong complaint of any pressure.

Some effects deserve special notice: —

1. Increased dilatability within half an hour after etherization.

2. Manifest increase of pain or contraction.

3. Intervals remained about the same, and were passed in most perfect, quiet sleep.

4. Pain in back, which before demanded constant pressure during contraction, was hardly referred to.

At half-past 6, P.M. and having used about three ounces of chloroform, the child, a male, was easily born, and in full life; and in six hours from beginning of etherization. Cord more than once round neck and body.

In this case the os uteri came down with and before the head, after an unusual manner, considering its dilatability. It was carried up, and without difficulty, but would descend again as soon as contraction began. The *position* probably favored this, the face being to the left acetabulum. The os began to swell. Congestion in it had taken place. It was getting firm. I now did what I often find useful in such a case. I gave the infusion of secale, after the manner already stated. This was soon followed by such contractions as, by shortening the womb, drew the mouth fairly above the head, and prevented further descent. The peculiar character of pains which attend ergotism was not for a moment present, the *intervals* being as perfect as before its use; a condition of things before observed, after using secale during etherization, and which may explain the rareness of still-birth in these cases.

Case LIX. — *Natural Labor.*

No. 219, aged twenty; second labor; first, eighteen months ago. For very severe headach, to which she is very subject, chloroform was inhaled, some three months since. About a week ago, another attack was treated in the same way by the patient. Labor occurred in the evening of May 8th. I was called about 3, A.M. of the 9th. The odor of chloroform filled the chamber, and after a manner I had not noticed before. I asked how this happened. A friend of the patient said that Mrs. —— had been using it for some time, and was now fully under its influence. I found at once that this was the case. She used it thus: — A tea-spoonful was poured into a tumbler; and this she held to her face, until, overcome by the vapor, it fell from her hand, or, being quite free from pain, enough consciousness remained to allow her to put the tumbler upon the bed. The atmosphere was so charged with the

vapor, that her attendant was frequently obliged to leave the room, and was severely vomited. The patient had not the least nausea. I substituted the conical inhaler for the tumbler, with much advantage. The vapor was very soon removed by opening a window, and no further trouble occurred. The pulse, respiration, temperature, were perfectly natural. A quiet sleep prevailed, marked by the repose of countenance, and appearance of most perfect ease, which are so characteristic of etherization. The head was quite low in the pelvis; os uteri well dilated, and dilating rapidly during each contraction. Intervals were short, and uterine effort progressively increasing; and this without the least complaint, or apparent voluntary effort. The membranes became full and tense, and remaining unbroken, notwithstanding the entire disappearance of os uteri, and descent of the head, they were broken, and the waters discharged. Delivery soon after took place; and the child, of large size, a female, was born, with scarce any evidence of uneasiness. The womb contracted well. The placenta was soon cast off from the uterus, and with a slight effort removed from the vagina. No hemorrhage followed.

This patient had suffered very severely from after-pains in her first labor. For some hours they annoyed her excessively; and the nursing of her infant, for some time, renewed them. She now meant to try what chloroform would do to prevent or lessen this trouble. I left with her the inhaler and chloroform. She was visited in the course of the forenoon, and expressed her obligations to the remedy of pain, as the after-pains had been made quite tolerable.

10th. — Very comfortable. Pulse, &c. well. Abdomen soft, without pain. Womb well contracted, and occupying the usual place at this time from labor. She was still inhaling chloroform, as after-pains made it necessary. I well remember a case, communicated by a friend who has very kindly aided me in my collections for this volume, in

which sulphuric ether was used during the labor. His patient was a sufferer from after-pains, in a very extraordinary extent. She was living some miles from town; and, when my friend left her, he left her a large bottle, containing about a quart of ether, to be used as circumstances might require. She used it freely, and with the happiest effects, and without the least untoward occurrence.

11th. — Day and night good. Milk in abundance. Slight after-pains. Pulse well. No fullness or tenderness of abdomen. No dejection. Nausea. Is easily moved by cathartics. Cannot take ol. ricin. Salts a favorite medicine. Directed one dram magnes. sulphat. and half a dram mag. calcinat.

May 12th. — Has not taken medicine, as she had natural dejection yesterday, P.M. Nausea gone. Pulse 72. Abdomen well. Had last evening headach, which threatening to be severe, she inhaled chloroform, not very satisfactorily, she added, as she had not the inhaler. Pain, however, was relieved. Has always been subject to nausea; very great care as to diet allowing her any comfort; and often this fails. Has taken salts, &c. as prescribed day before yesterday. Reports herself much better than after former confinement; was then obliged to keep her bed for three weeks and four days.

13th. — Doing well. Salts have operated freely. Milk abundant. No uneasiness in abdomen. Pulse 72.

14th. — Doing well. Pulse, &c. as before.

CASE LX. — *Natural Labor.*

No. 221; first child. Taken with pain, Thursday, May 11th. At 5, P.M. labor, more declared, prevented sleep. At 9, A.M. of 12th, pains very severe. I was called between 12 and 1, noon. Patient walking about in much distress, begging for chloroform. I had none with me. It was

soon procured; and the patient and the bed being prepared for labor, she laid herself down, and, at ten minutes past 1, began to inhale chloroform. Her pulse was about 70, small. Skin cool, yet quite red; hands and arms especially so. In every respect feeling well. Etherization was produced almost immediately, from a small tea-spoonful poured upon a handkerchief. At first the pulse was but slightly altered. In a succeeding induction of etherization, it fell to 48. It was firm, strong, but very slow. The first effects were noises in the head, with somnolency. As soon as the state of the pulse was ascertained, less and less chloroform was used, and a few drops only were often sufficient. The patient managed inhalation very much by herself. It was directly abandoned as soon as its effects were produced. It seemed to me, by attending to the pulse, it was as easy, quite as easy, to regulate the use and the effects of chloroform, as it is to manage the exhibition of any other active medicine. I felt here, in this case, how important is the fact in the history of a medicinal agent, *that it has power;* that it can do *something;* yes, do a *great deal.* As soon as you deal with such agents, you feel the strongest obligation of duty to observe, almost every moment, their effects. This case was full of the wisest and best teachings, and I listened to all its words. I regret I did not at the moment make a record of every change the pulse underwent. I examined it constantly; my watch was by me on the bed; the hour was noon, and the sun was in the chamber. I had every facility, and I improved it all. I felt perfectly assured of the whole safety of the case. I should as soon have felt disturbed by the operation of an emetic dose of ipecacuanha, as by what was passing before my eyes.

The labor was terminated at ten minutes past 2. A very large male child was born, in full health and life. The mother knew of this fact only by its cry, and then was obliged, by the circumstances of her delivery, to ask what child that was, — was it hers?

The afterbirth soon followed. Perfect uterine contractions took place. Some pain attended this, or rather forcing effort, for which she begged for a little more chloroform; and her wish was gratified. No hemorrhage occurred, and I left her perfectly well, about an hour after her child was born.

May 13th, 9, A.M. — Very comfortable. Pulse 72, soft, natural. Slept well. Is strong, and looks in usual health. Some milk. Abdomen soft, not at all tender.

14th. — Doing well. Pulse 72. Had pain in abdomen, lower part (uterus), last evening (after-pain), which disturbed sleep first part of night; then slept well. No dejection. If none in course of day, take to-morrow morning one dram magnes. sulphat. and fifteen grains magnes. calc.

Recovery perfect.

CASE LXI. — *Convulsions.*

No. 253 was seized with most severe pain or cramp in the stomach, about 4, P.M. May 7th; and this without the least error in diet, or the presence of any known disease, or change from ordinary health. In the evening, convulsions. These were very severe. They had been preceded by that state of stomach to which Denman and others ascribe such important agency in the production of this most formidable disease. For a time, some consciousness occurred between the fits. This was not of long continuance. Bloodletting, and leeching to head, were practised. But the skin was pale and cold, and the pulse feeble; and much blood was not taken, — and this with very little, if any, relief. Chloroform was inhaled, but did not diminish the violence, or increase the intervals between the fits. These, for the most part, were about half an hour; once, an hour and half. Urine, drawn by the catheter, showed some striking deviations from the healthy condition of this secretion. It

was of a blackish brown color, not at all resembling urine; and in smell it was still more unlike it, it being entirely destitute of urinous odor.

I first saw this patient between 12 and 1, noon, of the 8th. She was perfectly unconscious. Her breathing was heavy and noisy. Her pulse very rapid, small, wiry; much heat, especially about the face. The face was swollen, leaden pale, and haggard. Anasarca existed everywhere. Her lower extremities were especially swollen. Ramsbotham and others have showed how common is the disease, convulsions, in this condition of the cellular tissue. Examination showed that labor had begun. Os uteri dilated somewhat, and dilatable. The membranes separated from the scalp by liquor amnii, and ready to protrude through os uteri. Lubrication sufficient, and organs generally in a healthful state.

A fit soon came on. It was violent. The head was turned strongly to right shoulder, and convulsive motion was much more striking in this extremity than in the left. Especially was this the case in the beginning of the paroxysm. Afterwards the left arm shook nearly as violently as the right. During the height of the fit, the pulse at the wrist was wanting.

As chloroform had not controlled the fits, sulphuric ether was inhaled. For a short time, the intervals were lengthened; but, after this, the fits became as frequent, and more so than before. Labor had advanced, so that the membranes fairly protruded beyond the os uteri. The state of the patient was obviously growing worse. The disease had now existed many hours: it was obviously increasing. It was agreed to puncture the membranes. This was done, and much water passed off. Some temporary diminution of the fits followed; but they soon became as pronounced as ever. As the child was now within reach of instruments, and as very careful auscultation discovered no evidence of the continuance of fœtal life, it was agreed to deliver. This

was done; and, during the operation and for some time after, fits did not occur. The pulse improved, — gained strength, and was slower. The breathing was good, and lividity entirely disappeared. I left her in this comfortable state towards evening.

Convulsions recurred soon after, but ceased again; and, Thursday evening, she was comfortable. This state, however, did not last. Sinking gradually came on, and death took place forty-eight hours from the birth of the child.

Case LXII. — *Natural Labor.*

No. 251 has had one child. Was taken in labor, Monday, June 12th, noon. I was called at 1, A.M. 13th. I learned that, since 10, P.M. of 12th, she had been in almost constant and most severe pain. The contractions were almost continuous, as is the case from secale. She made great complaint, and vehemently demanded ether. She had said that she would never use it; but such was her misery, she would do any thing to have it lessened or removed. I had with me chloroform and chloric ether, and resolved to try the latter. A hollow sponge was well wetted with it, and she began inhalation. The effect was to diminish suffering, — to render it tolerable, but not to destroy either consciousness or sensibility. The contractions were not in the least lessened. The head was found to be very low; membranes entire, and nearly protruding beyond external organs. The water was soon discharged, and the head came upon the perineum. Labor proceeded very rapidly. An abundant secretion took the place of unusual dryness, which existed before inhalation; and the process was soon completed by the birth of a living female child, which was found to weigh ten pounds.

The afterbirth soon followed; and, after it, a large mass of liquid and firmly coagulated blood was expelled. No

hemorrhage, or other untoward accident, occurred. In this case, etherization was incomplete; but great relief was produced, just what is wanted in such, or in any, cases of suffering. Chloric ether was first used by me in this case; at least, was wholly depended on. It irritated the throat at first, producing cough, as does sulphuric ether. It also vomited the patient; and this is the first instance in which I observed vomiting in etherization. It seemed less powerful than either sulphuric ether or chloroform; that is, a very free use of it certainly produced less effect than such use of them is generally accompanied by. The pulse, the breathing, and the temperature and complexion, remained unaffected during its use.

I left the patient perfectly well, two or three hours after delivery.

Recovery was very rapid. No after-pains. The patient asked if this was not rare. I said they were very common; but exceptions often occurred. My attention has been particularly called to this subject of the effect of etherization on after-pains. I have met with at least two cases in which very severe after-pains occurred after very perfect action of ether. My general experience, however, shows a very different result. A friend yesterday said, that he had very recently used etherization as *a remedy for after-pains*, and asked me if I had so employed it. I said, yes, and with excellent effect, and remembered a case which was communicated to me, in which these pains were exceedingly severe, but which were entirely held in check by ether. My friend said that he had not used ether or chloroform for this purpose until lately. He had been deterred by some theoretical fear, that the womb might possibly be relaxed by the use of ether, and so hemorrhage be produced. But, he added, he had lately used it in cases of most severe after-pains, and with perfect relief, and without hemorrhage or any other untoward result.

Case LXIII. — *Instrumental Labor.*

No. 256, age thirty-eight; first labor. Was taken, June 19th. Membranes broke at the very beginning of labor, and contractions began with great strength very soon after. These were attended with great pain. They continued with very slow dilatation, and slight progress in the case, till the 21st, when they decidedly slackened between 3 and 4, P.M. I should have said there had been very little, if any, sleep since the beginning of labor; dozings merely in the intervals of contractions. I was desired to see her, and reached the address between 6 and 7, P.M. of 21st, about forty-eight hours after the beginning of labor.

This was the state of things. Pulse between 120 and 130, with the characters of exhaustion. Skin hot; face deeply flushed with that fixed and dark red which the complexion assumes after long-continued exertion, attended with much forced retention of breath. Head very hot, demanding constant and frequently renewed applications of cold water. She said she was utterly worn out, exhausted, and asked for relief. Head of fœtus low. Left ear under symphysis, the free portion looking toward right acetabulum; the face being to left side of pelvis, nearly crossing it. The head, though low, had not cleared the arch. I examined, during a number of contractions, to ascertain what was their effect upon the head. It was more or less forced down by them; but you felt that they produced no true progress. No *absolute descent*, as marked by positive *change of place* in the head, could be detected. There was distinct *pressure* felt by the patient while contraction lasted, and so had there been during the whole day; but there was *no feeling of progress.* This is very noticeable in protracted and painful labor, and perhaps as surely indicating its true character as any other sign.

It was agreed in consultation, that the forceps should be

used. There was no promise of delivery, and it was clear that exhaustion was increasing. I first applied the instrument over the *ears*. But the pressure of the perineum became so great, that it was not deemed safe to continue extraction in this direction; and the rule, I think, of Lobstein was adopted, of applying the branches in the direction of the *sides* of the pelvis. This was done, but with more difficulty than usual; as the former effort with the instrument had somewhat and permanently advanced the head. It was asked if she would inhale ether-vapor. She was most happy to do so, if it would diminish her intense suffering. As soon as the forceps were adjusted, a hollow sponge was wetted with *chloric* ether, and inhalation was begun. It was continued with the greatest eagerness and success. Its effects were wholly agreeable. These were a pleasant excitement, a moderate laugh, the absence of all complaint; but frequent declarations that we were hurting her, that she could not be cheated, &c.; — but, through the whole, a manner which showed how slight was sensibility, if any at all existed. The child was very soon born, was alive, and soon cried fairly. The womb silently, and without pain, contracted, separated, and expelled the afterbirth in a few minutes. No hemorrhage followed or attended the process. A swathe was applied, and the patient made comfortable in bed.

The expressions in this case were such as are made after the happiest use of etherization. There was nothing exaggerated in them, but showed how much relief had been afforded, and how earnest and true was the gratitude which this relief had inspired.

Case LXIV. — *Placental Presentation.*

No. 259, age 36; fourth labor. July 4th, the day on which labor has been predicted. In ninth month, four

hemorrhages. The three first before the 4th July. Moderate; mostly coagula, solid, some large; and colored liquid.* Was directed to keep bed after the first flow, and has done so. This attack occurred in night; was more urgent than others, and accompanied by pains or uterine contractions. I was called to see her with her medical attendant, between 3 and 4, A.M. Pulse from 125 to 134. Speaks of exhaustion. Contractions have nearly ceased. Flow moderate, and of liquid and coagulated blood. Micturition frequent. Sounds of *fœtal heart* very distinct about midway of abdominal tumor, but to *left of median* line. In this part, tumor is very firm, roundish, as if the fœtus were closely embraced by the womb; and the waters discharged. *Placentary murmur* I do not hear. At lower part of abdomen, towards *right side*, womb is firm, but does not reach to hypochondrium, as does the left.

Examination discovered nothing, except coagula and liquid blood. Os uteri not to be reached by ordinary means. Passing along symphysis pubis, the uterine tumor was felt; but what was within the womb at that point was not ascertained. As hemorrhage had occurred so many times, and was obviously producing untoward effects; and as it was not at all known, except by induction, what was the precise state of things, it was agreed that the patient should be put under the influence of chloroform, the hand

* Sometimes these occasional discharges of coagulated blood, and continued flow of colored watery liquid, give rise to uneasiness; as it is supposed active hemorrhage is present. This is especially alarming to the patient. A constant, however small, stream of warm fluid keeps up the idea, that hemorrhage is going on; and "I am flowing!" is a frequent exclamation. The explanation is simple. Slight hemorrhage exists. The blood is delayed and coagulates, and the serum which is separated from the clot escapes. If the patient move, the flow is greater; and, not unfrequently, coagula, dark and solid, are also expelled. This state of things demands much attention. But it is obvious that it may come, for the most part, of what has happened, and show itself even when hemorrhage has actually ceased. Let the state of the womb be carefully attended to, especially in regard to *contraction*. Let the pulse, and whole state of the patient, have close regard; and let the vaginal discharges be carefully examined. In this way, real danger will be timely discovered, or the patient's mind put at ease.

introduced, and the real state of the case ascertained. Chloroform was used. It had been employed in the night to procure rest, and had produced no unpleasant effects. Inhalation was begun, and etherization soon followed. When it was nearly established, the hand was passed, and with great ease. Contractions had ceased for some time, or were exceedingly slight. The placenta was felt directly over the os uteri, the membranes presenting at no point. It was very firm, and was in close contact with what was beyond it. Os uteri readily admitted a portion of the hand; and, when further easy progress was stopped, the hand was kept at rest, until, by the known action of etherization, relaxation should be produced. This soon occurred, and the hand passed readily into the uterine cavity, and towards the *right iliac fossa*, where was sufficient room for its accommodation. The membranes were first reached in that place, — were broken, and a knee at once felt. The cord was near the knee, and was carefully examined. Pulsation had entirely ceased. I recollected how distinct was the pulsation of the fœtal heart a short time before, and was struck with the state of the cord. But very soon pulsation was felt, at first feeble and very slow, but soon of its ordinary frequency and force. It reminded me of a case in which the cord came down by the side of the head, and in which, during a contraction, pulsation ceased, but which returned as soon as uterine relaxation took place. At first it was feeble and very slow, but became shortly frequent and strong.

During this time, the uterus was perfectly quiet. Its contractions had nearly or quite ceased before etherization. The utmost freedom was experienced in moving about the hand to reach the ham, and in bringing down the foot. Every thing was conducted with entire deliberation. Not a complaint was made by the patient, though, before inhalation, almost any examination produced severe suffering. Some obstacle to the descent of the foot occurred. Effort

at once was suspended, in order that the greatest relaxation might occur. In this way, turning proceeded, and was completed in about twenty-five minutes from the beginning of the operation. The usual delay occurred before the head was born, and the cord ceased to pulsate. The heart of the child, however, continued to beat; and, after use of ordinary means, respiration was established. Some uterine effort was manifested at the close of the labor, and aided the delivery of the head. It continued afterwards, producing good uterine contraction, and separation of the placenta, which shortly came away with slight assistance, and without any hemorrhage. Among the first words spoken by the patient were questions which showed how perfectly unconscious had been the patient: — "Is the child born? Was it delivered with instruments? Is it alive? Has the afterbirth come away?" She declared she was conscious of every thing that had been done. The memory was entirely wanting of the most important facts. The child was born about 8, A.M. Said the patient, as we were about to leave, "I give my testimony for chloroform."

7, P.M. — Very comfortable. *No after-pains;* no hemorrhage. Renal excretion free. Pulse 120. Skin warm. Sleep. Breathing natural. It should have been said, that the pulse and respiration continued unaffected by etherization.

At this visit, patient spoke of her three former labors. The first was an instrumental case; the child dead-born; her getting-up very slow, and with much suffering. The second was severe; the third less so, but convalescence very slow, and suffering from after-pains extreme. She spoke of her present comparative comfort as a state she had not before known. Especially did she speak of the entire absence of suffering from after-pains.

The child had made fair progress since the morning; had a free alvine discharge; had swallowed pretty well; and, for the first time, and during the visit, cried. There was a

remarkable deficiency of development of the cranial bones, showed by unusually large fontanelles, and widely gaping sutures, as of grave malformation. But the size of the child and appearance were otherwise natural.

5th. — Mother perfectly well. No after-pains. Has suffered much from these before. Child improved, but still does not come up to fair re-action. Cranium as before.

Mrs. —— has done perfectly well. Child died a few days after birth.

Case LXV. — *Natural Labor.*

No. 239, age thirty-six. July 5th; seventh labor. Taken sick this evening. I was called about 11, P.M. Contractions strong, painful, frequent. Os uteri partially dilated, presenting a firm, sharp edge. Membranes protruding. Dress was arranged, and patient went to bed. Pain rapidly increasing, and occasioning strong expression of suffering. A hollow sponge was well soaked with sulphuric ether, and inhalation was begun. At first there was a slight sensation of choking. This soon went off, and the most grateful effects of etherization replaced it. The membranes soon gave way, and much water was discharged. The os uteri yielded to the contractions in the kindest manner. There was no complaint; no motion of body or limbs; and no mental excitement manifested. The sponge was used at every pain, ether being added as required; and, after six or eight contractions, the child, a boy, was born, crying at the very top of his voice. He weighed eleven pounds and half.

In the last uterine effort, the sponge being misplaced, there seemed to be some suffering; but, after labor was over, none was remembered. Nor was she conscious when the child was born. Being asked of her state during etherization, she said that she had been listening to reading the whole of the time, and supposed one of us had been enter-

taining those present in this manner. She was made comfortable; a swathe applied; and I left her about 12, midnight. The pulse was carefully attended to, being examined before inhalation, and it preserved its firmness and frequency throughout; the respiration also being perfectly natural.

July 6th, 12 and quarter, A.M. — Doing well.

7th. — Doing perfectly well.

CASE LXVI. — *Natural Labor.*

No. 247, age thirty-one; second labor. First child twenty months old. Health good. Pulse from 80 to 84. Respiration natural; complexion clear, good; temperature natural. Labor begun, Aug. 13th. I was called 3, A.M. 14th. Contractions regular, strong; intervals not long; os uteri dilated; membranes in close contact with the scalp. Liq. am. collected, and was discharged about 4, by a strong pain. Progress slow. It did not seem that any advance was made; the head remaining in about the same place an hour or more after my arrival, as I first found it. Though contractions were very strong, no pressure was felt during examination, when they were greatest. The uterine tumor at such times was very hard, showing good contraction. It seemed to me very clear that the labor was delayed by voluntary effort to diminish suffering. At length, ether was asked for, and the sulphuric was used. Its effects were good. Pulse, complexion, temperature, continued perfectly natural. Complaint ceased. Contractions as frequent as before etherization, and much stronger. Labor began soon to advance. Ether was demanded; and, sponge held by patient, it was dropped when no longer needed. Labor proceeded rapidly. Every contraction advanced the child, until it was born, about 6, A.M. very suddenly, but with no mishap. It cried loudly, a

boy, weight eight pounds and a half. The afterbirth was soon thrown off. No hemorrhage. I saw this patient about an hour and half after labor was completed, and found her doing well. Pulse as at beginning of process, and countenance only expressing ease and comfort. I asked concerning etherization. She said that she did not lose consciousness, but was so much relieved of suffering, that it ceased to disturb her. She was most aware of the difference of her feeling, as contraction approached. It had been looked to with alarm and uneasiness before inhalation; but, after that, there was no such feeling produced by its coming. There was the most perfect consciousness that the child was advancing by uterine effort; and this had not been perceived before.

Here was a case of imperfect etherization, but not at all the less interesting on that account. Has it not a higher interest in this, that so much diminution of suffering, and such progress given to the case, by such slight, but efficient and safe means? This is one of the many like cases which have been noted of the practicability of graduating etherization to the demand. In this case, suffering was so far diminished as to lose its character of pain, at least to such a degree as to be perfectly tolerable; and the consciousness was sufficient to permit of a comparison of present state with the severe distress of a former labor. These, to my mind, are among the most interesting facts presented by our subject; and how fruitful are they in suggestions, which will certainly give to etherization wider and most important agencies in medicine!

Case LXVII. — *Natural Labor.*

No. 261, age 43; seventh labor. Labors, with a single exception, all more or less difficult, protracted, and painful. The first had occupied three days and two nights before I

called in consultation. The head was low. It had been so for many, many hours, and without any change in place, notwithstanding severe uterine contractions frequently repeated. It was agreed that forceps should be used. The instrument was applied; and, after a trial with it unparallelled to my knowledge for its length, the child was born. It was a boy, and still-born. It was, however, made to breathe, and lived some hours.

Severe hemorrhage and general collapse followed. I have rarely known the effects of protracted labor more declared. The uterus seemed incapable of contraction. After efforts continued for hours, re-action took place, and good recovery. In two other labors, great difficulty and suffering occurred. Delivery at length took place, but was fatal to both children, by cause of entire suspension of uterine effort, and of physical inability to complete the labor after the birth of the head, before death had occurred. These children were boys, and, like the first, very large and of great weight; being each over eleven pounds, and one very near twelve. Since these three births, two male children have been born, and are living. I was present with the family medical attendant in this as well as in the three first cases, and can bear witness to their difficulties. The placenta was morbidly adherent, or retained in most of them, rendering very painful measures necessary for their removal. The fifth labor was of a female, of fair size, but born with so much ease, and with so little attendant uneasiness, that the delivery was accomplished before either of three physicians, who were called, arrived. The sixth was of a boy, and much of the old difficulty was experienced.

The seventh labor begun, July 15th, 1848, the day when it was predicted, at 7, A.M. For months before, much anxiety had been felt about the result. The abdominal tumor was excessively large, — larger than ever before, and annoying by its great bulk. The nights were restless, sleep disturbed, and the days uncomfortable, from both mental and

physical troubles. She was blooded, but with little benefit. The approach of labor was dreaded. In all previous ones, there had been great moral firmness; and great and long-continued suffering was, I may say, nobly borne. Why the present misgiving, was not explained. The only, and wholly vague, reason was, that nothing of the kind had existed before; that things were not as they had been, and trouble must come.

The labor began without *pain*. There was evidently uterine contraction; but it was hardly, if at all, perceived. The evidence of labor was in dilatation of the os uteri, and in its perfect dilatability, — in abundant show, and dilatability of all the organs, external as well as internal, — in presentation of the head, — and in alternate protrusion, and disappearance of the membranes. This state of things continued twenty-four hours. The night was restless, and the day uncomfortable, but not from *pain*. Contractions were perceived, but were not painful. At about 8, A.M. of the 16th, while the medical attendant was making an examination, the membranes were pressed with so much force and suddenness upon his finger, that they were broken, and a very large quantity of fluid followed. As this looked more unequivocally like labor than any thing else, I was desired to see the case in consultation, having been beforehand engaged to do so.

I found great mental uneasiness present. It was all wrong. Delivery would never take place. There was extreme exhaustion or utter weariness, from disappointment and from sleeplessness. Occasionally, a pain was felt; but it was nothing, — and instruments must be used, or the child would never be delivered. It would not be easy to exaggerate the utter discomfort which was present, or the complaints which expressed it. Examination showed what is above given from the description of the attendant. The head was at the brim of the pelvis, on entering it. It was perfectly well placed; moveable; every thing in excellent

preparation for easy delivery. Upon moving the head, a great gush of liq.* am. took place; and this was repeated again and again; and, being received into a hollow of the bed, which was covered by India-rubber cloth, and so could not soak away, a perfect bath was produced. This flow of liquor amnii explained somewhat the great distension in the latter months of pregnancy. The abdominal tumor now became smaller and firmer, and stronger uterine contractions occurred. I should have said that, the patient being about the room most of the time since the membranes gave way, the liquor amnii had freely flowed two or three hours before my arrival.

It was agreed to wait the effects of increased uterine effort. Not the least change was noticeable in the presentation. Every thing seemed favorable to rapid delivery. Still it did not occur. It was now agreed to give infusion of secale. One dram was infused in six ounces of boiling water, and one ounce of the clear tea given; and this dose was to be repeated as circumstances might require. There was no objection made to its use, if ether or chloroform might be inhaled, should pain occur along with increased contractions. It was promised that this should be done. The pulse remained quick. The skin was hot and dry. The mucus secretions were replaced by a watery one, which had no lubricating property. The mental depression was extreme. More vigorous uterine action soon followed the first dose of the infusion, and a repetition of it added to its power and efficiency. The head descended favorably, and at length reached the outlet. Chloroform was demanded and inhaled. The quantity used was small, say about twenty drops at a time on a folded handkerchief. It soon produced mental quiet. Complaint and apprehension were diminished, and soon ceased. The intervals of contraction were passed in perfect rest, like quiet sleep. The con-

* In two or more instances, this word has been incorrectly spelled *liq*.

tractions themselves were at times less strong; at others, more so. The infusion of secale was occasionally given. About 10, A.M. the head was born, without the consciousness of the patient. The uterine action ceased at once. Friction to the abdomen, and other means, were used to excite the womb to effort. The head grew deeply livid; the nose and mouth were clogged with thick frothy mucus. It seemed impossible to save the child. At length, the finger reached an armpit, which looked towards the sacrum, and this the more readily from the extreme dilatability of the organs; and the child was made to descend. Contractions came on, and the shoulders soon followed, and then the trunk and extremities. The child, a girl, cried strongly at once. Its weight was afterwards found to be nearly eleven pounds. There was a remarkable similarity in the birth of this child, — the delay, &c. which so strongly characterized the birth of the three sons. Hemorrhage at once showed itself as before. Ergot tea had been given to secure uterine contraction after the head was born, and to prevent hemorrhage in the third stage of the labor. The loss was sudden and large. Firm pressure was made upon the uterine tumor, which was soon felt to be hard, but large. As it had been necessary, in the preceding labors, to remove the placenta manually, I passed the hand as I had done before. Pain was complained of, and chloroform was inhaled. The placenta was found partly detached, but mostly firmly adherent. The womb was contracted irregularly upon it, closely adapting itself to the inequalities presented by the placenta. At length, however, it was separated, and taken away. There was no more loss. A swathe was applied, and the patient placed comfortably and easily in bed, expressing the warmest gratitude for her painless deliverance. This was about 12, noon. Between 3 and 4, P.M. I left her very comfortable and happy.

Recovery perfect.

Case LXVIII.

Natural Labor. Internal Hemorrhage after Delivery.

No. 248, age nineteen; first child. Liquor amnii was discharged this morning, June 17th, at 5, A.M. waking the patient up. She is in excellent health. Has been very well during pregnancy, exercising freely, and living well. Contractions soon occurred, and became severe and painful. I was called about 8, A.M. Presentation natural. Head midway in pelvis. Os uteri well dilated, and dilatable. Secretion sufficient; and contractions evidently, but slowly, advancing the labor. As the dilatation of external organs was slight, and the perineum very firm, and much suffering present, sulphuric ether was inhaled, and with great comfort. The contractions rapidly increased. The intervals grew shorter. The head advanced. The child was born between 9 and 10, A.M. with perfect ease, and without complaint. The placenta soon followed by the action of the womb, and no hemorrhage attended its delivery, or immediately followed it. A swathe, to which afterwards was added a compress, was applied with much care over the uterine tumor, and every thing promised well. I was entirely alone with this patient, having literally no one to render the least assistance. Upon coming to the bedside, a short time after, I found her looking pale; and, upon inquiry, she said she felt faint. Her pulse remained distinct. A female neighbor, a stranger, now arrived. I found very little external flow; but, upon removing the swathe, the womb was found large, though not soft, as if relaxed. I desired the attendant to place her hand firmly upon the uterine tumor, to which I directed it, and proceeded to examine the state of the womb. I found the pelvis and womb filled with firm coagula, the womb being very large. I at once emptied it of the coagula. It contracted most promptly and firmly. It was at once reduced

to its smallest size after delivery. The compress, and then a swathe, were re-applied; and re-action, firm and decided, very soon declared itself. No more hemorrhage occurred, except in moving her in the afternoon, which, however, was without trouble; and at 6, P.M. she remained very comfortable. The child, a female, weighed ten pounds and six ounces.

The pulse in this case was very frequently counted. Its number, at my first count, was 84. It scarcely varied from this during the labor. It did reach 90, but this was at the close of the process; and did not long remain so, coming down again to 84. The breathing was natural, and the complexion was not at all changed from its ordinary very healthful color.

