ARTICLE II.

STUDY AND PRACTICE OF MIDWIFERY.

BY JOHN G. METCALF, M.D.,

OF MEDDOM.

READ AT THE ANNUAL MEETING, MAY 28, 1856.

MR. PRESIDENT AND FELLOWS OF THE SOCIETY, —

ON the first day of November, 1781, the Legislature of this Commonwealth passed an act "To incorporate certain Physicians, by the name of the Massachusetts Medical Society." We are met here to-day to celebrate the seventy-fifth anniversary of that Society; and to you who have come up hither to assist in the discharge of the duties of the present occasion, from the length and breadth of the old Bay State, — from the hills of Berkshire, from the heart of the Commonwealth, from the isles of the sea, and from the green banks of the Merrimack and the Connecticut; to you who have risked the consequences of another hegira from the toils and perplexities of professional demands, to brighten the chain of friendship, and see that its strength be not lessened by the rust which may have fastened upon its links since our last plea-

sant annual gathering at Springfield, — I am happy to extend a cordial and an affectionate welcome.

Although believing that the chief advantages of our annual meeting are to be found in the opportunities which it affords for initiating new and cementing old friendships, rather than in the consideration of abstract questions of science or art; in the familiar and unrestricted interchange of those kindly affections and sympathies, whereby we are not only made better men, but better physicians, rather than in the sharp encounter of professional discussion, or the constrained attention conceded, by conventional courtesy, to the delivery of an annual discourse, — still, finding a lack of courage to decline or desert the honorable post which the favorable consideration of the Councillors had assigned me to-day, and notwithstanding I come after those whose labors have done so much to elevate and enlarge the character of our Society, as well as the medical profession at large, in accordance with a custom, time-honored at least, I am before you for the occupancy, I hardly dare say for the improvement, of the current hour.

I propose to make use of the time allotted to me at this meeting by laying before you, for your consideration, a statistical account of 1,786 cases of Midwifery; 1,105 of which occurred in my own practice, and 681 were collected from the note-books of professional friends, and for whose kindness I desire, in this public manner, to return my sincere thanks. They all occurred in the County of Worcester, and are scattered over a period of thirty years, from 1826 to the present

time. The truthfulness of the facts may be relied on, as they were all noted at the time of their occurrence, and set down in "abstracts" of uniform construction.

A word, by way of preface, upon the subject of statistics. I am aware that it has been objected to statistical analyses, by affirming that "it is the easiest thing possible to pile figures upon figures: but, unless deduced from correct data, they serve only to mislead; and they do this the more readily, that they have a scientific air about them, and that most people shrink from the irksome task of examining whether tabular statements be correct or not. There is nothing, indeed, about which one should be so sceptical as the great number of what are called statistical facts and details, or with respect to which a sound and searching criticism is so necessary. The reader would do well, generally, to look with suspicion and distrust on most statements, how imposing soever they may appear, unless he be informed of the sources whence they have been derived, and the principles on and mode in which they have been compiled."*

To these words of caution I fully consent. That figures will not lie, or that every proposition can be established by some mathematical legerdemain in the construction of tabular statements, as some ardent statisticians would have us believe, is quite as wide from the mark as that the "numerical method" of Louis has furnished no aid in the study of disease, or achieved no claim to grateful and honorable distinction for the indefatigable physician of La Pitié. The

* One of the writers in Brande's Encyclopædia.

champions of these diverse opinions are both, we believe, equally distant from the truth: the one, that he builds up an hypothesis, splendid and gigantic though it may be in the details of its arrangements, and wrought out by the most elaborate architecture, upon doubtful or insufficient data; the other, that he distrusts the clearest inductions of reason, and denies their logical sequence, without ever inquiring into the number of facts upon which it is claimed they are based, or the principles on or the mode in which they have been collocated and compared. The one forgets that the progress of Truth is slow: the other ignores the fact that she moves at all. The one, wondering that we are not as sharp-sighted as himself, calls upon us to yield a full and unmodified assent to his crude generalizations and his wire-drawn conclusions *per saltum;* while the other, quite as honest, beseeches us, by our regard for prescription and our veneration for the fathers, to hold back the confession of our convictions, at least until the dawn of the millennium, simply because they were arrived at by a process which his eocene conservatism has hitherto prevented him from recognizing. "Nihil dum enim sciebant," is the exultant rallying cry of the one; "Culpâ vacare magnum est solatium," the complacent rejoinder of the other; and, between the disputants, truth remains fixed at the old stand-point.

But when we cannot object to the sources from which the facts have been derived, nor to the principles on or mode in which they have been selected, combined, and compared, who can doubt that statistical analysis

may demonstrate an enlargement of the boundaries of truth? True, the results from a few observations are not to be relied on for the establishment of conclusions contrary to received opinions: but, when facts have been multiplied; when "figures have been piled on figures," and the same results uniformly obtained; when the collocations and comparisons have been subjected to a close and uncompromising criticism, and no fallacy can be detected in the details of the various operations; when the foundations, as well as the superstructure, colossal though it may be in its proportions, and exceeding all former experience, have been attacked by the logician, and no expert has been found skilful enough, by sap or battery, to effect a practicable breach even in the outworks; when no Malakoff has been carried by assault, and no Redan holden for a space against fearful odds, — who, I ask, will say that no progress has been made in the march of truth?

A myth of the ancients made Truth the daughter of Time; and will any one question the wisdom of an apotheosis that assigned to her such an apposite paternity? Time elaborates all truth; and they who desire to be imbued with its spirit, or profit by its assistance, if they think to compass their object without days and months and years of patient research and careful and untiring observation, will find themselves, in the end, miserably mistaken.

So, too, no one man can find out the whole truth. He may do much to eliminate error, and make the truth more plain and palpable; but, subtracting his

own from the experience of fifty centuries, which he finds ready at his hand, he can only claim to advance the truth by an almost imperceptible stage. On the 23d of September, 1846, Gallé, of Berlin, received a communication from Leverrier, containing the following injunction: "Look, and you will find it." But could Leverrier have instructed the Prussian astronomer to what particular point in the heavens he should direct his telescope, or even what quarter of the starry concave he should sweep, for the discovery of Neptune, if astronomy had been a recent science? Nay, further, who can say that the barbarian nomad, who watched the rising and setting of the stars, some two thousand years ago, upon the plains of Chaldea, did not originate the process by which the French astronomer has immortalized his name? Did Smellie, think you, receive no hint from the torculum volvens of Rhazes, or Baudelocque from the impellens and the almisdach of Albucasis, in the perfection of the instruments which they introduced into the practice of midwifery?

But although, individually, we can add but little to the stock of knowledge already stored away in the garners of medical science; although no one man in a thousand can so far outstrip his fellows as to win a merited crown of distinction above them, — still, the obligation to contribute that little presses with equal weight upon each one, and as strongly, as though each was a Sydenham, a Cullen, or a Hunter. What had a Sydenham, a Cullen, or a Hunter, done for the cause of medical science, if the experience of his predecessors had not been transmitted for his instruction?

Nay, if Hippocrates and Avicenna and Galen had not recorded the results of their experience and the deductions of their philosophy, would not the advent of a Sydenham, a Cullen, and a Hunter, have been postponed to the completion of some future and distant cycle of the world's age?

Inasmuch, then, as we find the sum total of medical knowledge made up of almost infinitesimal accretions; that the contributors to the ever-accumulating aggregate are so numerous, that, without figure of speech, no man can number them; and as we feel impelled by the force of an obligation which no good man or good physician can be disposed to resist, — we shall be left without excuse if we withhold even our mite from the common fund. Yielding to the conviction induced by these considerations, and hoping — fearfully though it may be, if no new aids and appliances shall have been brought to light — that something will have been done, by the confirmation of our present experience, to cheer us in the toilsome discharge of professional obligations, the following contribution to the Study and Practice of Midwifery is respectfully submitted.

Before proceeding with the numerical analysis heretofore proposed, it will be proper to state that I have made use of the statistical tables of Collins, Churchill, and others; adding thereto, for purposes of comparison, the observations made by myself, and such other American practitioners as were found within my reach. The small number of cases I have been able to collect, without the means of comparison, would have afforded but a small remuneration for the labor required to

condense their elements into the shape of tabular statements. And, when I speak of comparison, I would caution those who may, peradventure, look over the tables which may be found in the succeeding pages, to remember that but few of the European cases were collected from the records of private practice, but were mostly taken from the reports of lying-in hospitals located in the midst of large and densely populated cities; and that, therefore, the results of any comparison between the private practice among the better part of the community of American cities, or the experience gleaned from a tract of country proverbial for its salubrity, and the practice of European hospitals, can only be received as an approximation to the truth. I have long felt that American obstetricians, with the abundant materials which might so readily be collected, have not bestowed that consideration upon the science of statistics, as connected with the practice of their art, which its importance demands; and I trust I shall not render myself obnoxious to the charge of an assumption I should hesitate to incur, if I express the hope, that the present attempt in that direction may do something to incite others, with more extended opportunities for observation, to bestow a larger share of attention upon this inviting field of professional investigation.

TABLE I. — *Age of Mothers when married.*

Of the 1,786 cases of midwifery which it is proposed to analyze, the age of the mother at marriage was

oted in 1,425 instances. The table is to be read as ollows, thus: 3 mothers were married at 14 years of ge; and so on.

