

**On the history and use of the short straight midwifery forceps as a tractor,
and of the long double curved forceps as a compressor and lever / by
Thomas More Madden.**

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ON THE HISTORY AND USE OF
THE SHORT STRAIGHT MIDWIFERY FORCEPS
AS A TRACTOR,
AND OF THE LONG DOUBLE CURVED FORCEPS
AS A COMPRESSOR AND LEVER.

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&c. &c.

WITHIN the last few years the midwifery forceps has once more come into frequent use, after a long period of obstetric darkness, during which even the most eminent accoucheurs, being ignorant of the value of this instrument, or incapable of applying it, resorted to craniotomy whenever the natural efforts failed to accomplish delivery in cases of difficult labour. A great advance had been already made in this respect before I first became a student of midwifery, and "cold steel for the child, followed by mercury for the mother," was no longer the rule of practice in such cases. Still, even then the aphorism inculcated in the lecture-room, and acted upon at the bed-side, was that urgent necessity alone warranted any instrumental interference with labour, and the cases in which this necessity was held to exist were comparatively few and far between. The forceps was seldom applied without a consultation, and very rarely indeed until the os uteri had been for some time fully dilated. But now *nous avons changé tout cela*—the forceps is used as freely as the catheter, and instrumental delivery promises to become soon the rule, and natural labour almost the exception.

This transition from complete neglect to habitual use is merely an additional instance of those strange reactions in opinion and in practice of which the history of our profession presents so many remarkable

examples. The judicious use of the forceps, by which living children may be safely delivered from living mothers in cases which might terminate fatally to either without its assistance, has been justly described as the greatest triumph of our art. For my own part, I have long endeavoured, by my "Lectures" and other writings, to contribute to the more frequent and timely employment of the short straight forceps. But if this, or any other forceps, be resorted to, as some have recommended, in almost every case of labour, the inevitable result will again be its exclusion for another period from its proper place in midwifery practice. And, therefore, it especially concerns those who advocate the timely and judicious use of this instrument to deprecate its premature or unnecessary application.

These extreme practices have never been sanctioned by the Dublin School of Midwifery; but recently certain views in favour of the very early and frequent use of the forceps have been brought forward by obstetricians of high eminence and great experience, in whose hands this has undoubtedly proved very successful. However, as this practice, if largely followed by others less expert, would probably have different results, since the great majority of practitioners cannot possibly have opportunities for acquiring that special operative dexterity which alone can ever render it safe or facile, it should not be adopted as a general rule without careful consideration. Therefore, in the hope of eliciting the opinion and experience of the Dublin Obstetrical Society on a question of much practical importance, I now submit an account of my use of the forceps in a large number of cases, and of certain modifications which I consider as improvements in the long and short forceps, together with some preliminary observations on the history of these instruments and the circumstances under which they should be resorted to.

The history of the invention of the midwifery forceps, the strange desuetude into which it fell for many years, and its reintroduction into modern practice, form one of the most interesting chapters in the annals of medical discovery, and convey a lesson, the practical application of which to the present time has been too generally lost sight of, owing to the prevailing neglect of ancient medical literature. "The mental disease of the present day," says Johnson (and the observation is surely more applicable now than when penned, one hundred and thirty years ago), "is impatience of study, contempt of the great masters of ancient wisdom, and a disposition to rely wholly on unassisted genius and

natural sagacity. If no use is to be made of the labours of past ages, the world must remain always in the infancy of knowledge. The discoveries of every man must terminate in his own advantage, and the studies of every age be employed on questions which the past generation had discussed and determined."

I have elsewhere enlarged on this subject, and have shown in two recent papers^a that some of our most valued improvements in gynæcology and surgery—such, for instance, as the dilatation of the os uteri by sponge tents, the local application of nitric acid in uterine diseases, the use of the vaginal speculum, and the employment of anæsthetics before surgical operations—are all instances of the revival of old and disused practices as modern discoveries and improvements. The same history applies to the midwifery forceps, and even the very discussion we are now engaged on as to its proper use has been anticipated upwards of a century ago:—

"For out of the olde feldis, as men saieth,
Comith all this newe corne, fro yere to yere;
And out of olde bokis, in good faith,
Comith all this newe science, that men lere."

Most writers who have treated of the history of the forceps since 1794, when Mulders' "*Historia Literaria et Critica Forcipium et Vectium*" was published, appear to have taken not only their narrative, but also their quotations, at second-hand from this work, of which, therefore, I have not availed myself, but have compiled the following sketch of the history of this instrument, and taken my citations as far as possible from the original authorities.

The invention of the forceps is generally ascribed to the elder Chamberlen, whose family monopolised the obstetric practice of London for three-quarters of a century. Even Dr. Churchill acquiesces in the common opinion. "There can now be no doubt," he says, "of the credit of the invention being due to Dr. Paul Chamberlen, and I think I have shown that there is presumptive proof that it took place before the year 1654."^b Having, however, devoted a good deal of attention to this question, it appears to me that the only merit the Chamberlens are entitled to is that of improving an old and less perfect instrument,

^a On the Probable Employment of Anæsthetics in Surgical Practice in Ancient Times. By Thomas More Madden, M.D. Dublin Medical Journal, Dec., 1874.

^b Researches on Operative Midwifery. By Fleetwood Churchill, M.D. P. 111. Dublin: 1843.

designed for the same purpose, and described in works with which Dr. Paul Chamberlen, who lived at a time when medical literature was circulated in a language common to the learned in all countries, could hardly have failed to be conversant.

The forceps is not mentioned by any of the known Greek or Roman medical writers, whose obstetric knowledge, however, with the exception of Celsus, was extremely limited. For midwifery was then almost exclusively confined to female practitioners, the higher class of whom, the *Medicæ*, or *ιατρίναι*, were entirely distinct from the *Obstetrices*, or *μῆτραι*, as the mere midwives were called, and appear to have corresponded very closely to the "lady-doctors" of the present day, and we have evidence that the forceps, or something of the same kind, intended for the same purpose, was not unknown to the latter at least eighteen hundred years ago, in the discovery of a similar instrument in the house of a Roman obstetrix in the excavations at Pompeii.^a

The first known reference to the forceps is that of Avicenna, the Arabian physician of the tenth century, whose works were translated into Latin, and published at Basle, in 1556, by Andrew Alpago, from whose edition I have taken the following chapter, in which the author refers distinctly to the use of the forceps for the delivery of living children in cases of difficult labour, and makes this more evident by going on to direct that, in case the midwife fails with the forceps, she must then resort to embryotomy, as in the case of a dead child:—"Cap. 26. De Regimine ejus cujus partus sit difficilis causâ magnitudinis fœtus—Oportet obstetrix bona faciat retentione hujusmodi fœtus: quare subtiliter in extractione ejus paulatim; tunc si valeat illud in eo, bene est; et se non liget eum cum margine panni, et trahat eum subtiliter attractione post attractionem. Quod si illud non conferet, administrentur forcipes, et extrahatur cum eis. Si vero non confert illud, extrahatur cum incisione, secundum quod facile sit, et regatur regimine fœtus mortui."^b

A century after the time we find two midwifery instruments, which, in the Latin version, are mentioned as "Forcipes," were described by Albucasis—i.e., the long forceps, or *Almisdach*, and the short forceps, or *Misdach*; but these instruments, from their construction, were obviously

^a Adams. Translation of Paulus Ægineta. Vol. I., p. 652.

^b Avicennæ Medicorum Arabum Principis, Libres Canonis de Medicinis, Cordialibus et Cantica jam olim quidem a Gerardo Carmonensi ex Arabico sermone in Latinum conversa et partia vero ab Andrea Alpago infinitis penecorrectionibus, &c. P. 724. Basilæ: 1556.

not intended for the extraction of a living child, and hence may be dismissed without further consideration.