But there was internal hemorrhage in this case, and sulphuric ether was inhaled. Etherization was never profound. It produced its usual pleasant and most grateful effects, and the last contraction had no suffering. As in the preceding case, in which chloroform was used, there was a steady increase of pain during etherization, and marked rapidity in the progress of the case. The blood, in the last case, was most firmly coagulated; and contraction, after emptying the womb, we have seen, was as perfect as it could be. Nothing, for a moment, existed of the untoward, which one at all acquainted with the subject could refer to ether. I have rarely met with a case of hemorrhage in which a check was more readily given to the flow, or in which re-action was so kindly and readily established.

CASE LXIX. — *Convulsions.*

No. 262, age eighteen; first labor. Was taken with distinct uterine contractions, July 21st, at about 11, P.M. Had slept badly, and had irregular and painful uterine action for three or four preceding days. The labor had advanced very favorably, though with much complaint, till

9, A.M. of 22d; when, without any observed precursors, except very slight headach, convulsions occurred. At first, or in the intervals between the four first fits, consciousness returned. The jaw was dislocated during one of these attacks; and the patient called the attention of the physician to this occurrence, from her inability to move the jaw, or to shut the mouth. Reduction was at once accomplished. Partial dislocation occurred twice afterwards. During the continuance of the disease from the fourth convulsion, consciousness did not return. The labor made steady progress, and delivery took place at noon; the child, a boy, of strikingly large size, being born alive. The placenta followed naturally. This was also of very great size. The labor was completed during the sixth convulsion.

Extreme restlessness accompanied and followed the contraction, which terminated the labor. Many persons were constantly occupied with efforts to keep the patient on the bed, and from injuring herself. It lasted an hour. This violent action ceased, as the next fit manifested itself; and, from this time, there was alternately a fit, and an attack of excessive restlessness, similar to the first above described.

The treatment consisted in blood-letting, a solution of tartarized antimony, iced water to the head, and leeches to the temples. The convulsions continued, and increased in violence and in frequency; and, at about 6, P.M. I was desired to see the patient in consultation with her medical attendant. There were some circumstances which attracted my attention. The pulse was rapid, between 130 and 140, and not deficient in strength. The skin was very hot, and perfectly dry. The face was generally pale, the lips being quite red. The eyelids were naturally closed, and a state of rest or of quiet sleep which I have rarely observed in the genuine puerperal convulsions. Unconsciousness was entire. The abdomen was full, and there was much flatus. But a portion of its bulk was produced by the womb, which

was very large, extending above the umbilicus, and very hard. Renal excretion had occurred in the day. A fit soon came on. Its first intimation was wide opening of the eyes. I have never seen the conjunctivæ so largely exposed as in this case. The whole circumference of the orbit seemed visible. At first, the lids were still; then in rapid motion. Next, the head was drawn strongly down to right shoulder, and soon was thrown into rapid and violent jerking motions. The arms were also strongly bent, and forcibly compressed the trunk. The fit passed off gradually, and was followed by none of the heavy stertor which so generally succeeds. The face had an expression of extreme distress. At first, it was moderately suffused, but soon became *livid white.* This began about the forehead and eyes, and passed rapidly over the whole face, affecting the lips less than any other feature. The skin looked as if stretched, and presented the glistening which marks that state. Deglutition became more and more difficult, till at length the attempt to swallow produced symptoms of very embarrassing suffocation. Ten grains hyd. submur. and as much finely powdered sugar, were laid upon the tongue, and at length apparently swallowed. I attentively noticed the distress which was manifested, and soon it was perceived that it resembled what occurs with after-pains; and, upon placing the hand upon the uterine tumor during restlessness, it was felt to be much firmer, harder than at other times, and occupied less space; in other words, that it was then more fully contracted than at other times.

With these facts before me, I suggested etherization, and with sulphuric ether. The sponge was wetted and applied as accurately as much restlessness and a cork between the teeth would allow. The ether was renewed three times in the course of about an hour. There was unconsciousness before inhaling. This was not to be produced by etherization. The principal change observed was the greater quiet, and the increased length of the interval between the

fits after inhalation. She had a fit in about an hour after etherization. The pulse was now more frequent, smaller, and the convulsion very severe. A dram of asafœtida in an emulsion, with thirty drops of laudanum, was now given as an enema, and retained. Quiet was very decidedly greater after the enema. A state as of gentle sleep, with very easy breathing, came on. The complexion and expression were more natural. You felt that important changes were in progress. The last convulsion was at five minutes before 7, P.M. Occasionally there was restlessness, and a bearing effort; and, as these were evidently increasing about 10, another injection of asafœtida and laudanum was given.

Examination showed fullness in hypogastrium; and the catheter was introduced, and much dark-colored urine drawn off.

23d. — The night was passed on the whole tranquilly. There was no convulsion. She regained the power to swallow, and took drinks readily. I found her much improved at my morning visit, between 5 and 6, A.M. Pulse from 96 to 100, of good strength. When called by name, she distinctly answered, "What?" as if conscious of the question and the reply. Flatus had been freely discharged in the night, but no dejection. A soap and oil enema was directed, to be followed by ol. ricin. if required. Most perfect quiet was enjoined, and prudence in what might be said when consciousness should return. Catheter; a pint of urine, similar in appearance to that drawn before, was removed.

24th, 8, A.M. — Report of day and night favorable. Enema did not operate, and the oil was given. Five dejections since. Now, pulse 108, soft, sufficiently full. Lies on left side, in easy position. Countenance and manner natural. Takes food with relish. Protruded tongue, when desired to do so. Tongue clean. Answered a question, though not disposed to do more. Seems as if uncertain of

her position, and so prefers silence to the chance of mistake. Catheter.

25th. — Doing perfectly well. Has nursed her child. Has passed water. Mind becomes more active. Appearance natural. Recovery perfect.

Case LXX. — *Instrumental Labor.*

July 28th, P.M. — No. 265. On reaching the address, I learned the following: —

First child. Labor began afternoon of 27th. A midwife was called in the evening; and, from the pains and progress, believed delivery would soon happen. The night passed, and a physician was called in at 8, A.M. Such was the state of things, that he felt certain that labor was soon to be accomplished. Hours passed without this event. Contractions were strong; the sufferings, very severe. Ergot was given. The efforts were greater, and some progress was made. The sufferings were augmented. At length, the head reached a certain point, and there stopped. There was no diminution of contraction or of pain.

Examination discovered the *scalp* to be just within the labia. The *cranium* was farther from this point; the space between being occupied by a large tumor, filled with a liquid believed to be blood. Uterine system exceedingly irritable. Contractions and pain, declared by loud screaming, were produced by the most carefully conducted examination. It was not that there was soreness, intolerance of pressure; but that morbid sympathy, from labor with long and intense suffering, which induced uterine action from any contact with its appendages. I have rarely, if ever, met with this state of things more strikingly declared. Vomiting, or rather eructation; forced spitting of a dark substance, in small quantities. Complexion deep red; face swollen; pulse rapid. Expression of suffering vehement,

and strong desire for relief manifested. Uninterrupted labor had now been present twenty-four hours; the head in its present place, six or eight.

It was agreed that the forceps should be used, though consented to with reluctance by the family physician. He felt certain that nothing but diminishing the cranium would allow of delivery. Motion had long ceased, and the cranium was very compressible. The application was easy, as pressure on the cranium easily made room for the forceps. Suffering was very little greater than attended ordinary examination. The priest had been sent for, and arrived soon after; but, as there was no evidence of immediate danger to life, he remained below.

Sulphuric ether was inhaled. Its first effect was disturbing. It produced some restlessness, — some expressions of uncertainty as to the place, what was doing, &c.; but soon quiet replaced this state, and moderate etherization occurred. Contractions now ceased. There was perfect rest; and, when a few minutes had passed in this state, I remarked that it was a condition of repose into which the system fell, when excessive and irregular, but ineffectual, action had been for a long time sustained; in which, in short, ergot had been used; and its effects had not ceased.

Extraction was now attempted. This roused the patient, and loud cries were made. These were uncontrolled by the will, and hence were more vehement than before. After a short but fair trial, and without any progress being made, the forceps were removed. Craniotomy was now determined on, and done. A large quantity of blood escaped from between the scalp and cranium. The operation was easily performed, and extracting effort made. Progress was now evident. Inhalation was again employed, but with no mitigation of complaint. Delivery was very soon accomplished. The afterbirth was naturally separated and expelled. No hemorrhage. Inquiry was now made of sensibility and consciousness. It was declared that every

thing was known which had occurred, and severe pain had been felt. Soon after delivery, pain in the head was complained of; but, except this, general ease and comfort were reported.

29th, 10, A.M. — Very comfortable. No headach. Slept better; part of night, well. Renal excretion natural. Pulse 74, soft. Skin warm, moist. No pain or tenderness of abdomen.

She was asked what she recollected during etherization. She answered with distinctness, that she knew nothing of the first operation, namely, of the use of the forceps; that she was then wholly insensible. But she knew when the child's head was born, and suffered severely. But her suffering was less than before inhalation. By the first use of ether, etherization was established; in the second, it was not.

Points in this case are of practical interest. Among these I would notice the great confusion and the restlessness which inhalation first produced, and the perfect quiet which soon followed the removal of the sponge. Etherization was then perfect. When extracting effort was made, great outcry and complaint at once followed, and continued till the effort ceased. But it was not remembered. During extraction after craniotomy, ether was again inhaled; but its effects were slight. Great outcry again was made, and the suffering which it expressed was remembered. These facts strongly illustrate the two very opposite states of perfect and imperfect etherization, both in regard to consciousness and insensibility. It is not uncommon to have much confusion, restlessness, and great outcry, accompany its perfect establishment, — the state in which both consciousness and sensibility are abolished, — and this without the least remembrance of what has happened. A case of this kind is among those recorded in this volume, in which there was an almost uncontrollable tossing about, while the forceps were used. The child was born alive, and the woman did

well. When asked the day following what she was about during her labor, she said she was in a rail-car through the whole, and had an excellent time.

Case LXXI. — *Convulsions.*

No. 267, Aug. ——, age twenty-seven; first labor, seventh month. Anasarcous to an unusual extent. Lower limbs, especially, enormously swollen. Has lately had paroxysms of severe distress in neighborhood of epigastrium, and under sternum. Eat indigestible food for supper, and in night woke with acute pain in the stomach, for which one of the family gave laudanum, and with relief. Very soon after, she was seized with severe pain in the head; which, however, was described as quite tolerable, compared with the preceding stomach affection. Violent convulsions soon occurred. Imperfect consciousness continued a short time after the attack. A medical man was at once sent for. He bled her, and from a large orifice took away about forty ounces of blood. The pulse became small, weak; face pale; respiration feeble; the whole state showing approaching syncope. There was very little, if any, change in the fits. They were not frequent at first, nor did they become so; an hour being, for the most part, interposed between them. But they lost none of their violence, nor did the slightest return of consciousness manifest itself in the intervals. Through the day, various means were employed. Enemata, laxative and quieting, — cold, assiduously applied to the head. Various attempts were made to get medicine into the stomach; but these were very imperfect in what was accomplished by them. Labor at length occurred, the membranes gave way, and the liquor amnii was freely discharged.

At about 6, P.M. I was desired to see this patient, and learned the above particulars of her case. I found her in

apparently easy sleep. There was neither stertor nor apparent trouble in the respiratory apparatus or function. The complexion was clear, and no lividity was anywhere noticed. The os uteri could barely be reached by the finger, so high was the organ. It admitted the finger easily, and was moderately dilatable. At times, efforts were made by the patient, or sounds uttered, which resembled those which accompany uterine effort. I believed labor was present, and that it would be accomplished by the natural powers or by art, and this easily. As there was nothing to be immediately done, I left the case with the attending physician, agreeing to return, should my services be desired. I did not see this patient again.

I have said nothing of etherization in this case. After other means had been faithfully tried, and without the least apparent benefit, I learned that sulphuric ether had been inhaled. At first, inhalation was attempted *during the convulsions;* but it was seen that it was in vain to use it at this time, for ordinary respiration was then almost impossible. Inhalation was next tried in the intervals of the fits. The change which followed was in the length and the severity of the convulsions, these becoming less; and from 6, P.M. the time of my visit, she had no more fits. I found that the last attack had occurred about an hour before my arrival. Labor, as I was informed, now advanced; and about 8, P.M. the head was within reach of instrumental aid, and was very easily delivered. No improvement followed; and about 5, A.M. the next morning, death took place.

The circumstances of this case offered very little, if any, ground for looking for a successful issue. In the first place, a strong predisposition to convulsions existed in the almost universal and excessive anasarca which preceded the attack. Ramsbotham has showed how nearly related is the disease to this condition of the patient. In the second place, the sudden and violent attacks of pain in and about the stomach, to which Denman alludes as making an im-

portant part of the predisposition to the gravest form of convulsive disease, was another fact which made prognosis very doubtful. Thirdly, the late meal, — its kind, — the distress which followed, and especially the treatment of it with opium, increased the danger. Hamilton told us in his lectures, that he never saw a case of puerperal convulsions which did not prove fatal that had been treated from the first with opium.

It is not common to meet with a case in which are so many of the conditions of grave disease, as this instance of convulsions preceding and accompanying labor presents. It was clear, at the time of my visit, as it had been before, that very little, if any, prospect of recovery presented itself. The occurrence of death was matter of surprise to no one.

Case LXXII. — *Convulsions.*

No. 268, age twenty; first pregnancy, end of ninth month. I was called in consultation in this case, Aug. 12th, at about 11, A.M. I learned that Wednesday night, 9th, was passed without sleep. Great restlessness; starting; no cause for this state known. Thursday, made no complaint. Eat much food, which was strongly craved. In night was seized with intense headach, most severe in forehead. This pain was described, as represented by the patient, to be insupportable. At 2, vomiting occurred. This was extremely distressing. Matters vomited were large quantities of bile, of dense mucus, and portions of food perfectly undigested. The night had, like the preceding one, been passed without sleep, and in continuous suffering. Her physician was sent for, and reached the address between 8 and 9, A.M. of the 12th. He found patient so much relieved, that he prescribed only a gentle cathartic, and was about to leave. He had learned that she had a natural dejection at 7, A.M.

As he was going, he observed a very singular expression in the patient's eyes. He described it as wild, bright, with much motion of balls and lids. Almost immediately, she was seized with a convulsion. It was very violent, exactly resembling epilepsy, producing great and general agitation, livor of face and hands, and continued some time. Heavy coma, with deep apoplectic stertor, followed. The medical attendant had been many years in large practice, and his statement does not exaggerate the facts. Much consternation was manifested by the family at this sudden and alarming event. She had been in perfect health during the whole of pregnancy. Had become fleshy, plethoric; in all respects, as well and as cheerful as one could be. She was within a day of expected labor, and this event was looked to with a deep and wide interest.

The confusion which prevailed rendered it very difficult for the physician to do what the case demanded. Seven hours had now passed since vomiting occurred, and ten since the intense headach already reported. He took blood, and did what else was indicated, as far as circumstances permitted him to do. No improvement followed. Not the smallest consciousness was restored, and a consultation was called. I saw the patient at 11, A.M. A fit had just ended. Heavy stertor; respiration much embarrassed; skin hot, dry; face swollen, flushed; pupils contracted to a point; head hot; pulse rapid, but strong, hard. After careful examination of the case through its history, and observing the facts it presented, it was agreed to take more blood; and about twenty-four ounces were drawn. Examination discovered dilated and very dilatable state of os uteri, and neighboring organs; abundant secretion; the head presenting; and bag of water forming. Labor was present, and apparently under circumstances highly favorable.

Relief followed venesection. Pulse, breathing, and general state of the patient, showed improvement. The skin became cool; flush subsided; pulse was slower; and per-

spiration was present. Labor obviously advanced. Contractions were noticed. Liquor amnii was discharged. The head advanced. Sulphuric ether was now inhaled with a view to prevent recurrence of fits. It was not well breathed, and it rarely is in the intervals between genuine puerperal convulsions. Respiration is always more or less disturbed at such time, or, if not obviously thus, is often rendered so by any external cause of embarrassment. Inhalation was cautiously continued for half an hour or more. The pulse became slower, being 120 instead of 144, the number after last convulsion. A fit at 1, P.M. an hour and a half from the last. This was comparatively slight. It was less violent than others, and the state following had much lighter symptoms; less heavy coma and stertor, and a less morbid expression of countenance. The interval was half an hour longer than before etherization. It was agreed to omit inhalation; to observe the progress of the case; and, to aid delivery, to give an infusion of secale. The labor advanced very favorably. There was increasing consciousness showed of uterine contractions, and some of the ordinary expression of the pain of labor. The child advanced very satisfactorily; and, at length, the patient so far recovered perception of surrounding things, as to recognize her mother, and to call her name. I have not met with a better promise in any case of the kind, and I have seen none more severe in the large number which have fallen under my notice.

This favorable state and gradual improvement had now continued for three hours, it being 4, P.M. A fit very suddenly came on, just at this time. It was the most severe one which had occurred. It lasted longer, and, in its violence, threatened immediate extinction of life. Not only did the face become deeply livid, but the extremities; the arms, through their length, grew well nigh black. Slight relaxation of the spasm at length occurred; but, before it

was at all complete, another violent convulsion came on. It was agreed to remove the child. As it was very low, this was done with great ease. The womb contracted strongly, and separated the afterbirth, which now soon came away. The uterus remained firmly contracted, and no hemorrhage took place. The child was still-born; the meconium had been passed freely *in utero*, and came away in large quantities after the child. Very little improvement followed delivery. Respiration remained embarrassed, and very slight return of consciousness was noticed. The arm was once raised, and the hand extended, as if by volition. This was the only apparent return of animal power. Injections of asafœtida were given. The skin was cooled by assiduous use of cold water. A sinapism was applied to the epigastrium. Water put into her mouth, which at times was swallowed. At 7, P.M. a slight fit. Tinct. opii was now added to the injection. There was more quiet, and apparently a better state of things after. At 1, A.M. another but very slight convulsion, and this was the last. There was, however, no amendment in the following interval of disease; and at 1, P.M. of the next day, she died.

The convulsions in this case were few, but of the severest character. The intervals were passed in efforts to overcome their effects, or rather in preventing the destruction of life they threatened. Treatment was obviously useful; and, between the fits which immediately preceded delivery, an interval of three hours of perfect quiet and regular progress of the labor, there was ground to hope that the case would end well. This interval followed the slightest convulsion which had occurred; that, namely, which succeeded immediately to the second bleeding, and the use of ether.

A member of the family, a sister of the above, eat of the same food which the deceased had eaten. She was seized with violent cholera, but was soon relieved. The predispo-

sition to disturbance of the nervous system, which belongs to pregnancy, is strikingly shown in these comparative facts.

CASE LXXIII. — *Placental Presentation.*

No. 270. I was called in consultation in this case this day, Aug. 16th, 1848, at 8, A.M. Learned that the patient, aged twenty-four, was in labor of first mature child; having aborted just a year ago, at the third month. About the sixth month of present pregnancy, was suddenly seized with uterine hemorrhage, — quantity small. Had recurred occasionally since. Sometimes coagula only appeared. Friday night, 11th August, hemorrhage occurred with more distinctness than before, and continued with slight interruptions, though not in large quantity, until last night, when strong uterine contractions took place; *during which*, hemorrhage was greatest. Contractions lessened, and so did flow, that, when I saw her, this was quite small. I found her very pale, which is usual for her to be. Pulse 120, not strong. Contractions slight, and during them less hemorrhage than before. Examination showed os uteri well dilated; placenta presenting, and somewhat protruding into vagina. It was rough, broken, shaggy. The finger passed readily round the os uteri, and met with no adherent placenta anywhere; and no part of the fœtus could be reached.

Under these circumstances, and with the knowledge of the previous loss, the entire uncertainty of what would be the effect of renewed hemorrhage, and the probability of its recurrence, it was agreed to proceed to terminate the labor by turning. In order to do this operation under the most favorable circumstances, it was agreed to employ etherization. Chloroform was now inhaled, and soon produced its specific effects. Turning was begun, and accom-

plished with as much ease as is usual during etherization. The hand passed into the uterus with very little difficulty. The placenta was found almost wholly detached, — the membranes readily reached, and broken. The womb remained entirely quiet. A foot was reached, and a hand felt in close proximity with it. The cord was also near it, and its pulse was 60 in the minute, and feeble. The foot was slowly brought down, and the cord came with it; and soon a considerable portion of it was in the pelvis, and could not be kept out of it. It ceased to beat. The foot descended slowly, cleared the external organs, and, not long after, the rest of the child was born. There was no hemorrhage during the operation, and none followed it. A large quantity of black, broken, and compressed coagula came away with the child, but no liquid or fresh blood. A swathe was applied; and, as there was exhaustion, some brandy and water given. The pulse was still 120; and the patient was now left quite as comfortable as could be expected.

I saw her again at noon, and found her doing well. Re-action had occurred. The skin was warm. There was thirst. Pulse of better strength, and not quicker than before the operation. I heard good report of her in the evening.

17th, noon. — Patient doing well. Has slept quietly. At times, after-pains. Pulse 108, soft. I asked of her state during etherization. She was entirely insensible in most of operation. The attending physician was called upon to aid me at the close; and, as there was no one then to administer chloroform, sensibility began to return, and the patient was conscious of the latest efforts to deliver. The suffering, however, was very slight.

18th. — Good night. Pulse 104, soft, natural. Slight after-pains. Milk abundant. Renal excretion natural. Did perfectly well.

Case LXXIV. — *Natural Labor.*

No. 263, age twenty-four; first labor. Was called at 7, P.M. Aug. 25th. Precursory and attendant symptoms have been present some days, disturbing sleep, and producing much annoyance. Renal excretion very troublesome; frequent calls; painful and scant micturition. General health very good. Pulse 84. Skin, &c. natural.

Examination found os uteri somewhat dilated; very thin; bag of water present, and sometimes protruding; much water; fœtal cranium distinctly felt. Contractions strong. Much pain in back, and in front about symphysis. Frequent micturition; quantity large, showing very rapid and full secretion. Chloroform was desired, and freely inhaled. There was an unusual inaptitude to the usual effects of chloroform. There was much noise in the head produced, which was not at all disagreeable. There was diminution of sensibility, with much complaint of suffering. Consciousness was perfect, and full expression given of the lessened suffering since inhalation. There was no deficiency of contraction after this; still progress was very slow. The presentation was natural; dilatation perfect. The waters came away of themselves; still, the head, having reached the bony outlet, there remained. An infusion of secale was given, after which contractions were stronger, having regular intervals, and slowly advancing child. Delivery occurred Saturday morning. The cord was around the neck. The child, a boy, was born living, and cried stoutly. He weighed large nine pounds. The afterbirth was separated and expelled, without hemorrhage. It should have been said, that the head was born during insensibility.

26th, 11, A.M. — Comfortable, except the renal difficulty. 6, P.M. has had great relief, and is without complaint.

27th. — Doing well.

Case LXXV.

Preternatural Labor. Upper Extremity.

No. 272, age forty-one. Labor began this morning. Liquor amnii was discharged in large quantity, during a very strong uterine effort. The attending physician found, on examination, an arm presenting; desired me to meet him in consultation. I learned these facts on my arrival, — and further that this was the eighth labor; that, in the seven preceding, there had been born eight children, one being a twin case; that seven of the children had been still-born, — three at full time, the others prematurely, from seven to eight months. One only had survived; but this had recently died at less than two years of age.

The patient believed herself now to be at the full time, was hoping for a living child, and was exceedingly depressed and disheartened to learn that "things were not right," and that I had been sent for. I had forgotten that I had formerly attended her in an arm-case, in which turning had been performed with great difficulty and suffering. The water had passed off some hours. Contractions had entirely ceased. The womb had sensibly subsided, and was felt, through the integuments, to be very firmly contracted and hard, as if closely embracing the fœtus, in every part of it.

It seemed a favorable time to turn, and it was agreed to employ chloroform. It was known that etherization would diminish or abolish pain; and, as far as the patient was concerned, its use was demanded. It was believed that it would render the operation comparatively easy, and give to the child the best chances of being born alive. Etherization was not perfectly established. There was consciousness and some sensibility. But the operation was perfectly easy. There was little or no complaint, — no voluntary effort to resist what was attempted. The womb remained, with the exception of a single contraction, perfectly at rest.

This contraction occurred while passing the hand through the os uteri. I could not but compare this operation with the former above alluded to. That was, as was said, exceedingly difficult and painful. This was not, in a single moment of it, attended with the least difficulty.

A foot was soon reached, and near it was lying the umbilical cord. I examined it with great care; but I could not detect the least pulsation. The child, I discovered, was very small. The womb — which, in the beginning of etherization, was felt to be in close contact with the child — soon yielded to such pressure as the progress of the hand required; and this was as nothing, when compared with that which formerly attended and obstructed turning. The foot was now slowly brought down; and very gradually the trunk followed, with the other lower extremity. The labor was readily completed. The child was now found to be very small; of a very dark color, in most part of it. The meconium was passing freely, and every thing denoted death. But it soon began to gasp. The cord beat again regularly, and with sufficient firmness; the color changed to a more natural hue: but little promise was given of its continuing to live.

The womb soon acted, and separated the placenta. It came gradually within reach, and was removed. Etherization was not produced in this case. Inhalation was well performed, and the usual quantity of chloroform was employed. The pulse, which was at 86 at the beginning of etherization, continued at this number through turning, and was the same just before I left the patient. There was no change in the complexion. Headach much annoyed the patient, after the sudden discharge of the liquor amnii. It seemed to have been produced by the momentary alarm which that event occasioned. It entirely disappeared soon after inhalation was well performed. The same relief has been before observed to accompany etherization in cases in which headach has existed.

Case LXXVI. — *Instrumental Labor. Forceps.*

No. 264, age about thirty; fourth labor. First and second, instrumental; one a still-birth, the other died soon after delivery. Third, premature, dead. Great anxiety was felt concerning issue of present pregnancy. Labor began on 29th August; was slight until 12, midnight. I was called 6, A.M. 30th. Labor had made good progress. Waters discharged. Os uteri dilated. Head presenting. Contractions strong. This state of things continued; and head, at 11, A.M. reached outlet. Presentation is face to right acetabulum, and more and more approaching symphysis pubis, as it advances. The head almost entirely rested at the bony outlet. The scalp was somewhat beyond this; but the vault of the cranium did not pass it. Pain gradually became very severe, and chloroform was demanded and used. I have met with few cases in which etherization has been more readily or more perfectly induced. Between 3 and 4, P.M. — as it was obvious that the labor would not be completed without aid, — as auscultation showed the fœtus to be living, and as it was believed that aid could be easily and safely afforded, — the forceps were applied. Perfect insensibility and unconsciousness were now produced; and, in the interval of pain, an extracting effort was made. But not the least progress attended it. Uterine contraction soon took place, and now the action with the forceps was effectual. The child advanced, and was soon born, alive, a boy, and of very large size. During the whole process, the patient was perfectly etherized. There was neither motion nor complaint. The pulse, which was at 84 at the beginning, fell below 70 during etherization. The placenta was naturally delivered. No hemorrhage. I used, in this case, Professor Hodge's instrument, as I have often done before; and it gives me great pleasure to bear my testimony in its favor.

Case LXXVII. — *Placental Presentation.*

No. 275, age twenty-six; second labor. I was asked to see this patient in consultation, Aug. 30th, 10, P.M. I found her almost pulseless; skin white, without blood, — cold; voice feeble; whole appearance, that of extreme exhaustion. I learned she had been flowing six days; that she had lost much blood, — by her report, a gallon. Hemorrhage had been greatest this day, and had been followed by the above symptoms. The case was apparently so hopeless, that I took the physician and a friend aside, to communicate my views of it, and to prepare them for the worst result that might follow the only means which promised any good.

It was determined to examine, and thus to ascertain the precise state of things, and by them to determine what should be done. I was told, that scarcely any uterine action had occurred, and that hemorrhage had been greatest during such contractions as had occurred. I found bits of sponge in the bed, which had been introduced to check hemorrhage, and much dark and coagulated blood. Some brandy and water were prepared, and some given before the examination was begun. There was but little difficulty at the beginning of the operation. Perfect dilatability of the external organs existed. The vagina was found filled with coagula. Passing through these, the os uteri was reached. Much complaint was now made. Very severe pain was produced; and, with a view to prevent this, and the exhaustion which must be produced by it, chloroform was administered. Etherization was almost at once established. The os uteri was now readily entered, and the placenta found extensively and quite firmly attached to a portion of the neck of the womb. It was at once separated entirely from the uterus, and not the least hemorrhage accompanied the separation. The membranes were next ruptured; the feet reached, taken hold of, and brought steadily down. Etheri-

zation continued perfect. The pulse was scarcely perceptible. At times it was wanting. As there was no hemorrhage, I ventured slowly to extract. Consciousness so far returned, that the patient could swallow, and brandy with water was freely given. The pulse soon returned. Chloroform was again inhaled, and the version completed with great ease. The placenta soon followed. It was much broken down, and quite pale. The womb contracted well. A swathe and compresses were applied. No hemorrhage followed. The pulse returned, and was soon much better than before turning. Consciousness gradually returned; the patient apparently awaking from sound sleep. The child was dead-born, and appeared as if death had occurred some days before. I left her between 11 and 12, with symptoms much improved, and with a prospect of re-action and recovery. She knew nothing of what had happened during etherization.

The seven last cases are not in the Tables; these being in type before the cases occurred.

TABLES OF CASES.

THE three following Tables contain answers to a circular letter addressed to a number of physicians in Boston and its vicinity, the object of which was to ascertain the extent to which etherization had been employed, and what had been the result. The following is a copy of the circular: —

"Dear Sir, — I am very desirous to obtain the statistics of obstetric etherization, in regard to both sulphuric ether, and chloroform, as used amongst us, and shall be greatly obliged to you to aid me by answering the following questions: —

"1. Number of cases in which they have been used in your practice, and whether in natural or instrumental labors? 2. Quantity used? 3. How long used? 4. How long before effects? 5. How far *unconsciousness* occurred? 6. How far *insensibility* occurred? 7. Special effects, physical, moral, and intellectual, in individual cases? 8. Apparent danger, and how manifested? 9. Results to mother, both immediately after delivery, and later? 10. Results to child, as to being *alive* or *still-born*, and its condition since? 11. What is your opinion of the use of ether and of chloroform, of one or of both, in childbirth?

"For your convenience, I would suggest, if there be room, that answers be given on this sheet, referring to the numbers. The bearer will call for the answers in *a few days*, and it will much accommodate him and myself if your communication be left where he may receive it.

"Very truly yours,

"WALTER CHANNING.

"Boston, January, 1848."

The cases thus reported, with those which have come under my own immediate observation, amount to 574. The first Table contains 516. These I have put under the head of "Natural Labor." In it are contained those cases in which the fœtal head presented, and which were completed by the unaided efforts of the womb. Whether they have been protracted enough to belong to the class of lingering

labor, or so painful and exhausting as to have their place in the same, has not been inquired into. From this statement, it may be perceived, that our Table of Natural Labor contains test cases of etherization, inasmuch as cases of great difficulty and of long continuance are embraced in it. This is stated, in order that, if any comparison is made of the cases in this Table with an equal number in which etherization has not been employed, its whole agency may be known, and entire justice rendered.

It may, nevertheless, be asked, if ether was not, in fact, used in favorable cases, — in those in which labor would have been easily and rapidly completed without it. I think not. As far as my inquiries have reached, I learn that it has been often because of the severity of the case that the remedy for pain has been used, because patients have demanded it with an emphasis which could not be resisted; and that in many cases, and in the practice of some physicians, it has only been used when such demand has been made. In almost the very last case of natural labor which I have recorded, the patient said, before labor occurred, she would on no account use etherization. Still, in the extremity of pain, she called for it with an urgency which I do not remember to have seen paralleled. Upon entering the house, almost the first word I heard was, "Ether!" Cases have not been selected by the physician. On the contrary, they have *selected themselves*, or have so obviously suggested etherization, that it has been employed. In the practice of some physicians, as appears in the Tables, etherization has been rarely employed. By others it has been often used, — surely often enough to prove how perfect and how well placed has been confidence in its safety and utility.

In these Tables, I have admitted those cases only in which etherization was more or less perfectly induced. I have excluded the puerperal state; for, except in three cases in which puerperal fever followed chloroform, nothing unto-

ward has happened. In one of these, the fever occurred thirty-six hours after delivery, when the patient was apparently doing perfectly well, and in immediate connection with the operation of a very active cathartic. In the other cases, the fever was noticed the second and third day after delivery, and under circumstances which excluded the idea of any connection whatever between it and etherization. At about the same time these cases happened, others of the same and of other diseases occurred, during labor or afterwards, in which neither chloroform nor ether had been employed at all. The Appendix contains some account of these.