Number of cases	3	5	21	107	175	173	161	143	187	130	120	80
Age when married	14	15	16	17	18	19	20	21	22	23	24	25
Number of cases	55	38	29	10	15	8	5	2	1	3	2	2
Age when married	26	27	28	29	30	31	32	33	35	36	38	41

Adding the ages of the mothers, gives an aggregate f 30,599 years; and dividing this sum by 1,425, the umber of mothers, gives 21 years 5 months 20 days nd a fraction, as the mean age when married. The able also shows that 788 were married at the age of 1 or under, and 637 after that period: furnishing, in ne first instance, a ratio of 55 per cent; and, in the tter, one of 45 per cent.

TABLE II. — *Age when delivered.*

The age of the mother at delivery was ascertained n 1,440 instances; and the table is to be read thus: were delivered at the age of 14, 3 at 15; and so on.

Number delivered	2	3	13	49	58	71	81	108	78	93	74	
At what age	14	15	17	18	19	20	21	22	23	24	25	
Number delivered	80	108	69	51	81	38	41	49	35	36	61	
At what age	26	27	28	29	30	31	32	33	34	35	36	
Number delivered	42	30	26	23	8	10	6	9	3	4		
At what age	37	38	39	40	41	42	43	44	45	46		

By an examination of the foregoing table, we shall find, that, of the 1,440 deliveries, 1,019 were accomplished before the mother had completed the thirtieth year of her life, leaving 421 deliveries to be effected after that age; giving a ratio of 70 per cent of the whole number of births which take place before the mother has arrived at the middle period of her child-bearing life.

TABLE III. — *Comparison of Ages when delivered, at Dublin (Ireland), Boston, and Mendon.*

The table contains 16,385 cases at Dublin, by Dr. Collins; 451 at Boston, by Dr. D. H. Storer; * and 1,440 at Mendon; and is to be read thus: 2 cases at Mendon were delivered at 14 years of age; 3 at Dublin, and 3 at Mendon, at 15; 19 at Dublin, and one at Boston, at 16; and so on.

Age when delivered	Whole No.	14	15	16	17	18	19	20	21	22
Dr. Collins . .	16385		3	19	70	237	423	926	682	1142
Dr. Storer . .	451			1	2	11	17	18	30	42
Dr. Metcalf .	1440	2	3		13	49	58	71	81	108
Aggregates . .	18276	2	6	20	85	297	508	1015	793	1292

Age when delivered	Whole No.	23	24	25	26	27	28	29	30	31
Dr. Collins . .	16385	1023	1089	1174	1295	983	1340	517	2346	242
Dr. Storer . .	451	39	29	36	34	25	32	20	22	7
Dr. Metcalf .	1440	78	93	74	80	108	69	51	81	38
Aggregates . .	18276	1140	1211	1284	1409	1116	1441	588	2449	287

* Statistics of the Boston Lying-in Hospital, by D. HUMPHREYS STORER, M.D., one of the Physicians of the Massachusetts General Hospital. Published in the American Journal of the Medical Sciences for October, 1850.

TABLE III. *(continued.)*

e when delivered	Whole No.	32	33	34	35	36	37	38	39	40
Dr. Collins . .	16385	467	378	384	396	379	153	217	65	326
Dr. Storer . .	451	22	9	6	12	8	6	11	3	6
Dr. Metcalf .	1440	41	49	35	36	61	42	30	26	23
Aggregates . .	18276	530	436	425	444	448	201	258	94	355

e when delivered	Whole No.	41	42	43	44	45	46	47	50	53
Dr. Collins . .	16385	15	21	18	17	11	5	6	5	1
Dr. Storer . .	451		1			1		1		
Dr. Metcalf .	1440	8	10	6	9	3	4			
Aggregates . .	18276	23	32	24	26	15	9	7	5	1

By an inspection of this table, we find, that, of the 3,276 labors, 12,207 were accomplished before the others had arrived at the age of 30 years, leaving at 6,069 to occur after that period; and that these proportions very closely approximate to those furnished by the 1,440 cases at Mendon.

TABLE IV. — *Whole Number of Pregnancies.*

Before constructing this table, I feel bound and am happy to acknowledge the kindness of Dr. W. Chew Van Bibber, of Baltimore, in the transmission of a very valuable report, made by him to the Medical and Chirurgical Faculty of Maryland in 1855, and which report gives a statistical analysis of 4,309 cases of midwifery occurring in the practice of the late Dr. Peter Chatard, of that city. Allow me to say, in this connection, that this report shows Dr. Chatard to have been a bold, skilful, and successful practitioner of

midwifery; and that he has left an example of patient and honorable industry, while engaged in the arduous and exhausting duties of an extensive practice, worthy of all commendation.

In this connection, I also acknowledge the obligations I am under to Thomas F. Cock, M. D., Physician to the New-York Hospital, for a Commentary and Supplement to his "Cases in Midwifery, with Remarks" (published in the "New-York Journal of Medicine" for November, 1855), kindly furnished me at my request, as well as for his kindness in procuring for me a synopsis of the cases in midwifery that have occurred at the Bellevue Hospital, N.Y., since 1850. To Dr. James B. Reynolds, the Senior-Assistant at Bellevue, who, at the request of Dr. Cock, made an analysis of those cases, I am also indebted for a valuable contribution to these pages.

The table is to be read thus: 347 cases at Baltimore, 193 at Boston, 737 at Bellevue, and 472 at Mendon, were first pregnancies; and so on.

No. of Pregnancy.	No. Cases.	1st.	2d.	3d.	4th.	5th.	6th.	7th.	8th.	9th.
Dr. Van Bibber .	1643	347	283	238	218	140	112	77	77	39
Dr. Storer . . .	417	193	88	40	25	23	18	14	8	2
Bellevue Hosp., N.Y.	1343	737	281	131	89	47	19	14	17	3
Dr. Metcalf . .	1723	472	359	258	201	148	123	54	34	21
Aggregates . . .	5126	1749	1011	667	533	358	272	159	136	65

No. of Pregnancy.	No. Cases.	10th.	11th.	12th.	13th.	14th.	15th.	16th.	17th.	20th.
Dr. Van Bibber .	1643	26	24	21	19	8	7	6	1	
Dr. Storer . . .	417	4		1				1		
Bellevue Hosp., N.Y.	1343	8		1	1					
Dr. Metcalf . .	1723	17	15	11	3	2	1	2	1	1
Aggregates . . .	5126	50	39	34	23	10	8	9	2	1

The table shows, that, at Baltimore, the 1,643 mothers had been pregnant 6,730 times, furnishing an average of 4 pregnancies to each mother; at Boston, the 417 mothers had been pregnant 1,060 times, furnishing an average of 2.5 pregnancies; at Bellevue, the 1,343 mothers had been pregnant 2,713 times, furnishing an average of 2 pregnancies and a fraction; while, at Mendon, the 1,723 mothers had been pregnant 5,704 times, furnishing an average of 3.3 pregnancies to each mother.

I found, when making inquiries of my patients of the number of pregnancies, that frequently I was not understood as intending to include abortions and miscarriages; and, when the question was more plainly stated and understood, it is not improbable, from the fact that many women feel a strong disinclination to acknowledge an abortion, that true answers may have been sometimes withheld. The difference in the averages above noted may, in part, be reconciled by these considerations.

Table V. — *Duration of Labor.*

The duration of labor cannot be determined with that certainty which attaches to many of the processes of parturition. After having adopted any of the multiplied definitions of the various authors within our reach, as we are seldom, if ever, present through the entire duration of a single case, we must necessarily depend upon the patient or her friends for the data upon which to predicate its commencement. Assuming, as is done in the present communication, that the

duration of labor is that interval of time included between the incursion of *true* pains and the birth of the child, how are we to be certain that the patient gives us a true account; that she is able to distinguish between the true and spurious pains, &c.? It must be plain, therefore, that we cannot always be sure of the precise point of time when labor commences, and that some allowance must be made in the results of all statistical analyses upon this subject on that account. Suffering alone is not sufficient to establish the incursion of labor; for a patient may be suffering a great amount of pain before that point be arrived at. When the uterus acts partially or inefficiently; when pains are felt at the fundus, are of limited extent, and return at uncertain intervals; when there is no mucous discharge from the vagina; when the os uteri is not dilated, or the membranes not protruded, — the patient may be suffering exceedingly: but it cannot be said that these symptoms alone certainly denote the commencement of labor. On the other hand, when the pains recur at regular intervals; when they gradually increase in strength and frequency; when there is a regular increment and subsidence of the force of each pain, with a period during its continuance when the pain remains stationary; and when the vagina becomes lubricated with mucus, — we may assume that the pains are true, and that labor has commenced.

We should remember, too, that the patient is liable, at almost any period of gestation, to an attack of these false pains; and hence it becomes of great importance that we should be able to make a correct diagnosis, and not mistake the false for the true pains; as other-

vise we may, by our neglect, subject the patient to many hours of acute suffering, when a dose of opium, preceded, if the constipated state of the bowels require it, by an injection or an aromatic laxative, would have procured her speedy relief.

The following table exhibits the duration of labor in 15,850 cases at Dublin, 1,179 at Baltimore, 433 at Boston, and 1,781 at Mendon, and is to be read as follows, thus: 161 cases at Dublin were delivered in a quarter of an hour, 309 in half an hour; 3,067 at Dublin, 16 at Baltimore, 12 at Boston, and 15 at Mendon, were delivered in one hour; and so on.