The directions of Avicenna as to the use of the forceps were repeated by Mercurialis, a writer of the sixteenth century, whose treatise, "*De Morbis Muliebribus*," was reprinted by Spachius in 1597. In this work he says:—"When the labour is rendered difficult by the size of the child Avicenna gives the following rules—'Prima est ut obstetrix tenent manibus educere. Si vero manibus non potest, fascia circumligetur fœtus corpus, atque ita paulatim educatur. Si vero hoc non succedat habent obstetrices quædam tenacula quibus circumligant pannos ne lædant vel offendant fœtam iisque educant.'"^a

Jacobus Rueff, in his treatise, "*De Conceptu et Generationis Hominis*," published at Zurich in 1524, and also reprinted in Spachius' collection—"Gynæciorium Grecorum Arabum Latinorum, Veterum et Recentium, &c. Opera et Studio Israelis Spachii Med. D. Fol. Argentinae, 1597"—describes and gives an engraving of a midwifery forceps—"In hoc casu si postulaverit necessitas, huic instrumento forcipem qua dentes eruuntur adhibeas, vel depictam hinc forcipem longam et tersam, qua ita utatur commode, ut si possibile sit, id quod protrahendum est, educat faciliter."^b

The earliest English reference to the use of any instrument, apparently for the same purpose as the vectis, is contained in James Cook's "*Mellificum Chirurgiæ, or Marrow of Chirurgery*," the first edition of which was published in 1647, and is quoted in Dr. Aveling's interesting "*Biographical Sketches of British Obstetricians*," in the *Obstetrical Journal* for October, 1873—"Being commanded by the Lady Dowager Brook to wait on her to London, to take the consult of physicians, in the way before we came to Tossiter, we met with the tidings of that fatal fire of London, which caused her Honour to resolve for Hackney. After some time of her being there I was desired by Mrs. Hatton to go visit one near her time of her first child, who was aged. She begged of me to come to her if there was need. I told her there were several men abler than myself, and fitted with instruments which I wanted, that might be had from the city (he, doubtless, here, says Dr. Aveling, refers to Paul Chamberlen). After two or three days, in the night she sent for me. I being very much indisposed and the night tempestuous, I denyed; but, being very much importuned by a gentlewoman, I went. When

^a Mercurialis in Spachius' *Gynæcociorum*, &c. P. 237. 1597.

^b Jacobus Rueff. *De Conceptu*, &c., in Spachius' *Gynæcociorium*. P. 179.

come, I made trial, and found the child came right, but without advantage, though pains were strong. I made use of what came next my thought, getting it a little better fitted at a smith's shop hard by, with which I brought away the child, though with much difficulty."

The forceps of Avicenna, like those of Jacobus Rueff, were small and imperfect instruments, the opposite blades being united by a fixed point, and therefore necessarily introduced into the vagina together, and there opened to catch hold of the head of the child, *si possibile sit!* This same malconstruction occurs in Chamberlen's first forceps, which was exhibited by Dr. M'Clintock at the last meeting of this Society, and is merely an enlarged copy, with fenestrated blades, of the "*forcipes longa et tersa*," described by Rueff in 1524. In Chamberlen's second forceps we find that he had discovered the inconvenience of the fixed point, and I think the only credit he deserves is that of opening and enlarging the blades, and doing away with this articulation. Even on their own showing, none of the Chamberlens, from Dr. Paul, the supposed inventor, down to Dr. Hugh, the translator of Mauriceau's work, are entitled to any gratitude from posterity for their boasted discovery of an instrument professedly designed to save life and relieve suffering, but which they sordidly kept a close secret for their own aggrandisement. Up to the time when the last, the sixth, edition of his translation of Mauriceau's first volume was published, in 1715, Dr. Hugh Chamberlen still retained his secret. "My father, brother, and myself (though none else in Europe as I know), have, by God's blessing and our own industry, attained to and long practiced a way to deliver women in this case without any prejudice to them or their infant, though all others (being obliged, for want of such an expedient, to use the common way) do, and must, endanger, if not destroy, one or both with hooks."

Some years ago the late Dr. M'Keever, who has very recently passed away from amongst us, with all his faculties unimpaired by advanced age, and who was long distinguished as an obstetric writer and practitioner, presented me, amongst other papers, with the manuscript now shown, which contains a version of the history of Chamberlen's failure with the forceps in his Paris case, as related in the earliest Lectures delivered in Edinburgh on midwifery. The first Professor of this subject in that University was Dr. Gibson, who was appointed in 1736, but died before entering on his professorial duties, being succeeded by Dr. Young, of whose unpublished lectures the manuscript is now before the Society.

Dr. Young's account is evidently founded on Mauriceau's, from which it only differs in saying that, "The woman died under his hands undelivered, upon which he quitted Paris without selling his secret. This afterwards turned out to be the forceps, as we learn from Chapman, the material thing in whose book is the discovery of that noble instrument, the forceps, which has saved the lives of thousands that otherwise must have been lost. The next writer is Giffard, who practised about the same time with Chapman, and it was he that introduced the frequent use of the forceps, and who perhaps had more practice with them than any of his predecessors, or even successors. . . Chapman only delivered six, and these with one single blade of the forceps. This single blade is what is called Roonheysen's secret, and in Holland none are allowed to practice midwifery without being instructed how to use this single blade by the professor appointed for that purpose."^a

The foregoing account of the introduction of the forceps into practice differs somewhat from that given in another manuscript, also in my possession, containing the unpublished lectures on midwifery delivered in Edinburgh in 1776 by Professor Hamilton. In the latter it is erroneously stated that before attempting to use the forceps in his celebrated Paris case, Chamberlen had obtained a thousand pounds from the French Government for divulging his secret. "This sum," says Dr. Hamilton, "was readily granted, and he was called to the next laborious case that occurred, but in this he was foiled, and Mauriceau afterwards delivered the woman by opening the child's head, but the woman died, as Mauriceau mentions, from the instrument of the English operator wounding the uterus in several places. Chamberlen left Paris and came home by Holland, and it is said there showed the forceps to Roonheysen; this, however is disputed, but most certainly it was not known at Paris for a long time after—not, I believe, till 1734. Most certainly it was not known at the time that Palphyn came to Paris to publish his system of surgery. . . . After Chamberlen, Chapman improved them, but very little. Both his and Chamberlen's were straight, by which they could not be worked with without the handles injuring the woman very much behind. Levret introduced a curved pair. Freke armed his with a crochet at one end and a blunt hook at the other, by which the practitioner went about armed at all points. Freke's instrument is too long; however, it is used to this day all over

^a Dr. Young's Manuscript Lectures.

the Continent, with a very slight alteration. Smellie, who had a very considerable mechanical turn, improved the forceps most. He first constructed a wooden pair, but he found this so difficult of application that he soon gave it up, and had a steel pair made. Dr. Wallace Johnston next improved the forceps; he added the curve of Levret; he increased the breadth of the blades and diminished the weight of the instrument. The London practitioners are every day inventing new ones, but are in no degree superior to this. After all that has been said about the forceps, I may now remark that a man who has been used to deliver with instruments may deliver with the shafts of a couple of spoons; yet young practitioners find considerable difficulty in delivering with the modern forceps."^a

The case in which Chamberlen failed to effect delivery with his forceps in Paris, even as narrated by Mauriceau, reflects more credit on the English than on the French accoucheur—the latter left the woman to die undelivered, the former at least attempted to assist her:—"On the 19th of August, 1670," says Mauriceau, "I saw a small woman, aged thirty-eight, who had been in labour of her first child for eight days. The waters escaped on the first day without hardly any dilatation of the os. Remaining in this condition until the fourth day, I was sent for, and recommended the midwife to bleed her; and in case this did not produce the effect I hoped, to administer an infusion of senna to excite pains, which she had not; this was done the following day, and succeeded in causing pains, by which the mouth of the womb was dilated as far as possible. Nevertheless, I could not deliver, and the child had remained in the same situation, without being able to advance, for this woman was so small, and the bones (of the pelvis) so narrow and close to each other, and the sacrum so curved forwards, that it was quite impossible to introduce the hand to deliver her, although mine is small enough, . . . or to introduce the fingers sufficiently to enable me to use a crochet safely, so as to extract the child, which had been apparently dead for about four days. I declared the impossibility of delivering this woman to my assistants, who, being well persuaded of this, prayed me to perform the Cæsarean operation, which I would not undertake, knowing well that it was always certainly fatal to the mother. But *after* I had left the woman in this condition, it not being possible for me to help her

^a Dr. Hamilton's Manuscript Lectures. Vol. I., p. 223.