I was called to a case, in which, after eating indigestible food, the patient was seized with excruciating distress in the stomach. She was in the last month of pregnancy. Nothing relieved the suffering; and labor came on, and made a most distressing complication of the case. Ether was employed, and some relief was obtained. It was only partial, however. The child was born. It was dead. The placenta followed. No relief occurred, and I was desired to see the woman. She was evidently sinking; but, in the midst of her great weakness, she spoke of her terrible suffering. From her appearance, I thought she was sinking from hemorrhage; but I learned that this was not the case. There had been no external loss, and no evidence of internal and concealed accumulation. Some little relief followed a freer use of anodynes and stimulants than had before been practised. But the re-action was brief. The mind retained its powers to the last, and she expired about an hour from my first seeing her. The disease under which this patient sunk followed directly a known cause. Ether was used to diminish intolerable suffering. Etherization was imperfect. This was a case of natural labor, so far as presentation and time, and the agencies by which it was terminated, are concerned; but it has no true place in either of the Tables, since it was wholly independent of ether.

Five instances of still-birth are mentioned in the Table of Natural Labor. Of one of these, it is said, in answer to the circular, — "One still-birth; but I question if effect of ether." Concerning two, my correspondent remarks: — "Two of the children were still-born: in one of these cases, the condition of the child showed, that it had been dead several days before labor commenced. In the other case, the labor commenced with profuse flooding, probably from a partial or entire separation of the placenta from the uterus; while the labor was not finished for seven or eight hours afterwards." The circumstances of the other cases of still-birth in like manner explain its occurrence, without any reference of it to etherization.

In 516 cases of labor, embracing among them all the circumstances belonging to this process, except instrumental or manual aid, — in all these cases of labor, accomplished during etherization, we have not a case in which the mother did not do well. Cases of still-birth are referred to; but these, as we have seen, had no connection with etherization. I well remember, when reporting the results of this condition to mother and child, to the Society for Medical Improvement, and when some hundred cases had occurred without an instance of still-birth, or at least not more than one, — I say, I remember that a friend, in large midwifery practice, being struck with the statement, asked with much interest, if it was to etherization that this result was to be ascribed. I replied that I only stated facts, and cheerfully left their explanation to others. The practical value of these Tables is in their facts; and these come from so many sources, as to preclude the idea that any similarity which may be noticed between them, in any degree depends on interchange of opinion among the contributors.

Striking coincidences may be met with, in the opinions offered concerning ether and chloroform, and even in the language used. But observe how numerous are the contributors, how widely separated many are from each other.

and you at once resolve the coincidence into the identity of the experience, and the sameness of the result. The language in which effects are given is remarkably the same in many instances. Is it not so because it is the only language in which similar facts could have been so well described? Then, again, differences of statement and of opinion occur quite often enough to show how different were the sources from which they were derived.

In order to give the whole evidence upon which this Table of Natural Labor rests, and to place before the reader the means of a good judgment, the Correspondence which accompanied the answers to the questions in the circular is, for the most part, printed; and my own cases are, more or less, fully given. Who can examine these details of so many cases, which furnish the evidence of their entire safety, and their freedom from pain, without being profoundly grateful that so much human suffering has been prevented, — so much positive comfort afforded, and upon terms so easy to both patient and practitioner? True, they are cases of natural labor, in which suffering is often less, and of shorter duration, than in those of other classes. But, in such, pain heretofore has always been more or less experienced. It is now for the first time that it has been taken away. My confidence in the remedy of pain, in this class of labors, increases daily. The confidence the public have in its invaluable agency also increases; and, reasoning from direct observation of its effects, is there any place for doubt of its ultimate and universal employment? I say the public confidence is increasing. For a time, the untoward results from or after the use of chloroform, in some minor surgical operations, as have been stated, checked somewhat, as we have seen, the use of etherization. But even then, those who knew most of its uses by trials with it, and so were better taught in its effects, continued to employ it, and rarely found patients unwilling to avail themselves of its benefits. It is believed that now etherization

is constantly making progress. It is quite curious to observe the effect of local situation alone on the progress of useful discovery. A lady from a city in which etherization in midwifery has not at all been used, called on a friend who looks soon for labor, and asked if she had thought of breathing ether. She said yes. She begged her not to do so; for all the medical men in her city had pronounced it exceedingly dangerous, *and had never employed it in their practice*, and they were the highest authorities in midwifery in America! I could answer all this by appealing to wide and entirely successful experience; and, when the time comes, shall leave the lady to decide whether she prefers entire ease, and it may be pleasure, or the whole suffering of unmitigated labor. The fact shows the power of mere naked opinion, — I do not say prejudice, — and the lengths to which it may go in influencing conduct, where most important issues are involved.

Let it be distinctly understood, that, in presenting with so much particularity these cases of natural labor in this Table, I do not offer them for the purpose of comparing them with other cases of natural labor, and thus to settle the claims of etherization to professional confidence. I have done it to show by the fact itself, and in a great many instances, the entire *safety*, in the first place, of etherization in labor; and, secondly, the resulting benefit to the patient, — the special objects of this volume.

It may occasionally be found, that the number of cases credited to some of my correspondents in the Tables does not agree with the number mentioned in their letters. The reason of the difference is this. I have had later communications from these friends of their use of etherization, since their first reports were received, and have incorporated the latest with the first.

Very little is offered in this volume of the comparative statistics of midwifery practice, with and without etherization. It seemed hardly necessary to do this; for I have not

reported a case, and I have reported all which I have been able to obtain, of untoward result either to mother or child, which by any just reasoning can be ascribed to etherization. My sole object has been to get and to publish the statistics of its agency in childbirth. I leave it to others to show what, as before stated, in an equal number of cases, accomplished without etherization, and collected in the same way, have been results to mother and child.

My object in this volume has been to show the effects of etherization in *childbirth;* and, if I had confined myself to that, I should not have had to record a single case of death of the mother, and not one of a child, which any one could ascribe to etherization. Thus it will be seen, by reference to all the Tables, that the deaths which occurred after etherization was employed were from *convulsions;* which disease, in these patients, happened *before* ether or chloroform was used.

I shall, at the end of the Tables, give an extract from two papers which have appeared within the year in this country, on midwifery statistics; — one of which gives the results of over three hundred cases, in the practice of one physician; the other, of upwards of nine hundred, collected from the practice of many. In both, etherization had no place. I do not make these extracts for comparison with my own Tables; for elements are wanting to make the comparison either fair or useful. My object is merely to place by the side of midwifery practice with etherization, the results of practice without it, and more for permanent record, it may be, than for use.

The Tables, for the most part, contain the answers to specific questions in the circular, which were written down in immediate connection with the printed questions. Along with these are given details of cases, and fuller statements of opinions. Sometimes they came afterwards. Any modifications of opinion which may have occurred will be easily

[illegible] only exciting [illegible]. It is quite curio[us] [illegible] effect of [illegible] stimulation alone on the progr[ess] [illegible] society. A lady in [illegible] a city in which et[her] [illegible] city had not at all been used, called on [illegible] [illegible] and asked if she had thou[ght] [illegible] for her. She begged her not to [illegible] the medical men in her city had pronounced [it] [illegible] [illegible] *very clogged it in their* [illegible] they were the highest authorities in midwifer[y] [illegible] answer all this by appealing to wid[e] [illegible] experience, and, when the time con[es] [illegible] lady to decide whether she prefers enti[re] [illegible] relief for the whole suffering of unn[um] [illegible] it shows the power of mere naked op[in] [illegible] [illegible] — and the lengths to wh[ich] [illegible] influencing conduct, where most import[ant] [illegible].

Let it be distinctly understood, that, in p[re]senting particularly these cases of natura[l] [illegible], I do not offer them for the purpose [illegible] with other cases of natural labor, an[d] the claims of etherization to professional [illegible] I mean it to show by the fact itself, and [illegible] instances, the entire *safety*, in the first place [illegible] labor, and, secondly, the resulting ben[e]fit, — the special objects of this volume.

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Very little is offered in this volume of [illegible] statistics of midwifery practice, with and w[ith]out [illegible]. It seemed hardly necessary to do thi[s]

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gathered, and the true value of the whole statement be satisfactorily ascertained.

Tables Second and Third contain fifty-one cases of Instrumental, Preternatural, and Complicated Labor. In twenty-seven of these I was consulted, and twenty-four have been communicated to me. They occurred in the practice of about forty physicians in extensive practice in Boston and vicinity. I have endeavored to get all the cases of the three classes above named, which have occurred since the first use of etherization in childbirth in this city. It is not probable that I have wholly succeeded in this undertaking, though I think the greater number may have been collected.

The following is an analysis of the second and third Tables of cases in which etherization was employed: —

ANALYSIS OF THE SECOND AND THIRD TABLES OF CASES.*

Consultations	27
Communicated	24
Total	51

Of these were of —	Cases.	Recovered.	Fatal.	Born Alive.	Still-born.
Instrumental Labor: Forceps	20	20	.	15	5
,, ,, Craniotomy	4	4	.	.	4
Complicated Labor: Convulsions	10	6	4	3	6*
Preternatural Labor: Upper Extremity	9	9	.	6	3
,, ,, Breech	3	3	.	3	.
Complicated Labor: Accidental Hemorrhage	1	1	.	1	.
,, ,, Unavoidable Hemorrhage	2	2	.	.	1
,, ,, Twins	2	2	.	4	.
Totals	51	47	4	32	19

* One was an abortion.

This analysis gives four deaths in fifty-one labors, comprising the most dangerous complications of that process, and requiring methods of treatment in themselves more or less hazardous to life. I believe, without attempting any comparison here of these with like cases in number, as well as of kind, in which etherization has not been employed, that the records of medicine do not present such an amount of safety; so many and such perfectly successful results in operative, preternatural, and complicated labor, as are showed here to have followed etherization.

The still-births were nineteen. I do not include two abortions, and one premature birth. Of the nineteen, four were from craniotomy; and five, in twenty cases of forceps delivery, comprising cases in which the labors were protracted three days; and others in which circumstances existed most unfavourable to fœtal life. There were six still-births in ten cases of convulsions; for one, being an abortion, is excluded. This is very striking success. But the power of etherization was most manifested in the cases of presentation of the upper extremity. The Tables give us *nine* of these, with only three still-births. I have before alluded to the advantages of etherization in operative midwifery.

In none of its departments are these advantages so signally declared as in preternatural labor, especially that variety of it in which the upper extremity presents. Such cases are remarkable for the power manifested by the womb, in its spontaneous efforts to expel its contents. So violent and efficient sometimes are these, that they accomplish delivery by an evolution of the fœtus, which consists in the forced descent of the nates, and delivery of the breech alongside of the arm; for that remains the presenting part through the whole of this marvellous process. In cases in which evolution does not and cannot occur, and in which the operation of *turning* is resorted to, to save the patient's life, the womb grasps its contents with an inconceivable

power, and still further opposes to the operator the increased contraction which his manual effort almost necessarily produces. If we add to this the chances of such pressure upon the placenta as will check its important functions; such pressure of the cord as will disturb the circulation; the danger to the child in changing its position, where there is so little room, — which is made less by the effort to enlarge it, — if we take these and all associated facts into the account, we shall not be surprised at the frequency of still-birth in these labors.

Again, if, with all this, we now further keep in mind the acute suffering necessarily attending the operation in all its stages, while sensibility exists, and the voluntary resistance and voluntary effort which the consciousness of what is doing under such circumstances always produces, we have an explanation of the extreme difficulty and embarrassment which the practitioner encounters in the management of such cases, as well as of the frequently untoward result of his best conducted efforts. I have spoken of difficulty. At times the physician experiences severe suffering in turning. His hand is so cramped, that he may not be able to use it for a day or two afterwards. Professor Hamilton told us of his suffering in this way; and old Smellie records his experience of fatigue, of utter exhaustion, from a like toil. I remember a case in which the muscles of my fore-arm were so cramped in turning, as to make it impossible for me to exert any extracting power. I held the limb of the fœtus firmly with my hand, and was obliged to avail myself of the assistance of a medical attendant, in order to accomplish the operation. He seized my arm firmly by both of his hands, and by it drew forth the limb of which I retained the hold. A case occurred some distance from town, in which the womb, after the waters were discharged, contracted so strongly upon the body of the fœtus, as to prevent the passage of the hand beyond the strictured part. Opium and other means were used for some time, but

without effect; and I was desired to visit the case in consultation. I found the patient very much exhausted; voice extinct; breathing sibilant or whistling; pulse rapid and small; every thing, in short, indicating great danger. Turning was accomplished with great difficulty, and the woman recovered. It were easy to add cases from personal observation, and from that of others, which would show, still more conclusively, how difficult and how dangerous has been turning before the discovery and introduction of etherization.

The same is true of instrumental labor, properly so called. Who that has used instruments, before and since the introduction of etherization, will not testify in favor of the discovery, because of the facilities attained in instrumental delivery? The Tables place this beyond doubt. And then how painless the labor which formerly was so painful! The forceps cases are twenty. The patients all did well. They suffered nothing during delivery, and there was not a local lesion or general disease to retard or embarrass the convalescence. There were only five still-births in these twenty cases, although the difficulty of delivery, the previous length of the case, and the force required, were fully equal to what is ordinarily encountered.

There are nine cases of convulsions. Four of these were fatal. The whole history of these cases allies them to the gravest of their kind, and presents in a very striking manner the advantages of etherization in their management. In one there was suspension of fits for three and half hours, during which the child was born alive. Convulsions recurred, but the patient did well. In another, the convulsions were absent three hours, during which a state of most promising results existed. The labor steadily advanced. The pulse, respiration, skin, all showed great improvement; and, what I have not observed before, consciousness returned. But so deeply impressed was the whole system

by the disease; so powerful was the action of its exciting causes, and so strongly marked were the symptoms of predisposition to it as they existed during pregnancy, that convulsions recurred before delivery, and, though this was accomplished with great ease, were fatal. If the question should be asked, Why was not etherization continued during the three hours of absence of convulsions? I answer that there was nothing in that condition which seemed to me to require or to warrant its employment; and, further, had fatal convulsions followed its use, would not this have been regarded as the direct result and effect of needless etherization? But it was not to escape any such possible issue as this, that the use of ether was omitted. It was discontinued simply and wholly because it was thought unnecessary. This statement enables us to avoid erroneous inferences, and thereby a groundless objection to etherization is removed.

There is one case in the Table of "communicated cases," to which I beg to ask the attention of the reader. It is reported by Dr. Homans, and is the last of the twin cases in the Table. This is specially alluded to on account of the quantity of chloroform employed, the time during which it was used, and its effects.

In order to make the statement still more exact in relation to the quantity of chloroform used, and also the exact days on which it was administered, Dr. Homans informed me where the article had been obtained, and requested me to examine the account of the druggist, and, from that, note the days on which the chloroform was purchased, and the amount for each day.

To avoid the possibility of mistake, I took an early opportunity to comply with the above request, — obtained an exact copy from the druggist's book of the quantity used, and time when got; and, having showed it to Dr. Homans, found that the accuracy of his memory was established by the abstract referred to. I would state a single fact from

the account: — In the course of the last five days, *twenty ounces and a half of chloroform* were inhaled.

This case has important relations to midwifery practice. It shows that in the mechanical disturbances incident to advanced pregnancy, in cases in which great distension exists, — in which the abdominal tumor much exceeds its ordinary size, — and also in disturbances of function incident to the same condition, chloroform may be inhaled with entire safety, and with great comfort to the patient. In this view of the matter, how strong is the testimony of the above case to the value of the remedy of pain! In his note, Dr. Homans gives some interesting particulars: —

" Professor Channing.

" My dear Sir, — I have used ether in all in thirty-two cases of midwifery, and chloroform in twenty-three cases; and in no instance has any injurious effect or unpleasant symptom followed. One of the cases of chloroform is so remarkable, that I must relate it: — Mrs. L. a lady, pregnant with her sixth child, who, in the eighth month, suffered much from uneasiness, produced by great distension, and from sleeplessness, until at length the restlessness and sleeplessness increased so much as to affect her health, and destroy her comfort. In this state, I advised the use of sulphuric ether by inhalation. She tried it, but was made sick at the stomach by it, although somewhat benefited. She then tried chloroform, which succeeded in procuring sleep. As her size increased, her distress increased; and she found so much relief in the use of chloroform, that she was gradually led to its frequent use, both day and night; and, by it, was kept in a comparatively comfortable condition, although the last few days she was unable to rise from, or even to turn over in the bed, without assistance, until she gave birth to twins. During the labor, she suffered but little pain, and was entirely unconscious of the birth of the children. She had a good getting-up; and the children were active, and are now so, and very healthy, being six months old. In the course of five weeks, she inhaled thirty-eight ounces of chloroform, and three ounces of sulphuric ether. — Very truly yours,

" J. Homans.

" 158, Tremont-street, Aug. 11, 1848."

This case has an interest beyond its midwifery relations. It teaches how safe is etherization, even when continued in successive days for weeks, — in such quantity, too, as ordi-

narily produces its distinctive effects. It were not wise philosophy which should find its principle in a single fact. But such a fact as is here recorded constitutes no *objection* to etherization in acute and chronic diseases. In truth, it has been employed in this way, or in such diseases, and with excellent effect. The Appendix will give some of the cases which show this. In an earlier part of this volume, it is proposed to extend etherization into new and wider fields. And the question is soon to be seriously entertained, whether the power it exerts upon the capillary system and circulation may not, beyond all other known agencies, promise the greatest advantage in the treatment of both inflammatory and febrile diseases.

The fourth Table contains cases of Instrumental, Preternatural, and Complicated Labor, in which etherization was not employed. They amount to eighteen. In some of these, I was consulted; others were communicated to me; and one occurred in my own practice. The following analysis presents the facts in this Table in a condensed form, and makes them of easy comparison with those in preceding Tables: —

	Cases.	Fatal.	Still-born.	
Convulsions	7	6	6	
Upper Extremity	3	1	2	
Rupture of Womb	1	1	1	not born.
Placenta Previa	1	1	1	
Accidental Hemorrhage, Twins	1	1	1	
Jaundice	2	2	2	
Forceps	1	1	1	
Anhemia	1	1	1	
Labor induced, Twins	1	1	2	

In eighteen cases, in which etherization was not used, fifteen deaths occurred; and there were sixteen still-births. In one case, ruptured womb, death took place before the child was born. The complications in some of these cases were not common. Two cases of jaundice are among these. It is, to be sure, not rare to have jaundice in the latter

months of pregnancy; and it is occasionally a sign or disease in the earlier months. In the latter, it is allied with the sympathetic affections of pregnancy. In the former, it seems to depend more upon a mechanical agency of the gravid womb. In both, we frequently have its symptoms in a very exaggerated form. The yellowness is intense; the alvine discharges are positively without color; and the renal excretion is as remarkable for the depth of its color, its thickness, and its diminished quantity.

We often see all this. But, except in the cases above given, I have never met with such grave cerebral lesions of function or organism, or both, at the close of pregnancy or beginning of labor, and such unchecked progress to the grave. The patients seemed to be dying when I first saw them; and nothing that was done produced the least salutary change. Anhemia existed in one case. This is a rare complication of pregnancy. It began amidst the severe forms of vomiting and diarrhœa, which so frequently occur in that state; and there was nothing gained to it by delivery. This last was not precipitated by this grave accompaniment of pregnancy. Rupture of the womb is also a rare complication of labor; and it does not seem from the case, which is fully given in the Appendix, that there was any special cause of this accident, as showed by the previous state of the patient, or by the character of the labor.

The second and third Tables contain fifty-one cases of Instrumental, Preternatural, and Complicated Labor, in which etherization was used, and only four deaths; and these after convulsions so grave by cause and symptom, as to afford little reason to look for recovery.

In the eighteen cases in which etherization was not employed, the still-births were sixteen out of eighteen born, there being one case of twins; and, in a case of rupture, delivery of the child was not accomplished. In the fifty-one cases in which etherization was employed, and in which,

there being two cases of twins, fifty-three children were born, there were nineteen still-births. Now, making every allowance for unusual complications, in the instances in which etherization was not used, and which amount to four, there is an unexplained balance in favor of etherization, of the extremest interest to both profession and public.

This balance in figures stands thus: —

In regard to Still-births:

In eighteen cases in which etherization was not employed, there were seventeen still-births; or 94 45-100 per cent.

In fifty-one cases in which etherization was employed, there were nineteen still-births; or 37 26-100 per cent.

Balance in favor of etherization . . . . . 57 19-100 per cent.

In regard to Mortality:

Of eighteen labors without etherization, fifteen were fatal; or 83 33-100 per cent.

Of fifty-one with etherization, four were fatal; or 7 85-100 per cent.

Balance in favor of etherization . . . . . 75 48-100 per cent.

I asked a professional friend, who attended one of the above fatal cases of convulsions, if he employed etherization in its treatment. He said, "No;" and expressed himself much gratified that he had not. The inference, of course, was that, if he had used it, and death had occurred, it would have been ascribed to etherization. Would not such an inference have been wholly wrong? and would not the resulting experience, so called, have been false experience in the truest use of the terms? The medical philosopher looks at things in themselves and in their relations. He may not be able to determine of these last which is causation, or which is mere sequence; but he must so far regard results, as to find some authority or reason for again employing a remedy which has been useful in cases which resemble the successful one, and more especially if the

success from it have been frequent; and if he is unwilling to take the chances, I would rather say avail himself of the benefits, of such practice, the advantages of such observation or experience, it will hardly be questionable, if much, or if any, good is likely to come of his professional agencies.

I am asked, if I mean to say or to imply in these remarks, that I think or believe, that, had etherization been employed in these eighteen cases, the result to patient and to child would have been different? The question is not pertinent. The true question is, What is the result of etherization to midwifery practice in any one or all of its departments? not, what is its relation to such practice, or to such results, as these eighteen cases present? We do not put the case of use and of omission side by side for comparison, and for inference, concerning actual agencies. We look at each of them by itself, and learn what has been the precise result; and, if the observation embraces so many cases as to exclude the idea of a mere naked coincidence or simple accident, we have that left from the experience which may stand us in good stead in the future emergencies, and the most serious ones too, of practice.

These Tables occupy the places they do for another reason. This volume has for its object to show if etherization be *safe* in labor. It began with a distinct statement of this as its object; and this has not been out of view in a single step or page of its progress. It is reverted to here, because, in the fifty-one cases of the second and third Tables, new, and, as it seems to me, very strong evidence is furnished of the whole *safety* of the employment of the remedy of pain. This consideration has a direct application to the fourth Table. I ascribe no portion of the results of cases, as recorded in it, to the non-employment of etherization; for I assume only to show, that, in the fifty-one parallel cases in which it was used, it did no harm.

By others, different views may be taken of these compa-

rative results. They may give to the fifty-one cases a very different and important position in our inquiry. They may consider etherization not only to have been safe here, but to have been a direct agent in the recoveries which are recorded; — that not only was pain abolished, but life was preserved, by its agency. Whichever view may be entertained, one inference may unquestionably be drawn from so many facts. It is, that etherization may be safely employed in like cases, and that successful results may be always looked for from its use.

Among my notes towards the preparation of this volume, the two following extracts were made from papers of much interest on the statistics of midwifery. They are inserted here, because they belong to the year in which etherization has been employed in labor, and so belong to its medical history. It is not for comparison with other statistics that I give them. Such comparison would be satisfactory and valuable, only so far as all the circumstances of place, person, position, &c. might be shown to correspond. It is obvious that such could not be made between city and village, with any hope of success. The extracts, then, are published merely to show what are the precise results of etherization, and of practice in which it has not been employed, without regard to those circumstances which may tend directly to influence such results.

. . . . . "Of the 932 children born, 824 were alive; 20 were dead; 6 dead and putrid; and in 82, the fact was not noted. Of the 26 still-born, 22 were born in wedlock, and 4 were illegitimate. Of this number, 19 were abortions, and 9 were miscarriages." — *Metcalf's Statistics in Midwifery: American Journal of Medical Sciences*, Oct. 1847.

"Sir, — I send you the statistics of 304 obstetrical cases occurring in my practice, during a few past years, in which record was kept: —

"The still-born cases amount to 14; and of these, 6 had been so long dead before delivery, that the cuticle peeled off during labor. Of the remainder, 3 were at 7 months; 2 were acephalous monsters; and the

other 2 died during labor, — one a footling case, and the other a vertex case, where the shoulders were very large, and the pains suddenly ceased after the head had passed the vulva, and could not be roused again for a full half-hour." *

In order to learn still further, and in greater detail, what had been the results of the important observations of Dr. Metcalf, who, as we have seen, has with so much industry and success devoted himself to midwifery statistics, I took the liberty to address to him a letter, asking various questions, which I knew had been thoroughly answered in his very valuable paper in the "American Journal of Medical Sciences," but which work, I greatly regret to say, was not within my reach. To this letter, Dr. Metcalf most obligingly returned to me the following interesting communication: —

"Dr. Channing. "Mendon, May 31, 1848.

"Dear Sir, — Yours of the 27th instant came duly to hand. A painful abscess upon my face keeps me from attending the annual meeting of the Medical Society, or should hand you this in person. For '*labors other than natural*,' I can send you those made so by presentation, and those protracted beyond forty-eight hours. Those between twenty-four and forty-eight hours I am unable to analyze.

"*Of* 912 *cases*, thirteen were presentations of the breech. One was a miscarriage at seven months. The others were at full time. Children still-born, three. Mothers all did well.

"One, foot and knee. At full time. Mother and child both did well.

"One, knees. Abortion at six months. Child dead. Mother did well.

"Three, funis. Children all dead. Mothers did well.

"One, placenta. Abortion at five months. Child dead. Mother recovered rather slowly, having been much exhausted by the hemorrhage.

"Nine, feet. All at full time but one, and that an abortion at five months. Children still born, five. Mothers did well.

"Beside the above, there were eighteen cases protracted beyond forty-eight hours, and thus falling within your category of '*labors other than*

* "Statistics of Obstetrical Cases," by U. Porter, M.D. Hallsville, N.Y. from "Boston Med. and Surg. Journal," Feb. 1848.

natural.' Of these, fourteen children were living, and four were dead. The mothers all recovered.

" Of the 932 children contained in the Table, five were force-delivered; namely, by blunt hook, after craniotomy; one, forceps; one, lever; one, manner not stated by my correspondent. Children, two dead. Mothers did well.

" ' How much and what disease occurred in the puerperal state, and the result?'

" *Of the* 927 *cases, convulsions occurred in three* patients. One very slight; one very severe, the incursion taking place just before the birth of the child, of which and every thing else, for the space of five days, the mother was wholly unconscious. The other case was returned by a correspondent without note or comment.

" Of the 927, puerperal fever made its appearance in twelve cases. Of these twelve cases, eleven recovered, and of one the result was not given.

" Of the 927, there was one case of mortification of the leg, appearing on the third week after confinement, and proving fatal in a few days.

" In regard to etherization in midwifery, I have, as yet, had no experience.

" Trusting this communication may afford you *some* assistance in the prosecution of your labors upon the subject referred to,

" I remain yours respectfully,

" JNO. GEO. METCALF."

CASE LXXVIII.

*Complicated Labor. Accidental Uterine Hemorrhage.**

No. 274, age thirty-one; fourth labor. Uterine contraction occurred 2, A.M. Friday, Sept. 1st. I was desired to see her between 8 and 9 of the same morning. Labor present; os uteri somewhat dilated; nothing sufficiently urgent to require my presence. I left to return soon. Between 10 and 11, I found her on the bed, calling for assistance, and especially for chloroform; to administer which, I had been especially desired to attend this case.

Inhalation was practised; about half a dram of chloroform having been placed on a handkerchief. This produced very slight effect. There was

* This case, which stands as the seventy-eighth in the series, belongs to another place. It is put in here, because it is of much interest, and occurred too late for an earlier insertion.

an agreeable feeling perceived, but no noise in the head, or any other unusual sensation. In a few minutes, on the accession of a pain, the handkerchief was again applied to the nose and mouth. It was at once declared to be dry, and the same quantity of chloroform poured upon it as was first used. This produced some mirthful excitement, which was expressed in moderate laughter, and a statement of general agreeable feelings. Inhalation in this way was repeated twice more; and the child was born, a female, breathing well, in twenty-five minutes from the time inhalation was begun. During the whole time, there was no loss of consciousness, and only just so much insensibility as rendered the labor comfortable. In this respect, it contrasted very favorably with her other labors.

The patient had been very large in her pregnancy; her child was large, and much liq. amnii had been discharged. Immediately after the child's birth, I examined the state of the abdomen. I found it very flaccid. The walls were unusually thick, very pendulous, and so loose and uncontractile, that I could fold them very easily over each other, and thus much diminish the general bulk. The womb seemed well contracted; though, from the state of things, it was not very easy to ascertain its precise condition. Under the circumstances, and to prevent hemorrhage, and the shock which a sudden change of things might produce, and to minister to present comfort, a thick compress was laid over the seat of the womb, and a strong swathe drawn as firmly as comfort allowed, and carefully secured.

The placenta was soon detached, and thrown into the vagina, by quite active uterine contractions, and was removed. Hemorrhage soon took place, and the loss was in a short time great. I was struck with the rapidity of the flow, and with the quantity which was so speedily lost. Compression was again immediately resorted to, or increased, and the usual means for arresting hemorrhage put into requisition. The flow was soon controlled, though a leaking continued some time after, sometimes to some extent. The compress was now so far removed, that the hand might be applied directly upon the uterine tumor, and contraction in this way be most certainly secured and preserved. Ice, which was internally used, was also placed between the hand and the uterine tumor. Stimulants were used as indicated.

What were the immediate effects of hemorrhage in this case? They were, at first, not in proportion to apparent loss. The pulse was never abolished. The lips retained their color; the warmth was not much less than natural. There was no syncope. The demand for air was strong and constant. The expression of the countenance bad. There was no loss of consciousness. Under a fair use of means, re-action began slowly to show itself. There was more pulse, more warmth. The face regained

its expression. The eye grew bright; and the patient spoke of her being better. Her voice was good. She had been in a most exhausted and alarming state, she said, but was now very comfortable. This brought it about 2, P.M.

Symptoms of sinking again soon showed themselves. The womb, which had been constantly watched, was now felt to have lost its firmness. There was no more flow. The ordinary show at this time was present. The sinking was very like that which had existed before. There was no loss of pulse, consciousness, &c.; but the face assumed the same expression of extreme exhaustion, and complaint of serious discomfort was made. I had become wearied with efforts to ensure contraction by almost constant pressure, and by other important offices, which circumstances did not, for a moment, allow me to intermit; and sent for my friend, Dr. C. G. Putnam, who soon joined me in the management of the case. Towards evening, re-action again showed itself, and was of a more encouraging character. Progress replaced the obstinate continuance of most uncomfortable symptoms, and with this came the feeling of promised recovery. The promise was hourly increased. I passed the night in the house; and, in the morning, found she had slept a part of the night; had a good pulse of about 80, a warm skin, and altogether was in a condition of much comfort. This was Saturday, Sept. 2d. In the evening, I found her still better. She had passed water in the night, but could not in the day; and the catheter was used.

There were things in the previous history of this patient, and in her mental state, during the effects of hemorrhage, which deserve notice. A year or more ago, she had been seized in the unimpregnated state with severe uterine hemorrhage, and grave inflammation of the uterus had followed it. Then, again, for some time before labor, she had complained of a singular sense of sinking about the præcordia, which had led to strong demands for air by fanning, &c. This was a constant symptom of the state accompanying present hemorrhage. She had eaten a hearty breakfast of meat and potatoes, while labor was present. Of the moral state, I was much impressed with certain manifestations. Thus, likes and dislikes were felt and strongly expressed. Though looking completely sunken, she selected the stimulants used, and called for particular articles; which indicated that, with all apparent danger, there was much for hope to be built on. When she began really to mend, substantial changes showed themselves. It was evident that, however depressed she had been, she had now got upon higher ground, and would maintain her position; and she has.

Sept. 3d, 9, A.M. — Night excellent. Renal excretion natural. Countenance bright. Pulse about 80; hurried a little by changing dress, but of perfectly natural character. Voice strong, and whole manner healthful.