Hours in Labor .	. . . .	¼	½	1	2	3	4	5	6	7
Dr. Collins . . .	15850	161	309	3067	3513	2487	1920	923	1032	333
Dr. Van Bibber .	1179			16	73	100	103	93	131	68
Dr. Storer	433			12	28	23	26	41	38	27
Dr. Metcalf . . .	1781			15	73	46	64	56	142	56
Aggregates . . .	19243	161	309	3110	3687	3656	2113	1113	1343	484

Hours in Labor .	. . . .	8	9	10	11	12	13	14	15	16
Dr. Collins . . .	15850	553	156	209	63	358	38	59	32	41
Dr. Van Bibber .	1179	87	25	45	11	110	11	20	29	21
Dr. Storer	433	22	23	21	12	21	13	10	10	19
Dr. Metcalf . . .	1781	122	39	74	29	287	37	23	22	24
Aggregates . . .	19243	784	243	349	115	776	99	112	93	105

Hours in Labor .	. . . .	17	18	19	20	21	22	23	24	25
Dr. Collins	15850	28	63	10	42	8	5	9	166	2
Dr. Van Bibber .	1179	8	15	7	9	6	7	1	82	13
Dr. Storer	433	5	13	6	6	2	5		8	6
Dr. Metcalf . . .	1781	32	52	10	28	7	16	8	262	8
Aggregates . . .	19243	73	143	33	80	23	33	18	518	29

TABLE V. *(continued.)*

Hours in Labor .	. . . .	26	27	28	29	30	31	32	33	34
Dr. Collins	15850	12	6	18	7	40		6	6	2
Dr. Van Bibber .	1179	9	3	2	1	7	4	1		2
Dr. Storer	433	3	2	5		2	2	3	1	1
Dr. Metcalf . . .	1781	4	6	12	7	24	2	9	4	6
Aggregates . . .	19243	28	17	37	15	73	8	19	11	11

Hours in Labor .	. . . .	35	36	37	38	40	41	42	43	44
Dr. Collins	15850	3	32		3	21	2	3	2	1
Dr. Van Bibber .	1179	2	7	2		5	1			
Dr. Storer	433	1	4	1		2	1	1		
Dr. Metcalf . . .	1781		72	10		20	3	7		
Aggregates . . .	19243	6	115	13	3	48	7	11	2	1

Hours in Labor .	. . . .	45	47	48	49	50	51	53	56	57
Dr. Collins	15850			47		12	2	2	4	1
Dr. Van Bibber .	1179			22		3				
Dr. Storer	433	1		1				1		
Dr. Metcalf . . .	1781		3	33	2	4			9	
Aggregates . . .	19243	1	3	106	2	19	2	3	13	1

Hours in Labor .	. . . .	58	59	60	62	63	65	66	67	69
Dr. Collins	15850	2	1	8	1	1	3	1		
Dr. Van Bibber .	1179			1						
Dr. Storer	433	1								
Dr. Metcalf . . .	1781			3			1	2	2	3
Aggregates	19243	3	1	12	1	1	4	3	2	3

Hours in Labor .	. . . .	70	72	74	80	84	85	88	90	96
Dr. Collins	15850	6	3	1	1	1			1	
Dr. Van Bibber .	1179		12							4
Dr. Storer	433		1	1				1		
Dr. Metcalf . . .	1781	2	1				1		1	1
Aggregates	19243	8	17	2	1	1	1	1	2	5

The 15,850 patients at Dublin were in labor, in the aggregate, 71,858 hours, and the average length of labor was 4 hours and 32 minutes; the 1,179 patients at Baltimore were in labor 13,987 hours, and the mean duration of labor was 11 hours and 53 minutes; the 433 patients at Boston were in labor 5,284 hours, and the mean duration was 12 hours and 12 minutes; while the 1,781 patients at Mendon were in labor 28,847 hours, and the mean duration of labor was 16 hours and 12 minutes.

Dr. Van Bibber, in the report before referred to, tells us there were 608 cases noted by Dr. Chatard as being "very quick," "some hours," and "spontaneous." These, he thinks, would average 4 hours; and adding these 608 to the 1,179 cases of the table, making 1,787 cases, the mean duration of labor at Baltimore would be 9 hours and 11 minutes.

It is not apparent why there should be so great a discrepancy in the mean duration of labor at the different places of observation. If there was a standard, to which all would agree, by which to measure the duration of labor, and we could in all cases be certain of the exact point of time of its commencement, we should, I think, be able to make a large abatement from the differences above noted. Differences in the social condition and the sanitary influences by which each are surrounded, cannot, it seems to me, account for the wide difference in the extremes at Dublin and Mendon. True, the subjects gathered from the close and squalid lodgings of an old European city, into the wards of a hospital, cannot be expected to possess

the same measure of health, or exhibit the same phenomena under disease, or be subject to the like complications in the process of parturition, with the inhabitants, and especially the better classes, of an American city, much less with those who pass their lives amid the invigorating influences of a New-England home in the country.

TABLE VI. — *Comparison of the Duration of Labor in American with that observed in British Practice.*

AMERICAN PRACTICE.											
Authors.	Whole No Cases.	Ended in 6 hours.	Per cent.	6 to 12 hours.	Per cent.	12 to 18 hours.	Per cent.	18 to 24 hours.	Per cent.	Above 24 hours.	Per cent.
Dr. Burwell* . .	526	150	28.5	162	30.5	95	18.0	61	11.5	58	11.0
Dr. Van Bibber .	1179	516	43.7	346	29.4	104	8.8	112	9.5	101	8.6
Dr. Storer	433	168	38.8	126	29.2	70	16.2	27	6.2	42	9.6
Dr. Metcalf . . .	1781	396	22.2	607	35.0	190	10.8	326	18.0	262	14.0
Aggregates	3919	1230	33.3	1241	31.0	459	13.9	526	11.3	463	10.8
RESUMÉ.											
Countries.											
England	20296	14508	71.6	3854	18.5	393	1.9	843	4.4	698	3.6
United States . .	3919	1230	33.3	1241	31.0	459	13.9	526	11.3	463	10.8
Total	24215	15738	52.4	5095	24.7	852	7.9	1369	7.8	1161	7.2

* "Statistics and Cases of Midwifery, compiled from the Records of the Philadelphia Hospital, Blockley. By George N. Burwell, M.D., Resident Physician." — See American Journal of the Medical Sciences for April, 1844.

The discrepancies in the practice of the two countries is owing to the large number of cases (15,850) in English practice by Dr. Collins. The results obtained from other British practitioners exhibit but little variation from those deduced from American cases; and, if no error was made in Dr. Collins's notation of the duration of labor, it remains a curious, and to me an inexplicable, fact, that 82 per cent of all labors at the Dublin Lying-in Hospital should be terminated within six hours; while the average for other British practitioners, for the same period, is only 39 per cent, and, for American practice, 31 per cent.

TABLE VII. — *Presentations.*

The 1,786 cases of labor gave birth to 1,797 children, there being 11 cases of twins. The presentation was recorded in 1,768 instances; and the table is to be read as follows, viz.: of the 1,768 presentations, 1,711 were presentations of the vertex, 2 of the face; and so on.

	Whole No. Cases.	Vertex.	Face.	Face to pubis.	Shoulder.	Arm.	Breech.	Knees.	Feet.	Foot and knee.	Funis.	Placenta.
Presentations	1768	1711	2	10	1	1	18	3	12	1	6	3

Presentation of the vertex, being the normal position of the child at the period of labor, and especially at the full period, does not ordinarily furnish a subject

for discussion or comment; as the well-being of either mother or child cannot be so safely predicated upon any other presentation. We do not allow that this presentation ever compromises the safety or life of either mother or child; and hence we are not called upon to criticize the relation of the fetal head to the uterine or pelvic passages, in considering the process of delivery in the presentation in question. In the present analysis, the 1,711 cases of presentation of the vertex, as such, unless their frequency should stimulate inquiry into the reasons for a position so constantly met with, furnish no topic for profitable consideration. Without assuming to receive or reject the evidences brought forward by their respective champions to sustain, in full, any of the theories which have been constructed to explain this phenomenon; without throwing down the gauntlet to Dr. Simpson, or consenting to the charge, should it be made, of adopting Dr. Duncan as his Magnus Apollo, — one may be allowed to say, that the almost constant presentation of the vertex cannot be a matter of chance or accident, but must depend upon some general law; and that, if we follow the advice of Newton, to choose always the simplest explanation of a fact or phenomenon, the gravitation theory, as it has been called, furnishes the readiest and most intelligible solution of the point in question.

But, whether we agree to this explanation, or whether we reject it; whether we take sides with Dr. Simpson, or fall into line under the banner of Dr. Duncan, — the fact still remains, that, for some reason,

ıe head, at birth, is almost universally the dependent ortion of the child.

TABLE VIII. — *Presentation of the Vertex.*

This table exhibits the frequency of presentation of he vertex, as it has been reported by different obstetricians.

It is proper to state in this place, that tables, giving he details of British, French, and German practice, vere constructed; but, owing to the great length of his discourse, and the greater expense of tabular vork, in this, as well as in the following tables, the *esumé* only of foreign practice is given.