as I would any other of a more normal conformation of body, there came shortly afterwards an English physician named Chamberlen, who was then in Paris, and who, from father to son, made a profession of midwifery in England, in the town of London, where he thus acquired the highest reputation in that art. This physician finding the woman in the condition just stated, and learning that I had not found any possibility of delivering her, declared himself astonished that I could not do so. *Moy* (says Mauriceau, with all a Frenchman's untranslatable vanity), *qu'il disoit assuroit estre le plus habile homme de ma profession qui fort à Paris* ; notwithstanding which he at once promised to deliver her most assuredly in less than half a quarter of an hour, whatever difficulty he might find. Accordingly, he immediately applied himself to the business, and in place of half a quarter of an hour, he worked for more than three entire hours without cessation, except to take breath. But having vainly exerted all his strength, as well as all his industry, and seeing that the poor woman was almost dead in his hands, he was obliged to abandon the attempt and to allow that he could not accomplish it, as I had well declared. This poor woman died undelivered twenty-four hours after the violence he had done her, and at the examination I made in performing after her death the Cæsarean operation, which I would not do before, as I have said, I found the child and everything else as I had before stated, and the womb all torn and pierced through in several places by the instruments which this physician had blindly used without the controul of his hand, which being a size larger than mine, he did not seem to have been able to introduce sufficiently far so as to preserve it." Mauriceau then goes on with great complacency to observe that the English physician, who had come six months previously to Paris in the hope of making his fortune, had circulated a report that he had a secret (*tout particulier*) for such cases, and vaunted that he could thus deliver in even the most desperate and otherwise hopeless cases in less than half a quarter of an hour, and had even proposed to the First Physician to the King that for a reward of ten thousand crowns he would disclose his pretended secret. "Mais le seule experience de ce fâcheux accouchement le dégouta tellement de ce pais-ci, qu'il s'en retourna peu de jours en suite au Angleterre ; voyant bien qu'il y a Paris de plus habile gens en l'art des accouchemens que lui." But before leaving Paris Chamberlen called on Mauriceau, and after various compliments had passed between them, the latter thus concludes his account of

the visit:—"Je recûs son compliment comme je devois lui faisant entendre qu'il s'était bien trompé en croyant trouver autant de facilité à accoucher les femmes à Paris, comme il avoit pû trouver à Londres ou il retourna le lendemain emportant avec lui un exemplaire de mon livre; qu'il fit imprimer après l'avoir traduit en Anglais en l'année 1672, depuis laquelle traduction il s'est acquis un si haut degré de réputation dans l'art des accouchemens dans la ville de Londres, qu'il y a gagné plus de trente mille livres de rente, qu'il possède présentement."^a

Amongst the writers who took part in the introduction into midwifery practice of instruments intended for the same purpose as the forceps, a prominent place must be assigned to M. Jean Palfyn, of Ghent. In 1708 Palfyn published at Leyden an anatomical continuation of Mauriceau's work;^b and twelve years later, being at Paris bringing out a new edition of his book, he presented to the French Academy of Sciences what he termed his *tire-tête*—a kind of extracting forceps the handles of which did not cross, but were simply connected together by a ligature.

Although Chamberlen and, in a lesser degree, Chapman have generally been given the credit of introducing the forceps into English midwifery practice, the first who avowedly employed and recommended the use of this instrument was Mr. William Giffard, surgeon and man-midwife, who died before Chapman's book appeared. Giffard appears to have used his "Extractor," as he calls it, almost as freely as any modern accoucheur does the forceps, and moreover, anticipated Smellie's plan of dilating the os uteri to apply this instrument, which has been again recently revived. I am indebted to the kindness of Dr. M'Clintock for the opportunity of referring to this scarce work.

The first case in which Giffard employed his "extractor," or forceps, occurred on the 8th of April, 1726, the patient being the wife of one of the Prince of Wales' servants, and, owing probably to the inexperience and timidity of the operator, was unsuccessful. Two years subsequently he relates the first published case in which the forceps was successfully used for the delivery of a living child. This occurred on the 28th of

^a Observations sur la Grossesse et l'Accouchemens des Femmes, &c. Par François Mauriceau, Ancien Prevost de la Compagnie des Maitres Chirurgiens de la ville de Paris. Observation XXVI., p. 25. Paris: 1715.

^b Description Anatomique des Parties de la Femme qui servent la generation, &c. Lequelles ouvrages ont peut considéré comme une suite de l'Accouchement des Femmes par M. Mauriceau. Par M. Jean Palfyn, Anatomiste et Chirurgien de la ville de Gand. Leide: 1708.

June, 1728. The woman had been for many hours in "labour which was delayed by inertia; and having first administered a clyster and two cordial hypnotic draughts" at intervals of eight hours, he says:—"I then found the child but little advanced; her pulse was very quick and labouring, and the womb very much spread, so that I could entirely pass my fingers round the head to the ears, for it was no ways engaged, but loose; wherefore, considering that her pulse grew languid, and that her strength decreased, I thought it advisable to attempt her delivery. I endeavoured to press the child back, that I might be able to turn and get the feet, but it was so locked at the shoulders that I was not able to move it, whereupon I passed my extractor and drew it with much difficulty forwards without the labia. . . . The child was born alive. This case proves that a child presenting right, but sticking in the passage, may be brought alive (I won't say always) without either the use of hooks, or lessening the head, contrary to the opinion of most former writers."^a

Giffard occasionally narrates the history of more than one forceps case occurring in the same day as an ordinary matter. Thus, on the 17th of May, 1731, he met with two cases "where," he says, "I thought it advisable to lend my assisting hand." The first was a case where the head was for some hours impacted in the pelvis; and the second is a case—interesting at the present time, when the same practice is again recommended—of labour delayed by rigidity of the os, where he "was of opinion that the delivery ought to be immediately effected in respect both of the mother and of the child. . . . But as the os internum was not so fully dilated as readily to admit the passage of the head through it, I strove to stretch and widen it by putting the ends of my fingers between it and the child's head, and, by this method, made way for the more easily passing of the instrument, without bruising or tearing the parts."^b

To Edward Chapman is due the credit of first making Chamberlen's secret known to the profession, as well as of improving its construction by substituting hard for soft metal, and disusing the riveted lock still retained in some French and American forceps. In his "Treatise on the Improvement of Midwifery," published in 1733, Chapman states that

^a Cases in Midwifery, written by the late Mr. William Giffard, Surgeon and Midwife. Revised by Edward Hody, M.D. P. 49. London: 1734.

^b Ibid. P. 459.

difficult labours, where the head lies low, can only be accomplished by either the fillet or by the forceps. "As to the forceps," he says, "which, I think, no person has yet any more than barely mentioned, it is a noble instrument, to which many now living owe their lives, as I can assert from my own knowledge and long successful practice."

The frequent use into which the forceps came as soon as it was known is evinced by numberless contemporaneous authorities; but by none more clearly than by the author of a letter addressed to Chapman, and published in the third edition of his book. "All I can say," reiterates Chapman, "in praise of this noble instrument must necessarily fall short of what it justly demands. The following letter was sent to me by a gentleman who had been recommended to me for information in this art, and has long practised with great success and applause:—'Sir, if you please to remember, about a week after I came into the country, I acquainted you that I was called to a woman in labour, where the child presented with the head far advanced in the vagina, with the os uteri extending. I delivered her with the forceps, and neither the mother nor the child received the least injury. Since that time I am come into such credit, that I am frequently called in twice or thrice a week; and, I thank God, I have not, as yet, met with the least mishap. Our midwives here are pretty dexterous, but when the head falls so low as to require the use of the forceps, they are at a loss. I have had two cases where I was obliged to deliver feetways, the heads of the infants not offering directly right for the instrument. *All the rest I delivered with the forceps.*—Yours, &c., John Paget. Lullworth, Oct. 30th, 1734.'"^a

The years 1733 and 1734 are memorable in the history of the forceps, for not only were Giffard's and Chapman's works then published, but, at the same time, Mr. Alexander Butter, Surgeon in Edinburgh, communicated to a Society in that city—"The description of a forceps for extracting children by the head, when lodged low in the pelvis of the mother." "The forceps," he says, "for taking hold of a child's head when it has fallen so far down among the bones of the pelvis that it cannot be pushed back again into the uterus, to be extracted by the feet, and when it seems to make no advances to the birth by the throes of the mother, is scarce known in this country; though Chapman tells us it was long made use of by Dr. Chamberlen, who kept the form of it a secret, as Mr. Chapman

^a A Treatise on the Improvement of Midwifery. By Edward Chapman, Surgeon. Third Edition, p. 89. London: 1759

also does. I believe, therefore, that a sight of such an instrument—which I had from Mr. Dusè, who practices midwifery at Paris, and who believes it to be his own invention—would not be unacceptable to you, and the publication of a picture of it may be of use to some of your own readers.”^a