TABLE FIRST.-

	Cases. Eth.	Chl.	Quantity.	Time used.	Effects when.	Unconscious
Dr. Odin	5	0	6 to 12 oz.	2 to 6 hours		In none
Dr. ———	4	2	4 to 10 oz.	1, 48, 32	Soon	2 in last pa
Dr. Gould	1	2	Ether, 1 oz.	C. 15 min.; E. 1 hr.		Almost per
Dr. Windship, Roxbury	6	0	Ether, ½ to 1 oz.	About 2 hours	One to 3 minutes	Partial
Dr. Thompson, Charlestown	2	0	2 to 3 oz.	One to 1½ hour	Ten minutes	Occasion
Prof. John Ware	2	0	4 oz.	Half hour at intervals	Very soon	Moderate
Dr. W. E. Townsend	1	0	8 oz.	Two hours	Five minutes	Entire
Dr. Bemis, Charlestown	2	0	6 to 8 oz.	Three hours	Five minutes	Entire
Dr. Hurd, Charlestown	1	1	Eth. 1 to 16 oz. Chlor. 30 drops			Entire fr chlorofo
Dr. Clark	6	1	2 to 10 oz.	Three to four hours	Ten minutes and less	Various de
Prof. J. Bigelow	8	2	Chlor. 2 oz. Ether, 1 to 16.	Half to 24 hours at intervals	One to five min.	Partial
Dr. Homans	32	24	Ether, 3 to 16. Chl. 2 to 6 dr.	15 min. to 16 hours	One to two min.	Various de
Dr. Peirson, Salem	2	0	In one, 16 oz.			
Dr. Newell	6	0	2 to 8 oz.	30 min. to 2 hours	1½ to 8 minutes	In all near complete
Dr. Gray	6	0	1 to 12 oz.	5 min. to 6 hours	5 min. and less	In tw
Dr. Putnam	17	7				In none, or p tial
Dr. Chas. E. Ware	7	0	5 to 10 oz.			From partial entire
Dr. Perry	8	3	Eth. 2 to 8 oz.	Half to 2 hours		Never perfe
Dr. Phelps	27	0	½ to 4 oz.	22 min. to 10 hours	About two min.	In none perf
Dr. Storer	38	2				
Dr. J. H. Lane	10	4	Eth. 1 to 6 oz. Chl. 2 to 8 oz.	Five minutes to several hours	Very soon	Not entire
Dr. Gordon	3	5	Chl. 60 drops; Eth. 2 to 8 oz.		Soon	In most, wi perfect
	194	53				

ATURAL LABOR.

Insensibility.	Special Effects.	Apparent Danger.	Mother.	Child.	Opinion.
None entire	None noticed	None	Well	2 well	
all when given before pain	Pleasant	None	Recov. rapid	All well	
ıe after chloroform entire	Ether disagreeable; omitted	None	Well	Well	Chlorof. in one, favorable
Partial	In four, more hemorrhage perhaps than usual	None	Well	Well	Etherization very useful
Partial	Agreeable and useful	None	Well	Well	Favorable
Moderate	None of note	None	Well, & very rap. recovery.	One well	Favorable to both, prefers chlor.
Total	None of note	None	Well	Well	Safe and agreeable
Total	Agreeable	None	Well	Well	Favorable
ıloroform; entire	Very agreeable		Well	Well	
Frequent	None noted	None	Well	Well	Favorable when pure, and in proper cases
In six	In 5, excitement; in 5, great pleasure; in 2, hysteric screaming; strong desire to inhale, in all	None; in 1 of ling. lab. lividity, soon went off	Well	Well	Favorable
Various degrees	Various strength preserved	None	Well	Well	Favorable
	Very agreeable	None	Well	Well	Favorable. Chl. in surg. operations. Less excitement than from ether
ore or less complete	In one, temporary prostration; hemorrhage in two	None	Well	Well	Favorable
Partial	None noted	None	Well	Well	Favorable
Partial	Strength preserved	None	Well	Well	Favorable
Various degrees	At times, temporary suspension of contraction	None	Well	Well	Favorable in proper cases
Never complete	In two, some hyst. symptoms; no bad moral or intellectual effects.	None	Well	Well	For opinion, see Letter
Imperfect	Less suffering and less exhaustion	None	Well	Well	Favorable
	In one, contractions, checked	None	Well	Well	Chloroform wholly agreeable
Not entire	Not striking	None	Well	Well	Chloroform preferred
Entire in most	In one, contractions; checked for 20 or 30 min.; then very strong	None	Well	Well	Favorable

TABLE FIRST.—

	Cases. Eth.	Chl.	Quantity.	Time used.	Effects when.	Unconsc...
Dr. J. Flint	21	6	Eth. 2 to 6 oz. Chl. 2 drams.		Soon	In some, pe... fect
Dr. Shurtleff	12	5	E. 16 to 24 oz. C. 2 oz. by wt.	During labor, beginning with severe pains	Soonest by chloroform.	Chl. very perfe... most of time Eth. not perf... except at ...
Dr. Fisher	18	15	Eth. 2 to 20 oz. Chlor. ½ oz.	Long, because begun early in labor	From 9 to 13 seconds	Partia...
Dr. S. D. Townsend	4	0	About 10 oz. in each	One to three hours in last pains	A few minutes	Apparent... perfect in ...
Dr. Tucker, Stoughton	6	0		1½ to 20 hours		Partia...
Dr. Cabot	2	0	5 to 12 oz.	1½ to 20 hours	Less than 3 min.	Not perf... memory ...
Dr. Jeffries	8	2	Eth. 2 to 6 oz. Chl. ½ to 1 oz.	15 min. to 2 hours	Ether, from 4 to 6 minutes; Chl. immediate	In six ... at each, ... inhalat...
Dr. Jarvis, Dorchester	5	0	3, 4, 4, 2, 5 oz.	Eth. 2, 3 hours Chl. 1, 2 hours	Almost immed.	None
Professor Roby, Baltimore	0	1		An hour and a half	Almost immed.	Entire
Dr. Dyer	0	3	1 to 2 oz.	Between 1 and 3 hrs.	Immediately	In one, ... in others, ...
Dr. Hooker, E. Cambridge	20	0	Largest: E. 16oz. in 7 h. C. 4 oz. in 4 h.			Various ...
Dr. Folts, East Boston	0	7	½ to 1 oz.	Three to five hours		More or ... perfect
Dr. Whitney, Dedham	5	5	E. 2 to 12 oz. Chl. 15 to 20 drops to 2 oz.	From half to 36 hrs.	E. in 3, immed.; in 2, 20 to 25 m. C. immed. in all	Chlor. ... Ether, ...
Dr. Wm. T. Parker, South Boston	1	1		About an hour		Not prod...
Dr. Hosmer, Watertown	8	0			Soon	Not perfe...
Dr. Miller, Dorchester	0	13				Not perf...
	110	58				

NATURAL LABOR (*continued*).

Insensibility.	Special Effects.	Apparent Danger.	Mother.	Child.	Opinion.
	Not noted	None	Well	Well	Satisfied with ether, but much prefers chlor.
half at close of lab.	In one-third, slight excitement from ether; none from chlorof.	None	Well	Well	Rather prefers chloroform
Partial	No vomiting. Getting-up good. After chlorof. in some cases, more weakness than after ether. In 2 or 3, pains diminished or suspended, say from 3 to 12 minutes	None	Well	Well	Most favorable to ether
In one, perfect	Grateful in all	None	Well	Well	Satisfied with ether, and shall use it or chloroform, as patients prefer
Partial	Uterine action diminished in none; in some, increased	None	Well	Well	Favorable
n last, contractions	Pleasant; talking	None	Well	Well	Favorable
In all but one	In three, seemed to diminish uterine action	None	Well	Well	Favorab. to both. Ether thought safer; both may be used, and even in short and mild cases
Not entire. Very marked in 3; in 2, slighter	None but as recorded	None	Well	Well	Favorable
Entire	Very striking as regards state of patient. Labor was called a "beautiful dream, beautifully ended."	None	Well	Well	Favorable
In one, perfect	Altogeth. agreeable; in one, especially so; in one, excitement.	None	Well	Well	Favorable
Various degrees	Grateful in all	None	Well	Well	Favorable
More perfect than usually reported	Various, but generally grateful	None	Well	Well	Favorable; chlor. only employed
Chloroform in all; Ether in 3, not in 2	Nothing stated	None	Well	Well	See Letter in Correspondence
In neither	Chloroform very perfect in effects	None	Well	Well	
Perfect in some; in others, much diminished	Very grateful in all; in one, specially so	None	Well	Well	Favorable
	Very grateful	None	Well	Well	Favorable

TABLE FIRST.–

	Cases. Eth.	Chl.	Quantity.	Time used.	Effects when.	Unconscious
Dr. Thompson, Charlestown	0	15	Addition to	first report, above		
Dr. Bartlett, Concord, Mas.	8	0	Ether, 6 oz. Chlor. 1 oz.	One to five hours	8 or 10 minutes	In two, perfect
Dr. A. K. Gardner, New York	0	3	½ to 1 oz.	About two hours	Soon	Imperfect
Dr. Chase, Chelsea	10	0	E. 4 to 20 oz. C. 2 drams to 3 oz.	30 min. to 7 hours	Eth. 1 to 6 min. Chl. 10 sec. to one minute	In three, perfect
Dr. Z. B. Adams	0	6				
Dr. C. C. Holmes, Milton	3	3	Ether, 6 oz. Chloroform, 1-3 oz.			Various degrees
Dr. C. H. Allen, Cambridgeport	0	8				Apparently perfect
Dr. Channing	33	12	E. 2 to 20 oz. C. ½ to 2 oz.	Ether, 1 to 9 hours Chlor. 1 to 6 hours	E. aft. some min. C. almost at once	Various degrees
	54	47				

	Ether.	Chloroform.	
	194	53	
	110	58	
	54	47	
Total . .	358	158	= 516 cases.

ATURAL LABOR (*continued*).

Insensibility.	Special Effects.	Apparent Danger.	Mother.	Child.	Opinion.
	Great benefit to the patients	None	Well	Well	
ı some, perfect		None	Well	Well	No decision
Imperfect	Excitement. In full etherization, contractions diminished	None	Well	2 well	
fect, — but not ersistent, or ea- ily roused from	In one, slight delirium	None	Well	8 well	Favorable to both in difficult, severe, and protracted cases
		None	Well	Well	Favorable
rious degrees. In ne, perfect; and onsciousn. perfect throughout	In one, faintness, and omitted	None	Well	Well	Prefers chlorof.
Perfect	Very grateful	None	Well	Well	Favorable
generally perfect occasionally perf.	Various	None	Well	Well	Favorable to both

Table Second.

INSTRUMENTAL, PRETERNATURAL, AND COMPLICATED LABOR.

CONSULTATIONS.

No.

124. Craniotomy. Forty-two hours' labor. Mother recovered rapidly.

126. Forceps. Mother and child both did well.

136. Hydrocephalic fœtus. Craniotomy. Sixty hours' labor. Mother recovered well.

156. Forceps. Mother and child well.

160. Forceps. Mother and child well.

168. Presentation of breech. Mother and child well.

170. Convulsions. Abortion. Mother well.

172. Forceps. Mother and child well.

175. Forceps. Mother well. Seventy-two hours' labor.

192. Shoulder and cord presentation. Turning. About fifty hours' labor. Mother well. Child decomposed; skin peeling freely, &c.

194. Hemorrhage. Child and mother well.

200. Forceps. Mother well. Child alive when head passed; died before completion of labor, and by unavoidable delay.

201. Forceps. Mother and child well.

216. Forceps. Mother and child well. Between thirty and forty hours' labor. Chloroform.

217. Arm and cord presentation. Turning. Mother and child well.

223. Abortion. Mother did perfectly well. Chloroform.

224. Arm presentation. More than twenty-four hours' labor. Attended by a female, till second day, when a physician was called in, by whom I was consulted. Child known to be dead before turning. Mother did well.

225. Arm presentation. Labor, four days. Child dead before turning. Mother well. Attended most of time by female.

229. Convulsions. Mother and child well.

234. Convulsions. Labor premature. Mother did well. Chloroform.

253. Convulsions. Fatal. Chloroform; sulphuric ether.

256. Forceps. Mother and child well. Chloric ether.

259. Placenta previa. Hemorrhage. Turning. Chloroform. Mother well. Child born alive. It died a few days afterwards. Malformation.

262. Convulsions. Mother and child well.

265. Laborious labor. Craniotomy. Mother well.

267. Convulsions. Fatal.

268. Convulsions. Fatal.

270. Placenta previa. Mother well. Chloroform.

(The last case is not in Analysis.)

TABLE THIRD.

CASES OF INSTRUMENTAL AND OTHER, NOT NATURAL, LABORS.

COMMUNICATED.

Dr. DEXTER, Brookline . .	Craniotomy. Mother did well.
Dr. PEIRSON, Salem . . .	Forceps. Mother did well. Seventy-two hours' labor before ether was used.
	Convulsions. Fatal.
Dr. BARTLETT, New Bedford	Convulsions. Mother and child did well.
	Forceps. Mother did well. Child dead before ether.
Dr. BEMIS, Charlestown . .	Two cases of instrumental labor, in both of which women did well. The fœtus, in both cases, was supposed to be dead before etherization.
Dr. WINDSHIP, Roxbury .	Arm presentation. Turning. Mother did well. Still-birth not ascribed to etherization.
Dr. PERRY	Arm presentation. Mother and child well.
	Arm presentation. Mother and child well.
Dr. FISHER	Forceps. Mother and child well. (This case is reported in Table Second.)
Dr. STRONG	Forceps. Mother and child well.
Dr. PUTNAM	Forceps. Four cases. Mothers and children well.
	Two arm presentations. One, four days before turning. Mother and child well.
	A second. Early in labor. Mother and child well.
	A third, with funis. Early in labor. Mother well. (This not in Analysis of cases.)
Dr. HOOKER, E. Cambridge	Forceps. Mother and child well.
	Arm presentation. Mother did well. (This case is reported in Table Second.)
Dr. ———	Breech presentation. Child and mother well.
Dr. ———	Convulsions, before labor, in evening. Child still-born, next night. Mother has done well.
Dr. CHASE, Chelsea . . .	Forceps. Chloroform. Mother and child well.
Dr. ———	Twins. First, natural; second, breech. Chloroform first used; then chloric ether, to induce etherization more rapidly. Etherization partial. Much relief of acute suffering. Second child born in envelopes, very suddenly. Uterus became distended with blood, soon after. Under compression, strong contraction completely emptied the organ of coagula and placenta. Mother and children well.
Dr. HOMANS	Twins. Chloroform. Mother and children well. No hemorrhage. This is an important case. Thirty-eight ounces of chloroform were used, and three of sulphuric ether. It was inhaled for sleeplessness, restlessness, distress, during the four weeks before labor; but not the least ill effect occurred before, during, or after delivery. (This case was reported in remarks preliminary to Tables.)
Dr. FLINT	Br. presentation. Chloroform. Mother and child well.

Table Fourth.

CASES OF INSTRUMENTAL, PRETERNATURAL, AND COMPLICATED LABOR,

IN WHICH ETHERIZATION WAS NOT ATTEMPTED, EXCEPT IN ONE INSTANCE, AND IN THAT NOT PRODUCED.

CASE		
I.	Consultation.	Arm presentation. Child dead born. Turning. Mother well.
II.	Consultation.	Convulsions, very slight. Jaundice followed. Child alive. Mother died.
III.	Consultation.	Rupture of the womb. Mother dying when first seen by me. She died undelivered. (This case is in the Appendix, as reported by attending physicians.)
IV.	Consultation.	Convulsions. Labor had continued seventy-six hours before my seeing this patient. Convulsions about four hours before my visit. Delivery very easily accomplished by the forceps. Child born alive. Both mother and child died a few days after delivery. Not a circumstance occurred which for a moment promised a favorable issue.
V.	Consultation.	Arm presentation. Delivery after craniotomy, before my arrival. Mother died a few days after delivery.
VI.	Consultation.	Placenta previa. Uterine hemorrhage followed great exertion in last month of pregnancy. Patient rapidly sinking when I reached the address. Child dead-born. Mother died in about an hour after.
VII.	Consultation.	Difficult labor. Forceps. Child born alive, but soon died. Mother died a few days after.
VIII.	Consultation.	Convulsions. Child dead born. Mother did well.
IX.	Consultation.	Arm presentation. Child dead born. Turning. Mother did well.
X.	Consultation.	Jaundice, at close of pregnancy, soon passing into fatal coma. Labor occurred during coma. Forceps used at close of process, and when pains had ceased. Child dead born, and mother died shortly after delivery. A prominent symptom, in this case, was violent shrieking.
XI.	Consultation.	A remarkable similarity existed between this and the preceding case, both beginning with jaundice, and ending in coma; and death occurred to both mother and child. In this case, there was no evidence of suffering. A constant and forcible ejection from the mouth of a dark, bloody, and bilious matter, and in large quantities. It was thrown to a great distance, and without regard to neighboring persons or things.
XII.	Communicat.	Convulsions. Seven months' fœtus. Mother and child died.
XIII.	Communicat.	Convulsions. Mother and child died.
XIV.	Consultation.	Anhemia during pregnancy. Fatal after delivery.

CASE

XV. Communicated. Pneumonia in sixth month. Not relieved by treatment, and threatening life. Labor was induced. Twins. Death immediately followed their birth.

XVI. Communicated. Convulsions. Age twenty-two. First labor; began 1, A.M. Breech presentation. Convulsions about 7, A.M.; very violent; lasted one hour. Child born about 9; dead. Fits continued to recur, and with great violence, once in about six hours. Consciousness returned on third day. No memory of what had occurred. Never perfectly recovered, and soon became seriously ill. Disease referred to abdomen and pelvis. Pain; tympany; lameness; pain and swelling in knees, and in left arm and shoulder; deafness. Pulse 144; respirations 30 to 40. Sinking was soon apparent in increase of all the symptoms. One lower limb, through its whole extent, became greatly swollen, as in phlegmasia dolens, and death shortly followed.*

XVII. Consultation. Uterine hemorrhage. Age thirty-three. Sixth labor, June 25th. Twins. First born alive before arrival of physician. Second, arm presentation. Turning, very difficult, from close contraction of womb upon child. Head retained some time. Heart continued to beat after head was born, but soon ceased. Profuse hemorrhage immediately after birth of second child, and with it one placenta came away. The second placenta was adherent, and was removed by hand. Hemorrhage ceased suddenly, it being mainly one gush, and did not recur; but sinking began with it, and death took place between two and three hours after. I did not reach the address till after death had taken place.

XVIII. Communicated. Convulsions. Patient, an unmarried woman, was found in her chamber alone, and in convulsions. Nothing was known of their beginning, or how long had been labor. Ordinary means were employed, but did not in the least diminish the disease. Craniotomy was performed, and the fœtus taken away. The poor woman died the next morning.

* The following were among the appearances noted: — A very large abscess in the substance of the uterus, or rather in the cellular tissue between its proper substance, and the peritoneal covering of the organ, on its left side. Phlebitis of the left iliac vein. A clot in left femoral vein. Phlegmasia occurred in the left lower extremity, corresponding to the iliac in which phlebitis existed.

CORRESPONDENCE.

[For convenience of reference of the answers to the questions in the circular which are contained in the following Correspondence, the questions are reprinted here.]

1. Number of cases, and whether in natural or instrumental labors?
2. Quantity used?
3. How long used?
4. How long before effects?
5. How far *unconsciousness* occurred?
6. How far *insensibility* occurred?
7. Special effects, physical, moral, and intellectual, in individual cases?
8. Apparent danger, and how manifested?
9. Results to mother, both immediately after delivery, and later?
10. Results to child, as to being *alive* or *still-born*, and its condition since?
11. The use of ether and of chloroform in childbirth?

From A. A. Gould, M.D.

Dr. Channing.

Dear Sir, — I have met with only two patients who cared to be put under the full effects of ether or chloroform.

I. Mrs. C. at about twenty-six; second child. Tall and slender; nervous diathesis. Had experimented with chloroform with others in the family, but without satisfactory effects. When the head had passed the os uteri, and had reached the perineum, and when there was every probability that it would have been born in ten minutes, began to inhale chloroform by the paper funnel. A state of restlessness ensued; tossing from side to side; noisy exclamations, in a half-conscious state, for "more chloroform." *The uterine effort subsided;* and, after fifteen minutes, the inhalation was suspended. Restlessness continued, without return of pains, for two hours, when she fell asleep, and continued sleeping an hour. On awaking, natural and effectual pain returned, and the child was immediately born. Child large and healthy. Mother speedily recovered. About an ounce was used of the same article, which produced speedy anæsthesia in other members of the family. There can be no doubt that the uterine action was interfered with in this case.

II. Mrs. L. at about thirty; fourth child; well formed; composed. Pains very forcible, but at long intervals. Before the head had passed os uteri, commenced inhalation of chloroform; effect immediately produced. For the first half-hour, on account of the long intervals, the chloroform was removed from the mouth, except when it was judged that a pain was about to take place. Last fifteen minutes, pains rapid, very forcible; and inhalation was uninterrupted. She commenced singing in a low lone, which was continued uninterrupted, and unmodified by the pains, which were so violent as to render it difficult to keep her in position. Pains not felt. Consciousness very slight. Child large and well. Mother got up well. A little more than one ounce chloroform was used.

A. A. GOULD.

Boston, March, 1848.

From Charles M. Windship, M.D.

Roxbury, Jan. 25, 1848.

Dear Doctor, — In answer to your circular respecting etherization, I submit the following: —

1. With the effects of chloroform I have had no experience. Sulphuric ether I have used in seven cases; six natural but protracted labor; and one a case of arm presentation, in which I turned and delivered by the feet.

2. From eight to eleven ounces inhaled at intervals, from a cambric handkerchief.

3. In one case, a partial ethereal influence was continued for two hours, with *occasional periods* of entire unconsciousness and insensibility.

4. From one to three minutes.

5. *Partially conscious* in every case, *excepting* the one mentioned, and not *entirely*.

6. *Insensible.*

7. In four of the natural cases, it *seemed* as if rather more subsequent flooding occurred than usual; but I feel by no means *confident* that this should be ascribed to ether.

8. No apparent danger in any case.

9. No unpleasant results to mother, unless it *may* be increase of subsequent hemorrhage.

10. Child living in all cases, except the arm labor. The loss of this child, not, I think, ascribable to ether.

11. Etherization in many cases of natural labor, I consider of great utility; but in *instrumental* cases, as invaluable.

Very respectfully yours,

Walter Channing, M.D. CHARLES M. WINDSHIP.

[*Remarks.* — Dr. Windship speaks of hemorrhage as observed in his cases, though he does not ascribe this to etherization. Six of his cases are called natural, *but protracted.* This last fact in their history may afford an explanation of that imperfect contraction of the womb which occasionally follows lingering labor, and may be a cause of hemorrhage. It will be further observed, that the flowing is spoken of as "rather more than usual," not by any means as excessive. And the answer to the 8th question of the circular, namely, "Apparent danger, and how manifested," shows how little importance was attached to it. The answer is "*No apparent danger in any case.*" It probably more often happens than the medical observer may be aware of, that, in the use of a new remedy, concerning the agency of which any lurking doubt exists, a more careful notice of occurrences is made, than under other circumstances would be thought of. In this way it may happen that slight deviations only from every day's observation may get a character or importance, which otherwise might not be attached to them. In some such cases, and especially in those in which a disposition to excessive flowing has been manifested in a former labor, I give an infusion of ergot, just when the child is passing, and in this way secure to the third stage of labor the conditions of the greatest safety, namely, good and persistent contraction.]

From A. R. Thompson, M.D.

Walter Channing, M.D. Charlestown, Jan. 28, 1848.

Dear Sir, — I have used ether in obstetrics in two cases only, both natural labor. The first occurred in the night of Dec. 26, 1847; forty-three years old (previously the mother of five children), who had not had a child before for five years. This lady had informed herself fully as to the use of ether, and had made up her mind to take it, but had never mentioned the matter to me. When called to her, I frankly told her that I had never used the ether, nor had I ever seen it used in any case, but that I had no prejudice against it, and would consent to its administration in her case, on condition that it should be used under my direction. A large bottle and a suitable sponge were both ready on the table. Upon careful examination, I found every thing favorable for a safe and speedy termination of the labor, and told my patient I believed that the child would be born within two hours, without any interference; but she was resolute, and demanded the ether. At a quarter past 12 o'clock, I poured an ounce of ether into the sponge, and the lady held it to her mouth and nose. In about ten minutes, her hand relaxed, and the sponge dropped; and she appeared to fall into a state of unconsciousness, and remained quiet for ten or twelve minutes. She then roused, and manifested an

hysterical paroxysm of mingled laughing and crying, and presently exclaimed, "Oh! what a delightful dream I have had! I long to tell it to Thomas" (her husband). Then she eagerly called for the ether. A little more was several times poured into the sponge; and she kept it applied during the rest of the time, until the child was born, which took place in exactly one hour from the time she began to inhale the ether. The lady assures me (and I believe her), that she was entirely unconscious of the birth of her child. This lady had been a great sufferer, after her previous labors, with after-pains. In the present case she began to feel these, as soon as formerly; but, fortunately, was not doomed to suffer them, as I immediately gave her the medicine which I use for after-pains, ammon. tinct. of ergot, nutmeg, and opium, with entire relief. Her former physician never allowed his patients to take any medicine to relieve after-pains. The lochia was natural. Micturition in due time. No lactation, which was the same as before with her; for she had never been able to nurse any of her children. The mother and child are both perfectly well.

. . . . . .

The second case in which I used ether was a strong Irishwoman, aged thirty years, with her first labor. On my arrival, I found the membranes already ruptured; and, so far as my experience enables me to judge, she had all the signs of a severe travail. I used between three and four ounces of pure sulphuric ether in this case; and the child was born in one hour and a half from the time I commenced using it. In this instance, the woman did not, at any time, entirely lose her consciousness, though she did lose her hold of the sponge. The parturient action was immensely strong. Her cry for ether was earnest and incessant; and, when the child was born, I noticed particularly that peculiar elongation of the head which usually follows a severe and protracted labor. My conviction at the time was strong, that the ether had greatly diminished the sufferings of the mother, and shortened the term of her travail for many hours. Every thing in this case has gone on well; the mother and the child, now four weeks old, are both in perfect health. . . . . .

ABM. R. THOMPSON.

Note from Dr. A. R. Thompson.

Walter Channing, M.D. Charlestown, June 5, 1848.

Dear Sir, — Since my first communication to you, I have used chloroform in fifteen different cases in obstetric practice, with great benefit to my patients.

With great respect, your obedient servant,

ABM. R. THOMPSON.

From Professor John Ware, M.D.

To Dr. Channing. Boston, Feb. 1848.

1. Two. Both natural. One premature, and only for artificial extraction of placenta.

2. About four ounces in each, but not economically. Wasted.

3. About half an hour, at intervals, in each.

4. Almost immediately.

5. Very moderate in case of retained placenta. Not entire in the other.

6. Moderately in both.

7. None worthy of mention.

8. None.

9. Perfect and unusually favorable recovery in both.

10. One dead, at seven months, and decomposed. The other well, at the full time, and nothing special.

11. Favorable as to both. Preference to chloroform, from its general effects. Yours, &c.

JOHN WARE.

From Jon. W. Bemis, M.D.

To Dr. Channing. Charlestown, Feb. 1848.

1. I do not recollect more than four cases; two of them were natural, and two instrumental, labor.

2. In one instance, six or eight ounces; in the others, less.

3. In one case, for three hours, at intervals.

4. In about five minutes.

5. In one case, wholly unconscious at times; in the others, not so.

6. Wholly insensible in two cases.

7. I should think it induced relaxation of the whole system. I thought it had the effect, in one case, to make the pains *less frequent*, than when not under the influence of it. I think the effects were not unpleasant, as the individuals asked for its repetition.

8. No dangerous effects manifested.

9. No bad results to the mother in either case.

10. In two cases of difficult labor, I supposed the children not living, when employed. In two cases of natural labor, the children lived, and are well now.

11. I should not think it best to use it in common cases. I published a case of some importance in Medical Journal, in July the 21st; in which case, I felt as if the life of the patient was saved by its use at the time. At any rate, its use afforded me great satisfaction.

Yours, very truly,

JON. W. BEMIS.

From Henry G. Clark, M.D.

To Dr. Channing. Boston, Feb. 1848.

1. Perhaps six or eight.

2. Generally from two to ten ounces of ether.

3. Sometimes three or four hours, at intervals, as the effects passed away.

4. A few minutes only.

5, 6, and 7. There was often insensibility to pain, while the woman would answer, and seem quite conscious of the *nisus*, or propulsion; sometimes the state was that of perfect *sleep*, without or with *dreams*.

8. I have not seen any alarming symptoms, when the article was *pure*, and properly, and not *suddenly* or violently, administered.

9. In one case, severe flooding followed. I don't know how much it might have been, owing to the chloroform, which was given in this case; but it seemed to me that it had something to do with it.

10. The children have done well.

11. I think they should be used as other remedial agents, according to circumstances; and that they ought by no means to be used in every case of labor, any more than a cathartic or enema should be given for every costive defecation, or a catheter for every case of strangury.

I hope the answers will serve your purpose; although, as you see, my experience has been limited by my notions of the proper cases for its use. As to the choice of articles, ether or chloroform, they have both peculiarities which may make it advisable to retain both. I have used chiefly the ether. Very respectfully and truly yours,

HENRY G. CLARK.

From Professor J. Bigelow, M.D.

To Dr. Channing. Boston, Feb. 1848.

1. Ether in eight cases; chloroform in two. Not given, except in cases where it was requested by patient.

2. Chloroform, one ounce in a tube; ether, one ounce to 16 on a sponge.

3. From half an hour to twenty-four hours, at intervals.

4. From one to five minutes.

5 and 6. Both occurred in six cases, with perfect quiet during the passage of the head, and no subsequent recollection of the fact.

7. Nervous excitement, with laughing in five cases; expressions of delight in about as many; hysterical screaming in two, for a short time; anxiety to repeat inhalation in all.

8. None. In one case of protracted labor, the lips and nails repeatedly became purple, but resumed their natural appearance on withdrawal of the ether, and after a few inspirations of pure air.

9. Never unfavorable; always seemingly beneficial, by the saving of alarm, pain, and exhaustion; also by the apparent relaxation of the passage.

10. One child did not breathe, till cold water was thrown upon it. The rest, immediately.

11. An experiment not yet settled in all its bearings, but promising much for the relief of human suffering.

From John Homans, M.D.

To Dr. W. Channing. Boston, Feb. 1848.

Dear Sir, — 1. I have administered sulphuric ether in thirty-one cases of labor, and chloroform in two; making in all, thirty-three.

2. The ether, in quantities varying from three to sixteen ounces; in general, I have found four to six ounces sufficient. Chloroform, in one case, two drams; in another, six. In the latter, there may have been some wasted.

3. From fifteen minutes to eight hours. I have usually deferred their use until dilatation of the os uteri has somewhat advanced, and expulsive pains were about commencing, or had already commenced.

4. Generally from one to two minutes. In eight cases, in which I observed the time by a watch, in one minute and a half.

5. So far as not to realize the birth of the child in three instances. In most cases, so as to be ignorant or unmindful of the lapse of time; sometimes mistaking a few minutes for an hour, and the reverse.

6. So far as to blunt acuteness of the pains, more or less, in thirty-two cases. In one only, no effect was produced: in that, however, I had doubts as to the purity of the material. In six or eight cases, the pains were so much alleviated, that the patients said they had suffered very little; in the others, the suffering seemed much diminished.

7. As to physical effects. Pulse accelerated at first, and afterwards lessened in frequency. Pupils of the eyes became dilated, and eyes partly closed; when open, fixed. Drowsiness comes on, and at length sleep; sometimes slight convulsive motions. In most cases, I have observed increased moisture of the vagina, and more ready dilatation. As to moral effects, these are various: in some, pleasant sensations and delightful dreams; laughter in others, painful sensations, and indescribable distress, frightful dreams, sobbing and weeping. As to intellectual effects: new and strange ideas; imagination active; thoughts fly rapidly through the brain; in some, incoherent expressions; forgetfulness of their condition. In one case, mental distress was very great; indescribable misery, so as to cause the patient to strike those near her, and to thrust them from her with violence. In some, objects which are near

appear distant, as if gradually receding. When the effect of inhalation commences, the voices of persons present become more and more distant.

8. I have seen no danger; although I did so far apprehend it, as to desist from its further use in one case, where great distress was manifested, and convulsive motions of the muscles supervened.

9. Generally a contraction of the uterus, and speedy delivery of the placenta; and a more tranquil state of mind, and more comfortable state of body, than in cases in which etherization was not used. Sometimes, however, on first recovering from its effects, distress is manifested; but no bad effects afterwards.

10. In all cases, the children have been born alive, and well in all respects, and have continued to thrive.

11. I consider etherization valuable, inasmuch as the strength of the patient is less exhausted, by reason of the voluntary efforts being less, and inasmuch as the muscular and soft parts are relaxed by it; and thereby the last stage of labor expedited. The soreness and lameness of the muscles, consequent on efforts, is much diminished; and the patient is so sensible of the mitigation of suffering, as to ask for and demand it, after a few minutes' use of it. The same remarks will apply to the chloroform, which seems to affect mentally the patient more agreeably, and is less repugnant to the sense of smell and taste, than sulphuric ether.