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Vertex.	Countries.	Whole No. Cases.	Vertex.
Dr. Burwell	547	516	England	44,300	41,686
Dr. Van Bibber . . .	4,135	4,024	France	54,749	51,977
Dr. Storer	440	425	Germany	220,989	215,733
Bellevue Hospital, N.Y.	1,348	1,291	United States . .	8,485	8,197
Dr. U. Potter* . . .	247	230			
Dr. Metcalf	1,768	1,711			
Aggregates	8,485	8,197	Total	328,523	317,593

Disregarding the fractions, the statistics of British and French practice afford 94 per cent each for presentations of the vertex; German practice, 97 per cent; and American, 93 per cent.

* "Boston Medical and Surgical Journal" for Feb. 16, 1848, vol. xxxviii. No. 3.

TABLE IX. — *Presentation of the Face.*

In the 1,768 cases of labor, there were two cases of presentation of the face, of which the following is an analysis : —

MOTHER.						CHILD.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	22	23	1	9 months.	12 hours.	F.	7¼ lbs.	A.
2	25	31	3	9 „	26 „	F.	6¾ „	A.

The first case was terminated, as will be seen by the table, in 12 hours after the commencement of labor, — the labor being more than ordinarily painful. I was quite undecided, for some time, in making out the presentation; the irregularities of the presenting part, and its hardness to the touch, keeping me in doubt. The face was quite livid, and did not recover its natural color for some days after delivery. The unusual dark color created quite a sensation, at the time, among the attendants; and, while I was busily engaged in endeavoring to recover the child from a protracted asphyxia, it was more than once, humanely, no doubt, suggested, that it was hardly worth while to prolong my efforts. Respiration, however, was, at length, established; and when, after a few days, the friends were admitted to the lying-in chamber, the praises bestowed upon the new-comer suffered no abatement from the knowledge of the previous eclipse.

The second case was protracted through a period of wenty-six hours, although the child weighed but 6¾ bs. The mother had given birth to two children efore, and the pelvis was of normal dimensions; but till, although the pains were strong, the progress of he labor was exceedingly slow. It should be stated, hat, in this case, the liquor amnii was early evacuated; nd that that fact, without doubt, contributed to the engthened labor. There was much less lividity of he face in this case than in the first, and the child did ot suffer from asphyxia. In both cases, the occiput vas to the sacrum. With the exception of a retention f the urine for a day or two, requiring the use of the atheter, in the latter case, both mothers did well.

TABLE X. — *Frequency of Presentations of the Face.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Face.	Countries.	Whole Number Cases.	Face.
Dr. Burwell	547	1	England	41,719	148
Dr Potter	247	0	France	47,402	172
Dr. Van Bibber . . .	4,135	6	Germany	40,368	309
Dr. Storer	440	0	United States . . .	8,485	15
Bellevue Hospital, N.Y.	1,348	6			
Dr. Metcalf	1,768	2			
Aggregates	8,485	15	Total	137,974	689

By an inspection of the table, it will be noticed that there is a great difference in the ratios of this presentation in the different countries. In England, presentation of the face occurs once in every 291 cases; in France, once in every 275; in Germany, once in

every 130; while, in the United States, it occurs only once in every 565 cases. Why such wide differences should be found, would be a matter of curious rather than profitable inquiry. It may be objected to the small ratio observed in the United States, that the whole number of cases are too few to expect a truthful comparison with the much larger number observed in Europe. Let it be so decided; and still the fact, that the foreign statistics exhibit such wide discrepancies of ratio between themselves, remains to be accounted for.

TABLE XI. — *Presentations of the Face to the Pubis.*

In the whole number of presentations recorded (1,768), there were 10 cases with the face to the pubis. The facts connected with these cases are collated as follows; viz., —

MOTHER.						CHILD.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	20	24	2	9 months.	19 hours.	F.	7 lbs.	A.
2	17	18	1	9 "	40 "	F.	9¼ "	A.
3	22	28	4	9 "	24 "	M.	6½ "	A.
4	19	21	2	9 "	38 "	F.	6½ "	A.
5	17	18	1	9 "	36 "	F.	8 "	D.
6	20	30	4	8 "	48 "	M.	8¼ "	A.
7	23	25	1	8 "	30 "	F.	6½ "	A.
8	21	26	3	8 "	36 "	F.	7 "	A.
9	17	18	1	7 "	32 "	F.	5½ "	D.
10	25	27	1	9 "	39 "	M.	8 "	A.

Case 2. — The child was born after a tedious labor of 40 hours, and weighed 9¼ lbs. It was a first preg-

nancy, and the pelvis rather below the ordinary measurement; the promontory of the sacrum projecting more than usual towards the pubis. The bony passage having been accomplished, the external structures gave no unusual resistance, and the labor was soon thereafterwards completed. The sutures of the child's head were found to be nearly united; and hence, in part, the prolonged resistance to the passage through the superior strait. The patient, for the last six hours preceding the close of labor, suffered severely, and was much exhausted at the completion of the process. The child was still at first, but soon recovered from the partial asphyxia. The mother was troubled for some days with inertia of the bladder, calling for the use of the catheter. This was the most protracted case occurring among those with the presentation of the face to the pubis.

Case 3. — This was the last-born of twins, and the interval was 15 minutes. The first-born presented with the vertex. Another fact noted was, that there were two placentæ, and that each of the umbilical cords was 39 inches in length.

Case 5. — This occurred in a primipara, and the delivery was completed after a labor of 36 hours. A fact was noticed in this case, which, in my experience, has been rarely met with. The head, from the time it passed the superior strait, made a continuous progress until it was finally expelled. The mother made no voluntary efforts, nor did she complain of pain during its passage or expulsion. The time occupied must have been two or three minutes. This pheno-

menon is explained by supposing that the uterus was affected by a tonic rather than the ordinary clonic contraction of labor. The child was still-born.

Case 7. — In this case, the duration of labor was 30 hours. Nothing unusual was noticed during its progress, except a very extraordinary activity of the kidneys, occurring simultaneously with an extraordinary inactivity of the urinary bladder. The catheter was introduced four times in the space of ten hours, and an ordinary-sized urinal was nearly or quite half filled at each operation.

Case 9. — This was a miscarriage at the seventh month, induced by an intentional rupture of the membranes. The early evacuation of the waters, and it being a first labor, although the child weighed but 5½ lbs., aided in the production of a protracted and painful labor of 32 hours. Soon after the head had emerged from the superior strait, and the perineal tumor had become fully developed, inertia of the uterus supervened, and the labor was finished by a dose of ergot. The child had been for some time dead.

The mean duration of labor, in the 10 cases of the table, was 34 hours and a fraction. Of the whole number, 5 were primiparæ. Of the children, 7 were females, and 3 were males. The average weight of the children was 7⅞ lbs. One was born at 7 months, and 9 at the full time. Eight were living, and two were dead.

This presentation, as well as that of the face, seldom requires the interference of art, and will generally do well if the mother and the accoucheur have patience

enough to wait for the natural efforts. In regard to the results to mother and child in these presentations, and the mode of delivery, a sufficient number of observations have not been preserved to warrant any decided opinion. Dr. Churchill tells us, in face presentations, out of 344 cases, 248 were delivered by the natural efforts, and 77 by artificial aid. Of the 77 cases requiring assistance, 42 were delivered by version, 20 by the aid of forceps, and 15 by craniotomy. In 150 cases, where the result to the mother was noted, 3, or one in 50, died. In 216 cases, where the result to the child was given, 14 were lost and 15 destroyed; furnishing a ratio of mortality of one in 7.

Up to the time of Portal, these presentations were seldom trusted to the unaided efforts of nature. In 1793, Boer taught, that, simply on account of presentation, these cases needed no artificial aid; and, at the present time, this opinion is regarded as the established rule of the profession.

TABLE XII. — *Frequency of Face to the Pubis Presentations.*

AMERICAN PRACTICE.			RESUME'.		
Authors.	Whole No. Cases.	Face to Pubis.	Countries.	Whole Number Cases.	Face to Pubis.
Dr. Burwell	547	2	England	23,050	72
Dr. Potter	247	5	United States . .	8,485	18
Dr. Storer	440	1			
Dr. Van Bibber . . .	4,135	0			
Bellevue Hospital, N.Y.	1,348	0			
Dr. Metcalf	1,768	10			
Aggregates	8,485	18	Total	31,535	90

It seems that less notice has been taken of the presentation now under consideration than of most others, as I find comparatively but few observations recorded concerning it. Hence the scanty materials for the construction of the foregoing table; and hence its results cannot be considered as reliable as if they were supported by a stronger array of facts. The result, as to the frequency of the presentation in British practice, furnishes one case for every 320; in American practice, one in every 530 cases.

TABLE XIII. — *Shoulder Presentation.*

The 1,768 cases furnish but a single case of presentation of the shoulder, and which is recorded as follows: —

MOTHER.						CHILD.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	20	24	3	9 months.	15 hours.	F.	7½ lbs.	D.

Most books on midwifery, in treating of presentations of the shoulder and arm, advise us, unless the child be very small at the full time, or it be a premature labor, or the pelvis of the mother be of larger measurement than usual, that we have nothing to do for the accomplishment of delivery but to turn the child, or resort to the unpleasant expedient of mutilation.

Before giving the details of the case under consideration, I propose to furnish a brief abstract of the views of various authors upon the management of shoulder presentations.