In 1742 the use of the long forceps, which appears to have been even then “in general use all over Europe,” was described by Mr. (afterwards Sir) Fielding Ould, who succeeded Dr. Mosse as the second Master of the Dublin Lying-in Hospital. Ould’s work is very interesting, as it contains clear directions for the performance of version as a substitute for craniotomy in certain cases of obstructed labour, for the proposal of which the late Sir James Simpson obtained so much credit a hundred years afterwards. Mr. Ould also forestalled a suggestion made a few years ago by the late Dr. Beatty for preventing impending laceration of the perinæum and recto-vaginal septum during labour by incising the perinæum. But on the subject of the forceps Ould merely repeats the directions of former writers. Speaking of labours delayed by disproportion or inertia, where the child is living, “or, rather, if there be not a certainty of its death, in this case,” he says, “the best adapted instrument is the long forceps, which is in general use all over Europe, wherefore it needs no particular description. . . . Being thus provided, we proceed to the operation by placing the woman on her knees, &c.”^b Immediately after its publication, Ould’s work was unsparingly attacked by a rival Dublin accoucheur, Dr. Southwell,^c who printed two pamphlets on the subject—one in Dublin, and the other shortly afterwards in London. In the former he reproaches Ould with being “the youngest surgeon practising midwifery in this city; a man not conversant with authors, and, at best, but a novice in practice. . . . I shall only add, in general, Mr. Ould is totally ignorant of the regular use of instruments. He entirely mistakes the right use of the large forceps.”^d

^a Medical Essays and Observations Published by a Society in Edinburgh. P. 321. Edinburgh: 1735.

^b A Treatise of Midwifery. In Three Parts. By Fielding Ould, Man-midwife. P. 156. Dublin: 1742.

^c Remarks on some of the Errours in Anatomy and Practice in a late Treatise of Midwifery, published by Fielding Ould, Man-midwife. By Thomas Southwell, M.D. and Man-midwife. P. 41. Dublin: 1742.

^d A Continuation of Remarks on Mr. Ould’s Midwifery. By Thomas Southwell, M.D. and Accoucheur. London: 1744.

In 1752 Dr. Smellie's Treatise, from which a new era in midwifery practice may be dated, was published. To Smellie we owe what were until very lately the best types of the short and long forceps, as well as the clearest directions for using them "on rational and mechanical principles." Nay, on comparing his writings with those of his successors for upwards of eighty years, we find that when, in the course of time, Smellie's teachings were supplanted by those of William Hunter, Osborne, and Denman, and even down to the date of Blundell's or Collins' works, midwifery retrograded; and only within the last thirty-five years has it regained the ground lost since Smellie's time, and has progressed as much beyond his practice as he had advanced beyond that of any of his predecessors.

The mode of effecting delivery with the forceps before the full dilatation of the os uteri was distinctly described by Smellie, who warns his readers that "in stretching the os externum or internum, we ought to imitate nature; for in practice we find that when they are opened slowly and at intervals by the membranes or by the child's head, the parts are seldom inflamed or lacerated. . . . We ought, therefore, when obliged to dilate those parts, to proceed in that slow and deliberate manner; and though, upon the first trial, they feel so rigid that one would imagine they could never yield or extend, yet, by stretching with the hand, and resting at intervals, we can frequently overcome the greatest resistance."^a

The prudent caution which induced Smellie for many years to refrain from recommending or even showing his long forceps to his class was founded on reasons still applicable. "In order," he concludes, "to disable young practitioners from running such risks, and to free myself from the temptation to use too much force, I have always recommended the forceps so short in the handles that they cannot be used with such violence as will endanger the woman's life."^b And in his collection of cases he says:—"But if these expedients be used prematurely, when the nature of the case does not absolutely require such assistance, the mischief that will ensue will often overbalance the service for which they are intended. I did not then recommend the use of them (the long forceps), because I was afraid of encouraging

^a Smellie's Midwifery. P. 159.

^b A Treatise on the Theory and Practice of Midwifery. By William Smellie, M.D. P. 162. London: 1752.

young practitioners to exert too great force, and give their assistance too soon.”^a

Hardly was Smellie's work published than its author's scholarship and style, and, still more, his practice with the forceps, were vehemently assailed by Dr. Burton, of York, whose portrait and obstetric armament have been immortalised by Sterne in “*Tristram Shandy*.” “Great son of Philumnus, what can'st thou do? Thou has't come forth unarmed; thou has't left thy *tire-tête*, thy new invented forceps, thy crochet, thy squirt, and all thy instruments of deliverance behind thee.” The “new invented forceps” referred to was an instrument somewhat like a crab's claw, recommended by Dr. Burton.

Dr. Burton's attack on Smellie, though virulent in the extreme, is evidently the work of a learned and able man. Its *animus* is sufficiently shown by the title—*i.e.*, “A Letter to William Smellie, M.D., containing Critical and Practical Remarks upon his Theory and Practice of Midwifery. By John Burton, M.D. Wherein the various gross mistakes and dangerous methods of practice mentioned and recommended by that author are fully demonstrated and generally corrected. London: 1753.”

“To confound all nature,” he says, “all distinctions of sex, to make animals vegetables, and the one and the same author two different persons, and neither character agree with the true one; to palm upon us an author that never existed; to pass over in silence several material things that contradict your own practice in those authors that are genuine, and to make them say things they never dreamed of, in order to countenance it, is such a piece of history as the present day cannot boast of; yet, strange as this may appear, you have done it. And if anything can be added to shock human faith, or prejudice your character as an historian or translator, it is your having converted *Lithopodii Senonensis Icon*, which you call *Lithopedus Senonensis*, an inanimate, petrified substance, into an author, after you had been six years cooking up your book.”^b

If Smellie's writings and practice were fiercely assailed, they were no less warmly vindicated by contemporary writers. Thus the Manuscript Lectures of Dr. Young, already noted, contain the following remarks:—“The great Dr. Smellie, ever to be held in esteem by all succeeding

^a A Collection of Cases and Observations in Midwifery. By William Smellie, M.D. P. 4. Sixth Edition. Dublin: 1764.

^b Burton's Letter to Smellie. P. 1.

accoucheurs—men who ought to hold his memory in esteem have taken great liberties, and presume to find fault. But with regard to this matter I differ in opinion with the self-conceited blockheads who have not been able to produce anything equal to this good man. The second part contains one hundred pages on laborious births, where he gives full and explicit directions for using the forceps; and, forsooth, here again they find fault by saying he recommends their too frequent use. But every man of merit is the subject of envy to the ignorant and weak (I had almost said pettyfoggers of the profession). . . . And every unprejudiced person must allow him the merit of being the first who gave us a proper idea of using that noble instrument with ease and elegance, although they were in the hands of the Chamberlens, Chapman, and Giffard long before.”^a

“I knew him well,” says the anonymous author of a furious diatribe against the employment of men in midwifery practice, published in 1772, speaking of Dr. Smellie; “he was an honest man, and not only a faithful compiler of the doctrines and sentiments of other writers on the subject, but whatever he advanced as new and properly his own was founded on real facts and observation; and, what ought still more to recommend him and enforce his authority with those of his fraternity, he was an enthusiast in his profession; man-midwifery was the idol of his heart, and he believed in his forceps as firmly as he did in his Bible.”^b

A few years after its first introduction into English midwifery practice, we have evidence to show that the forceps had come into such general requisition, that its over-frequent employment, or misapplication, led to that wide-spread prejudice against its use, from the effects of which the practice of midwifery has only very recently been emancipated.

One of the most strenuous opponents of the forceps was the anonymous writer just quoted, whose attack is worth citing as indicating the frequency with which the forceps was employed upwards of a century ago, and pointing out the commencement and causes of the prejudice with which it was regarded for so many years, and which is not undeserving of special consideration at this time:—

“This instrument (the forceps) was, for some time, in the possession of a few practitioners only, nor has it been publicly known above forty years. But as soon as it was made public, it is surprising with what

^a Dr. Young's Manuscript Lectures. P. 18.