[For whole number of cases by Dr. Homans, 56, see Table First.]

From A. L. Peirson, M.D.

Salem, Feb. 1, 1848.

. . . Aug. 1, 1847. — A lady, between thirty and forty years of age, fell in labor with her first child. Her travail was perfectly normal, but lasted rather more than twenty-four hours. Hers was the first case of midwifery in which ether has been used in this city. She had previously determined upon using it, from the advice of her Boston friends, who had furnished her with your report of the first cases in which you had employed it. When her pains first came on, her friends and neighbors, who came to assist her, dissuaded her from the experiment; and she passed a whole night with severe preparatory pains, requiring me to be in the house, and frequently at her bedside, till, in the morning, she was wearied and disconsolate. She now begged for the ether, or any thing to alleviate her sufferings. At the first inhalations from the sponge, she broke out into exclamations, — "O beautiful! O glorious! Now I can bear any thing. I feel as if I had had a good night's rest. Send for a full supply of ether" (for we had but little). She assured me she

could manage for herself; that she would not call for it, except she was in pain. She kept the sponge in her hand, and held it to be filled when necessary; and when the pain arrived, as often as once in ten minutes, she pressed the sponge over her mouth, and expressed, from time to time, the entire satisfaction it gave her. She was never made unconscious; but, being of an imaginative turn of mind, entertained us with a spirited conversation, mainly upon the merits of ether, the timidity of her friends, and the cautions of her medical attendant. In this way, she continued the respiration from 7 in the morning till 7 at night; using up, in the time, a pint of ether; when she was delivered of a full-grown male child, without the slightest untoward circumstance. She averred that she had suffered no pain, to be compared in severity with those of the previous night; and that she should not have dreaded her first pains, if she could have mitigated them with ether. Her convalescence was watched with jealous eyes; for it was agreed, that any unpleasant symptom which might occur should be laid to the ether. The recovery, however, was without the slightest accident; and mother and child continued in perfect health, till she resumed her duties in the family.

Oct. 23, 1847. — A young woman, not more than twenty, had a healthy child, with a smart first travail of three hours. She had an hour's pain before I saw her, without the use of ether. She had used inhalation of ether to mitigate the pain of tooth-drawing, and begged for it in travail. She was rejoiced to avail of it, and, when under its influence, was eloquent in its praises. "O blessed invention of the nineteenth century!" was her constant exclamation. The travail was finished with scarcely the slightest consciousness of suffering. She continued inhaling from the sponge impregnated with ether, at every pain, for the last two hours. Her recovery was perfect during the week of my attendance, though she had mammory abscess afterwards.

On the 20th December, I was called in consultation in a case of protracted parturition. The woman (Irish) had been in labor of her first child three days, and had used the ether freely, with very satisfactory mitigation of pain, and apparently without diminishing effort. She had taken ergot, and the head was impacted in the superior strait. I delivered her with Leveret's long forceps, with considerable difficulty. She inhaled ether freely during the application and employment of the forceps, with very great relief to herself, and assistance to her medical attendants. Her convalescence was without the slightest accident. Her child was full-grown and still-born, which I attribute rather to the ergot than the forceps; and, when I contrast this case with that of another Irishwoman whom I saw in consultation in the summer, who obstinately resisted the inhalation, and where it was necessary to open the head, I cannot but feel convinced that the patient and the operator derive the greatest assist-

ance, in instrumental cases, from the use of an agent which can produce total or partial insensibility.

I have used ether once only in puerperal convulsions. The general convulsions had spent themselves; the rhonchous breathing only remained, with occasional stiffening of the extremities. On respiring ether for a few minutes, the breathing became easy, noiseless; and the patient appeared to enjoy a ten minutes' sleep, perfectly relaxed. On return of the hard breathing and muscular rigidity, the inhalation was always successful in removing them. She remained unconscious from the first attack of convulsions, and died within twenty hours from the birth of twins.

I have never used chloroform in cases of parturition, but, on other occasions, have found it more speedy in its effects, and less exciting than ether. — Sincerely, your friend,

Dr. Channing. A. L. Peirson.

From Marshall S. Perry, M.D.

Boston, Feb. 15, 1848.

. . . When I am asked, as I am frequently, what I think of the use of ether in labor, my answer is, it is going through a series of experiments which will result, I have no doubt, in some definite rules, by which it can be administered with safety and benefit. — Yours, &c.

M. S. Perry.

[*Note.* — Since above was received, Dr. Perry has communicated to me verbally some cases of natural labor, in which he has used chloroform very successfully, and a second of arm presentation, in which his success was as perfect as in the first. — W. C.]

From J. H. Lane, M.D.

1. Ether used in ten cases; chloroform in four cases, all natural; and labor not severe.

2. From one to six ounces ether; from two drams to one ounce chloroform.

3. From five minutes to several hours.

4. Usually very soon.

5 and 6. I have generally used it, only to take off the acuteness of suffering, and not to produce entire unconsciousness and continued insensibility.

7. Nothing requiring very special remark. In some cases, labor-pains seemed to be strengthened under its use; in other cases, the pains seemed to be somewhat diminished in force, but not entirely suspended.

About four weeks ago, I attended a lady in confinement, who has been insane for some years. She was confined about three years ago, and was then exceedingly noisy and boisterous for some hours; but, at length, was confined, and did well. In the last confinement, she was growing quite troublesome as before, when I resorted to the use of the chloroform, which tranquillized her speedily. Her labor-pains also subsided; and I gave her ergot, which soon restored them; and she was soon delivered of a very large and healthy child.

8. None.

9. Nothing remarkable. If headach existed before etherization, it was usually relieved.

10. No bad result.

11. The effects of ether, as noticed by all, were somewhat unpleasant, and on that account objectionable. . . . . Chloroform I am much better pleased with, on account of its agreeable odor, its speedy operation, the rapid return of consciousness, and the state of freedom and comfort in which the patient is left after its use. It seems to possess all the anæsthetic power of ether, without its unpleasantness. — Yours,

J. H. Lane.

From Lyman Bartlett, M.D.

Dear Sir, — In answer to your questions, —

1. I have used ether in two cases, one natural and one instrumental case. Have not used chloroform in any case of obstetrics.

2. Used about half a pound in first case, and about six ounces the second case.

3. Used for two hours in first case; for twenty or thirty minutes in second case.

4. Effects in two or three minutes.

5. Unconscious of suffering, but would answer questions by yes and no.

6. Most of the time, complete insensibility to suffering; the rest of the time, nearly complete.

7. The first case was one of a second pregnancy. Had had two attacks of convulsions during pregnancy, and a third attack at the onset of labor. Was bled freely. Took an opiate, and lay quiet for twelve hours. Labor then commenced in earnest, and continued for eighteen hours, the pains all the time very severe. Os uteri dilated about two inches, but edges thick and rigid. Edges immediately became thin and yielding, under the use of the ether. Pains, perhaps, slightly diminished in force for about twenty minutes, but then returned with undiminished force for two hours, when the delivery was completed. There was in no

way any unpleasant effects from the etherization; but, during the whole period of it, she expressed herself as transported to the regions of perfect bliss, hearing seraphic music, &c.

The second case was one of first pregnancy, a little dumpy Irish woman, aged 43. Presentation of the face to the left acetabulum. Duration of labor, eighteen hours. No progress for the last eight hours. No fœtal pulsation for six hours. Forceps then applied (pains having nearly died away, and patient greatly exhausted). After the forceps were applied, she was etherized, and delivered in about twenty minutes. Was completely unconscious during etherization. Had no unpleasant effects, but "had a pleasant dream."

8. No apparent danger.

9. The first case occurred on the 27th of Oct. 1847; the other on the 10th of Nov. 1847. Recovery, in both instances, *remarkably speedy*, and *without* the *slightest unpleasant symptoms*, up to the present date, March 8, 1848.

10. The first child seemed partially asphyxied at birth, but was soon restored by warm bath, &c. It was of large size, and has been perfectly healthy and well ever since. The second case was still-born.

11. I think highly of the use of ether in certain cases of childbirth, but should not be inclined to use it in ordinary cases. I have not used chloroform in childbirth; but, at the urgent request of friends, I made several attempts to use it in a case of abortion, at the third month; but it produced a deathly expression of countenance, and seemed invariably to arrest nearly all uterine action.

New Bedford, March, 1848. LYMAN BARTLETT.

From Simeon Tucker, M.D.

Stoughton, Feb. 22, 1848.

. . . I have used ether in six cases of labor. In one of these, the woman was not under its influence, until the last pain, which did not appear to be at all mitigated by its use. In one other case, the woman was not conscious of any pain, when the head of the child was born. The other four expressed themselves as being very much relieved, though not entirely unconscious of pain. Except the case in which there was no relief, I have generally commenced the use of it about half an hour before the child was born. It did not appear in any instance to diminish — I sometimes thought it increased — uterine action. In no case was it attended with any unfavourable consequences.

Respectfully yours,

SIMEON TUCKER.

From F. H. Gray, M.D.

. . . . . With regard to query No. 6, in no case did that insensibility manifest itself, which we see in a patient that has fainted. Though, in all cases, they replied to questions and distinguished persons, yet they wholly mistook the scenes in which they were placed, and the labor that was going on. This delusion applies only to the two cases in which unconsciousness is said to have occurred. Yours,

F. H. Gray.

From John Jeffries, M.D.

1. Ether in eight cases. Chloroform, two cases. All natural.

2. As the ether was generally used from an inhaler, the quantity used could not be measured. It was probably from two to six ounces, according to the time in using. The quantity of chloroform was, in one case, half an ounce; in the other, it was an ounce.

3. From fifteen minutes to two hours.

4. The effect of the ether was from four to six minutes. In one, not before ten to twelve. In one, where the inhalation was imperfect, it produced very little influence. Chloroform immediate.

5. Unconsciousness, at each repetition of the inhalation, in six cases.

6. Insensibility to suffering, in all but one case.

7. In three cases, it was thought to diminish the action of the uterus, as well as to produce insensibility. No other effects but as in answers 6 and 7.

8. No apparent danger was manifested by the result. In one case, an attack of intermittent fever might have been mistaken for the effect of chloroform.

9. In those cases in which it was not the first labor, the patient had a better getting-up from confinement than in previous labors. No injurious results are known in any case.

10. No injury to the child in any case.

11. I think the ether more safe than the chloroform, but not so convenient for use. One or the other of them may be used with safety and great advantage in relieving pain, in all cases of severe or protracted suffering. I do not know of any objection to their use, even in short and mild cases. — Yours truly,

John Jeffries.

June 12, 1848.

My dear Sir, — I am sorry I am unable to give a better account of the ether cases. If you can make any use of them, I shall be glad. . . .

Date.	Agent.	Remarks.
1847. April 17.	A. W. Ether.	Given early in labor. Pains appeared less frequent while under the influence of ether. It was omitted twice for a short time; and during each of these intervals, the pains were more frequent. Successful. Mother and child did well.
„ May 16.	W. N. Ether.	Occasioned great dizziness and headach. Persevered, and was under the influence 30 minutes; then conscious, and refused further inhalation. Has had intermitting pulse from that time. Child well.
„ May 20.	G. B. Ether.	Quite successful. Taken near termination of labor, which was quick. Child and mother did well.
„ July 23.	J. L. Ether.	Successful. Recovery from confinement rapid.
„ Nov. 27.	O. P. Ether.	Not completely etherized. Difficult to induce her to inhale. Not quiet; tossing about bed. Did not like the ether; but no ill effects followed to mother or child.
In all these cases, the child's breath, for several hours after birth, smelled strongly of ether.		
1848. Jan. 8.	Chloroform.	Successful. Recovery rapid. Insensible one hour thirty minutes.
„ Feb. 15.	Chloroform.	Successful. Recovery very slow. Now suffering under pulmonary affection. Child remarkably healthy and strong.
„ March 9.	Chloroform.	Successful. Two hours twenty minutes insensible. Recovery good. Child well.
„ May 18.	Chloroform.	Insensible only during the first and middle stages of labor. Breech presented. Delay was feared in delivery of head.
„ May 23.	Chloroform.	Successful. Child and mother well.
„ June 6.	Chloroform.	Successful. Child and mother doing well.

My own impression is, that, while the patient is fully under the ether, throes are not as frequent as in the natural state. It is also my impression, that they are not, as a general rule, so propulsive as in the natural state. With these views, I did not feel willing to give the agent during the termination of the breech case.

In the case of intermitting pulse since administering ether, the patient is firmly convinced, that it was the effect of the ether. Of this you are a better judge than I am.

I think I have observed, that the children born under the influence of ether did not cry as quick or as strong as in natural labor, or when under the influence of chloroform.

Very respectfully yours, ——— ———.

From Woodbridge Strong, M.D.

To Dr. Channing. Boston, Feb. 1848.

1. I have not used either in natural labor, and the ether in only one case of instrumental labor.

2. Quantity about half a pound.

3. About three hours in all.

4. The effects were almost immediate.

5. She seemed unconscious, and usually fell into a sleepy state, from which she soon aroused, — perhaps in ten or fifteen minutes, when she called for it again, and again went into the same state, and this until delivery.

6. The insensibility was nearly, if not quite, entire.

7. No special effects to notice.

8. Saw nothing to notice as dangerous.

9. No results to be laid to this. The mother came out of the sleepy state immediately after the delivery, which was by instruments. She said she neither felt the application of the instruments, the forceps, nor knew when she was delivered. She was delivered in the morning, and afterwards slept more than usual during the day.

10. The child was alive when delivered, but almost dead, — so much so, that I hardly expected that it would survive; and yet this might have been owing to the previous pressure which it had been subjected to; but, since this, the child has done well, and is thriving.

11. I have been opposed to its use, and have only yielded to importunity, when I gave it; and this not because I had seen any bad effect, but because I prefer to pursue old methods, which have been found safe and sufficient, in preference to enter upon the use of an untried remedy. One case can settle no practice, or the operation of any medicine; and yet I should infer from this case, that, in proportion as the narcotism was complete, the labor was retarded. Whether the child would have been born naturally without the ether, I do not know. But, as it was, using the ether, I became discouraged. The mother also became so; and, at her request, the child was delivered instrumentally. — Respectfully,

W. Strong.

From A. K. Gardner, M.D.

Dr. W. Channing. New York, 151, Wooster-street, May 3, 1848.

. . . . Feb. 2. — Was called at 7, A.M. to Mrs. D. (Greenwich-street), in labor with her fifth, full-timed child. Two hours previously, the membranes ruptured; since then, the pains were strong and frequent. The position was the first of Baudelocque. At 9, A.M. the os was per-

fectly dilated, the pains increasing in frequency and force; and I then administered the chloroform (almost for the first time that it had been used in New York, during labor). She inhaled it, placed upon a sponge. The effect was immediate; for she soon became unconscious of what was passing around. Talked incessantly of matters which had occurred some days anterior. The pains were evidently rendered *less* frequent; but of their effects, and the suffering, she was entirely ignorant, while under the full effects of the chloroform; and but partially as the medicine evaporated. She was kept under its influence till 11 (two hours), when a male child was born, crying lustily, of which she was entirely ignorant. She took, in all, one ounce; and neither she nor child experienced the slightest unpleasant symptom. She declares that she will never again be confined without using the chloroform.

Feb. 4. — A. B. an exceedingly robust and powerful woman. . . . Had never been ill in her life. Pains commenced at 4, P.M. At 10, P.M. when I first saw her, she was much excited, tossing herself about, and refusing to submit to any restraint. . . . At 11, first administered the chloroform. This added to her excitement. . . . . Having but a small quantity of the chloroform, I was unable to administer it as freely as was desirable; it, nevertheless, had the effect of markedly soothing her, and quieting the pains, when tolerably under its influence. . . . . Shortly after 11, the membranes ruptured; and the pains, while inhaling the chloroform, in great measure ceased, though she was never completely under its influence. Friction to the abdomen was useless. Pulv. sec. cornut. one scrup. was administered, ten grains, each half hour, but with no avail; and not till the chloroform was reduced in quantity were the pains renewed. . . . . Thus it went on till 3, A.M. of the 5th, when the child, which had remained for some time locked in the lower strait, and restrained by the rigid perineum, entered the world. A larger quantity of chloroform than had yet been given was administered at this period, and the patient was completely unconscious of its birth. The head of the child was very seriously affected by the pressure, far more than usual; the bones riding over one another to a very great degree. The child, a female, weighing eight pounds, was still-born; the cord slightly pulsating, but no beating of the fœtal heart. Mother did very well. Administered, in all, one ounce of chloroform.

April 12, 10, A.M. — Was called to Mrs. Eliza J. at the Bloomingdale Hospital. Had felt some pain during the previous night. Os is now fully dilated, and membranes ruptured for several hours. Occiput in lower strait, first position of Baudelocque. First child. At half-past 10, administered chloroform; and she was kept under its influence till half-past 12, P.M. not completely, for in that state the pains were entirely arrested, but partially. At this time she was delivered of a female child.

Both infant and mother did well, having not the least noticeable result arising from the use of the chloroform. — Yours,

AUGUSTUS K. GARDNER.

From Charles Gordon, M.D.

[Dr. Charles Gordon, of Boston, communicates five cases; of which two are printed, the first and the last.]

Case No. 1. — Mrs. C.; second labor. I was called four hours after the pains began. Os uteri partially dilated; vertex presented. After about an hour, the liquor amnii was discharged, and, almost immediately, powerful expulsive pains ensued. At this period, ether was administered; two ounces were poured upon a sponge. In from five to ten minutes, she became unconscious. The pains continued rapidly and forcibly for about twenty minutes, when the child was born. Very soon, the mother recovered sufficiently to realize her condition, and expressed, in very enthusiastic terms, her *love* for an article that had so completely annihilated her suffering; and, at the same time, complained of my not administering it at an earlier stage. The mother and child did well.

Case No. 5. — Mrs. H.; fifth labor. I was called six hours after the pains began. Os uteri partially dilated and dilatable; vertex presented; pains regular and severe. I administered sixty drops of chloroform with an inhaler. Unconsciousness almost immediately followed; and this state was kept up almost completely for an hour and a half, by repeated inhalations given in small quantities, about twenty drops at a time being sufficient for the purpose. During this period, the child was born, without the consciousness of the mother; and she expressed herself in the strongest terms of the delightful effects of the chloroform, and also of the trifling amount of suffering she had experienced in the present instance, in comparison with that of her previous labors. The placenta was retained from thirty to forty minutes after the birth of the child; but this is not an uncommon occurrence. The amount of chloroform used was about half an ounce. The mother and child did well.

[The following extract from Dr. Gordon's letter contains his answer to the 11th question in the circular: —]

The important question to be settled now seems to be the safety and propriety of the use of the anæsthetic agents in *natural labor*. Of course, no one doubts the propriety of their use in such cases as require the interference of art, either by the aid of instruments, or in any way that will cause a great degree of suffering.

It will be observed, that, in the foregoing cases, these agents were employed in natural labor; and also at a period when the circumstances

of each case justified the expectation of speedy delivery; when the os uteri was well dilated; the pains regular and severe; every thing announcing the beginning of the expulsive stage. At this period, these agents, cautiously administered, afforded the patients great relief; and in neither case occurred a single circumstance to the mother or child, to render their use unsafe or improper. I should not hesitate to employ them at the advanced periods of natural labor, provided no conditions of the constitution or health at the time contra-indicated.

The use of these agents at the commencement of labor, before dilatation has taken place, may be injudicious, inasmuch as the time frequently required for this act is very long, especially in first labors. Like every other means in the hands of the physician, their use must depend on his judgment; and it would seem as if all accidents in the employment of ether or chloroform in labor may be prevented by the same amount of discrimination as is required for the use of other means for the relief of human suffering, which are powerful, and may be dangerous.

From N. B. Shurtleff, M.D.

. . . I have made it a practice to inform my obstetrical patients, that the means of relief were within their reach; and I have left the motion to come from them, and have them administer the relief. I prefer chloroform for its pleasantness, easiness of application, quickness of effect, and duration.

Many of my patients have preferred to trust to their powers of endurance, and have not used ether or chloroform, although in the room, and at their disposal. — Respectfully yours,

NATHL. B. SHURTLEFF.

From Samuel S. Whitney, M.D. of Dedham.

[The following is an extract from Dr. Whitney's opinion of etherization in labor, and in medical and surgical practice: —]

. . . . As it regards the use of either of the two agents in question, you will have anticipated my opinion from what has already been said. With the experience of more than two hundred cases before me, *without one solitary instance* of evil resulting from their use, it would be singular indeed if the impressions received respecting their administration and effects should not have been of the most favorable character. I do not wish to be understood by this, however, as believing the exhibition of ether or chloroform to be unattended by any risk or danger. . . .

From Charles Chase, M.D.

. . . . My opinion is favorable to the use of both ether and chloroform in difficult cases of obstetrics, so far as I have witnessed their effects; although I have used them with great caution, and have always discouraged women from using them, except in severe or protracted cases.

The case of instrumental labor spoken of, under No. 1, was a second child; the first child being nine years of age, and weighing at birth five pounds. After a continued labor of twenty-five hours, and very severe for nine hours, and without any progress for the last six hours, I applied the forceps, and speedily delivered her of a living male child, weighing nine pounds and a half. The mother, under the influence of chloroform, manifested no sign of pain during delivery, fell into a quiet sleep immediately after, and awoke to perfect consciousness in about thirty minutes. She never suspected that forceps were used, until informed of it ten days after confinement. Both mother and child did well, never exhibiting the slightest unpleasant symptoms. — With great respect, yours, &c.

Chelsea, June 24, 1848. CHARLES CHASE.

From Daniel V. Folts, M.D.

. . . . . You will see, that usually an ounce of chloroform has been sufficient for the induction and continuance of anæsthesia one hour. The pulse has seldom been much influenced either way, — usually lessened from eight to twelve in a minute. My experience with sulphuric ether has been confined pretty much to surgical cases. The results were highly satisfactory; but, for reasons often enumerated, I have been led to substitute chloroform in its stead. — Your friend, &c.

East Boston, May 10, 1848. DANL. V. FOLTS.

Case 1. — Mrs. M'G.; aged about twenty. Had been in labor for six or eight hours, when I was called to see her. The pains were frequent, but of short duration, and the os uteri but slightly dilated. She was left, to attend to other calls a few hours; and, when I returned, found the labor progressing, but at the same time very slowly. After the first stage had passed, the pains, which, until now, had been referred to the back almost exclusively, became very severe, — to the patient's mind intolerable. As the labor was progressing but slowly at this stage, and the external parts unyielding, I suggested chloroform. It was inhaled from the sponge. At first, the sensation to the patient was very unpleasant, and anæsthesia was imperfectly induced. Yet four to five

minutes answered the purpose; and the patient was as in a natural, quiet slumber. There was manifestation of suffering when the pains came on, but the patient totally unconscious. With the exception of a few wakeful moments, which were spent in begging for more chloroform, she was kept in this state for three hours and a half, when the labor terminated in the birth of a fine, healthy child. Slept well the first night; afterwards suffered severely from after-pains. Mother and child both did well. Amount of chloroform inhaled, about fourteen drams.

. . . . . .

Case 7. — Mrs. L. had suffered a good deal from pain in her breasts, and a copious secretion of milk, before half the period of utero-gestation was accomplished: otherwise, nothing remarkable in the case. It was her first confinement. Was called at 6, A.M. and learned that the pains had been very frequent through the night, and now came on every five minutes; still, were quite transient and ineffective. The os uteri scarcely dilated, but dilatable. Left to attend other engagements, and returned in about three hours. The labor had made some progress, though pains much as before; none in the back. At the end of two or three hours more, found the pains better, and uterine contractions more efficient. The cervix uteri was now rapidly disappearing. Every thing going on well. Called for again, in great haste, a little past 12 o'clock, M. Pains were now severe, and second stage of labor had somewhat progressed. The patient was in great agony, and begged for something to be given her to ease the pains. But the chloroform-phobia had become deeply rooted in the minds of husband and friends. I reasoned: she entreated; and, finally, consent was obtained. Anæsthesia was rapidly induced, say in one minute. The patient now, for the first time in many hours, lay quiet; and, when the pains came on, there was an involuntary bearing down of abdominal muscles. The perineum, which was very thick and unyielding, now became relaxed; the disproportion between the head of child and maternal passage was rapidly disappearing. The head, which for hours had been stationary, now began to descend, and the termination of labor was evidently hastening on. But the patient became loquacious, and the husband became alarmed. She talked about patent rights and all manner of rights, and he about the dangers of chloroform; said she must have no more. But she begged still. The pains became more severe, and she begged harder. Again he yielded; and again she became quiet, while the pains became more effective. The child was born; the afterbirth removed; and still she slept. The friends now became again alarmed. But pulse and respiration perfectly natural: I assured them there was no danger. Consciousness now returned, and she was asked if she had any pain. "No." — "Shall we keep you in this state, so that you may sleep to-night?" — "No, no! I want smart

pains so as to get through; but you will give me the chloroform, won't you?" The cries of the child now attracted her attention, and the charm was over. Both mother and child have done unusually well. Duration of anæsthesia about four hours, including the short interruption referred to. Chloroform inhaled, nearly two ounces.

From Wm. Thornton Parker, M.D.

Walter Channing, M.D. South Boston, Jan. 25, 1848.

Dear Sir, — I received your communication, in regard to ether and chloroform, yesterday, and regret that my experience can furnish but two cases of etherization in labor. The chloroform I have not seen used at all. In my *first case*, perfect quietness, and rest of limbs and uterus, succeeded, for twenty minutes, to a state of unusual uneasiness and jactitation; and, on waking at the end of that time, the patient objected to a repetition of its use, preferring to complete the labor in the natural way.

The *second case* occurred, Nov. 3, 1847, — a case of tedious labor, the termination of which you may remember to have seen, — Mrs. F. She was under the influence of the ether three and a half hours. The quantity inhaled was from ten to twelve ounces. The results to the mother were every way happy. In regard to the infant, it is perhaps remarkable, that it *did not close its eyes* for the eighteen hours succeeding its delivery, which occurred at half-past 4 o'clock, P.M. In this case, the ether seemed *to increase "the pain."* And having since seen in the sixth volume of the American reprint of the "London Lancet" (Nos. 4 and 5, pp. 312 and 378), three cases reported, where a similar effect seems to have resulted from its administration, I am anxious to know, if your large experience favors a supposition that ether or chloroform ever causes such effects?

I am, with the deepest respect, your most obedient servant,

WM. THORNTON PARKER.

[In answer to Dr. Parker's question in the last paragraph of his letter, I say yes. I have met with cases, and I would say in many of those in which I have induced etherization, in which uterine contractions have been increased, and in which labor has been completed after a much shorter time than its previous progress indicated. The same has been observed by others, whose communications are in this Correspondence, and to which I, with great pleasure, refer Dr. Parker.]

A Third Case of Labor, from Dr. Parker.

Mrs. K. aged thirty-two. Short, sanguine, robust. Her fifth pregnancy. My first attendance upon her. Her labors, sometimes having been preceded by six days of premonitory pain, have always commenced with rupture of the membranes, and continued with awful suffering from ten to fourteen hours. Three of the children were of a weight a little above the average; one, a little below.

Feb. 28, 1848. — Called to her at half-past 10, P.M. She has suffered uneasy pains for twelve hours. At 9 o'clock, P.M. the pains increased; and, at 10 o'clock, the liquor amnii escaped. Found the pains were abating; the os uteri undilated. Left her free from pain at 3 o'clock, A.M. Feb. 29.

Feb. 29, 9 o'clock, A.M. — Has slept well. Is up and dressed, and more comfortable than she has been for several days. Recalled at 11 o'clock, P.M. Has severe pain. No other symptom of labor. Left her again free from pain, at 2 o'clock, A.M. March 1.

March 1, 9 o'clock, A.M. — Slept well the latter part of the night. Is up and dressed and comfortable.

Recalled at half-past 12 o'clock, M. — Severe and regular pains commenced at 12 o'clock, M. Is in excessive pain and terror, and has consented to the exhibition of *chloroform*. The os uteri dilating. The presentation natural. At ten minutes past 1 o'clock, commenced the inhalation. The pulse, which had been 80, was in ten minutes reduced to 50, where it remained till the inhalation was discontinued. The uterine effort ceased to be intermittent, and became continuous. The os uteri rapidly dilated, and the labor as rapidly advanced.

The patient regulated herself the supply of chloroform, and, seeming to be in full possession of her faculties throughout the whole, constantly expressed her delight at the almost perfect relief from suffering she experienced.

In this manner the labor progressed till 2 o'clock, P.M. when a boy, weighing eight pounds and a half, was safely born.

The placenta came away in ten minutes. There was no hemorrhage or after-pains. Every thing in relation to her "getting-up" was fortunate and prompt.

From A. Phelps, M.D.

Walter Channing, M.D. Boston, Feb. 10, 1848.

1. I have used the sulphuric ether in twenty-seven cases with good success, and without instruments, or accident to mother or child. . .

2. The quantity of ether used in my first case was about four ounces. . .

3. "How long used?" Answer: Only till the pain nearly subsides, but not wholly; which, in most cases, is less than *two minutes*. . . . In no case do I allow the inhalation more than *two minutes at a time*, and generally much less; but I direct it to be repeated at every pain, until the child is born, and the placenta taken, which has occupied from twenty-two minutes up (in two cases only) *to ten hours*.

4. "How long before effects?" Answer: Always within two minutes.

5 and 6. In no obstetric patient have I perceived "unconsciousness" or "insensibility." . . . . . .

7. "The special effects," in every case, have been more or less to diminish the suffering of the patient; to prevent the usual exhaustion of strength; to expedite the labor more than one half; and to increase courage, confidence, and hope, in the mind of the patient.

8. I have seen no case of "apparent danger" whatever.

9. The "results to mother, both immediately and after delivery and later," have been highly satisfactory. Her after-pains have been much less, and in some cases *none*. Her strength generally has been as much at the end of the *first* week, as formerly, without ether, at the end of the *fourth* week; and nothing unfavorable since has appeared in a single case.

10. Every *child* has been born alive, and I think with more apparent strength and health than usual. . . . . .

11. My "opinion of the use of ether in childbirth" will be inferred from my previous answers. . . . . .

From William P. Dexter, M.D.

Brookline, March 2, 1848.

Dear Sir, — I have been permitted to employ etherization in midwifery in but two instances. In one of these, I was present at so late a stage, and the pains were so severe and continuous, that the patient was not able to inhale the ether in sufficient quantity to produce *any* effect. In the second case, in which I had the advice and assistance of Dr. Hale, of Boston, I used the chloroform to the amount (2.) of between six and seven ounces, inhaled by means of the conical tube introduced, I believe, by yourself. It was used (3.) at intervals, from about 11, A.M. to about 3, P.M. and almost constantly from that time till the termination of the labor at near midnight. The effect was perceptible in a very few minutes: (4.) the patient was buried in profound slumber, from which, however, she was always partially aroused by the return of pain. A state of incomplete unconsciousness was produced, attended with delirium. I do not think that she was at any time insensible to her pain, though its severity was so far mitigated as to lead her to beg that the chloroform

might be again given. (7.) In her delirium, she seemed busily occupied with her ordinary duties; giving directions about the house, &c. I saw no appearance of danger to the mother. She seemed, on the contrary, refreshed by each inspiration and the consequent sleep, and awoke with renewed strength on the accession of the next pain. Her subsequent recovery has been rapid, and unattended by any symptoms attributable to the chloroform. She was delivered eventually by the crotchet. During the extraction, the chloroform was administered with the greatest freedom; notwithstanding which, it was found impossible to keep her as quiet as we could wish, and she was by no means insensible to her sufferings.

From a single case I have no right to form an opinion upon the value of etherization in labor.

Any further particulars I shall be most happy to communicate, and am, with respect, your obedient servant,

Dr. Channing. WM. P. DEXTER.

[Some weeks after, Dr. Dexter called to inform me, that phlegmasia dolens had attacked one leg in the above case; and the same thing happened in one of the forceps cases which came under my notice.]

From Erasmus D. Miller.

Dr. Channing. Dorchester, May 30, 1848.

Dear Sir, — In answer to the note I had the honor to receive from you a few days since in relation to the use of chloroform in obstetric practice, I would say that my experience is limited. I have made use of it in only twelve or fourteen cases, but in these with the happiest results; not one unpleasant symptom having followed its use.

In its administration, I seek merely to make the patient comfortable; and, so far, I have had no difficulty in so doing, without affecting in one instance the patient's consciousness. After the patient has been once brought under its influence, I know of no better criterion, in its administration, than to trust to the wishes of the woman.

As far as I can judge from so limited a use of chloroform, those women recover more rapidly and permanently who use it than those who do not.

Respectfully yours,

ERASMUS D. MILLER.

From C. H. Allen, M.D.