Celsus directs, "When the child presents in a transverse posture, the remedy is to cut off the neck, that the parts may be extracted separately."

Heister, who would have almost every child that does not present with the vertex delivered by version, tells us "to lessen the body, and then accomplish the delivery by the blunt hook of his own contrivance, — the *tire tête* of Mauriceau, or a large nail bent in the form of a hook, to which a ligament is fastened, as recommended and used by Hoorn."

Peter Shaw, in his "Practice of Physic," published in 1728, recommends mutilation, and delivery by the blunt hook. But if the head be left behind, as sometimes happens, he tells us "it may be prudently cut into several portions with an incision-knife, and will then come away with ease."

Smellie gives the following advice: "When the shoulder presents, and the arm lies double in the vagina, we must push them both up; but if this cannot be done, and the hand is prevented from passing along, we must bring down the arm, and hold it up with one hand while the other is introduced; then let go, and push up the shoulder; and, as the child is turned and the feet are brought down, the arm will, for the most part, return into the uterus."

Denman advises "to pull the body lower down by the arm, and the difficulty will be lessened or removed.

There is," he adds, "happily, no necessity for turning the child in these circumstances; for it will be born by the effect of the powers of nature only. In such cases, the child does not come double; but the breech is the part first delivered, and the head the last, — the body turning upon its own axis." It was upon four cases occurring in his own practice, and the history of several others, gleaned from different sources, that Dr. Denman founded his hypothesis of the spontaneous evolution of the fœtus. Down to 1811, the theory of Denman found no one to question its truth. In that year, Dr. Douglass, a distinguished obstetrician of Dublin, published an essay, in which he proves that the arm and shoulder do not recede, but that the remainder of the body is pressed down, by degrees, until it is expelled thus doubled up; and the case is to be terminated as a breech or foot presentation.

Dr. Hamilton says, "The shoulder and arm should be reduced, if possible, and the head brought down into the pelvis; and, failing in this, we are to introduce the hand into the uterus, turn, and deliver by the feet."

Baudelocque, speaking of the presentation under consideration, only gives us minute rules in regard to the operation of turning.

Velpeau, after giving particular and multitudinous directions for the use of the fingers, not forgetting the use of the thumbs; advising the use of the right hand in this, and the left hand in that, position; telling us to be careful about the pronation or supination of the hand, when searching for the feet, &c., — sums up as follows:

"By not losing sight of the rule, that the thumb should always correspond to the sternal surface, the fingers to the dorsal surface, and the cubital edge of the hand to the child's head; by remembering that, previously to going in search of the child's feet, the head ought to be moved as near as possible to the left iliac fossa,—the practitioner will be aware of every thing that is essential to know concerning the manœuvre of turning." The young obstetrician, however, will feel no inconsiderable relief, when he meets with his first case of shoulder presentation, to find that our author, further on, kindly informs him, that these rules are not like the laws of the Medes and Persians, but that, in any position of the shoulder whatever, he may arrive at the feet directly, and with almost equal facility, with either hand.

Churchill advises, that, "in a majority of cases, with such a position of the child (presentation of the shoulder), labor may be considered as impracticable, unless assisted by art; and yet, even with such an untoward position, the natural powers have occasionally succeeded in expelling the child."

Ramsbotham says, "We cannot reasonably expect this double expulsion to occur, unless the patient possess a larger pelvis than ordinary, or unless the fœtus be preternaturally small or premature; nor, indeed, except under a long continuance of powerful and expulsive pains. Failing in the accomplishment of version, and the child being dead, evisceration is to be effected; and, if the pains cease, delivery completed by fixing the crotchet upon the inside of the fœtal

ilium, and drawing down the breech. The child may also be decapitated, — the body delivered by the arm, and the head by the blunt hook or crotchet, afterwards."

Chailly counsels us, that, "failing to turn, and the child being dead, the neck is to be divided, and the two parts delivered separately."

Closing further citation of authorities upon the subject, I will now detail the case to which the foregoing quotations have served as preface.

Aug. 15, 1855, I was called, at five, A.M., to visit D. C., in labor with her third child. On my arrival, I found the membranes had given way two hours before, and that a great flow of water had immediately followed their disruption. The pains were not now strong, nor had they been before my arrival, and occurred only at long intervals. There was some hemorrhage, but not in sufficient quantity to excite alarm. The os uteri was high up, not dilated larger than a ten-cent piece, and no presenting part could be felt. Directed 40 drops of laudanum, and the patient to be kept quietly in bed, while I should be, for an hour or two, necessarily absent.

On my return, at eight, A.M., I found the pains occurring rather more frequently, but still not strong. There had been some increase of the hemorrhage while I had been absent. After a careful examination, the os uteri being, as yet, but little dilated, I found the attachment of the placenta extending to the posterior edge of the mouth of the womb. Soon after this examination, the pains became more frequent and

much stronger, and there was a corresponding increase of the hemorrhage. Believing the hemorrhage would not be controlled by a further prescription of opium, I passed my finger between the placenta and the walls of the uterus, separating it as far as I could reach. The separation was either wholly accomplished, or the presenting part came down and strongly compressed the placenta, as, in a short time, all hemorrhage ceased. For another hour the pains grew stronger, the presenting part came lower down; and, to my sorrow, I found the right shoulder passing through the superior strait, with the back of the child to the left sacro iliac synchondrosis.

Although the waters had been drained off for some hours, finding the parts readily dilatable, and the pains not very strong, I judged proper to make an attempt at version. The patient was brought under the influence of chloroform; but, with all the effort I deemed prudent to employ, the hand could not be passed into the uterus. The organ was found closely embracing the child; and my attempts only excited it to strong and powerful contractions. The fingers could now be readily passed into the axilla, and about the neck. During the attempt at version, I found there was no disposition in the arm to come down by itself; and, as further aid in that direction was abandoned, the patient was left to recover from the anæsthesia. The peculiar effects of the chloroform soon disappeared; and, in a short time, the pains grew much stronger and more frequent. With one finger in the axilla, and another about the neck, traction was made; and, with

every pain, I found the child came lower down. Efforts during the pains, and they had now become very strong and striving, were continued to be made; and, in forty-five minutes, the delivery was effected, — the shoulder being the part first delivered. The head was bent forward upon the body, the left cheek lying upon and pressing the umbilicus. In this position, the head, following the shoulder, emerged from under the arch of the pubis; and thus the child was truly born doubled upon itself. The child was a female, and weighed seven and a half pounds without clothing. The pelvis of the mother was not ascertained to be of unusually large dimensions, or the sutures of the child's head more open than common. I had attended her in two former labors, and do not remember that any circumstances connected with them led me to think her pelvis to be of larger measurement than the average.

I am aware that cases like the present are not of any great practical value, except so far as they may induce us to rely for a longer period upon the efforts of nature, and to put off, when version cannot be effected, to the last reasonable moment of delay, the unpleasant resort to mutilation and instrumental delivery. But, while I would wait a reasonable time, I would caution the young practitioner in midwifery against any delusive hope of succor he may entertain in the spontaneous evolution of Denman; and although, once in a while, he may meet with a case, "rari nantes in gurgite vasto," like the one here related, in which the labor may be terminated safely to the mother,

vithout instrumental aid; still, as it is his duty, if ɔossible, to save both mother and child, I would advise ıim, in a case of shoulder presentation, to turn, and leliver at the earliest practicable opportunity. If he .rrives before the rupture of the membranes and the oss of the liquor amnii, and the parts are well dilated ɔr readily dilatable, being satisfied of the character of he presentation, the sooner he interferes and com-ɔletes the delivery, the safer and easier it will be for he mother, and with a much better, if not the only, hance of preserving the life of the child. Unless the ritical condition of the mother imperiously demands he sacrifice, we should always remember that the hild's life is not to be compromised. Thoughts of ɹuiet slumbers at home, no matter how much our ɔhysical wants may require them, or the impatient lesire to arrive at the termination of a protracted and ɔerplexing labor, must never be allowed to lead cap-ive the convictions of our better judgment.

TABLE XIV. — *Presentation of the Arm.*

The following is a general analysis of the *only case* ɔf arm presentation which has occurred in my expe-ience: —

Mother.						Child.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	17	19	1	9 months.	6 hours.	F.	6 lbs.	A.

Further particulars are as follows: July 19, 1849, I was called to A. N., in labor with her first child. On my arrival, I learned that she had been in labor five hours, and that the pains were regular, and quite severe. The pains growing more frequent, an examination was proposed, and readily consented to. On reaching the vulva, from the quantity of fluid found issuing from the os externum, I supposed the woman was flowing; but it was found to be only an immoderate secretion of the proper fluid of the vagina. Continuing the examination, I soon ascertained, through the membranes, which considerably protruded through the os uteri, that the presenting part was furnished with fingers, and *not* toes. There could be no mistake: there was the flattened wrist, the antagonistical thumb, the fingers of different lengths, and no other part within reach. I had a presentation of the hand, and which, I supposed, would soon be converted into one of the arm also. The os internum was well dilated and dilatable, and the vagina filled with the extraordinary secretion, which, at first, I had mistaken for hemorrhage. The pains were growing every minute stronger and more frequent, and I was in momentary expectation of a rupture of the membranes. Of the presentation, I could not doubt; and, fearing the loss of the waters at every pain, I made up my mind to wait no longer, but to proceed to the delivery at once. Without any difficulty, the hand was passed into the vagina, and at the very opportune moment, as the membranes gave way at the next pain. The hand was now passed along quickly, bringing the

arm into the os externum, and thus preserving a portion of the waters. The mouth of the uterus offered but small resistance to the passage of the hand. A foot was soon found, and version slowly but readily accomplished. There was no prolapse of the funis as the foot was brought down into the vagina; and in 20 minutes from the introduction of the hand, and with very moderate traction, the patient was safely delivered of a small but healthy female child. No one, but they who have met with cases like the one under consideration, can fully appreciate the thankfulness I felt at the happy termination of a labor that might have become one of the most dangerous and embarrassing in the whole circle of obstetrical experience.