^b The Present State of Midwifery Considered. P. 40. London: 1772.

avidity it was adopted, in so much that, for the first twenty years, the whole study of the men-midwives was how to new-model and improve its form and make, to delineate the various methods of using it, and to demonstrate in what a variety of situations and positions of the child it might be serviceable, till they, by degrees, found out that there could hardly occur a case in midwifery but where the forceps might be used with advantage. . . . I can hardly, therefore, fancy myself exceedingly presumptuous if I declare the forceps to be quite as useless to women in labour as either the blunt hook or fillet. But I must beg leave to go still a little further upon this head and observe that this is not only a useless but also a very pernicious instrument, for by hastening delivery before the parts are properly distended by the natural pains and strainings of the mother, such dreadful lacerations are made, both internally and externally, as must frequently prove fatal, or, at best, the source of much inconvenience and misery to the unfortunate woman who has been the subject of such practices. . . . Nor am I by any means singular in my opinion of the inutility of this instrument. The best practitioners in midwifery have given it up, and very seldom have recourse to it; and I am credibly informed that the man who has, for many years, been deservedly esteemed the practitioner of the greatest skill and judgment of any who profess the obstetric art in this kingdom (this evidently refers to Dr. William Hunter), declares that he has seldom or never, during the whole course of his practice, used the forceps, or met with a case where he thought it necessary to do so; unless he may be said to use them when he occasionally introduces a single blade to remove any impediment which the head of the child may accidentally meet with by pressing upon some of the bones of the pelvis, whereby its descent and delivery are retarded; but he adds that occasions for this very seldom happen; he could almost always get the better of such obstacles with the hand only."^a

There can be no doubt that the forceps or vectis was, at this period, greatly abused in both English and foreign midwifery practice, for in the latter we read of one accoucheur boasting of 800, and another of 1,200 instrumental deliveries, and of the same state of practice in England we are assured on the authority of Osborne^b and Denman.^c

^a *The Present Practice of Midwifery Considered.* P. 79. London: 1772.

^b *Essays on the Practice of Midwifery.* By William Osborne, M.D. P. 142. London: 1792.

^c *Introduction to the Practice of Midwifery.* By Thomas Denman, M.D. P. 275.

In contemporaneous medical literature we find constant reference to the frequent use of the forceps. Thus, this is one of the heaviest charges brought against the obstetricians by the author of the most unjust and indecent attack ever made on our profession. "Men-midwives," says this scurrilous writer, "seldom wait for nature's moment. Women are objected to because they are tedious. Men are extolled because they are quick. If Dr. — has one or two pregnant ladies waiting, from whom he expects handsome payments, he will take merit for hastening the birth, and if any accident happens from his impatience, his reputation is too well established to suffer in the eyes of mankind, and the misfortune is attributed to some of the common casualties attending labour, when it derived its source solely from the doctor's having brought the child forward unnaturally before the parts were predisposed, by a proper distension, for its reception and passage. I fear two ladies died lately from this very practice; the parts inflamed, the inflammation spread by sympathy, the bowels mortified. The men-midwives not only give rise to inflammation by bringing the child before the woman has felt half the number of pains which nature intended to predispose the parts, but likewise by their dilatations. Can any practice be more repugnant to common sense than that of irritating the exquisitely sensitive nervous fibres of these parts by way of preparing them for distension? The men absolutely counteract the very end they pretend to have in view by dilatation! Friction must irritate, irritation must inflame, inflammation must contract."^a

The reaction against the forceps now set in, and, being supported by men so eminent as William Hunter, Denman, and Osborne, as well as their successors in the early part of this century, has continued to affect midwifery practice down to a very recent time.

"It is scarcely possible," observes Denman, "to say too much against a hasty recourse to the forceps, even in cases which may ultimately be relieved by using them, and neither this nor any other instrument is now used in the practice of midwifery one-twentieth part as frequently as they were fifty years ago. . . . The use of instruments of any kind ought not to be allowed in the practice of midwifery from any motives of eligibility. Whoever will give himself time to consider the possible mistakes and want of skill in younger practitioners, which I

^a The Danger and Immodesty of Employing Men-midwives, &c. Anonymous. 2nd edition. P. 69. London: 1772.

fear many of us may recollect, the instances of presumption in those who, by experience, have acquired dexterity, and the accidents which, under certain circumstances, seem scarcely to be avoided, will be strongly impressed with the propriety of this rule, as well as from the general reason of the thing.”^a

Dr. Osborne says that “in the state indicating the use of the forceps, all the powers of life are exhausted, all capacity for further exertion is at an end, and the mind is as much exhausted as the body; they would both together yield under the influence of such continued and unavailing struggles.”^b

“If you must err,” says Dr. Blundell, “then take my advice and err rather by the neglect or rejection of instruments, than by their too frequent use; for the cases in which you may use instruments without need are as numerous as the cases that fall under your care, with the exception of the few—very few—in which these weapons are really required.”^c

It would be superfluous to add any other quotations from the countless authorities who, down to our own time, have repeated Denman’s warnings against the too-frequent employment of the forceps, or to cite any of the almost equally numerous writers who now advocate this practice. The statistics I am about to adduce will show the practical effect of these teachings better than any mere statement of opinions could do.

The cases in which I have used the forceps myself are shown in the following Tables, in the first of which is contained an abstract of one hundred and sixty-three forceps cases in hospital and private practice, and in the second the details of seventy-five cases in which I have applied the forceps in private and consultation practice.

^a Introduction to the Practice of Midwifery. By Thomas Denman, M.D. P. 276.

^b Essays on the Practice of Midwifery. By Wm. Osborne, M.D. Essay IV., Sec. 1. London: 1795.

^c Principles and Practice of Obstetric Medicine. By James Blundell, M.D. P. 321.

TABLE 1.—*Dr. More Madden's Forceps Cases, from May, 1868, to June, 1875 (163 Cases).*

Pregnancy		Cause of Operation in each Case												Sex and Condition of Child				Duration of 2nd Stage			Forceps used			Result		Cause of Death in Fatal Cases			
		Inertia of Uterus	Disproportion	Malposition	Rigidity	Prolapse of Funis	Impaction of Head in Cervix Cases	Exhaustion	Hæmorrhage	Convulsions	Threatened Rupture	Rupture of Uterus	Male Living	Female Living	Male Still-born	Female Still-born	Under 3 hours	From 3 to 8 hours	Over 8 hours	Madden's Short	Madden's Long	Hospital Straight	Recovered	Died	Puerperal Fever and Pyæmia	Shock	Secondary Hæmorrhage	Convulsions	
Total Number of Cases	Primipara	57	31	49	15	7	4	3	2	2	2	2	2	2	2	2	27	42	9	41	—	47	82	6	4	1	—	1	
	Multipara	40	35	37	17	4	6	1	2	—	2	4	1	39	26	7	3	11	28	5	42	21	12	70	5	3	—	1	
88																													
75																													
163																													

TABLE 2.—*Forceps Cases from February, 1869, to June, 1875.*

No. of Case	Patient's Age	Pregnancy	Hours ill	Length of 2nd stage	Cause for Interference with Forceps	Description of Forceps used	Sex and Condition of Child	Result to Mother	Observations
1	48	1st	28	—	Disproportion and rigidity	Long straight	F. still-born	Recovered	Os rigid; head high above brim; pains very strong, but ineffectual; patient becoming exhausted, chloroform, and as soon as os half dilated, but dilatable, long forceps applied, and delivery effected.
2	28	3rd	32	—	Inertia	Madden's short	F.	Recovered	—
3	20	1st	30	5	Inertia	Madden's short	F.	Recovered	—
4	25	2nd	6	—	Accidental hæmorrhage	Long straight	M. still-born	Died	Forceps applied as soon as the os was dilatable; mother died of metro-peritonitis ten days after delivery.
5	36	5th	18	4	Inertia	Long straight	M.	Recovered	—
6	40	3rd	50	6	Angular deformity of coccyx	Long straight	M.	Recovered	Ten years since last child; coccygeal articulation ankylosed and bent forwards; delivery effected with considerable difficulty by long forceps, coccyx being forced back during the extraction.
7	39	1st	20	3	Inertia	Madden's short	F.	Recovered	—
8	19	1st	24	—	Face presentation	Long straight	M. still-born	Recovered	—
9	30	2nd	12	4	Disproportion	Long straight	M.	Recovered	Child very large, circumference of head nearly 15 inches.
10	28	4th	11	3	Inertia	Madden's short	F.	Recovered	—
11	28	2nd	13	—	Inertia	Madden's short	F.	Recovered	Slight P. P. H.; cold syringe.
12	—	3rd	48	—	Inertia, pulse rapid	Long	M.	Recovered	In labour two days and nights; os rigid; two 20 gr. doses of chloral; two warm baths; stimulating enemata; chloroform; long forceps; pulse rapid; alive; discharge; child very large; died.
13	26	1st	12	—	Acute uterine suffering	Madden's short	M. 8 lbs.	Recovered	—
14	22	1st	20	4	Disproportion, projection of promontory of sacrum	Long straight	M.	Recovered	Delivery, in consultation, effected with great difficulty; head of pelvis diminished antero-posteriorly; child's head deeply indented.