Walter Channing, M.D. Cambridgeport, July 29, 1848.

Dear Sir, — In reply to your inquiries, how extensively, and with what results, I had used ether or chloroform, I cheerfully state what occurs to me as worthy of recording.

During the last eight or ten months, I have administered chloroform in a variety of diseases and conditions, as colic, asthma, and convulsions, to children of three years, as well as to adults. I have given it under painful surgical operation, with wonderful and entire freedom from the usual attendant pain. In eight obstetric cases, I have witnessed its most admirable effect; placing the patient beyond the bounds of anguish, and yet allowing her to return to her natural state, without any subsequent unhappy results, — indeed so far so, that, in every case, patients recovered more rapidly than usual. Of these eight cases, I will refer particularly only to two, as the others were similar.

No. 1, first labor. Full habit; firm muscles. Was called at 10, A.M. Was told by women present, that the patient had had excruciating pains since 12 of the previous night. She hoped to get along without a physician; but her case seemed so severe and desperate, that she had sent for me; hoped I should save her life. I found her entirely exhausted, having been in a variety of positions, — on the bed, on the floor, on her feet, on her knees; and still the labor hung on. Examination found the os uteri partially dilated; the waters had passed away; the vaginal passage rigid. I immediately comfortably arranged the bed; placed her in the usual position; applied chloroform to her mouth, by means of a concave piece of sponge, covered with cloth on all sides except the lower, through which atmospheric air freely passed; kept my finger upon the os uteri, to observe what, and how rapidly, changes might occur. In ten minutes, she was so much etherized, that apparently severe pains did not disturb her. She remained *perfectly quiet* for thirty minutes longer, when the infant was born; and, shortly after, the placenta expelled. I observed, that, in a few moments after etherization commenced, the os uteri began to dilate, and this passage to be relaxed. In fifteen minutes longer, the mother was sensible of her condition, — was surprised to learn, that her infant was born, and was sucking its fist. No mother ever recovered more rapidly. Did not feel one half so much exhausted on the infant's birth, as on my entering the chamber. She told her female friends, that with chloroform it was nothing to have babies; that she meant to have another. I administered about one ounce of chloroform.

No. 2, second labor; age thirty-seven. First birth, two years previous, which was so excruciatingly severe, and prolonged so many hours (seventeen), that she dreaded the present one exceedingly, and desired me to place her entirely under the influence of chloroform. I was called at 4, A.M.; found she had been in labor three hours. Os uteri but slightly dilated; the passages firm and unrelaxed. I requested a female attendant to administer the chloroform; whilst, with my finger on the os, I observed what changes occurred. Dilatation of all the parts concerned

took place in a few moments, and the labor was completed in one hour, to her great joy, without her having been conscious of any suffering. Her *after-pains* and hemorrhage were less, and her recovery was more rapid, than after her first labor. The infant was born alive; and both it and the mother have done well.

In all the cases in which I have used chloroform, unusually rapid recovery was observed. No unfortunate result has occurred.

Very truly, your obedient servant,

CHARLES H. ALLEN.

From J. D. Fisher, M.D.

[From Dr. J. D. Fisher's very full and elaborate reply to the circular, I make the following extracts: —]

. . . . . .

4. The effects of the inhalation of both the ether and chloroform manifested themselves after periods varying in duration in different individuals, and even in the same individual. As has already been suggested, this seemed to me to depend, in some measure, on the temperament of the individual; but it also evidently depended very much upon the facility and force with which the inhalation was practised and accomplished. Those women who inhaled freely and forcibly enough at each inspiration, to completely expand and fill the lungs with the medicated air, came under its influence sooner than those whose lungs were but moderately distended by each inspiratory effort. The first two or three applications of these vapors required, in some cases, more time for the manifestation of their effects than they did subsequently; and, in two instances, the ether, after having been employed for some hours, seemed to lose in a great degree its influence in annulling sensibility to the labor-pains. I have not observed the same circumstance to attend the employment of the chloroform, in the few cases in which I have made use of it. I have also observed, in regard to the ether, that, in some instances, the first inhalations of it were followed by a prompt and complete cessation, for a time, of the uterine contractions. Whether this was owing to the influence of the ether, or of terror excited in the mind of the patient by inhaling the vapor, I have not been able to determine. I am disposed to believe, however, that it was not owing to the ether; since, on the re-establishment of the contractions of the womb, the breathing of it was not attended by a similar occurrence. In the seven cases in which I employed the chloroform, no such circumstance occurred, which is, I think, an additional proof that the subsidence of contractile action of the uterus ought to be attributed to the impression of fear made on the mind of the patient, rather than to the action of the ether on her organism.

. . . . . .

7. In no case have I employed chloroform for the purpose of abolishing the power of intelligence; and I have administered ether only in two instances, with the view of producing perfect unconsciousness. The first was in a lady, in whom it was necessary to separate the placenta from the walls of the uterus by the hand; the operation was performed, and the placenta extracted, while the patient was perfectly unconscious. In the second instance, the head of the child being retained in a fixed position for some hours, I administered the ether, and was enabled to pass my hand above the head of the child, and to feel the os uteri hard and rigid, and firmly contracted to the size of a dollar round the child's neck. Not having made a similar observation before, nor seen this occurrence recorded by any author as the cause of protracted delivery, and wishing to be certain in regard to it, I again placed the patient under the influence of the ether, and was able completely to verify my previous diagnosis. As bleeding and other remedies failed to advance the delivery, the curved long forceps were applied during the state of perfect unconsciousness in the patient, from the use of the ether; and the child was thus extracted, living and healthy, with no knowledge, on the part of the mother, of the manipulations. In the latter case, it will be seen that the unconsciousness was produced at three different times: in the two former of these, it was maintained about four minutes each; and in the last, about eight minutes. Soon after discontinuing the inhalation, the woman recovered her natural faculties, and the result was favorable and most gratifying.

8. In no instance was there any danger manifest, either in the simple or complicated labors that have occurred in my practice; and the administration of ether or chloroform, in the careful manner of my own cases, cannot, I think, be attended with danger.

9. All the women did well. In fact, their recovery seemed to be, if there was any difference, more rapid and free from anxiety, than under the ordinary circumstances. In two or three, the subsequent flowing appeared to have been increased; but this point is of so doubtful a nature, that I am not willing to lay stress upon it.

. . . . . .

J. D. FISHER.

From C. G. Putnam, M.D.

1. Twenty-four.

2. Chloroform, fifteen drops to half an ounce. Sulphuric ether, one to twelve ounces.

3. From less than one minute to twenty-four hours, at intervals.

4. From half a minute to five minutes.

5, 6, 7. Sometimes insensibility; sometimes entire unconsciousness.

8. None.

9. Favorable.

10. Favorable in twenty-six. One still-birth, arm presentation, with prolapse of cord.

A continued use of etherization has confirmed my opinion of its inestimable value. I cannot better answer your inquiries than by a short extract from my communication to the "Boston Journal" of February, 1848: —

"The paramount question in regard to etherization is its safety. We are not justified in introducing so disturbing an element into a natural and for the most part healthy process, unless it is unquestionably safe to mother and child.

"Within my own observation, there has not occurred any serious accident, immediate or remote, that could be attributed to the use of ether.

"I do not invariably use it; for its effects, though never dangerous, are sometimes disagreeable, and may overbalance the suffering from the pains which the patient has anticipated, and is prepared to endure.

"There are conditions, however, in which the positive, unequivocal advantages of ether far outweigh any temporary evils, — in which it is not merely yielded to the patient's comfort, but demanded by her necessities. The muscular action may be inordinate, wasting the strength without advancing the labor, inflicting injurious pressure upon the soft parts, and thereby compromising the safety of mother and child. These, besides various mental disturbances, are materially controlled and relieved by the use of ether. Above all, in obstetric operations, the patient is saved much suffering. Apart from the prostration and other immediate and remote evils consequent upon the use of antimony, opium, and venesection, — which, to be effective, must be full, — they often fail to produce the desired relaxation and repose. If the cases related should not prove to be exceptions, we have in ether a most valuable auxiliary.

"Fears have been expressed that ether would endanger the well-being of the child and the convalescence of the mother; that it would cause imperfect contraction of the uterus, whereby the process of labor would be delayed, and the risk of subsequent hemorrhage incurred.

"I have several times examined the fœtal heart during labor, and have detected nothing unusual; and, though the breath has sometimes smelt strongly of ether, no ill consequences have followed. The same is true of the convalescence of the mother. Indeed, if any measure had been adopted expressly for the purpose of promoting convalescence, the result would have been considered successful.

"In three cases there was hemorrhage after delivery. The first was after a lingering labor, which was terminated by the forceps. The second after a tedious breech presentation, — the patient being at the time in feeble health. The subject of the third case had hemorrhage after the birth of her two first children; and I had taken the precaution, on three subsequent deliveries, to give ergot just before the child was born. It caused her, however, considerable pain, and the last time I omitted it. She did well; and, trusting to that, I omitted it on this occasion. The result was not so fortunate. I think it will not be doubted that the causes of the hemorrhage were to be found in the nature of the cases, and were independent of ether. With these exceptions, the contraction of the uterus was, in every case, immediate and thorough."

Yours, with respect,

Boston, Sept. 11, 1848. C. G. PUTNAM.

From Anson Hooker, M.D.

Dr. Channing.

Dear Sir, — I will give you very brief answers to your inquiries, as to my experience in the use of sulphuric ether and chloroform in my obstetric practice.

I have used ether and chloroform in twenty cases, — all natural labors except two. In the first of these two, I gave sulphuric ether, after the patient had been in severe labor for three hours. Her previous labors, three in number, had been easy and expeditious. The pains were very severe and distressing. The membranes I found ruptured, and the labor progressing slowly. Her pains were so agonizing, I gave her ether; but, soon after she became fully under the influence of it, the pains began to subside. I continued the ether, and gave ergot, which soon brought back the pains. They both acted kindly together; but the child did not advance, the head being firmly locked in the pelvis, the face inclined towards the pubes. I completed the labor with the forceps. I was particularly pleased with the manner in which the ether and ergot acted together. The ergot acted as promptly as in cases in which the patient is not under the influence of ether. The ether was used nearly three hours, and the woman was insensible to pain nearly the whole of the time. Both mother and child did well.

The second case was an arm and shoulder presentation. In this case, I had your very valuable assistance. You will recollect the patient had been under the care of a midwife; that the patient had been in labor more than twenty-four hours; that the hand and arm had been presenting (the hand protruding from the external organs) for more than eighteen hours previous to my seeing her; that I had succeeded in reaching a

foot, and bringing it partly down, but could not, by any force I could bring to bear upon the child, unaided, complete the labor. You will remember the swollen state of the arm, the contracted pelvis, the small space there was between the sacrum and pubes, and the long-continued and very strong efforts we were obliged to make to complete the turning, and accomplish the delivery. During this time, which occupied nearly three hours, the patient continued to inhale sulphuric ether almost constantly, but not with perfect insensibility. This case, although looking very unpromising when you left, did well. The patient was about her room in a fortnight. Her breath retained the smell of ether for four days.

The largest quantity of ether I have used in any case was sixteen ounces in seven hours. No stupor or headach, or lung affection, succeeded. Both mother and child did well. The largest quantity of chloroform, four ounces in four hours, with the happiest results. The length of time required to produce their effects varies in different cases, and the same may be said of the amount and degree of unconsciousness and insensibility. I do not find that parturition changes or modifies the effects of either of these agents. They act in this as in other cases, in which a like amount of suffering is to be endured.

In a majority of cases, there has been less exhaustion than it would seem there would have been, if unconsciousness or insensibility to pain had not been induced. In no case has any thing occurred to excite in me any alarm; nor has any thing happened to the child that could possibly be attributed to either ether or chloroform.

As to the case of these agents in obstetric practice, it seems to me there can be but one opinion. In the twenty cases in which I have used one or the other of them, I have not only not seen any ill effects; but, on the contrary, an immense amount of pain and suffering prevented. I therefore deem it to be as much the duty of the physician to administer some of the ethers or chloroform, in *severe* and protracted labors, as to give opium in severe spasmodic affections, or stimulants in extreme exhaustion.

Yours very respectfully,

ANSON HOOKER.

East Cambridge, April, 1848.

P.S. — Since writing the above, I have given it in two cases, in addition to those I have related, and with the same good effects.

REMARKS ON THE CORRESPONDENCE.

The preceding Tables contain analyses of the Correspondence, and give in detail the answers to the questions in the circular. From the Letters have been selected such portions as may supply such deficiencies as the nature of tabular views renders almost unavoidable. Keeping in view that it is the object of this volume to present facts, and such mainly as bear upon the question of the *safety* and *utility* of etherization, such portions of the Correspondence as are of a practical nature have been given. While this acknowledgment is made, it is not its object to involve the inference, that the strictly speculative views offered by the writers are not of interest. Had not the volume already exceeded the limits originally assigned to it, and were there not a department before referred to (the Appendix) still to be given, the whole of the Correspondence would most cheerfully have been inserted.

Much that is cautionary is communicated. This has been embodied in the volume, and has contributed very much to its interest. It is gratifying to remark, that the latest experience of those who have most frequently employed etherization, as far as it has reached me, confirms the specific answers given by the writers to each of the questions contained in the circular, which are so wholly favorable to etherization. I refer with great pleasure to the correspondence of Dr. Thompson in this connection. His first Letter was dated Jan. 28; the second, June 5; and alike furnish important evidence in favor of both ether and chloroform. Dr. Perry also, in a subsequent verbal communication, confirms the statements in his first, in regard to the *safety* of etherization. To be sure, Dr. Perry does not think so much of its *benefit*, from a comparison of its cases with those in which etherization was not used, as, perhaps without exception, does every other correspondent; but still he says not a word against its future employment. In fact, he has continued to use it. I have placed in the Appendix that portion of Dr. Perry's Letter which refers to this subject, along with another matter, for reason stated. Dr. Clark speaks of a case of flooding after chloroform, in which he says he does not know how much the loss was owing to chloroform, but is inclined to think it had something to do with it. Flooding has been met with after etherization by other correspondents; but it has so closely resembled the same occurrence in ordinary practice, both in itself and in the agency of means employed to check it, that, although it has come after, it has not been for a moment ascribed to inhalation.

The religious objection to etherization has place in this volume, principally because of its having been urged by a correspondent. I have, within a day or two, been much gratified to learn from him, that a case

has occurred in his practice in which he felt called upon to employ it, and was exceedingly pleased with its effects. He used chloroform.

While I am writing, I have heard of the feeling about etherization in Florence. Two ladies from this city, looking for confinement, inquired of their physicians if they would use ether in their cases. They were promptly answered, *no;* that nothing would induce them to exhibit such an agent, in such a way, for such a purpose; that it was highly dangerous, as they had heard, or was altogether useless. Knowing that there was a physician in Rome from their native city, they sent for him. He came, and exhibited the remedy of pain. In one, etherization was imperfect, but highly grateful, on account of the great diminution of suffering in this, compared with former labors. In the other case, the patient came under the full power of ether after one or two inhalations, and knew nothing of the labor till she heard the cry of her child. These probably are the first cases in which etherization has been employed in midwifery in Italy; and it is not without interest that I make the record, that the patients were natives of Boston, and that it was used by a physician, a native of the city in which the remedy of pain was discovered.

Dr. Gardner and others notice diminution and suspension of *pain* during etherization. Was *contraction* diminished or stopped in this state, in the cases referred to? In instances of the most perfect etherization, when there was not the least apparent effort, — when breathing was hardly to be heard, so gentle was it, labor has gone on, and the child has been born. The progress of labor, in these cases, was only known by *examination*. The child is born as if by its own effort. Dr. Homans has stated to me verbally a like interesting fact, and it has been noticed again and again by other careful observers. I have, however, endeavoured to explain the occurrence in question in an early part of the volume, and recur to it now to ask for it the careful observation which, as it seems to me, it emphatically deserves. In the Letter on page 345, *intermitting pulse* is stated as having occurred in one case; and the question is put, if this were not an effort of etherization, the patient feeling sure that it was. I know of no such effect in *seventy-eight* cases which are reported in this volume, as having been under my immediate observation and care, and in which the pulse was particularly attended to; nor is such effect of etherization mentioned by any other correspondent. Professor Simpson mentions no such result, and his observation of etherization has been very wide; nor do I recollect having seen in any report of hospital or private practice, at home or abroad, an allusion to any *permanent* disturbance of the circulation following that state. It is well known that the pulse is at times faster or slower than usual during etherization; but, in my own cases in which this happened, it has invariably returned in a short time to its healthy beat. Dr. Putnam relates

a case of hemorrhage, in which ether had been used. This patient had hemorrhage in a previous labor; but, ergot having been given in three succeeding ones, no loss took place. Ergot was omitted in another, and no hemorrhage occurred. In the last case, ether was used, and ergot again omitted, and hemorrhage followed. Dr. Putnam, very justly as I think, in no degree attributes this complication to etherization. I was particularly struck with the remarks of Dr. Hooker on the use of ergot in cases in which contractions slackened during etherization. He found excellent effects to follow its use. "They both acted kindly together," says the doctor; and Professor Simpson says the same thing of them; and my own observation coincides perfectly with theirs. This matter has been distinctly referred to before, and a mode of using ergot indicated. I allude to it again, as worthy to be borne in mind. One may be always ready for a demand for ergot, by having it with him. There should, however, be no hurry in its use; and especially would I advise that the physician be certain that progress has stopped, before he exhibits it, since, as has been seen, the labor may be steadily advancing without any of the symptoms which usually denote it.

Errors of the press are corrected in the *errata*. Two or three more important ones are corrected here: — In the Second Table, Case No. 223 is inserted by oversight. No. 270 *is in* the Analysis. The last case in Table Third is in the Analysis, but is not counted among the cases in the Table. In the Analysis, page 307, for 1 still-birth in unavoidable hemorrhage, read 2. Of the six still-births from convulsions, *five* only are counted, as one was an abortion.

APPENDIX.

APPENDIX.

I HAVE placed the following cases by themselves, because they did not occur *during* etherization, and because, as it seems to me, they have no other connection with that state than that of mere sequence. They have been alluded to before, when considering the comparative merits of ether and of chloroform. I recur to that notice of them, because of the fact then stated, namely, that, in the same year, cases of grave and fatal puerperal diseases, puerperal fever among them, were occurring, and in numbers too considerable to be regarded as accidental, but as arising from circumstances which now and then are so productive of such puerperal maladies.

Puerperal Fever after Chloroform.

Case 1. — Mrs. ——, age twenty-eight; first labor. Taken with slight pains in abdomen, on the evening of the 4th of May, 1848. These increased, and I was called between 12 and 1, A.M. of the 5th. I found much suffering complained of, referred to the lower part of the back, accompanying the pains, and making change of position from horizontal to erect, and from standing to walking, necessary to any degree of comfort. Comfort, at least, was looked for from the change. She had long determined to use chloroform-inhalation in her labor. The presentation was natural. Membranes entire. No water between them and cranium. Head low. Os uteri somewhat dilated, — imperfectly dilatable. Very little or no natural lubrication of passages. General health good. Flesh very firm, and much increased during pregnancy. No anasarca.

At 3, A.M. or soon after, distress being very great, and changes slowly taking place under strong uterine contractions, chloroform was used. About a dram was poured upon the sponge in the conical inhaler, and inhalation begun. In a very few seconds, effects were manifested. These were first of pleasure, then of quiet, then sound sleep. Respiration, pulse, color, temperature, were first examined, and found natural. The

pulse was accelerated, as is not uncommon in active labor; being about 80, but perfectly soft and firm. I examined the pulse during etherization, and found it as it was before. Though so easily induced, and so perfect, etherization continued a very short time. It had sensibly passed away before the succeeding pain occurred. Inhalation was at once used again, as pain came on. But the patient was very restless, as she had been from the beginning of labor; exceedingly impatient of suffering, and not to be persuaded to keep quiet long enough for chloroform to act.

This course was pursued for about three hours. In the mean time, os uteri became dilated, and disappeared. The membranes were ruptured. Lubrication increased. The head descended. The contractions increased in force, and the intervals lessened. Etherization became more and more decided, sound snoring sleep accompanying it; the quantity of chloroform used, at the same time, being steadily diminished. But its effects were still so short in their endurance, that the patient complained, saying, "Chloroform constantly promises me something, which I never fully realize." She repeated this after labor was over, and in almost precisely the same terms. In regard to the pulse in the trial with chloroform, thus far reported, once only, during full etherization, it fell below 70, being about 68.

I now substituted sulphuric ether for chloroform. There was a striking difference between the two in regard to the time required for etherization. With the sulphuric ether many minutes were required; and the intervals between contractions had grown so short, and the pains so severe, that very imperfect effects only were produced. The patient soon demanded chloroform; for that did give positive and entire relief while its effects lasted, and always diminished suffering.

The labor now rapidly advanced. The pain was less and less urgent, or complained of. But, in the midst of these comfortable events, it was noticed that the mouth was filled with blood. It was wiped out, again and again. The pulse was perfectly good; respiration, complexion, temperature, all good. There was no cough, and nothing indicating pulmonary lesion. Still, as this state of the mouth was unusual, I desisted from further use of chloroform, much to the annoyance of my patient. The time to delivery, however, was very short, — about three contractions, — and the child was born with scarcely any complaint; she hardly knowing when birth occurred. Consciousness soon returned. It was very imperfect during etherization. I asked at once about her mouth, and whether her tongue or her cheek had been bitten, and if either now felt sore. She at once recollected about the blood in her mouth; that she had been denied the use of chloroform, and that something had been said in regard to bleeding; and added that her gums had been very tender during pregnancy, and had often and readily bled, — and this was the cause of blood

being found in her mouth. Thus was a symptom, which, taken in connection with pulmonary congestion, and other lesions alleged to be produced by chloroform, showed strongly, at once explained; and all uneasiness, if any existed, was dissipated. I left about an hour after delivery, every thing being well.

May 6th, 10, A.M. — Soon after I left, very severe after-pains occurred, accompanied with much distress, and entirely prevented sleep. The intervals between the pains were very short. I regretted not being called when this trouble occurred. She had no nurse; and the friend with her thought it unnecessary to trouble me, as I had passed the whole night with her, and was not well. I learned, for the first time, that abortion of three months had once occurred previous to present pregnancy, but had been concealed; that much anxiety and great fatigue had recently been encountered during a very severe illness of the patient's mother, which had ended fatally. She regarded her labor premature, — about a month earlier than looked for, and probably from fatigue. She added, that she took cold at the mother's funeral, and had suffered much from cough since. It seems to have been an attack of the prevailing influenza, from which she has not yet recovered. I am particular in stating these facts in this case, as they can hardly fail to have some influence on the puerperal state; especially the abortion, upon the occurrence of after-pains.

The pains were less at my visit than at an earlier hour. Abdomen soft. Some tenderness, on pressure; some fullness. Pulse from 90 to 96, strong, full. Skin warm, moist, flushed, as from external causes of heat. Room very warm, and winter bed-clothing still in use. Has had an agent to see her on some indispensable business, her husband being absent in a distant state. No milk; no chill. Is very cheerful, and without any complaint. Urgent cough, which greatly increases trouble in abdomen. I prescribed a mixture of nit. potas., ant. tart. and tinct. opii.

Was called between 1 and 2, P.M. and found her suffering greatly. The morning pains had returned with extreme severity. They were almost constant; and, in their intervals, much soreness of abdomen remained. Pulse not above morning beat; less strong and full. Flush gone. Skin of natural temperature. Tongue moist, clean. Urine free, twice since morning visit. Has a feeling that a discharge from bowels would give relief. On pressure of abdomen, much pain and tenderness. Lochia natural. No chill. Suppresses cough, as it increases suffering, as does also full inspiration.

I prescribed Dover's powder, the continuance of hop fomentation to abdomen, and an enema of soap and water with castor oil and spirit. terebinth.

6, P.M. — More comfortable. Skin now moist; perspiration free, not

hot. Pains less. Pulse as before. No dejection. Has taken twenty grains Dover's powder. No nausea. No sleep. Pressure of abdomen produces pain. After-pain, with much flinching from soreness, especially in *right iliac region.* It is in this spot that inflammatory disease for the most part earliest shows itself. To be sure, I am told that the pain and tenderness move about: still the degree of sensitiveness in the place referred to much engaged my attention. I asked if she had ever been bled. She said, yes, many times; and, indeed, the veins showed it. She added that venesection was always attended with marked relief. She coughed, and I observed her effort to suppress it, as it much aggravated suffering in the abdomen. Notwithstanding the partial improvement since morning, I determined to bleed her, because of the threatening symptoms which remained. She said, after last bleeding, she had fainted. About fourteen ounces were abstracted. Its effect was very agreeable during the operation. Much general and local relief was expressed. Breathing was deeper, and pain in abdomen diminished. Occasional after-pains occurred, but were slight. She became faint after venesection, but not by any means to complete syncope, and soon rallied. As she had had no dejection, I wrote for two pills of hyd. submur. alone; one to be taken at once, the other six hours after if no dejection; and a small dose of ol. ricin. and suc. limon. in morning, if required. Dover's powder, p. r. n.

May 7th, 9, A.M. — Less pain and soreness in night, but no sleep. No dejection. Has taken both pills. Faintness at times in night. Has taken oil, and rejected it. Pulse more frequent and more feeble. Countenance sunken. Complains of great fatigue, and longs for sleep. Abdomen full, tympanitic; and, on pressure, betrays great tenderness in right iliac region. Still feels that a dejection would relieve her. Hyd. submur. three grains in a pill, to be repeated in four hours if no dejection, and then an enema if need be. Respiration very little hurried, nor has it been at any time. Lies with limbs straight, as under ordinary circumstances. I examined the blood drawn last evening. It presented no other lesion than inflammatory blood commonly shows. The clot was small; deeply cupped; very firm; of ordinary color, under free exposure to air. The serum was large, of its usual color; having dissolved none of the blood globules. I examined the blood with much care, because of the possible bearings of its condition on the case itself. It manifested not the smallest signs of decomposition, but rather that appearance of excessive life, so to speak, which characterizes the blood of pregnancy, and some stages of inflammation.

3, P.M. — About an hour, a dejection large, fœcal, and without pain; then four more, the last a short time before my visit, smaller than the others, but which I found was natural. Much relief. Pulse more fre-

quent. Tenderness in abdomen continues; and, though fullness is less, pressure, although very light, produces much distress. Vesication of right iliac region; and elixir opii, with stimulants, if diarrhœa or sinking.

9, P.M. — Altogether more ill. Pulse and respiration more frequent. No vesication; no diarrhœa; no sleep. Vomiting. Pale, moist, sunken. Opiate. Stimulants as at noon.

8th. — Vomiting in night, but more sleep than since the beginning of labor. I found her reporting herself more comfortable. Less pain, on pressure in abdomen. Skin is not moist, but soft and of good temperature. Pulse very rapid. Respirations not labored, but more frequent than before. Countenance very natural; expression singularly pleasing, having lost much of the anxiety and distortion which have remarkably accompanied the periods of greater suffering. Vomiting is constant. The stomach rejects, as if without effort, whatever is taken into it. In a case of alarming vomiting, — in a puerperal case, of about the same period of pregnancy as this, and in which the suffering was greater, the pain and soreness of the abdomen being aggravated by the pressure of a large tumor, of some years' existence, — in that case, benefit had been derived from ice taken internally, and applied externally to the region of the stomach. That patient recovered.

Ice was used in this case. It was very grateful, but did not restrain vomiting. Two dejections occurred in course of day. Sinking increased. The surface grew cold; the pulse quickened, and became weaker; and she died, without apparent suffering, early on the morning of the 9th.

I was called to this patient to administer chloroform. I had made no engagement to attend her, and had no previous knowledge of the case. Chloroform was procured after I had learned the object of my summons. It was inhaled in small quantities, as is my custom. It produced its effects in an unusually short time. They were evanescent. Consciousness was never abolished during uterine action; and the present complaint of pain, and the after-memory of it, were very distinct. Restlessness prevented the induction or continuance of etherization during pain. Hence nothing was gained by inhalation, except some diminution of the pains, and rest in the intervals. These effects were obviously produced by chloroform. Why not continue inhalation after etherization was produced, in the intervals of contractions, and so abolish pain during contractions? This was done once. The pulse fell rapidly to 64, and the attempt was abandoned.

I left the patient comfortable. There was no flowing, or any approach to hemorrhage. Notwithstanding her plethoric appearance, her greatly increased flesh during pregnancy, and an excellent state of the circulation, there was very little blood lost on the separation, and after the expulsion of the placenta. Very severe after-pains soon came on, and con-

tinued without any mitigation during the day and whole night. She had thus had no rest or sleep for forty-eight hours. I found her with rapid pulse, much general excitement, having frequent and strong pains, and constant tenderness or soreness of abdomen in their intervals. Pressure, I found, however slight, produced such increase of suffering as not to be for an instant tolerated. Fomentations and opiates were prescribed, and an enema. Towards evening, the after-pains were less; but soreness was so distinct, that I bled her. She had been often bled; her sister had said since, a great many times. She had fainted after last bleeding. I took a moderate quantity of blood, from twelve to fourteen ounces, with marked relief, and with no approach to faintness. She became faint afterwards. Her night was sleepless, from restlessness and abdominal trouble. The blood was found next day such as accompanies inflammation.

I gave this patient very little medicine. The enema did not operate. On Saturday, she got two pills, five grains each of submur. hyd. at an interval of six hours between them. Oil, which was taken Sunday morning, because the pills had not operated, was at once rejected. One pill of three grains was given Sunday morning. In that forenoon, the bowels were freely, but not excessively, moved. No diarrhœa occurred. The abdominal symptoms, with increased pulse and continued tenderness, remained uncontrolled. Her best time was Sunday night, when she slept a little, and there was improvement in the state of the skin, and in her general appearance. But vomiting occurred. It increased rapidly in violence. The pulse became more and more rapid and weak, and she died on Tuesday morning.

Here was a case of fever occurring in a person who had been exhausted, as stated in the report, by constant attendance on her mother through a fatal disease; by severe cough, produced by exposure while attending the funeral; and by premature labor, ascribed to the same events. She had spoken of the misgivings with which she looked forward to her confinement, and that her funeral would soon follow that of her parent. Not an untoward circumstance accompanied the labor, with the single exception of the restlessness with which it was ushered in, and which so strikingly marked its history. Chloroform was inhaled very sparingly, and produced unusually slight impression on the pains. Not an untoward circumstance attended its use. The very slight hemorrhage of the mouth, which did not exceed two drams, was satisfactorily accounted for by the patient herself. I found, at my first visit, twenty-four hours after labor, a grave disease present, under which she rapidly sunk, and died.

Case 2. — Mrs. ——, age seventeen; first child. Was taken in labor, Monday, May 1st, 1848, in forenoon, and was delivered in about twelve

hours after. Asked for and inhaled chloroform for the two hours immediately preceding delivery, and with unusually happy effect. Her child, a large one, was born while she was fully etherized. For thirty-six hours, she continued perfectly well. Was then feverish, with slight pain in abdomen, for which got Dover's powder, and afterwards sol. of nitre and ant. tart. On Wednesday, not having had any dejection since delivery, her physician ordered an ounce of ol. ricin. and about two drams of spirit. terebinth. Three dejections followed that day, which were described as not excessive, or accompanied with any trouble. Thursday night, came on profuse, excessive diarrhœa. Was found feverish in morning, Friday, with slight pain in abdomen and some swelling. Diarrhœa continues, accompanied by vomiting. Prostration extreme, and suddenly following the diarrhœa. The pulse was from 160 to 170; breathing, very rapid. Physician was called early, and gave astringents with opiates and stimulants. These controlled the diarrhœa, and towards night the pulse was less frequent, and the fever was diminished. This amendment did not last; for, in night, diarrhœa occurred as profuse as before, and was allowed to continue by the friends, lest harm should come of its being checked.

These facts were stated by the physician in attendance, by whom I was called early Saturday morning to see this patient, in consultation. I found her exceedingly sunken. She was pale; the skin cold, and as if sodden with perspiration. Pulse from 160 to 170; respirations from 40 to 44; not at all noisy, or as if accompanied by distress. Lies on her back, with knees strongly drawn up. Abdomen tympanitic; tender on pressure, especially in right iliac region. Tenderness and pain diminished by raising the lower limbs, and keeping them bent on trunk. The pulse, though so very rapid, was quite distinct, and not without strength. Nausea, vomiting, and purging, urgent till within an hour, since when medicine has controlled them. It was agreed that a blister should be applied, occupying the seat of pain above indicated, and stimulants and opiates be continued as they might be indicated and borne. Such nourishment as might be best borne by the stomach was also allowed. I learned that a case of puerperal fever had occurred recently in the neighborhood of this patient, in a case in which chloroform was not used.