The practice which formerly obtained before version was substituted, or in cases where that operation could not be performed, when the arm came down, of amputating it at the shoulder-joint, has justly fallen into deserved disrepute. If it furnished any aid in the delivery of the remainder of the body, there might be some excuse for the barbarity of the practice; but inasmuch as it does not, and as there is more than one case on record, where, after such mutilation, children have survived and grown up to manhood, I think there will be little danger of its revival. The cases reported by Chapman and Chamberlen, and the more recent one at Chenu, in France, in which both arms were removed, reported in the London "Lancet" for April, 1829, should satisfy any one on this point. Especially should he be satisfied, unless the death of the child be fully ascertained.

TABLE XV. — *Frequency of Presentations of the Superior Extremities.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Sup. Ex.	Countries.	Whole Number Cases.	Sup. Ex.
Dr. Burwell	547	2	England	50,104	180
Dr. Potter	240	0	France	36,660	152
Dr. Van Bibber . . .	4,135	17	United States . .	8,478	22
Dr. Storer	440	1			
Bellevue Hospital, N.Y.	1,348	0			
Dr. Metcalf	1,768	2			
Aggregates	8,478	22	Total	95,242	354

The statistics for the different countries furnish a ratio in British practice, for presentations of the superior extremities, of one case in every 278; in French practice, a ratio of one in every 241; and, in American, of one in every 385 cases. The whole number of cases included in the table are 95,242; furnishing a ratio of one in every 269 cases. In the statistics of American practice, the presentations of Dr. Burwell are both of the shoulder; of Dr. Van Bibber, fourteen of the arm, and 3 of the shoulder; of Dr. Storer, one of the arm, complicated with a prolapse of the funis; and of Dr. Metcalf, one of the arm, and one of the shoulder.

TABLE XVI. — *Mortality and Mode of Delivery in Presentations of the Superior Extremities.*

American Practice.						Resumé.					
Authors.	Whole No. Cases.	Mothers lost.	Children lost.	Mode.		Countries.	Whole No. Cases.	Mothers lost.	Children lost.	Mode.	
				Version.	Crotchet.					Version.	Crotchet.
Dr. Storer	1	0	1	1		England	240	24	125	86	11
Dr. Van Bibber . .	12	4				United States . . .	15	4	2	2	
Dr. Metcalf	2	0	1	1							
Aggregates	15	4	2	2		Total	255	28	127	88	11

In this table, where no figures are placed, we are to understand that no record was intended to be made by the observer. In 212 cases, where the result to both mother and child was noted, 24 mothers were lost, and 116 children. In 31 cases, where the result to the child only was noted, 11 were lost. In 12 cases, where the result only to the mother was noted, 4 were lost. This table loses much of its value by the imperfections of the original records; as, in many instances, important questions remain unanswered. Thus, Mr. Giffard tells us, in his 24 cases, version was performed 21 times; but he does not tell us how many children that were so delivered were alive. Dr. Ramsbotham delivered 12 by version, and 11 by the crotchet; but we learn nothing of the ratio of mortality for these operations. Dr. Merriman informs us that he had met with 19 presentations of the superior extremities; and all we know about them is, that 2 children were lost.

TABLE XVII. — *Presentation of the Breech.*

In the 1,768 cases, where the presentation was noted, presentation of the breech occurred in 18 instances, as follows; viz., —

Mother.						Child.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	20	27	4	9 months	10 hours.	F.	10¾ lbs.	D.
2	26	29	1	9 "	12 "	M.	6 "	A.
3	18	40	11	9 "	6 "	F.	9¼ "	A.
4	23	35	4	9 "	12 "	F.	8 "	A.
5	21	26	3	9 "	17 "	F.	7 "	D.
6	17	30	5	9 "	15 "	M	8½ "	A.
7	23	29	2	9 "	50 "	F.	7 "	A.
8	20	21	1	9 "	24 "	F.	6¼ "	A.
9	30	33	1	9 "	12 "	M.	7¾ "	A.
10	21	24	1	7 "	6 "	F.	4 "	D.
11	19	26	3	9 "	30 "	F.	8 "	A.
12	24	26	1	9 "	36 "	M.	7½ "	A.
13	31	34	2	9 "	18 "	M.	7½ "	A.
14	16	19	2	9 "	18 "	M.	6 "	A.
15	23	24	1	9 "	27 "	F.	8 "	A.
16	20	34	4	9 "	36 "	M.	9 "	A.
17	24	30	4	9 "	28 "	M.	9 "	A.
18	19	21	2	9 "	13 "	F.	6½ "	A.

In the 18 cases contained in this table, instrumental aid was not resorted to in a single case, though perhaps it might have been of service in the first one. Cases 1, 5, and 10 were still-born. Case 1 was lost during delivery. Cases 5 and 10 had been for some time dead before delivery. I do not forget, even at this late day, after a lapse of almost thirty years, the fears with which I encountered the delivery of the head in my first case of presentation of the breech. The labor went on well enough for a while. The feet had dropped from the vulva; the arms, one by one, were then swept across the breast, and readily brought

down; and here I came to a full period, — long enough to count four a great many times. The umbilical arteries were pulsating, however, quite strongly; and every moment I hoped that the pains, although they were lessened in force and frequency, and the efforts at extraction I was essaying, would accomplish the delivery. I did not forget the depression of the lower jaw, or the raising of the body, as I had learned from the books and the lecture-room, and practised on the manikin; but all to no purpose, — the child would not be born. The pulsations in the cord were becoming less strong; and certain spasmodic contractions in the child notified me that something must be done, and done quickly. I made stronger efforts at traction, — at least I thought I did, — but with no better success than before. The child, I was well aware, would soon be past recovery, unless relieved from its present uncomfortable position. "But what of that?" I fear I mentally argued. "Having a child born with its neck dislocated, or its head torn off by the doctor, would be simply choosing the most unpleasant horn of the dilemma." The result was, the child was born dead, and, as I have since learned to believe, was made a sacrifice to the prudential reasons which governed me in conducting the delivery. I had underrated the strength of muscle and ligament that bind the different parts of the fetal body together; and soon learned, that in ordinary cases, with proper management, the child's head could be extracted without danger of decapitation. There is a limit, of course, to the degree of force that may be safely used in all the manipula-

tions of midwifery; but the young obstetrician will be astonished to what extent it may be exercised without injury to the child. In all cases of breech presentation, and particularly those where the child is still alive, I would utter a word of caution against any attempt at traction while the presenting part is engaged in the vagina, or is passing through the external organs; as, the more slowly it advances, the more the parts are dilated, and a better chance is afforded for the delivery of the head before the supervention of a fatal asphyxia. If the child progresses at all, it is enough; and any interference in such cases is always, I believe, productive of more harm than good. An overweening ambition to be thought skilful, in cases that require to be let simply alone, however such a course of conduct may aid in building up the character of an accoucheur among the unintelligent, will, as it should, always be regarded by the truly learned as a device of the charlatan.

TABLE XVIII. — *Frequency of Breech Presentations.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Breech.	Countries.	Whole Number Cases.	Breech.
Dr. Burwell	547	17	England	47,367	677
Dr. Potter	247	3	France	48,134	1,125
Dr. Van Bibber . . .	4,135	60	Germany	26,982	535
Dr. Storer	425	5	United States . . .	8,470	130
Bellevue Hospital, N.Y.	1,348	27			
Dr. Metcalf	1,768	18			
Aggregates	8,470	130	Total	130,953	2,467

By this table, we find, that, for England, the ratio f breech presentations to the whole number of cases s one in 69; in France, one in 42; in Germany, one n 50; and in the United States, one in 65. The atio for the whole number of cases (130,953) is one n 53.

TABLE XIX. — *Mortality, in Breech Presentations, to the Children.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Children lost.	Countries.	Whole No. Cases.	Children lost.
Dr. Potter	3	0	England	598	197
Dr. Storer	5	0	United States	70	14
Dr. Van Bibber . . .	44	11			
Dr. Metcalf	18	3			
Aggregates	70	14	Total	668	211

The results of the table furnish a ratio of mortality, for England, of one in 3; for the United States, of one in 5. The ratio for the whole number (668) is one in 3.1. The few cases which have been put on record in the United States show that a much smaller ratio of mortality to the children, in breech presentations, obtains in this country than in Europe. Why 33 per cent of all the children who are born with a breech presentation in England should be dead at birth, and only 20 per cent in the United States, is a question, for the solution of which sufficient elements have not, as yet, been collected. It must be borne in mind, that almost all the English cases occurred in large lying-in hospitals, and that almost all the cases in this country

were found among the records of private practice. Now, an answer to the question, whether, being an interne of the Maison d'Accouchement at Paris, or a house pupil at the Dublin Lying-in Hospital (where cases of breech presentation must be a matter of familiar occurrence), I should be more likely to precipitate the labor by traction upon the presenting part, than I should in the very few cases to be met with in the meagre practice in a country town in Massachusetts, may perhaps be coerced into an element in the settlement of this question of mortality. By this suggestion, however, I would not, by any means, be thought to claim a superior humanity for American practice; because I cannot say that I might not come to believe, that a more dexterous manipulation, which a larger experience would educate, might not be supposed to more than compensate for the dangers attending a rapid delivery of the breech.