15	21	2nd	70	35	Inertia from over distention of uterus	Long	-	M. still-born	Recovered	-	-
16	-	1st	24	-	Inertia, slight disproportion	Long	-	M.	Recovered	-	-
17	26	2nd	-	4	Slight disproportion	Madden's short	-	M.	Recovered	-	Delivered of first child by craniotomy.
18	28	5th	-	-	Prolapse of cord, inertia	Madden's short	-	F. still-born	Recovered	-	Sent for in consultation; no pulsation; placenta removed, being morbidly adherent fibroid tumour in uterus; P. P. H.
19	-	6th	-	-	Inertia	Madden's short	-	F.	Recovered	-	-
20	34	7th	16	4	Inertia	Long	-	F.	Recovered	-	-
21	-	1st	20	-	Inertia	Madden's short	-	M.	Recovered	-	-
22	36	5th	30	6	Inertia, rigidity	Madden's long	-	M.	Recovered	-	Labour very tedious in 1st stage from rigidity; six years since last child.
23	28	4th	-	4	Inertia	Madden's short	-	F.	Recovered	-	-
24	-	1st	24	-	Disproportion	Long straight	-	M.	Died, puerperal fever	-	Head impacted at brim; extraction difficult; puerperal fever on third day; consultation, Dr. Denham.
25	22	1st	36	-	Disproportion, rigidity	Long straight	-	M.	Died, puerperal fever, on 9th day	-	-
26	23	1st	40	12	Complete inertia	Long straight	-	M.	Recovered	-	Sent for in consultation; child born alive, but died immediately; got puerperal mania on third day; recovered in about six weeks.
27	25	1st	60	5	Rigidity, disproportion	Madden's long	-	M.	Recovered	-	1st stage delayed by rigidity; warm bath taken; emetic; chloroform; 2nd, disproportion; child very large; delivered with great difficulty
28	30	-	-	-	Inertia	Madden's short	-	F.	Recovered	-	Called in consultation to apply forceps.
29	-	2nd	40	12	Inertia	Madden's short	-	M.	Recovered	-	Do. do.
30	21	1st	16	-	Inertia	Madden's short	-	F.	Recovered	-	Mechanically expanded os, and applied forceps.
31	22	1st	30	6	Slight disproportion	Long Hospital	-	M.	Recovered	-	-

TABLE 2—continued.

No. of Case	Patient's Age	Pregnancy	Hours ill	Length of 2nd stage	Cause for Interference with Forceps	Description of Forceps used	Sex and Condition of Child	Result to Mother	Observations
32	38	1st	24	5	Slight disproportion	Madden's short	M.	Recovered	Severe P. P. H., checked by introduction of hand and use of perchloride of iron; got puerperal fever 4th day, typhoid type, and lay for nearly six weeks in extreme danger; eventually recovered; Dr. Hayden saw her with me in consultation; she was the worst case of puerperal I ever saw recover.
33	18	1st	30	—	Rigidity	Madden's short	M.	Recovered	1st stage delayed by rigidity; 2nd shortened, as patient was becoming exhausted.
34	—	2nd	24	—	Inertia	Madden's short	M.	Recovered	—
35	—	1st	20	5	Inertia	Madden's short	F.	Recovered	In consultation with Dr. Cahill.
36	24	1st	26	4	Inertia	Madden's short	M.	Recovered	Slight attack of puerperal mania 3rd day, for one day only; recovered.
37	21	1st	24	3	Inertia	Madden's short	M.	Recovered	Patient threw herself about as head was being extracted; perineum lacerated through sphincter; three sutures; at once perfect union.
38	32	1st	20	3	Disproportion	Madden's short	M. still-born	Recovered	1st stage delayed by rigidity; 2nd by disproportion; mother very small, child large.
39	24	2nd	10	5	Inertia	Madden's short	F.	Recovered	—
40	24	1st	12	4	Slight disproportion, pains very violent	Madden's long	M.	Recovered	Patient very hysterical; had to be kept under chloroform throughout labour; pains very violent; head making no advance, short forceps applied, but slipped; delivery effected with difficulty with long curved forceps.
41	22	2nd	20	2	Inertia	Short straight	F.	Recovered	—
42	26	2nd	84	6	Inertia	Madden's long	M.	Died of secondary hæmorrhage	In labour for nearly a week; 1st stage delayed by rigidity; 2nd very feverish and exhausted; delivered by long forceps; head above brim; next day eruption of small-pox came out; became delirious on morning of 9th day; was attacked by secondary hæmorrhage, of which she died.
43	26	1st	24	5	Inertia	Madden's short	M.	Recovered	—

44	20	1st	—	6	Face presentation, impacted	Madden's short	M.	Recovered	-	In consultation with Dr. O'Farrell.
45	21	1st	30	—	Head impacted	Madden's long	F.	Recovered	-	—
46	—	2nd	12	4	Inertia	Madden's short	M.	Recovered	-	—
47	27	4th	19	4	Inertia	Barnes'	F.	Recovered	-	—
48	—	1st	80	12	Head impacted	Madden's short	M. still-born	Recovered	-	In consultation with Dr. McVeagh; my long forceps could not be applied; the short slipped repeatedly, but ultimately we effected delivery with them.
49	30	1st	41	3	Inertia and slight disproportion	Madden's short	F.	Recovered	-	—
50	25	1st	51	5	Slight disproportion	Author's long curved	F.	Recovered	-	—
51	22	2nd	26	2½	Inertia	Author's short	F.	Recovered	-	1st stage delayed by rigidity.
52	30	1st	20	8	Inertia	Author's short	F.	Recovered	-	Sent for to apply forceps.
53	30	3rd	8	—	Accidental hæmorrhage	Author's long curved	F.	Died of typhoid fever 6 weeks after delivery	-	Membranes ruptured; hæmorrhage still continuing ergot administered, and forceps applied as soon as os was sufficiently dilatable.
54	18	1st	16	2	Inertia	Author's short	F.	Recovered	-	—
55	30	1st	23	6	Disproportion, head impacted in pelvis	Author's long curved	M. still-born	Recovered	-	Bones overlapping; refused to allow forceps sooner.
56	25	1st	40	12	Complete inertia, head on perinæum	Author's short	F.	Recovered	-	Patient residing several miles from any medical assistance; sent for to apply forceps; patient under care of a midwife.
57	29	6th	12	4	Inertia	Author's short	M.	Recovered	-	—
58	26	3rd	18	5	Slight disproportion and inertia	Madden's long	M.	Recovered	-	Child very large; head impacted in brim; great difficulty in extraction.
59	36	8th	20	—	Slight disproportion and inertia	Madden's long	F.	Recovered	-	—
60	30	1st	24	9	Slight disproportion and inertia	—	M.	Recovered	-	—
61	30	1st	24	5	Inertia	Short	M.	Recovered	-	—

TABLE 2—continued.

No. of Case	Patient's Age	Pregnancy	Hours ill	Length of 2nd stage	Cause for Interference with Forceps	Description of Forceps used	Sex and Condition of Child	Result to Mother	Observations
62	36	1st	28	—	Epileptiform convulsions	Madden's long	M. still-born	Died	Epileptiform convulsions; in consultation; os rigid, size of florin; Barnes' bags failing to dilate, os incised, and delivery accomplished with my long forceps; convulsions continued after delivery; died in four hours subsequently.
63	38	1st	11	6½	Slight disproportion	Short	F.	Recovered	—
64	30	1st	8	3	Inertia	Madden's short	F.	Recovered	—
65	26	3rd	10	4	Slight disproportion	Madden's short	M.	Recovered	Child very large, very small woman; no advance for 3½ hours; pains at first very strong, becoming weaker.
66	24	2nd	24	—	Rigidity	Long	M.	Recovered	Os thin and rigid; pains incessant; warm baths and enemata; kept under chloroform all night; forceps applied as soon as os was dilatable; head above brim.
67	36	3rd	18	—	Inertia	Long	M.	Recovered	No advance for three hours; stimulating enema; ergot; long forceps; os size of crown, but very soft and dilatable.
68	31	9th	20	4	Inertia	Short	M.	Recovered	—
69	19	1st	15	—	Rigidity	Short	M.	Recovered	Pains incessant; kept under chloroform nearly all night; os rigid; as soon as os half dilated, head being low down, short forceps.
70	37	1st	12	—	Slight disproportion	Short	M.	Recovered	Head impacted in pelvis for two hours; ergot; stimulating enema; no advance; short forceps.
71	26	1st	8	1	Epileptiform convulsions	Short	M.	Recovered	One fit before and one after delivery.
72	22	1st	10	3	Inertia	Short	M.	Recovered	Slight laceration of perineum.
73	30	3rd	14	—	Rigidity	Long	M.	Recovered	Head high above brim; os would not dilate beyond size of crown; for four hours no advance; I dilated and delivered with long forceps.
74	25	5th	17	2	Inertia	Short	M.	Recovered	—
75	—	4th	7½	2	Inertia	Short	F.	Recovered	—