I was informed this day, May 10th, by the attendant physician, that this patient continued to sink, and died Sunday at 1, A.M. There was constantly increasing soreness and pain in the abdomen, in the two last days of disease. This patient had been well from Monday till Wednesday, when she took an active cathartic. It operated moderately three times. Diarrhœa occurred Thursday night, and was very severe. It was checked by opiates. It recurred on Friday night with vomiting, and no means were used by the friends, from fear of doing harm. On Saturday morn-

ing, the symptoms of fatal sinking, above described, were present. The symptoms of peritoneal inflammation were distinctly marked, and became more strikingly developed, until Sunday morning, when she died. The complication of puerperal peritonitis, with vomiting and diarrhœa, is not rare, and makes one of the most unmanageable and fatal forms of the disease. Every one, at all conversant with this disease, knows that it has followed active cathartic medicine, especially when any thing like an epidemic constitution exists; and that, at such times, the fever, so excited, is very frequently attended with vomiting and diarrhœa.

Case 3. — I was desired to see, in consultation, an obscure and threatening disease of the puerperal state. Chill had occurred on third day after labor, and had been followed by heat; swelling and tenderness of abdomen, more especially at one point, in the right iliac region; quick pulse, &c. Convalescence was very slow, and was interrupted by a return of the symptoms; and I had been desired to see her two weeks or more after their re-appearance.

I was desired to see another woman more recently confined, and in the neighborhood of the other, who had suffered somewhat in the same way, and in whom severe lameness in the right lower extremity had occurred. In this case, the abdominal pain and soreness were in the right iliac region, and especially in the cœcal region; and reminded me of cases of abscess, which I had seen here in the puerperal state, and in the same spot. The precursory hardness and fullness which have accompanied that disease were not present.

I asked the physician if he had used etherization in labor. He said that he had not in these cases; but he had employed ether in several, and with the happiest effects. He had tried chloroform but once, and then not because he wished to do so, but because his patient preferred it; because, in short, he had been sent for to exhibit it. He tried it; but its effects were so unlike those he had noticed after the use of ether, that he soon refused to employ it further. These effects were excitement; restlessness; no apparent unconsciousness; and very little, if any, diminution of pain. Etherization, in short, was not produced. Her labor now went on naturally, and she was easily delivered. After four days of perfectly satisfactory convalescence, puerperal fever occurred, and was fatal.

I have made special record of these three cases of puerperal fever, and placed them here because they occurred after etherization. They appeared as does this disease in its ordinary invasion, and proceeded to the fatal result as it ordinarily does. The third case is recorded for its connection with two other cases, one of which was a case of puerperal fever, with protracted convalescence. In the other, the earlier symptoms

resembled the same disease in an irregular form, and terminated, as does the phlebitis which sometimes complicates it, in chronic and severe lameness of the right lower extremity, corresponding to the abdominal region in which pain and tenderness were first noticed. These cases have done well. The fatal ones had, in the time of invasion, in the symptoms, and in the time of termination, the characters of the most malignant form of epidemic puerperal fever. This fact in their history led me to inquire into the collateral or contemporaneous medical history of the periods preceding and subsequent to their occurrence; and some important facts have been established by the inquiry.

I was desired in April to visit a patient in consultation, and gathered the following facts in the case: — It was a case of puerperal fever. The physician had recently suffered a severe attack of erysipelas. He had been ill nineteen days, and confined to his house. After having been abroad three days, he attended a case of labor. This was on a Friday. Puerperal fever attacked the woman a day or two after delivery, and she died on the Tuesday following. On the same day he attended this case, he was called to another. This woman was seized with the same fever, and recovered. On Friday of the same week, he attended another, — the patient I was called to see. She had twins. One was still-born, and the other died two or three days after. Sunday morning following, puerperal fever declared itself, and soon assumed its worst characters. I saw her on Thursday; she was vomiting constantly. Her pulse was 160; breathing very rapid, attended with a cough-like catch or grunt, which showed it to be most distressing. The abdomen was distended or swollen to its extremest limits, and tympanitic. Diarrhœa had been a symptom; but this had subsided a few hours before my visit. The skin was damp and cold. The evidence of hopeless sinking was too strong to leave any doubt as to her state, and she rapidly sank and died. Etherization was not employed in these cases.

In May, I was again consulted in regard to puerperal fever. I learned that the physician had, April 29, been called to attend a case of erysipelas, in which he felt great interest, and saw often each day. It was phlegmonous, attacking, in succession, most of the face, but extending slightly only on the scalp or neck. There was no vesication, and no desquamation. No member of the family has been affected.

May 2d, the same physician attended a case of premature childbirth. The child was putrid. The woman did well.

On the 3d of May, he attended another case. This was at the full time. The child of extraordinary size; labor-pains violent; and, at length, an operation was done to save the mother. She did well.

May 6th, he attended Mrs. ——, aged thirty. Feeble during pregnancy. Labor easy, but followed by free flowing. Comfortable for

twenty-four hours, when she was seized with puerperal fever, which resisted treatment, and was fatal on the fourth day. "The usual vomiting set in," said Dr. ——, "which continued without abatement till near death," which took place on the 10th instant.

May 9th, he attended Mrs. ——, aged twenty-five. Her labor was easy, and was accomplished in about three hours. She was seized with fever thirty-six hours after, accompanied with symptoms very exactly resembling those of the preceding case. She died on the fifth day.

May 11th. — Mrs. ——, aged thirty-one. Labor characterized by long and severe pain. Next day, comfortable. Fever attacked her thirty-six hours after delivery, having taken food very heartily, as was reported. The seizure was much like that of the above first-reported case. There was some hope, for first three days, that this case might do well; but the attending physician was then dismissed. New measures adopted. Death occurred on the fifth day. Etherization was not used in these labors. I was consulted concerning these cases, but did not see one of them.

The following fact has an important connection with these cases, and I shall give it as stated to me by attending physician: — "The first woman who died left an infant daughter. She attempted to nurse it once, but did not succeed. It then passed over to other hands. At the end of ten or fifteen days, I was called to it; found it cold, with pulse scarcely observable, laboring under diarrhœa. The nurse showed its body. There was a band of phlegmonous erysipelatous inflammation girding the middle, from three to five inches in width, including, of course, breech, pudenda, &c. No vesicles; no exudation. Beyond this limit, it passed not. The child soon died."

I have called this an interesting case. I do not recollect its parallel in the many histories which have appeared of puerperal fever. My friend's description shows how closely allied was it, how identical with the erysipelas of infants. Was it communicated from the mother?

We meet with cases of infantile erysipelas, which very closely resemble the above, and which happen without the known existence of the disease elsewhere. This form of it attacks the same region as in the above, the lower part of the trunk, nates, and genital organs. It is often fatal. I have seen but one examination after death. The appearances very nearly resemble those noticed in puerperal fever. The abdomen was filled with pus and serum, and masses of coagulable lymph, glueing together the intestines. The pelvis was filled with pus. A case was communicated to me, in which precisely similar appearances were met with. It was these cases especially which impressed me with the idea of the identity of erysipelas and puerperal fever.

May 10th. — I was called to see in consultation Mrs. ——, who had

been delivered of her fifth child, Friday, May 5th. She was thirty-eight. Her labor had been easy; and, save only that she had not slept, or for a few minutes only, once or twice, she had appeared to have done well. On Monday, had chill, and got a moderate dose of castor oil, having had no dejection since delivery, and three motions followed. On Tuesday, slight diarrhœa, with much flatus, and some uneasiness in the abdomen. No milk. Tuesday evening or afternoon, three papers were left, each containing three grains of Dover's powder. She took one, and, towards evening, a second. Without any premonitory symptoms, delirium came on very soon after. About twelve years before, after one of her labors, something of the same kind occurred, and lasted about twenty-four hours.

I was desired to see this patient, Wednesday noon, the 10th. I found her asleep, and was told she had slept a few minutes a short time before my arrival. Her sleep was heavy; countenance placid; breathing slow. Pulse about 90, not wanting in strength. An unusually disagreeable odor about the patient. I examined the abdomen. It was tumid; and, from the extreme thinness of the walls, the size and course of the intestines could be readily seen, making the surface singularly irregular, or broken up into rounded elevations and depressions. The uterine tumor was large, unusually large for this time, from delivery; being about midway between the brim and umbilicus. It was tender. This was most striking in the right iliac region, into which the womb extended. Pressure here produced the only evidence of consciousness betrayed during the examination. She opened her eyes, indeed, once or twice, but without apparent consciousness. She shrunk visibly from even slight pressure in the spot indicated. The breasts were perfectly empty.

It was agreed that a small blister should be applied to the seat of pain, and an enema given, should one be judged necessary. It had been found impossible, except by violence, to get medicine into the stomach; and, in her present state, it was not judged proper to make any effort to accomplish such object by such means.

11th, 9, A.M. — Has slept some. Enema was given with good effect. One dejection. Abdomen less tumid, and less tender in blistered part. No soreness observed. Uterus still large. Some milk in breasts, it was thought, at 4, A.M. Child seemed to draw and to swallow. Now breasts perfectly empty. Pulse 96, of sufficient strength. Very slight delirium remains. Appears doing very well.

13th. — I did not see this patient yesterday, her physician considering her to be doing well. He proposed an enema in the course of the day, which she resisted. Her former acquiescence in this matter was owing to her delirium. Ol. ricin. about half an ounce, and about two drams of spirit. terebinth. were substituted, say at 10, P.M. It soon operated, and

continued to do so to the extent of eight dejections, preventing sleep. Thursday and Friday night; and, on the latter night, experienced very severe shivering, without coldness of skin.

I was called again this morning, 13th. I found Mrs. —— less well; feeble; sleepy. Pulse 120. Skin hot, alternately moist and dry, as stated by nurse. Is taking chalk mixture, a tea-spoonful, as indicated by diarrhœa; and an hour has passed since the last dejection. I directed a continuance of the treatment.

14th, 7, A.M. — Very much the same, through day and night. Pulse less rapid, 108. Abdomen less tender; as tumid as before. No milk. Tongue coated. Seems like one much exhausted. Diarrhœa continues; and, though patient says she is conscious of dejections, she gives no notice of their occurrence, and they take place in bed. Additional astringents were directed, and stimulants if they became necessary.

She gradually got better, but, about the 20th, complained of pain in right lower limb. It was found to be swollen; painful, especially in calf, where the swelling was greatest, and in the right groin and course of the iliac vein. The swelling increased rapidly, and the leg became entirely useless and immovable, feeling more like a log than a limb. It was tense, and as white as is usual in phlegmasia alba dolens, as Albers designates it. It did not prove to be a very severe attack; but the decline of the disease was accompanied by a swelling in the left limb, which now, the 9th June, presents the disease at its height. The constitutional symptoms are by no means severe, and the local suffering is far less than is commonly met with where the disease is so pronounced.

Notwithstanding the disappearance of milk in this case, and the perfect quiet in which the breasts have remained, an abscess has twice formed in one of them, and discharged freely.

Mrs. ——, aged thirty-eight. Has children. Labor, Saturday, May 13th, half-past 3, A.M. easy, natural. Sunday night, chill. Attending physician was called, Monday morning, at 7. Found pains in abdomen, and gave Dover's powder. More tenderness, on pressure of abdomen, left side. Venesection. Relief. Vesicated. The symptoms which followed were restlessness; very rapid pulse; tympany. Tuesday, reported better. Pulse exceedingly rapid, — dyspnœa. Cathartic, which operated well. Wednesday, symptoms much the same; gradually, however, increasing in intensity.

Thursday, P.M. I was desired to see this patient with her physician. I found her exceedingly ill. Abdomen greatly distended, tender; respiration rapid, laborious; pulse small, too rapid to be counted; constant vomiting; skin cold and wet. Stimulants had been ordered, and they were continued. She rapidly sunk, and died in the night.

While visiting Case 2, before given, I was informed that a case of puerperal fever had occurred in the neighborhood.

The Bills of mortality of Boston, for the last three months, show an unusually large number of deaths in "childbed." Puerperal fever falls under this head, and is the cause of by far the greater number of these deaths. In March, four cases of "childbed" are reported; in April, six; in May, ten. I may add, that, in this first week of June, we have two. Thus, in about three months, the mortality from childbed is twenty-two. The number is probably greater; for all deaths in "childbed" are not reported as such. Thus, of the twenty-two just enumerated, one at least is returned as "inflammation of the bowels," which I saw in consultation, and which was a case of unequivocal puerperal fever.

The defects which we all know to characterize the Reports of deaths in our Bills of mortality are easily accounted for. There is no law here which requires of the *physician* to leave a certificate of the disease which has been mortal, subscribed by him, and which must be had before permission for burial is granted. This is the course in other cities, and is the only way in which any thing approaching accuracy can be secured to a most important public interest. In Boston, and probably through the State, the *sexton* reports the cause of death from such materials as he may gather from the family. Of course, our Bills are frequently as incorrect as such documents can well be. They are probably more correct in regard to deaths reported as "childbed;" for, in these, the connection of death with its immediate antecedent is too direct and obvious to lead to much error.

Speaking of this subject, one cannot but be surprised at the indifference concerning it which the community here — the State and municipal governments — manifest. Attempts are almost annually made to get a better system established. The authorized registration of marriages, births, and deaths, and the most accurate reports of diseases, belong to very important departments of political economy, and of the public health. The system in England is a perfect one, and works admirably well. It shows how deep is the interest in that country in human life. The government may not be able to remove much which is injurious to public health, and which so terribly wastes life there. But it can and does make itself acquainted with the whole fact, and in this way has its attention directed in the strongest manner to the consideration of the means of prevention and of relief. It is to be hoped, that we shall here take hold of this subject wisely and manfully, learn what are the defects of the present system, which will be easily done, and proceed to provide the remedy.

In the Table of instrumental and other labors in which etherization was not employed, are some cases to which I was called, which occurred

in the immediate vicinity of Boston, but which have no place in its Bills.

Now, compare the returns of "childbed," for the three months specified, with those of the last year, the whole of it. For that time, the return is *thirty-six* only, showing a very great increase of mortality for the present year, at least for the time named; that being *twenty-two*. But further, erysipelas has existed in Boston and neighborhood, at the same time, after a manner quite unusual. Now, it is an established fact, that this disease and puerperal fever very frequently exist together, giving a strongly malignant character to the fever, and showing an identity between them which the profession has long recognized. While I state these facts, because of their bearing on any question of the agency of etherization in the premises, it is my duty to state, that in a very few only of the cases of puerperal fever which have so recently occurred has it been ascertained that etherization during the preceding labor had been employed. I believe that all the cases in which it had been used are reported in the preceding Tables. My inquiries, I think, would certainly have led to different results, had other cases been found.

It will not be out of place to advert for a moment to another portion of the history of the late medical year, dating from May last, when etherization in childbirth was first used in this country. In the four Tables will be found seventeen of convulsions. Etherization, indeed, has nothing to do with these cases, in their production at least, since it was employed as a *remedy*. Five cases have occurred within a month. I should think this unusual. Does it not lead to the idea, that a more than common predisposition has existed recently for grave occurrences in pregnancy and childbirth, and, taken with other facts, mark the year as somewhat peculiar in its medical history? Of the seventeen cases, ten were treated with etherization, and six recovered. In the remaining seven, etherization was not used at all. Of these, six died. This subject has, however, been already dwelt on. It is referred to here, only on account of its connection with the medical year under notice.

Case of Etherization in Nausea of Early Pregnancy threatening Life.

Mrs. ——. I saw this patient in consultation. Previous health good. Second pregnancy. Vomiting during whole of first, producing such exhaustion as threatened life. She was delivered, at the full time, of a living child. As soon as labor was over, vomiting ceased, appetite returned, and health was re-established. Says three relatives had died of vomiting during pregnancy. Is very anxious. Supposes pregnancy to be about twelve weeks advanced. Vomiting almost constant, and has been so between seven and eight weeks. Is sitting up; not showing much

exhaustion, though emaciation is very strongly marked. Pulse more frequent than natural, though not wanting in strength. Distress or pain in lower part of abdomen. Renal excretion natural. Tongue slightly coated.

Directed to keep very still, and to take small quantities of food. Says meat is better borne, and more easily taken, than other things: is advised to eat it. Is so sure that she shall soon be worn out by vomiting, that she wishes that labor may be induced at once. After very careful consultation, it is decided to defer it, and observe progress of case.

Second visit. — Nothing better; vomiting constant. Literally bears nothing on stomach. Is distressed by merely washing mouth or lips.

Third. — Nothing better; vomiting constant. Great oppression, amounting to severe and distressing pain about precordia. Enemata, of decoctions of beef, with tinct. opii; also gruel in the same way. Inhaled chloroform; at first with relief of vomiting, but at length without any benefit. It was tried again, and for a short time stomach was again quiet. It was, however, soon obvious, that only temporary benefit resulted from etherization. The time of relief grew shorter; and, at length, chloroform became as disgusting as any other means employed for relief. I introduce this case here to show, that, though the early benefit at first obtained from inhalation soon failed to attend it, there were no such symptoms induced by it as to give rise to a moment's uneasiness. The specific effects of chloroform were produced without the least injury.

It was now resolved to remove the contents of the womb, as the only means of saving life. The exhaustion was extreme, and emaciation seemed to increase every hour. She could not leave her bed for a moment. Much difficulty was experienced in reaching the membranes. From the extreme relaxation of the whole body, and the pressure of constant vomiting and straining upon the womb, this organ had become anteverted; its fundus pressing firmly against the symphysis pubis, and the os uteri tilted up towards the promontory of the sacrum. This occasioned much difficulty and embarrassment. The organ was readily reduced, but fell back again into its old place, as soon as support was removed. At length, however, the physician in attendance succeeded in carrying up the fundus, and of supporting it there by his hand. The membranes were now readily reached, and the waters discharged. Some relief followed this event; and, in eighteen hours after, the uterine contents were expelled.

Almost immediately, improvement showed itself. Appetite returned, and was at once indulged. In less than twenty-four hours, I found her eating freely, and without the least harm; nay, with positive benefit,

as well as with extreme pleasure. Next day, she was up, — out of bed; and, in two or three more, she was rapidly convalescent, and has since continued perfectly well.

Case of Etherization in Vomiting, Spasms, &c. in Middle of Pregnancy, threatening Life.

Mrs. ——, in sixth month of pregnancy, arrived here after a voyage of thirty-one days, Sunday, 20th May. Vomiting during the whole voyage. Sickness of early months had ceased before embarking. Was then fleshy and well. Reached here emaciated; constant vomiting; diarrhœa; exceedingly prostrated. This state of things continued, till 30th, unchanged; and new symptoms, in the meantime, had showed themselves. Among these were hiccupping and spasms of the limbs, with permanent and very strong contractions of the forearms on the arms, of the wrists on the forearms, and of the fingers across the thumbs and into the palms of the hand. This last symptom, this strong spasm, was exceedingly painful and long-continued. I saw her first this day, and, along with these symptoms, observed very dry tongue and offensive breath; unequal distribution of heat, the hands and arms being very hot and dry. Trembling of the lower extremities, with slight cramps in them. Nausea, vomiting, and complaints of universal distress. Examition discovered os uteri to be dilated somewhat, soft, thin, dilatable; head presenting; and membranes loosely covering it. Delirium at times for some days. As the stomach tolerated nothing, it was agreed in consultation to try chloroform. It was inhaled with readiness, first on cotton wadding; but, as this produced soreness of the nose, the conical inhaler was substituted. Pulse at beginning of process, from 110 to 120, at 7 o'clock and 10 minutes. Very slight etherization was induced. Consciousness remained perfect. Some disturbance of head was spoken of, and a feeling of lightness, — "a droll or funny feeling." The pulse was not at all diminished in frequency, and, at some counts, was found more rapid than at the beginning. Some uterine pain. Os uteri more dilated. Membranes protruding. It was agreed to puncture them. It was done. She was left somewhat relieved about 8, with directions to continue inhalation, as spasms might demand.

About 9, P.M. — A great change had occurred since last report. The spasms, and muscular contractions and tremblings, had entirely disappeared. She was reported more comfortable, and had been so for some time. Vomiting, however, occurred, though less frequently than before, and with less attendant distress. The condition of the limbs attracted much attention, and showed how important, and at the same time how novel, was this operation of chloroform. The contractions have

entirely ceased; the fingers were open, or gently flexed; and the hands used after the ordinary way. There was no loss of muscular power, or of its use by the will. A state of great suffering had been replaced by one of perfect ease; and a morbid condition of the muscles, by a healthy one. The brain and nerves were enabled, by the agency of chloroform, to perform their functions; and, though it had done so much in preventing morbid, violent, and most painful contractions of the muscles of both upper extremities, its agency did not for a moment exceed the limit within which voluntary motion is performed. I was much impressed with these results of etherization. There was no want of consciousness. The relations of the patient with persons and things were as perfectly recognized and acted upon as they ever were. She continued to ask for chloroform when she thought it needed, and used it just so far as the circumstances demanded.

More pain had been felt in abdomen since visit, and now womb was felt to be well contracted during abdominal uneasiness. Os uteri more dilated. Free lubrication by natural secretion. Head lower; labor advancing.

May 31st, between 7 and 8, A.M. — Since last visit, no vomiting. Some quiet sleep. More food has been taken and borne than for some time before. She was sleepy. It was learned that, an hour or two before, as more pain had been felt than before in the abdomen, (uterine contractions?) an opiate had been given by an attendant, as at other times, during her illness. Chloroform had been used in the night, but in the smallest quantities; for the demand for it was very slight, and its effects never reached beyond what had before followed its use. After the opiate, the uterine effort gradually subsided, and soon ceased. I examined, and found the head just within the external organs, and ready to be expelled by slight effort. It was soft, the bones yielding to the slightest pressure; and its size too small, and dilatation too perfect, to have required much effort for its delivery. I now examined the patient. Her pulse was smaller, more rapid; the countenance showing more exhaustion than I had before seen. The lips were of perfectly good color, but elsewhere the face was pale and sunken. She said her sight was failing. This had happened some days before. Spasms were again declaring themselves, and contractions were complained of in all her limbs. Nausea again occurred, and the cough-like hiccup. Very slight and short uterine effort.

The attending physician now came in, and it was agreed to accomplish the delivery, which was done with perfect ease, and apparently very little if any pain. Chloroform was not inhaled, for it was not required. Firm pressure was now made by the physician over the uterine tumor, in order to secure if possible uterine contraction, and to prevent hemorrhage, as far

as might be done. The placenta was separated, and expelled in a perfectly natural manner, and with so little blood, that the membranes were not stained with it, and no hemorrhage followed. But it was evident, that sinking, which had so strongly manifested itself before delivery, had not been checked by the slight re-action which had accompanied the removal of the child. The pulse rapidly sunk; the skin became cold; consciousness was entirely gone; spasms recurred, and she died. Just before death, a discharge of liquid and coagulated blood from the vagina took place.

I have placed this case in close proximity with the last, because of their points of resemblance; but it is apparent in what they differ. The first seemed the most threatening. The danger was in the very rapid increase of bad symptoms. In a few days, the extreme of prostration had been reached; and it was clear that life, under existing circumstances, could not be sustained much longer. In No. 249, causes had been operating to destroy life *forty-one* days before delivery was accomplished; and a singular complication of *diseases*, hardly mere symptoms, marked and increased the hopelessness of the case. I had expressed to the attending physician my views with regard to the whole prospect, and especially of the uncertainty of the issue.

What were the complications and the circumstances which had given such fearful characters to this case? —

1. A sea-voyage, which, with all the kindness and effort to diminish suffering which could be afforded, was one of almost unmitigated distress. The inability, in such extreme weakness, to resist the motion of the ship had led to bruises which showed how severe had been the injury received.

2. Constant vomiting. The husband again and again referred to the strictness of the truth of this statement. For thirty-one days on shipboard, it seemed to him that nothing had been borne on the stomach; and, for ten days since reaching the shore, no change in this respect had occurred. She was in excellent flesh and health when she embarked, and now she was greatly emaciated.

3. Diarrhœa at sea, and on shore, which nothing had checked.

4. Delirium.

5. Spasms, amounting to fits or convulsions; and rigid, tetanic contractions, of a most painful kind, of the limbs, especially the upper. So severe were they, that it was necessary to keep solid bodies in the hands to prevent the nails cutting deep into the flesh.

6. Hiccup, resembling spasmodic cough, — so violent was the action of the diaphragm and abdominal muscles; and often accompanied with vomiting of bile, or of other contents of the stomach, or by severe eructations.

7. Obstinate watchfulness, — keeping the patient always conscious of her sufferings.

8. Pulse rapid, — small.

From this enumeration, it will be seen how many and how important were the organs and functions implicated in this deeply interesting case of this stranger, who had arrived here only to die.

It was expected, when the voyage was over, that, as so generally happens, nausea and vomiting would cease. But nine days passed without any change in these respects; and, in the mean time, new and worse symptoms showed themselves. It was believed, that the utmost limit of patience had been reached, and that means should be employed which alone promised relief.

But why use etherization? It had been used in cases resembling this in their symptoms, and in their apparent causes. It had been safely used in these, and with great relief to the severest suffering. Almost the first word I heard from the patient was "Chloroform." The demand was made in the strongest terms for relief. She suffered everywhere, and in the severest way. I felt not the least question of the perfect safety in the use of the remedy; and my colleague, who had employed it as often as I have done, felt not the least doubt of the propriety of using it, or any distrust as to its beneficial results. Would it not have been the strongest failure in duty, if, under the circumstances, suffering, and hourly increasing sinking, had been allowed to have proceeded, without any attempt at relief? The only mode by which remedies could be applied in the case was inhalation. It was tried, and the beneficial result stated. Labor had begun. It was accelerated by discharging the liquor amnii, when the state of the os uteri showed it could be advantageously done. The child advanced, and in the morning was ready to be born, with very little effort. But this effort was wanting. What could be done by the womb, had been done; and, in the mean time, things had grown worse. The child was removed with entire ease. The rest of the labor was completed, and with no untoward symptom. Sinking went on rapidly, and death soon occurred.

A Case of Cholera, with Cramps and Spasms, treated by Etherization.

Miss ——, aged twenty-six, was seized, on Sunday, July 4, 1847, with very severe pain about the root of an incisor tooth, which had been cut off seven years before, and to which a tooth had been attached by a pivot. The pain became so intolerable in the afternoon, that she had the tooth removed. This gave no relief. The pain continued through the night and the next day, Monday, July 5th. Through that whole day, the pain continued so that she used up an ounce of laudanum; applying it

constantly, by means of cotton, to the tooth, and to the neighboring parts. At about 11, P.M. the pain suddenly ceased; and she was very soon after seized with vomiting, of a most distressing character. The attacks occurred at intervals of from ten to fifteen minutes, and at length had complicated with them severe cramps of the extremities, more especially the hands, which were also numb, and with strong cramps of the abdominal muscles. The suffering was so intense, that as many as five persons were required to be with, and aid her. I was called in consultation by the family physician about 9, A.M. July 6th. There had been a somewhat longer interval from the preceding attack of vomiting, when I arrived at the address; but the cramps were very severe, and, being so extensive, presented a case of great suffering. She vomited while I was present. The effort was violent, but followed only by a little mucus, or a little bitter, and occasionally acid fluid. I prescribed the hydrocyanic acid, and left her, to return after making some medical visits. I did so, and took with me ether, and a sponge for its inhalation. I found she had vomited the acid about fifteen minutes before I arrived, and was still suffering from cramp. This was about 10 o'clock, eleven hours from the beginning of the disease, during which time she had suffered most severely, and had not slept at all.

I suggested the use of ether. The physician in attendance acceded to the proposal, and it was inhaled. The following was the condition of the patient: — Stomach quiet. Cramps and numbness present. Pulse 84. Respiration natural. Complexion and temperature natural. Tongue clean. Head clear. Pressure over region of stomach, and over abdomen generally, gives no pain. The sponge was well saturated. At first, the breathing was embarrassed by the vapor, and slight choking was noticed. This, however, soon passed off, and she inspired the vapor freely. In about a minute, she became perfectly still. Her breathing was hardly perceptible. Her countenance had the expression of perfect repose. The color was as before inhalation. Her pulse was 96. Breathing slow, but sufficiently deep. Temperature as at first. I asked her to open her eyes. An ineffectual attempt was made, the lids scarcely parting. I asked what were her feelings. She made no answer. The sponge was removed, and she remained in this state some minutes. She now roused up. Said, "How sick I am! That ether makes me sick." She soon vomited. The effort was very strong, as strong as any previous one, producing much distress, but accompanied by *no cramps;* only a slight *numbness* of the *hands*. She hardly complained of it. At length the vomiting ceased. The numbness, and all disagreeable sensations, passed away. She had a threatening of retching once afterwards, but which was only expulsion of flatus. To quiet the stomach, ice in a towel was now applied freely to the epigastrium and left hypochondrium, and with

marked comfort. Ice was also urgently demanded to be held in the mouth. It was exceedingly grateful. I left her between 11 and 12, so much relieved that I believed the disease had subsided, and improvement was constantly advancing. The pulse was again 84; and, though some paleness was present, and some faintness complained of, I felt that she was doing well. I saw her again about 1, P.M. and found good progress had been made. Nausea, cramps, and numbness, had entirely left her. She enjoyed the ice greatly, and asked for nourishment. I left her, and was to learn if any return of vomiting or any other trouble occurred. She expressed her gratitude for the relief she had derived from the use of ether.

July 7th, 10, A.M. — Patient remained comfortable through the day. Restless at night, suffering much from the great heat of the weather, and from a rash which has appeared extensively on the skin. It should have been said before, that a rash was abundant on Sunday the 4th, and disappeared with the pain in the face, on Monday evening, just before the attack of vomiting and cramps. Was never troubled with this skin-disease till since a very severe and dangerous attack of the erysipelas, some months ago. Rash now on face, neck, and back. Skin hot. Pulse full, not very frequent. Tongue coated. Thirsty. In short, is very much as she before has been during attacks of rash. There has been no trouble of the stomach, no cramps, no numbness, since the speedy relief which followed inhalation of ether yesterday. Expresses more fully than before how much she feels indebted to inhalation.

Ether, in this case, was used on account of the violence of spasm, — cramps, which constituted its chief suffering. Cramp did not happen once after its use.

Case of Typhoid Fever, accompanied by Spasms, in which Etherization was employed.

Edward Sutton Smith, the son of Dr. J. V. C. Smith, editor of the "Boston Medical and Surgical Journal," and aged seventeen, — in perfect health, — was, after bathing, attacked with the precursory symptoms of fever, on Wednesday, Aug. 2d, 1848. These symptoms were chills, headach, pain in the back, diminished appetite and strength. He was at school in the country, and came home on Saturday; eat some food; threw himself on the bed, complaining of cold, notwithstanding the great heat of the day, and, though dressed in thick clothes, asking for blankets to make him warm. On Wednesday following, he was seized with spasms; rigidity being one of the marked symptoms. On Friday, these were greatly aggravated; and on Saturday, Aug. 12th, — not the smallest relief having been afforded by what had been done, and death seeming inevitable, — Dr. Smith called on me to exhibit ether or chloroform, in

order to diminish the agony which was regarded as a sure precursor of death.

I found the patient in a state of universal spasm. The limbs were perfectly rigid; the wrists strongly bent, so that the fingers looked to the forearm; the forearm strongly bent on the humerus, the thighs on the pelvis, and the legs on the thighs, — presenting an instance of universal and tonic contraction. The eyes were suffused, and constantly open. The body and limbs were hot, but bathed in full and dense sweat, as from strong exercise. At times there was general convulsion, but with no relaxation of contraction in the intervals. Pulse 144. Respiration rapid; at times, catchings. Tympany. Muttering constantly in German and other languages, which he has recently been studying. I had taken with me sulphuric ether; and, with the concurrence of Dr. John Ware, who came in immediately after me, I filled a sponge with ether, and applied it over his nose and mouth. He inhaled the vapor readily, and its quieting effects soon began to appear. Dr. Ware now suggested chloroform; and this was sent for, and used in place of ether. The patient came gradually and most kindly under its influence. The spasmodic twitchings, at times, were entirely absent; and, when returning, were easily checked by renewed inhalation. He was now left, directions being given to renew inhalation when indicated by return of spasm. My first visit was made late Saturday afternoon, the spasms having then been constantly present since the preceding Wednesday. I saw the patient again in the evening. I found him calm. Rigidity less, so that his legs had been extended. Pulse 120. Skin dry, and not hot. Respirations easier. Less prone to talk, and takes drinks with apparently much satisfaction. Chloroform to be continued. Ice constantly to the head.

13th, Sunday, 8, A.M. — Night reported to have been comfortable. Some sleep. Chloroform frequently inhaled. Pulse 84, softer. Skin comfortable. Less rigidity; and convulsive motions diminished, and for the most part entirely wanting. No dejection yesterday or to-day. Ol. ric. one dram; and, in four hours, an enema, if no operation before. Arrow root or barley water for diet.