TABLE XX. — *Presentation of the Knees.*

Among the whole number of cases (1,768), presentation of the knees has occurred in three instances, and of which a general analysis is given, as follows; viz., —

MOTHER.						CHILD.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	21	22	1	6 months.	18 hours.	M.	3½ lbs.	A.
2	17	19	1	9 ,,	40 ,,	M.	8 ,,	A.
3	27	30	2	9 ,,	34 ,,	M.	7¼ ,,	A.

Case 1 occurred in a healthy primipara, at or near ıe sixth month of utero-gestation, and was supposed › be the result of a fright at seeing a carriage over- ırned containing a lady and child. Labor came on ı 6 hours after witnessing the accident, and was ttended with a considerable, though not profuse, ıemorrhage. The labor continued 18 hours, the early ›art of which, while the dilatation of the os uteri was ;oing on, was more than ordinarily painful. The :hild was a male, and weighed 3½ lbs. It lived for 8 ıours, uttered an occasional feeble cry, passed meco- ıium, and urinated. The skin was intensely injected, ınd, soon after death, became of a color nearly resem- bling mahogany. The other two cases were delivered at the full time, and after protracted labors, — one of 40 hours, and the other of 34 hours. All the children were males, and none were lost.

TABLE XXI. — *Presentation of the Knee and Foot.*

The 1,768 cases furnished but a single case of this presentation, as follows: —

MOTHER.						CHILD.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	19	21	1	9 months.	12 hours.	M.	8 lbs.	A.

The only circumstance worthy of note in this case is, that, although the presentation was clearly made out to be that of a foot and a knee, still the birth was accomplished with the leg and the thigh, which had

presented with the knee, flexed upon the abdomen. At the time of the examination, the bag of waters protruded some way into the vagina, and a foot and knee were clearly made out. Of the foot there could be no doubt, as the rupture of the membranes, and the continuous progress of the presenting part until the accomplishment of delivery, settled that point. That the knee also presented, I think I cannot be mistaken, as it could not be confounded with any other part of the child, that, by possibility, could be found in juxtaposition with a foot at that stage of labor, or, at least, which could not readily be distinguished from it. At or before the rupture of the membranes, the limb must have accomplished a spontaneous evolution upon the hip-joint, and thus converted the complication into a simple case of a footling.

TABLE XXII. — *Presentation of the Feet.*

Among the 1,768 presentations, presentation of the feet was noted in 12 instances, as follows; viz., —

MOTHER.						CHILD.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	14	35	12	9 months.	70 hours.	M.	6 lbs.	D. p.
2	19	24	2	9 "	7 "	M.	7 "	A.
3	21	22	1	9 "	17 "	F.	3 "	D.
4	36	37	1	5 "	5 "	M.	1 "	D.
5	22	27	2	9 "	36 "	F.	7 "	A.
6	28	33	3	9 "	10 "	M.	7¾ "	A.
7	23	27	2	9 "	36 "	F.	6¼ "	A.
8	19	21	1	9 "	12 "	M.	7 "	D.
9	18	24	3	9 "	24 "	F.	8 "	A.
10	21	30	5	9 "	36 "	M.	8¼ "	D.
11	16	19	2	9 "	18 "	M.	7¾ "	A.
12	20	27	4	9 "	30 "	M.	7¼ "	A.

Of the 12 cases included in the table, the child was dead at birth in five instances. One was an abortion, at 5 months; one was dead and putrid; and 3 were lost during labor. In one of these, I was only called after a midwife had exhausted her skill, and then only to deliver the head; the other two resisted all my efforts at delivery in season to save the children. Eight were males, and 4 were females. The mothers all recovered without any unusual occurrence, except in a single instance. In case 8, inflammation of the labia externa, followed by suppuration, supervened to the delivery, and the mother recovered after a protracted convalescence. Of the 12 cases, 9 presented with both feet, and 3 with one foot, the right foot presenting in each case. Of the 5 dead at birth, all but one presented with both feet, and that was the case of abortion. Of the dead, 4 out of 5 were males.

TABLE XXIII. — *Frequency of Presentation of the Inferior Extremities.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Inferior Extrem.	Countries.	Whole Number Cases.	Inferior Extrem.
Dr. Burwell	547	9	England	43,729	535
Dr. Potter	247	9	France	36,670	492
Dr. Van Bibber . . .	4,135	20	Germany	24,607	203
Dr. Storer	440	2	United States . . .	8,485	72
Bellevue Hospital, N.Y.	1,348	20			
Dr. Metcalf	1,768	12			
Aggregates	8,485	72	Total	113,491	1,302

In this table are included all presentations of the inferior extremities, whether both feet or one, or the knee. In England, the ratio to the whole number of cases is one in every 82; in France, one in 75; in Germany, one in 121; and in the United States, one in 118. The ratio for the whole number of cases (113,491) is one in 87.

TABLE XXIV. — *Mortality, of Presentation of the Inferior Extremities, to the Children.*

AMERICAN PRACTICE.			RESUME'.		
Authors.	Whole No. Cases.	Children lost.	Countries.	Whole No. Cases.	Children lost.
Dr. Potter	2	1	England	537	205
Dr. Storer	2	2	United States	31	10
Dr. Van Bibber	11	2			
Dr. Metcalf	16	5			
Aggregates	31	10	Total	568	215

The results of the table are, for British practice; a ratio of mortality of one in 2.6; and for American, one in 3.1. For the whole number of cases (568), the ratio is one in 2.6. In presentations of the inferior extremities and of the breech, the labor in both cases is reduced to the same category; that is, the head of the child is the part last delivered. In presentations of the feet, 38 per cent of the children are lost; while, in presentations of the breech, but 31 per cent are lost; making a difference of 7 per cent in favor of the safety of breech presentations over those of the infe-

rior extremities. Again: in the cases of presentation of the inferior extremities occurring in my own practice, of the 5 children lost, 4 were presentations with both feet, and only one with one foot, and that an abortion. These facts furnish an opportunity of again addressing a word of caution to the young obstetrician, against bringing down *both feet* in cases of version, or *hastening the delivery of the breech*, when that, or both, or either, of the inferior extremities, are the presenting parts. Many writers upon midwifery, I know, enforce this injunction, for the reason that it saves the mother from unnecessary pain in cases of version. Dr. Radford, of Manchester (England), agrees with this recommendation, but for a very different reason, and which he sets forth as follows: "The results of practice," he says, "prove, what might be inferred by reasoning, that *the child's life is much more frequently preserved in those cases in which it presents the breech, than where the feet come down first.* Is there, then, no practice which would enable us," he continues, "to bring down a part approximating in its measurements to those of the breech presentation, which we have already stated to be so safe for the child, but which cannot be effected in turning operations? There is; and this practice consists in NEVER *bringing down more than* ONE FOOT in the manual operation of turning a child."

The following measurements, from Dr. Churchill, were obtained from children born at the full period of utero-gestation: —

The circumference of that portion of the head which presents in labor is from	12 to 13¼ in.
The circumference of the breech, with the thighs flexed upon the abdomen, as in breech presentations, from	12 to 13½ „
The circumference of the breech, with one thigh turned upwards towards the abdomen, the other extended, from	11 to 12½ „
The circumference of the hips, the legs extended as in feet presentation, from	10 to 11½ „

There may be complications, such as hemorrhage or convulsions, attending the labor, requiring the speedy extraction of the child; but these are to be regarded as the exceptions, and not the rule.

The late Dr. Thurber, of Mendon, one of the patriarchs in our profession, — if half a century of successful practice can achieve a title to that appellation of respect, — frequently made the remark, that what skill in midwifery the public gave him credit for (and they yielded none which he did not truly merit) was to be attributed, in the main, to his practice of "non-intervention" in cases not absolutely requiring manual or instrumental assistance. Meddlesome midwifery found no favor in the eyes of the good doctor; nor did the entreaties of the patient or her friends, or his own convenience, coerce his interference, when he believed the case would be terminated safely by the unaided efforts of nature.

TABLE XXV. — *Presentations of the Funis.*

Presentation of the funis, in the 1,768 cases, is noted in 6 instances, as follows; viz., —

Mother.						Child.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	17	39	14	9 months.	36 hours.	M.	11½ lbs.	D.
2	20	30	4	8 ,,	48 ,,	M.	8½ ,,	D.
3	18	31	6	9 ,,	72 ,,	M.	7½ ,,	D.
4	16	25	4	9 ,,	12 ,,	F.	6 ,,	A.
5	24	26	1	9 ,,	18 ,,	F.	7 ,,	D.
6	20	22	1	8 ,,	12 ,,	M.	7½ ,,	D.