From 1745, when the Dublin Lying-in Hospital was first opened by Dr. Mosse, down to the present time, nearly two hundred thousand patients have been delivered in this great institution. But only seven of the Masters have left any detailed record of their practice, and from these separate Reports I compiled an account of the comparative use of the forceps at different times in the hospital for my "*Lectures on the Forceps*," since published. These statistics may probably be new to some of my hearers, and, therefore, I shall now briefly refer to them in proof of the desuetude of the forceps during many years, and the saving of life and suffering which has resulted from its reintroduction and judicious use in modern practice.

During the Mastership of Dr. Joseph Clarke, from 1787 to 1794, there were 10,387 deliveries in the hospital, and the forceps was only applied in 14 of these with 6 deaths. But the more easily used perforator and crochet were resorted to in 49 cases. And in his private practice, extending over forty years, Dr. Clarke only once attempted to use the forceps. In Dr. Labatt's Mastership, from 1815 to 1822, during which time 21,867 births took place in the hospital, the forceps does not appear to have been used in any instance. From 1826 to 1833 Dr. Collins used the forceps in 24 cases out of a total of 16,654, but employed the perforator in no less than 118 cases. From 1842 to 1845, Dr. Charles Johnson used the forceps in 18, the vectis in 16, and the perforator in 54 cases, in 6,702 deliveries. From 1847 to 1854, in Dr. Shekleton's Mastership, there were 13,748 deliveries in the Rotunda, and the forceps was now used in no less than 220 of these, and the perforator in 54. Dr. M'Clintock, who ruled the hospital from 1854 to 1861, brought the forceps into still more frequent requisition, and in his last three years of office employed it or the vectis in 76 cases, or once in every 60, in 3,700 deliveries, whilst the number of craniotomy cases was reduced to 5. The next Master, Dr. Denham, has not yet published his Report, from 1861 to 1868, but was (as I had an opportunity of knowing when serving as his assistant, as well as subsequently under Dr. Johnston) a constant advocate for the timely use of the forceps, as well as a most dexterous operator with it. To Dr. Johnston, the present Master, undoubtedly belongs the credit, however, of having brought the forceps into more frequent use than had ever previously been the case. Thus, from November, 1868, to November, 1874, in 7,027 deliveries, the forceps has been used in no less than 639 cases, or about once in every 11 cases, with

only 39 deaths, whilst the proportion of craniotomy, or cephalotripsy, cases has been reduced to 29.

The foregoing statistics show that, as the forceps is used more frequently, the mortality in the cases in which it is employed diminishes, and, secondly, also shows the happy effect of the free use of the forceps in lessening the proportion of craniotomy cases in the hospital.

In 1872 Dr. Johnston employed the forceps in thirty-five cases before the os was fully dilated, and in the following year's Report he says:—"There were 36 of the foregoing cases in which we considered it prudent to apply the forceps before the os was fully dilated; and as there are many still who will be astonished at this apparently bold mode of practice, and mayhap question its justifiability, I beg leave to assure them that, having adopted it for the last two years, during which time we delivered 71 such cases, we are more and more convinced each day of its great advantage in saving the lives of both mother and child."^a In his last Report, for 1874, Dr. Johnston again urges the advantages of this practice, which was spoken of, during the subsequent discussion in this Society, as a novel practice, and even as one "opening a new era in the history of midwifery." This practice was, however, described in the earliest published accounts of the forceps, and so extensively did it at one time prevail as to lead the most eminent practitioners to reprobate the premature use of instruments in terms so exaggerated and so forcible as to prevent their followers, for many years, from resorting to their use even when most urgently required.

That the application of the forceps before the full dilatation of the os uteri is necessary in certain cases, especially of complex labour, is unquestionable; and in Table No. 3 are given some cases in which I have thus employed the long forceps.

No fact in midwifery seems better established than that the dangers of child-birth bear a certain relation to the length of the second stage of labour, and that it matters comparatively little what the period of the first stage may be, provided that the second stage, when the child's head has passed through the pelvic brim, is not unduly prolonged. But the ordinary definition of these stages, however useful to students, may be disregarded by practitioners when it is necessary to do so.

^a Report of the Rotunda Hospital, from Nov. 8th, 1872, to Nov. 8th, 1873. By George Johnston, M.D., F.R.C.S. & Q.C.P., Master. P. 10.

TABLE 3.—Cases in which Forceps was applied before Full Dilatation of Os Uteri.

No. of Case	Age	Pregnancy	Cause of the Operation	Duration of Labour	State of Os Uteri when the Forceps was applied	Sex and State of Child	Result to Mother
1	28	1st	Rigidity of os, and threatened rupture of the uterus	29 hours	Half dilated	Female, alive	Recovered
2	27	1st	Rigidity and exhaustion	37½ hours	Size of crown-piece	Male, alive	Recovered
3	36	7th	Fœtal heart failing	24 hours	Three-quarters dilated	Female, alive	Recovered
4	25	5th	Accidental hæmorrhage	15 hours	Size of crown-piece	Female, still-born	Recovered
5	27	5th	Exhaustion	16 hours	Three-quarters dilated	Male, alive	Recovered
6	22	1st	Hæmorrhage	12 hours	Three-parts dilated	Male, alive	Recovered
7	40	3rd	Exhaustion	36 hours	Half dilated	Male, alive	Recovered
8	20	1st	Rigidity, threatened rupture	26 hours	Size of crown-piece	Male, alive	Died 8th day, puerperal peritonitis
9	20	1st	Rigidity and exhaustion	51 hours	Size of crown-piece	Male, alive	Recovered
10	20	1st	Threatened convulsions	30 hours	Three-parts expanded	Male, alive	Recovered
11	27	4th	Intense suffering, no advance for 8 hours	21 hours	Three-quarters dilated	Male, alive	Recovered
12	24	2nd	Exhaustion, rigidity	80 hours	Size of crown-piece	Male, alive	Died 8th day of secondary hæmorrhage
13	30	7th	Exhaustion	29 hours	Half dilated	Female, alive	Recovered
14	35	1st	Convulsions	16 hours	Size of a shilling when incised to effect delivery	Male, still-born	Died of convulsions 7 hours after delivery
15	36	3rd	Rigidity	28 hours	Three-quarters dilated	Male, alive	Recovered
16	28	1st	Exhaustion, rigidity	24 hours	Half dilated	Male, still born	Recovered
17	31	3rd	Rigidity, no advance for 12 hours	18 hours	Size of crown-piece	Male, alive	Recovered

In some cases we find the child's head down in the pelvis, and the labour more advanced before the os uteri is fully dilated than in others in which it has been expanded for some time, and, under these circumstances, we may, when necessary, apply the forceps as soon as the os tincæ is sufficiently dilatable. This procedure should, I think, be carefully restricted to cases of absolute and unavoidable necessity. In the hands of obstetricians so experienced and so judicious as Dr. Johnston and Dr. Nichols, by whom this practice has been recommended, it is, of course, safe and feasible, but the danger is that others, less experienced or less judicious, seeing its success under exceptional circumstances, may be emboldened to resort to it under less favourable conditions.

Natural labour is necessarily a slow process, by which the uterus contracts so as to expel its contents, which, and the parts through which they pass, must gradually accommodate themselves to the immense strain thus put upon them, and this gradual and permanent uterine contraction is essential to the life of the patient, and is her only safeguard against fatal *post partum* hæmorrhage. If the uterine efforts be allowed to continue too long without any assistance in a case of difficult or obstructed labour, this result may follow from exhausted contractility. But, on the other hand, if the child be dragged forth before the uterus has had sufficient time to contract on its vessels, the same consequence must be inevitably produced. If, therefore, obstetric practitioners should ever come to regard it as a safe rule of practice to apply the forceps as soon as the os uteri can be sufficiently expanded to admit its introduction, which, in some instances, might be done long before the occurrence of any true labour pains, is it not probable that the ill results of the indiscriminate, and injudicious employment of this practice will outweigh all the possible benefits of its right use?