12, noon. — As in morning, except pulse, which is somewhat accelerated.

7, P.M. — One sufficient dejection after enema. Very little flatus. Tympany remains as before; abdomen being quite tense, firm, and resonant. Very little occasion for chloroform through the day; it being used only when spasms have recurred. Rigidity hardly perceptible; the fingers being flexible, and the hand easily bending on the wrist. Takes nourishment with relish. Protruded his tongue to-day, when desired to do so; white coat upon it. Recognized persons, — showing improvement in state of mind. Pulse between 80 and 90.

14th, Monday, 9, A.M. — Comfortable, though less calm than yesterday. Very little rigidity. Occasional twitchings, particularly of face.

1, P.M. — More heat. Pulse towards 100. More restlessness. Mind more disturbed. At times greatly distressed, and then relieved by free passage of urine.

8, P.M. — Cooler; pulse slower; less restless. Distress, as yesterday, before urine. One asked him, in loud voice, what was the matter. "I want to make water," said he. He was asked if he would get on his knees, and try. He said he would, but without effect. Preparation was making to pass catheter, when the bladder was emptied naturally and freely. Now disposed to sleep. Sleeps soundly, and without the least restlessness.

15th, Tuesday, 9, A.M. — Great change for better. Pulse 72. Skin cool. No restlessness. Has had a good night. Craves milk. Said to me he was starved. I asked what he would eat. Said he with emphasis, "Dipped toast." This is a favorite article of food. Mind much clearer than at any time in the disease. No chloroform yesterday or last night. One can hardly believe that this is the same person he saw in such danger and agony on Saturday.

5, P.M. — Febrile paroxysm as yesterday at noon, but less severe. Trouble of passing water still exists, though after a time it is passed freely. He had craved milk and water, but refused it when offered. His tongue is hard, rough, coated. Cold water continues to be most relished. Has taken at will orange sherbet; water ice, flavored with orange. Got an enema in morning, which not operating, has had another this afternoon. Pulse between 70 and 80. Skin natural. Occasional slight contractions of fingers and arms, but not preventing extension. Has had this, now and then, since the use of chloroform and ether, but not in a degree to make etherization necessary.

16th, Wednesday, 10, A.M. — Report of night less favorable; restless; more excitement. But this morning more comfortable than before. Pulse 72. Tongue cleaner, softer. Asks for roast beef. Does not like liquid, farinaceous diet. Urinary function less troublesome. May eat grapes. Relishes sherbet better than any thing else. Marked improvement in cerebral functions. Mind much more clear.

8, P.M. — Quite as well. Is raised up to take his drinks, and likes the motion, or change of place. *Has turned himself fairly in bed, and arranged his position with much reference to comfort.* Pulse rather more rapid, probably from recent exertion.

As the object of this record is to show the effects of etherization in convulsions of apparently fatal character, and occurring early in a most severe disease, a further report of the case seems unnecessary. This patient had been seen by several physicians, before ether was used; and

I believe there was no difference of opinion among them as to the fatal issue of the case. The change in its whole circumstances, during etherition, was not to be questioned. Perfect quiet replaced violent convulsive disturbance, and relaxation of the whole system of voluntary motion gradually followed. A new character was given to the disease. That on which spasms depended, and which had given to them their whole character and threatening issue, had been removed. Functions necessary to life — the circulation, respiration, innervation, all of which had been so seriously disturbed — came again into a comparatively natural state, and gave promise of ultimate recovery. Was not this cure? Was not the whole object of a remedial agent, as far as a specific object was looked to, attained? Was not life preserved, and by an unquestionable action of the means employed?

I write six weeks from the attack. This young man is not well. He is still emaciated, and suffers much from lameness and contraction of the right leg. Whether this be owing to cerebral lesion, or to long lying upon it, and keeping it bent, I know not. His appetite is excellent. His mind is clear, and he takes his old and strong interest in books. He is still confined to his bed or chair; and a convalescence, already so protracted, may demand much more time for its completion.

Since above record, electricity has been used, and with great benefit, both in regard to the lameness and pain in right lower extremity, and with much general improvement.

Case LXXIX.* — *Puerperal Convulsions.*

No. 279, age twenty-one; pregnancy, sixth month. I was desired to see this case, attended by homœopathic physicians, Sept. 14. On reaching the address, I learned that this patient had, for some time, occasionally suffered from various affections of the head, such as dizziness, sense of fullness, pain, occurring suddenly from emotions, exertion, &c. There was often flushing of face, patches of rash on the neck and cheek, coming and going suddenly. On the 11th inst. pain in the head had been unusually severe, referred to top of head. 12th, more severe; and, towards evening her medical attendant was called, and prescribed cold water to head. Much anasarca, with œdematous fullness of face and neck, had occurred. She was in the middle of sixth month. I was further informed that at 8, P.M. 13th, there was a convulsion. Consciousness occurred after the spasm ceased. After about an hour's interval, another spasm; and two more followed, consciousness still continuing. Opium was given in

* This case occurred while the Appendix was going through the press, and is not in the Tables nor Analysis.

homœopathic doses, and four hours' interval followed. Spasms then recurred. Opium failed now to check them, and veratrine and belladonna were given, after the Hahnemann plan. After 7, A.M. 14th, and when a number of convulsions had occurred, consciousness was abolished. Homœopathy was then abandoned. About twenty ounces of blood were next taken from the arm, and with some relief. I was called at noon to see this patient in consultation. I found her with a pulse of 120, not strong or full. Comatose; incapable of being roused. Skin hot, turgid, mottled; mouth open; tongue swollen, and protruded between the teeth. Examination discovered os uteri and neck in ordinary state, at the supposed period of pregnancy. Uterine contractions had occurred.

A *pain* soon came on, and, almost contemporaneously with it, a convulsion. This last began with rapid motion, and separation of the eyelids. The muscles of the face twitched violently; the head was drawn strongly to one side; the whole frame became rigid; the lower extremities projected straight from the trunk; and, lastly, universal and violent shaking took place. The face at first grew pale, then deeply livid; and immediately the livor showed itself, and quite as obviously in the hands as in the face. The spasm was short, but little exceeding a minute; but, I think, as violent in its whole characters as I have ever witnessed. Heavy, almost suffocating stertor now came on; and, after some time, respiration became easier.

It was now agreed on to use chloroform at the beginning and through the next *pain*, and to observe what followed. The spasm was over about ten minutes past 1, P.M. Contractions soon occurred, and chloroform was at once inhaled. No spasm attended or followed. *Pains* continued to occur, but no fits. At 4, another but lighter attack. It was sooner over, and the stertor less. The chloroform was now inhaled during a number of *pains;* then intermitted for one or more. The intermission was because of some supposed indication, such as diminished force and frequency of the pulse; its marked slowness; coldness of the extremities; suspension or diminution of contraction; — symptoms which occurred slowly or suddenly, and indicated effects of disease or of remedies, and made it a duty to wait for further developments. In the meantime, something was done to obviate symptoms. Sinapisms were applied to the lower extremities; a vesicating plaster to back of neck; cold to the head. The spasms seemed now to be within control; so that, from 4 to 11, P.M. there was no fit.

Contractions increased. Os uteri dilated. Enemata had been frequently given, but with no effect. Hyd. submur. ten grains were given. Chloroform was steadily continued. Once, *pain* was apparently less severe; and a dram of pulv. secal. in half pint water, as an enema, was given. This operated as a laxative, and brought away flatus. Two or

three hours after, a free alvine dejection, supposed to be from the hyd. submur. Good progress was made in the case. The liquor amnii was discharged; dilatation went on rapidly; secretion was abundant; and, between 9 and 10, A.M. 15th, the child was born. The placenta and membranes soon followed; and, in hour after, I left her with good pulse and skin, and good promise of recovery.

16th. — Report favorable. Last evening, apparently recognized her husband. Slept well last night, and was, by nurse's account, very comfortable at 6, this morning.

I passed twenty-four hours with this patient, and had opportunity to observe symptoms, and the effects of etherization. Inhalation was used to *prevent* convulsions. It was used for some time at the very beginning of uterine effort, and was continued till it ceased. As intervals grew longer, chloroform was less regularly used; but this was regulated entirely by the character of the *pain*, its severity, length, &c. The report shows how perfectly the object of etherization was attained. Convulsions were prevented, so that, with the exception of one fit, the disease did not declare itself after inhalation was begun. I think, for interest, — for the important instruction it gives concerning etherization, — it stands among the most important cases I have observed, of the use of the remedy of pain.

I stated these facts to a medical friend, the day after their occurrence. Said he, "A case of like interest has just come under my notice. In it very severe convulsions occurred, about thirteen hours *after* delivery. She had inhaled chloroform during labor. It was inhaled *during* the convulsions; and they were entirely controlled by etherization. They amounted to four in all. Great prostration followed the suspension of the spasms. Fair re-action occurred after about twelve hours. Gradual amendment, manifested by return of consciousness; improved pulse; good state of skin. After third day, some diarrhœa. Later, dyspnœa and cough, with somnolency. Gradual sinking, and death, a fortnight from the termination of labor." On examination after death, the only lesion observed was pneumonia in a portion of the middle, and lower part of upper right lobes.

The urine coagulated by heat; confirming the observation of Professor Simpson, who says that he has always found coagulable urine in puerperal convulsions. The kidneys in the above case were normal. The heart was examined with care, but presented no morbid appearance. The brain, with the exception of a small quantity of water in the ventricles, and beneath the membranes, was perfectly healthy.

A sketch of the following case has been already given; but it is with great pleasure I present to the reader the fuller history of the same, by the attending physician: —

Case of Puerperal Convulsions. By SAMUEL CABOT, M.D.

"Mrs. H. strong and healthy, twenty-seven years of age. Married at seventeen; mother of four children. Always has had very short and easy labors of about ten minutes' duration. Supposed herself to be at about the full period of gestation. Fell upon back with considerable violence, about a week before, and had had some nausea, with uneasiness in head, from that time.

"At 8, P.M. March 13th, was found upon the bed in a violent convulsion, blood flowing in considerable quantity from mouth; convulsions recurring every fifteen minutes. At 9, I saw her. The muscles of head, chest, and arms, principally affected, diaphragm also; left side rather more than right. Left pupil dilated. Head of child very high, and mouth of womb not felt. Took sixteen ounces of blood from arm. Applied ice to head, and sinapisms to feet. Pulse strong and full before venesection; small and feeble after. In about thirty minutes after venesection, recovered senses for a short time, so as to answer questions coherently. Had another convulsion at an hour and a half after venesection. Bled her again at a quarter past 11, eighteen ounces. After venesection, quite pale; pulse small and weak; pupils fixed, and rather contracted, but equally. In an hour, had another fit; and one each successive hour, for three hours; then becoming oftener, until once in twenty minutes.

"At half-past 3, A.M. 14th March, I applied, at the apparent commencement of a convulsion, a sponge, saturated with sulphuric ether over her mouth and nose. The spasmodic action soon ceased; and, in about three minutes, she was in a deep sleep. Upon examination, head of child somewhat advanced; could only reach anterior part of neck of womb; rather soft, and much shortened. Ether was used at every threatening of convulsion. Almost immediately after patient was obviously etherized, regular labor-pains commenced, and continued at short intervals, until, at 6, A.M. the child was born. I think, any one, ignorant of the circumstances of the case, who had come in while the head of the child was passing the external organs, would have thought, from the expression of the mother's face, that it was an ordinary case of labor. The child cried almost immediately after the passage of the head. Boy, large; cord very large; placenta normal. The child, some hours after, did not smell of ether. One scruple of ergot was administered, as womb did not contract well. After birth of child, patient slept quietly about an hour; then had another convulsion, there having been an interval of nearly four hours since last spasm. Ether was again used; but pulse became so feeble and small before any effect could be produced, that it was discontinued; and an enema of tinct. opii, one dram, and pulv. asafœtid. one dram, in half a cup of starch, was administered; and hyd. submur. fifteen grains, given by the mouth. After this, patient slept quietly for three hours; then had a convulsion every half hour, until 2, P.M.; when, after considerable difficulty, got down tinct. opii, thirty drops; pulv. asafœt. ten grains. Had one more convulsion soon after taking it, and then slept quietly for two hours; and then, beginning to move as if about to have a convulsion, I gave her tr. op. and asafœtida, as before; and, after a few struggles not amounting to convulsion, became again quiet, and remained so until about half-past 5, when, after having taken some senna and salts, convulsions again came on; the first continuing about half an hour, and hardly ceasing before another commenced, which lasted about the same time; then there was a short interval, and then another not severe convulsion; after which, she had no return of them. At 9, took a teacup of infusion of senna; then slept quietly till 10, when medicine operated; after which, slept until half-past 9, March 15th, when took a little food, and answered rationally. Very feeble. Tongue very sore, having been wounded in several places. Lochia abundant. On the

morning of 16th, found that she had been delirious in the night, and had slept but very little. Lochia scanty. Relishes food.

"17th. — Milk has begun to come, and, in afternoon, was very abundant, — more than child could take. — Recovery perfect."

The beneficial effects of chloroform in convulsions are well displayed in the following case, which is extracted from the Sept. number, 1848, of the "Buffalo Medical Journal;" a periodical which is very ably conducted by Austin Flint, M.D.: —

"*Case of Puerperal Convulsions, treated with Chloroform.*

"By James P. White, M.D.

"July 18th, 1848. — Was requested by Dr. Devening to see Mrs. Brady, then in labor, and suffering from a violent attack of puerperal convulsions. I found an Irishwoman, of full habit, in her third pregnancy; the two previous labors having been favorable. Dr. Devening had been with her but a short time; the convulsive paroxysms succeeding each other with great rapidity; the face flushed, and pulse full. He had bled her twenty or twenty-four ounces with partial relief. As the pulse continued full, and the muscular efforts during the fits were violent, I deemed it prudent to repeat the bleeding, which was done to about the previous amount. On examination per vaginam, the breech was found occupying the superior strait, the soft parts dilatable, and the pelvis roomy. As the convulsions continued with but slight diminution, and the parts were favorable, though the pains were slight, it was deemed prudent to proceed without delay to deliver the child. To secure the tonic contraction of the uterus, and guard against hemorrhage, two drams of the wine of ergot were given. It occurred to me, that chloroform might assist in controlling the woman, and lessening the agitation, while making the attempt to bring down the child. Dr. Devening accordingly applied some of Chilton's preparation to the nostrils, whilst I introduced my fingers into the vagina, and hooked them into the groin of the fœtus.

"The muscular agitation, which before could not be controlled, now subsided, and delivery was effected without difficulty; the uterine contraction continuing to be moderate. After applying such restoratives as were requisite to recover the child from a state of partial asphyxia, I applied a ligature to the cord, and laid it upon the bed. By placing the hand upon the abdomen, it was found to be still distended. Upon the re-introduction of the finger into the vagina, it came in contact with the arm of a second child, which I proceeded to turn and deliver; the patient inhaling the chloroform, and remaining quiet, with tolerably firm contraction of the uterus upon the hand during the operation. The double placenta and membranes were very soon pushed down into the vagina by the tonic contraction of the uterus, and were removed by Dr. Devening. Very little hemorrhage followed; and, the proper bandage being applied, the patient was carefully laid back upon the bed. During the entire period succeeding the application of the anæsthetic agent, the woman was unconscious and calm; but at no time did we carry it so far as to produce stertorous breathing.

"21st. — The patient comfortable, and consciousness entirely restored. She has no recollection of any thing which occurred during her labor after being seized with convulsions. The children are of good size, and doing well.

"25th. — From Dr. Devening I learn that the woman has so far recovered as to resume her usual domestic duties."

I have transferred the following portion of Dr. Perry's Letter from the Correspondence to the Appendix, because it relates mainly to occurrences in the *puerperal* state, and not to those of childbirth, or to immediate and obvious effects of etherization: —

. . . . . "In two of the cases, it produced some hysterical symptoms, but not sufficient to induce me to suspend the use of it. I have seen no unpleasant moral or intellectual effects produced by it. One case was followed, on the fifth day, by fatal peritonitis; and one, a fortnight after, by phlebitis, which gave way to local depletion. Two cases were followed by profuse sweating, which passed off in a few hours. These were the only unpleasant physical effects which I have seen follow the use of ether; and how far these were influenced by it, I am unable to judge. In the case of hand presentation, I put the woman under the influence of it, and turned the child without any difficulty; and both mother and child did well. I have seen no immediate danger resulting from its use, in the cautious way in which I have used it. The children of all that have taken ether have done well, with one exception. This child, which was apparently healthy when born, was taken in convulsions a fortnight after, and died. No disease was found in the brain, or any other part of the body, upon examination after death.

"These are all the important facts, in relation to the cases in which I have tried it; and, if I were to compare these with the cases which I have had, and in which I have not tried it, during the same period, I should draw an unfavorable opinion of its use in obstetric practice. You will be able, from the large number of cases which you will collect, to come to some more correct results.

"I have not used chloroform in any case of labor, and therefore can say nothing of its comparative merits."

I insert the following Letter with great pleasure. Its author is a physician and chemist, — a worker in his laboratory. The views offered by him are curious, and not without practical application. They recognize mental action in relation to a most interesting and obscure function, and propose, out of the remedy of pain, to find an agency which shall diminish the amount of pain itself, by producing a perfectly healthy organization: —

"Boston, Feb. 8, 1848.

"Dear Sir, — As you are writing on etherization, I wish to suggest two or three things which have occurred to me as deserving consideration.

"Will there not be an important effect produced upon the constitution and development of the future child, by relieving the mother of the anxiety and terror which now beset pregnancy? Will there not be an improvement in the progeny from this cause, acting during the whole of pregnancy? Do not the fears of the mother now occasion a portion of the distressing symptoms of pregnancy, which weaken and permanently injure the child? I have not seen this subject discussed; but I should not wonder if the experience of a few years should rank it among the greatest benefits derived from etherization.

"A second subject, which is of interest, is the chemical action of sulphuric ether and chloroform in the system. I have no doubt that chloroform is decomposed in the circulation, from the fact that it does not continue to be expired by the lungs, and also that its effects cease so soon and so entirely. This would also

be anticipated from the circumstance, that there is a provision in the mucous coat of the stomach for the secretion of chlorine, in the form of muriatic acid, out of the salt (chloride of sodium) in the blood. The corresponding soda of the salt is secreted out by the liver. Now, very probably, the chlorine of the perchloride of formyl is secreted out by the digestive organs; and the base formyl, probably undergoing some further decomposition, may be secreted out by the liver, as part of the organic matter of the bile, or possibly by the kidneys. The examination of the urine and bile will be matters of interest and importance. It is, of course, very desirable to know the whole extent of its action in the organization.

"I have observed, on breathing chloroform myself, a peculiar swelling and soreness of the palate and throat to result invariably, and continue for a day. Is this a general fact? If so, it should be noted. It may have a specific action on the throat, which might be turned to account.

"I will mention one other circumstance belonging to the history of chloroform, though not connected with etherization. Dr. Jackson introduced the impure chloroform of Guthrie (more concentrated than common 'chloric ether'), several years ago, for the cure of toothach, by applying it on cotton in the cavity of a tooth. I have made one experiment with the pure chloroform, and find that its action is instantaneous in relieving the pain. I believe the effect, in many cases, would be permanent. This has almost as important applications as the use of the same substance in preparing for the extraction of teeth. Of course, the gum and cheek must be protected from contact with so acrid a principle.

"I have thrown out these matters for your consideration.

"Sincerely yours,"

———— ————.

A Case in which Contractions were greatly increased after Chloroform.

COMMUNICATED.

It is not rare to find an increase in uterine effort, from the inhalation of ether and chloroform. At times, this occurs early in the labor, or soon after etherization; at others, it is noticed later in this process. In a very few cases, I have known after-pains to be unusually severe after etherization, and this even in first labors. The explanation of this last-mentioned occurrence is not easy, since, in the cases in which it happens, the womb is well contracted, and there is no hemorrhage; and, in the great majority of cases, after-pains are less severe than in the cases in which chloroform or ether has not been employed.

In the case which has led to these remarks, and which has recently occurred (September), chloroform was inhaled with great benefit; the *pains* which, before its use, were very severe, being mitigated in their violence by inhalation; and the progress of the labor being very satisfactory. The head had reached the inferior strait, and seemed in a fair way soon to pass through it, when progress was impeded. Uterine action now became more strong than it had been at any earlier time in the case, and was uninterrupted, resembling exactly the *tonic*, — *continued* contraction which is so generally produced by ergot.

The attention of the physician in attendance was strongly attracted by what had so unexpectedly happened. Etherization was perfect; the contraction continued without the least abatement; the child advanced; and still the labor was not completed. It was supposed that five minutes had elapsed, when it was determined to ascertain how much longer this condition of the womb would last, by recurring to the watch. This was done, and it was found that the contraction continued five minutes more without any relaxation, when the head was born. It was now dis-

covered that the face had been to the symphysis pubis, and the delay in the delivery was at once accounted for. Both mother and child did well.

Upon inquiry, it was learned that complete insensibility existed during the whole of the long *pain* by which the labor was brought to a close; and, though so much effort was apparent, it was nevertheless accompanied by no suffering. It was apprehended, that the child would be still-born, from the long-continued and uninterrupted pressure; but it was born alive. The labor was terminated much sooner than it would have been, had not the increase of *pain* referred to taken place. This, with the entire relaxation of the passages, and the abundant lubrication, will account not only for the safety of the child, but also for the short time which the last stage of the labor required for its completion.

The following case has an historical interest which specially commends it to the notice of the profession. It is the FIRST CASE in which sulphuric ether was exhibited by inhalation in LABOR in this country. Besides its historical interest, it has in itself much which is practically useful. Thus ether was inhaled "between each pain. Consciousness was unimpaired, and *labor not retarded*. No unpleasant symptoms occurred, and the result was highly satisfactory."

(*From the Boston Medical and Surgical Journal, April* 14, 1847.)

"To the Editor of the Boston Medical and Surgical Journal.

"Dear Sir, — On the 7th instant, I administered the vapor of ether in a case of natural labor. The patient was in good health, and in labor of her third child. Five and a half hours having elapsed from the commencement of labor, her pains, which had been light, but regular, becoming severe, the vapor of ether was inhaled by the *nose*, and exhaled by the mouth. The patient had no difficulty in taking the vapor in this manner from the reservoir, without any valvular apparatus.

"In the course of twenty minutes, four pains had occurred without suffering; the vapor of ether being administered between each pain. Consciousness was unimpaired, and labor not retarded. Inhalation was then suspended, that a comparison might be made between the effective force of the throes with and without the vapor of ether. No material difference was detected; but the distress of the patient was great. Inhalation was resumed; but the progress of the labor was so rapid, that time could not be found for sufficient inhalation to bring the system *perfectly* under its influence: still the sufferings of the last moments were greatly mitigated. From the commencement of the inhalation to the close of the labor, thirty minutes. Number of inhalations, five. No unpleasant symptoms occurred, and the result was highly satisfactory. "Yours, &c.

"Boston, April 10, 1847." "N. C. KEEP.

(*From the Boston Medical and Surgical Journal, July* 21, 1847.)

"To the Editor of the Boston Medical and Surgical Journal.

"Sir, — Having been called to one of those difficult and embarrassing cases of labor which are occasionally met with, and finding so much relief to my patient, and satisfaction to myself, from the inhalation of ether, I will give you a history of the case.

"June 10th. — Was called to Mrs. H. in labor with her first child. From some feelings of delicacy, she engaged a midwife from Boston to be with her at the time

of confinement. After having been there some twelve or fourteen hours, as she says, during which time the pains were regular, and, as she thought, sufficiently severe to accomplish delivery, she found something wrong, and told the husband that she could not be delivered, as there was something very unusual in the presentation, and she wished a physician sent for. About 6, P.M. I found her in great distress; had been in severe labor since morning. On examination, I found both arms down, the right one as far as the scapula; the cord had been down from the commencement of labor, and had ceased to pulsate, as the midwife said, from the time of its first coming down. The waters were discharged with the first pains. I could just make out that there was a foot to be felt over the right shoulder, which led me to suppose it possible there might be more than one child; though the arms were so large that I could hardly believe it to be the case.

"Her pulse was very frequent, and her pains severe and continuous. I tried to make some change in the position, but could not. I concluded to let her inhale the ether; thinking that, if I could not then succeed in effecting a change of position, I should remove the arms. I gave the ether, and in five minutes she became insensible. The pains were very severe; but no change in the position could be effected. I told the woman, after some delay, that I should endeavor to remove the child in portions, as I did not feel it safe to delay longer. She begged for me to do it, but wanted the ether. After again being fully under its influence, I removed one arm at the shoulder-blade, and the other, after several trials, at the shoulder-joint. I could then get hold of the foot which was over the shoulder, but could not find the other, or feel that there was a head; nor could I, until the contents of the abdomen of the child had escaped through an opening which I made, succeed in bringing down the feet. The child was then delivered without great delay. The position was very unusual; the head being bent back upon the sacrum of the child, the arms forced down, and the child so doubled up as to cause one foot to be felt over the shoulder.

"She said she suffered nothing, comparatively, during the three hours which were required to accomplish delivery, being under the influence of the ether much of the time. She recovered, without any unfavorable symptoms. — Yours,

"J. W. Bemis.

"Charlestown, June 30, 1847."

I make the following extract from Dr. Putnam's paper on "Etherization in Labor," which appeared in the "Boston Medical and Surgical Journal" for Jan. 26, 1848: —

"*Arm presentation.* 'Waters' discharged and arm protruded *four* days. Pains constant. A professional friend, who asked me to assist him, stated that he had just been called to the case, and found her in the condition above described. He had made an attempt to 'turn,' but had relinquished it. When I saw her, the pains were strong. The protruded arm livid, but the fœtal pulsations were distinct.

"After inhaling for two or three minutes, she became furiously excited, and was restrained with considerable difficulty. Repose being essential to the success of the operation, we persisted in the application of the sponge, well filled with ether for about six minutes, when she relapsed into a state of utter unconsciousness. I was then able to pass my hand through the os uteri, and reached the feet with very little effort, and without being in the least degree cramped. There was no liquor amnii in the cavity, and the uterus was closely applied to the unequal surfaces of the fœtus. A foot was brought down to the os uteri, and a tape looped

round the ancle. By drawing upon this with the right hand, and at the same time rotating the femur with the left, the arm began to recede; and the evolution, once begun, was readily completed. The child was delivered living; the placenta thrown off, and removed at once. During the whole time of the delivery, — a little more than half an hour, — she was motionless and unconscious, and yet the child was scarcely washed when she insisted on sitting up in bed to give directions about its dress."

Dr. Putnam has since communicated to me two other cases of arm presentation, in one of which sulphuric ether was employed; in the other, chloroform. To the first of these he was called by a professional friend, soon after the rupture of the membranes. The turning was commenced as soon as the patient was etherized, and she was delivered during insensibility, which lasted about fifteen minutes. The uterus contracted at once, and both mother and child did well. The second case was complicated by prolapse of the cord. The mother did well; but the child could not be resuscitated.

While engaged in preparing almost the last page of this volume, the following extract from the "Boston Medical Journal" for Sept. for the first time fell under my notice. It is from Professor Lindsly, of Washington, D.C., and, in its few words, shows how judiciously he has employed etherization, and how wisely he has observed and stated results.

I beg leave to acknowledge the pleasure afforded me by finding so many striking coincidences, both in opinion and practice, between Professor Lindsly and myself, in relation to the most important questions touching the employment of etherization in childbirth. Professor Lindsly's position gives to his opinions much weight, while the directness and simplicity with which they are expressed will save them from all captious criticism. I am most happy to close this volume with such substantial endorsement of the *safety* and *benefit* of etherization in labor: —

"Having observed, in several papers, notices of the report which I presented at the late meeting of the American Medical Association in behalf of the Committee on Obstetrics, that are erroneous in various respects, I beg leave, through your valuable Journal, to offer a few remarks on etherization, in which some of these errors will be corrected.

"It has always been very remote from my intention to take an ultra or partizan stand in favor of etherization in midwifery. I believe, in the very great majority of cases, no interference with the natural progress of labor is necessary or justifiable; but I also believe that there are cases where it is proper for the practitioner to resort to a remedy which is confessedly efficient in relieving pain, and which I have no doubt is, with due caution, entirely safe. And I regret to see physicians of high standing in the community not only condemn without trial, but take the lead in denouncing, means, of which they are *experimentally* ignorant; thus reversing the sound advice of Hunter to Jenner, — 'Do not think, but try;' for these gentlemen say by their actions, 'We will think (and condemn), but we will not try.'

"Those who object to the trial of chloroform in midwifery as unsafe, seem to forget that it is possible to make a trial of it without producing the *full* anæsthetic effect. I contend, and I know it by personal observation, that an effect very far short of complete anæsthesia will give very great relief, by allaying pain, and especially in soothing that nervous excitability which is so distressing to many parturient women. The inhalation of ten or twenty drops of chloroform will often accomplish this end. I do not believe a patient can be found who could not inhale this quantity with perfect safety, especially if the handkerchief or sponge be occasionally removed for a moment from the mouth or nostrils, so that atmospheric air alone may be inspired. There can be no doubt, that chloroform, like all other narcotics, may be given in doses that are unquestionably safe, and that these smaller doses may be a great benefit, without giving entire relief, just as opium or any other anodyne may soothe pain, without wholly removing it. *Complete* insensibility cannot be produced by opium, without giving it in dangerous quantities; and yet no one pretends for a moment that this is any reason why it should not be employed in quantities that are safe, for the purpose of affording *partial* relief. If we should admit, therefore, for the sake of argument, that chloroform cannot be safely given so as to produce complete anæsthesia, there still remains the same reason for prescribing it as exists as to the use of other narcotics, viz. that it can be given with perfect safety, so as to relieve pain, without causing insensibility. Its safety (given in this way) and efficiency being admitted, it unquestionably possesses three most important advantages over opium: — It produces its effects almost instantaneously; it does not retard, but rather hastens, the progress of the labor; and it causes no after bad results.

"The important practical doctrine which I wish to inculcate is this; that sufficient evidence has now been adduced in favor of etherization in midwifery practice — it having been employed in privately two thousand cases, without a single fatal result — to demand it as the duty of the profession to give it further trial, to experiment with it cautiously and judiciously, in order to see if we cannot finally arrive at general laws and principles, which will enable us to administer it without danger or [illegible]."

ERRATA.

Page 43, line 34, for *not it with*, read *not with it*.
" 85, " 8, for *experience*, read *practice*.
" 86, " 26, for *attend*, read *attack*.
" 98, " 33, after *I*, insert *have*.
Page 216, line 18, for *case of*, read *case for*.
" 272, " 18, in a few copies, for *given*, read *were given*.
" 330, " 26, dele *consultation* after VII.
" 363, " 32, for *effort*, read *effect*.

*** I cheerfully state here, that the Printer, Mr. JOHN WILSON, is not responsible for the errors thus noticed and corrected. — W. C.

"Those who object to the TRIAL of chloroform in midwifery as unsafe, seem to forget that it is possible to make a trial of it without producing the *full* anæsthetic effect. I contend, and I know it by personal observation, that an effect very far short of complete anæsthesia will give very great relief, by allaying pain, and especially by soothing that nervous excitability which is so distressing to many parturient women. The inhalation of ten or twenty drops of chloroform will often accomplish this; and I do not believe a patient can be found who could not inhale this quantity with perfect safety, especially if the handkerchief or sponge be occasionally removed (for a moment) from the mouth or nostrils, so that atmospheric air alone may be inspired. There can be no doubt, that chloroform, like all other narcotics, *can* be given in doses that are unquestionably safe, and that these smaller doses may be of great benefit, without giving entire relief, just as opium or any other anodyne may soothe pain, without wholly removing it. *Complete* insensibility cannot be produced by opium, without giving it in dangerous quantities; and yet no one pretends for a moment that this is any reason why it should not be employed in quantities that are safe, for the purpose of affording *partial* relief. If we should admit, therefore, for the sake of argument, that chloroform cannot be safely given so as to produce complete anæsthesia, there still remains the same reason for prescribing it, as leads us to the use of other narcotics, viz. that it can be given with perfect safety, so as to relieve pain, without causing insensibility. Its safety (given in this way) and efficiency being admitted, it unquestionably possesses three most important advantages over opium: — It produces its effects almost instantaneously; it does not retard, but rather hastens, the progress of the labor; and it causes no ulterior bad results.

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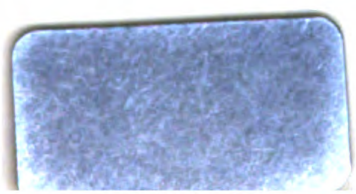
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