Most obstetricians apply the same forceps in all cases. When I was in the Rotunda Hospital, Dr. Denham's straight forceps was invariably used, and, at present, Dr. Barnes' curved forceps is as constantly preferred. This exclusive reliance on one instrument is, I think, a great cause of the differences of opinion as to the uses and safety of the forceps. For, under this name, two different instruments are frequently classed together; and there can be no useful comparison between distinct mechanical powers, such as the long double-curved forceps, which is a powerful lever and compressor, but a feeble tractor, and the short

straight forceps, which is a tractor of great force in proportion to its size, though a weak lever or compressor.

In operative midwifery, as in any mechanical problem, it is obvious that there should be a due proportion between the power used and the resistance to be overcome, and that the force employed should be the minimum necessary to accomplish the desired effect. Thus, a steam hammer, capable of fracturing the strongest bar of iron, can be so deftly managed by a trained mechanic as to crack a walnut without breaking it; and we have recently seen that a skilled natator can use his life-preserving apparatus to traverse a wide and angry sea in safety; but yet, without in any way under-estimating the value of either invention for their proper purposes, none doubt that the shell might be cracked or the Straits of Dover crossed with greater certainty and greater ease by less heroic means. So it is with the long and short forceps; and though under exceptionally favourable circumstances the former may be used as a substitute for the latter, under ordinary conditions and in ordinary hands the latter is unquestionably far safer, as well as in most cases more applicable.

I have endeavoured to carry out these views in the two instruments now shown to the Society, and which have been tested by extensive use during the last few years. The first is a very short straight forceps. This weighs only 8 ounces, and is 10 inches in length, of which 6 inches are occupied by the blades, the curvature of which is very gradual. They are fenestrated throughout, so that, when applied, the child's scalp may protrude and cover the rims, thus protecting the maternal passages from any contact with the instrument during extraction. Immediately above the lock is a ring for the finger of the operator. The greatest space between the blades, when closed, is $2\frac{7}{8}$ inches, and between the points $1\frac{1}{4}$ inch. This instrument is most portable, is easily applied, and fits the child's head better than the ordinary forceps. It possesses little power as a lever or compressor, but is a very efficient extractor, and, therefore, may be used in nine-tenths of the cases in which any instrumental assistance is required during labour. The most common cause of delay in the second stage of labour is inertia of the uterus, requiring but a little aid to supplement the inefficiency of the natural *vis a tergo*, and it is for such cases that the short forceps is specially adapted.

It is unnecessary to enlarge on the expediency of affording timely

and judicious assistance whenever the second stage of labour is unduly prolonged, or to speak of the ill effects of such delay, the protracted sufferings of the patient, and the subsequent danger of inflammation of the soft parts, of exhaustion or of *post partum* hæmorrhage, as well as the possible risk to the child, which may result from leaving a woman for many consecutive hours in pain and anxiety on the very verge of delivery, when this might be easily and safely accomplished with the assistance of the short forceps. No other motives, however, should ever induce us to interfere with the course of labour, nor should any question of our own convenience be suffered to influence our judgment. No rule as to the time which a patient should be suffered to remain in labour before instrumental assistance is resorted to is of the least value; for one woman may suffer more from an hour's delay in the second stage than another would from six hours. The rule should, therefore, be to effect delivery by art whenever any danger to either the mother or to the child is likely to result from further protraction of the labour. And even then, unless the danger is urgent, the forceps should not be applied until a trial has been given to other means likely to stimulate the natural efforts to effect delivery, such as friction over the uterus, stimulating enemata, and a dose of ergot.

If such caution is useful with regard to the use of even the short straight forceps—the application of which, in the second stage of labour, when the os has been some time fully dilated, and the head is low down in the pelvis, is, with due care, a simple, safe, and easy operation—how much more necessary is it with regard to the instrument I now place before you. This is a double-curved long forceps, somewhat formidable-looking, but of great power, and intended to effect the delivery of living children in cases in which this could not be accomplished by any other forceps.

This instrument, which I exhibited at a meeting of the British Medical Association in London two years ago, being designed to obviate the use of the perforator or cephalotribe, is necessarily of great strength and size. It weighs about 26 ounces, and is 18 inches in length, the blades 10 inches long, the fenestrated portion being 17, and the shanks 3 inches. The widest space between the blades, when closed, is $2\frac{3}{4}$ inches, and between the points $1\frac{1}{4}$ inch. The handles being movable, the instrument may be applied in the ordinary obstetric position; or when a greater degree of compressing power and leverage is required, the handles may be adjusted, and then it can only be employed by placing the patient on

her back. To these handles may be affixed a screw, somewhat like that of the cephalotribe, by which the amount of compression exerted on the child's head can be exactly regulated. Strong shoulders are also affixed below the loops to increase the traction power of the instrument. The blades are very gradually curved, and thus, when applied, the pressure is more equally distributed over the child's head, so that the instrument is less liable to slip than other forceps.

This instrument is fortunately seldom required, for the class for which it is specially designed are happily comparatively rare, as it is intended mainly for the purpose of preventing the use of embryotomic instruments, and also for certain cases of complex labour, in which version cannot be readily accomplished before the natural termination of the first stage of labour, but in which immediate delivery is essential for the safety of the mother or of the child.

It need hardly be observed that an instrument of such great power, however useful when necessarily and judiciously used, cannot be improperly or needlessly resorted to without grave risk.

There can be no doubt of the compressing power of the forceps. Nor is it necessary to refer to the experiments of Baudelocque to demonstrate what every case of natural labour proves—*i.e.*, the extraordinary plasticity of the foetal head; and it is unquestionable that it is possible by art to assist the natural moulding process by which the child's head is forced through the pelvis. This assistance, when absolutely necessary, may be given by the instrument under consideration, and even a very considerable degree of disproportion may be overcome by the compressing power of this forceps—provided always that it be most gently and gradually applied in careful imitation of natural labour. I have thus, or by version, in several instances safely extracted living children from women who had, in their previous confinements, been delivered by craniotomy or cephalotripsy on account of some pelvic deformity.

As these forceps differ somewhat from those in general use, I may here reiterate a few suggestions as to the manner of applying them. The rectum and bladder being first emptied, the operator should make an examination to ascertain the exact position of the child's head. Then, if the short forceps is used, placing the patient on her left side, with her hips projecting over the edge of the bed, he should sit down opposite the perinæum, and taking the upper or pubic blade, previously warmed and oiled, in his left hand, he should gently insinuate it between the two first

fingers of his right hand and the child's head, until the fenestrum is well over the ear, and the lock rests against the perinæum. In like manner the sacral or lower blade is now to be introduced, the operator merely reversing the previous position of his hands. As soon as the locking is effected, which with this instrument is peculiarly easy, and requires no force, the operator introduces his right index finger into the ring already described, and very gently draws the head in the axis of the pelvis, at first downwards and backwards, and then downwards and forwards, until the vertex protrudes through the vulva, when the blades are unlocked and withdrawn, so as to avoid any possibility of lacerating the perinæum, and the child is helped out by manual pressure from the coccyx forwards over the perinæum.

The long double-curved forceps is to be used nearly in the same manner, except that, whenever practicable, it should be applied with the patient lying in the supine position, and drawn down to the end of the bed, with her legs flexed on the body, as though she were about to undergo lithotomy. As very few patients in this country will submit to be so placed, however, this instrument may be applied as the short forceps, bearing in mind that whatever situation the child's head may be in, the position of the blades of the long forceps must correspond with that of the transverse diameter of the brim of the pelvis. Another point of difference is, that this being a compressing instrument, the handles must not be suddenly or forcibly closed. In the case of a normal foetal head at full term, they should remain a full inch apart. When further compression is absolutely necessary to accomplish delivery, this may be cautiously and gradually applied by the screw already described, turn by turn, until the blades are sufficiently approximated to allow of their being slowly drawn down through the pelvis. In this operation it must never be lost sight of that these blades include in their iron grasp the fragile head of a living child, to which any hidden, violent, or excessive compression would prove destructive, but which may, within certain limits, be safely assisted in that gradual moulding and elongation necessary to effect its passage through the pelvis.