In the 6 cases of the table, 5 were alive at the commencement of the labor; but, on my arrival at the bedside, the cord was found pulsating only in 4. Of the 6, 5 were dead at birth. The one saved was by the favor of a roomy pelvis and a rapid delivery. The child was profoundly asphyxiated at birth, and was only recovered after unremitting exertions for more than forty minutes. Blowing in the face, the sprinkling with cold water, inflation of the lungs, and enemas of warm salt and water (by aid of the mouth and a catheter), were the means employed to excite the respiratory function. As will be seen by the table, the labor was of 12 hours' duration, and the child weighed but 6 lbs. The presentation was natural.

In this complication of labor, I have to confess the truth, that, notwithstanding the various directions which obstetrical writers have given concerning the manipulations for the reduction of a prolapsed funis, I have never, in a single instance, succeeded in accomplishing that feat of obstetrical legerdemain to any practical purpose. In spite of all my sleight of hand, bag and all, reduce it never so often, the pro-

lapsus would be sure to return with the succeeding pain.

One of the cases of miscarriage, in the 8th month, was attributed to the operation of an active cathartic, administered by a quack, for the cure of a troublesome pruritus about the anus, charged to pin-worms. The fœtus was discharged from the womb instead of the ascarides from the rectum, however, by the dose of aloes which had been prescribed for the expulsion of the latter.

TABLE XXVI. — *Frequency of Presentations of the Funis.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Funis.	Countries.	Whole Number Cases.	Funis.
Dr. Burwell	547	3	England	47,377	226
Dr. Potter	247	0	France	36,621	82
Dr. Van Bibber . . .	4,135	2	Germany	14,514	93
Dr. Storer	440	2	United States . . .	8,485	15
Bellevue Hospital, N.Y.	1,848	2			
Dr. Metcalf	1,768	6			
Aggregates	8,485	15	Total	106,997	416

The occurrence of this complication of labor, as shown by the statistics, presents itself with little regularity, as to its frequency, in different countries, or in the experience of different obstetricians in the same country. That, in England, prolapse of the umbilical cord should be met with one in 200 cases; in France, one in 446; in Germany, one in 156; and, in the United States, only one in 565 cases, — is a fact that, at present, we cannot account for. In our own country,

when further observations shall have been collected and compared, perhaps the present favorable ratio will require some modification; but, in the countries of Europe, we have no great reason to suppose that a larger show of statistics will materially affect their relative proportions.

TABLE XXVII. — *Mortality to the Children, and Mode of delivery, of Funis Presentations.*

AMERICAN PRACTICE.					RESUMÉ.				
Authors.	Whole No. Cases.	Children lost.	Mode.		Countries.	Whole No. Cases.	Children lost.	Mode.	
			Version.	Forceps.				Version.	Forceps.
Dr. Potter	1				England	234	166	25	2
Dr. Storer	2	2	1		France	64	16	35	26
Dr. Van Bibber . .	2	1			Germany	87	38	46	6
Dr. Metcalf	6	5			United States . . .	11	8	1	
Aggregates	11	8	1		Total	396	228	107	34

The results of this table furnish the following ratios of mortality. In England, the deaths amount to 71 per cent; in France, to 25 per cent; in Germany, to 43 per cent; while, in the United States, they run up to 83 per cent of the whole number. In 2 cases, reported, as above, by Mr. Giffard, and in 2 by Madame Lachapelle, the cord was reduced. The other case, of Dr. Storer, was delivered after the operation of craniotomy.

So far as the results of the preceding table are to be received as evidence, artificial delivery greatly

increases the chances of life to the child. Take the cases of Madame Boivin and Madame Lachapelle, with those of Voigtel and Jansen, amounting to 151. In these cases, delivery was effected in 82 instances by version, and in 32 by the forceps. It is supposed the remaining 37 were completed without artificial aid. Of the 151 cases, 54 died; thus furnishing a greatly reduced ratio of mortality, as compared with the ratio in those cases that were left to the natural efforts. In the whole number of cases (391), the mortality amounted to 57 per cent; and, in the whole number, the cord was reduced but in 4 instances. This so nearly tallies with my own experience, that I feel inclined to put in the fact as a plea in abatement to the mortification I felt at the lack of success which attended my endeavors in this direction. Of the many circumstances which have been assigned as reasons for prolapse of the funis, the most rational seems to be. that of the attachment of the placenta to other portions of the uterus than the fundus, and especially when near the os; and to the implantation of the funis in or near to the edge of the placenta. This was found to be a fact in several of the cases reported by Dr. Churchill; and, in 4 out of the 6 reported by myself, the root of the umbilical cord was inserted near the edge of the placenta.

TABLE XXVIII. — *Presentation of the Placenta.*

In the 1,768 presentations noted, Placenta Prævia occurred in 4 cases, as follows; viz., —

Mother.						Child.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	17	26	4	5 months.	10 hours.	F.	3½ lbs.	D.
2	23	27	2	9 ,,	36 ,,	F.	6¾ ,,	A.
3	19	21	1	9 ,,	12 ,,	M.	7 ,,	D.
4	20	24	3	9 ,,	15 ,,	F.	7½ ,,	D.

The first case, as will be seen by a reference to the table, occurred in a fourth pregnancy, and at the fifth month of utero-gestation. The patient had not gone in any pregnancy beyond the sixth month. In the present instance, she had been flowing quite profusely for some time before my arrival, and had become quite faint and exhausted. On examination, I found the vagina filled with what I supposed to be a large coagulum, but which, on being expelled, was found to be the placenta. The removal of the placenta (the umbilical cord having been ruptured) seemed to excite the uterine contractions; and, in a short time, the fœtus was delivered. No hemorrhage followed the birth of the child; but the patient was extremely exhausted, and complete syncope was only averted by the assiduous administration of diffusible stimuli, and the application of pressure, by the hand, to the abdomen. Although the patient had suffered from four consecutive abortions, the next pregnancy continued to the full time; and, at the end of fifteen months from the present accouchement, she was delivered of a healthy, robust child. When a number of abortions have taken place in pretty rapid succession, the patient seldom gives birth to a living child *soon* after-

wards. In most cases, the general health directly begins to fail; and a few repetitions of the disastrous accident very generally lay the foundation of some fatal organic lesion. In the present case, deep inroads had been made upon the general health of the patient; and, to all appearance, that anæmic condition of the system was being slowly though surely superinduced, which is so often the precursor to some mortal disease. Unexpectedly, however, some favorable change took place about this time; her general health improved; and, for some years since the birth of the living child, she has enjoyed almost uninterrupted health.

In the second case, I was called a short time before the incursion of the hemorrhage. The pains were strong and frequent; and, while endeavoring to make out the presentation, a large gush of blood revealed the untoward nature of the case with which I had to deal. Continuing the examination, I found the placenta attached to the side of the womb, coming down to the anterior edge of the os. Finding the parts readily dilatable, and the flooding continuing profuse, I proceeded at once to attempt delivery by version. The hand was gently passed by the placenta toward the posterior wall of the uterus, the membranes ruptured; and, to my great satisfaction, I immediately came in contact with a foot. Making no effort to find the other, it was slowly brought down into the vagina, and the delivery soon accomplished. The child was a female, and weighed $6\frac{3}{4}$ lbs; and to its small size, and the liberal measurements of the maternal pelvis, it was, most probably, indebted for its life.

In the third case, the os uteri was wholly occluded by the placenta. Upon the occurrence of the hemorrhage, which soon became profuse, and was increased by every pain, I did not long hesitate to make an attempt at version. To this end, the hand was passed into the vagina; and, after many gentle and repeated efforts, the os uteri was dilated, the placenta separated from the anterior edge, and the membranes found entire. They were easily ruptured; and a search commenced for the feet. They were found quite up to the fundus: one of them was grasped, the version slowly and gently completed, and the foot and leg brought down into the vagina. The pains continued strong and regular; the hemorrhage was much abated; and, in forty minutes, the patient was delivered of a still-born male child, weighing 7 lbs.

The fourth case has already been mentioned, being the case of shoulder presentation. In this case, the placenta was found at the edge of the os, and its attachments with the womb were broken up as far as the finger could reach. The hemorrhage soon ceased; but whether from a complete separation, or pressure of the presenting part, I was unable to decide.

In the three last cases, the placenta was thrown off with the last pains, before the expulsion of the child; as in neither case did any hemorrhage follow the birth. The patient, in the first case, recovered after a protracted convalescence; the others, without more than the ordinary period of delay.

In the two cases here recorded, and in the case of presentation of the arm, are to be found the only

instances in which I have performed the operation of turning. They were all favorable cases, as the parts were well dilated or readily dilatable, the membranes unbroken, and the pelvis at least not falling within the mean of normal measurement.

TABLE XXIX. — *Frequency of Placenta Prævia, and Mortality to the Mother.*

AMERICAN PRACTICE.				RESUMÉ.			
Authors.	Whole No. Cases.	Placenta Prævia.	Mothers lost.	Countries.	Whole No. Cases.	Placenta Prævia.	Mothers lost.
Dr. Burwell . . .	598	1		England	44616	168	46
Dr. Potter	247			Germany	14748	16	2
Dr. Van Bibber . .	4192	3	1	United States . .	8593	10	1
Dr. Storer	440	1					
Bellevue Hospital .	1348	1					
Dr. Metcalf . . .	1768	4					
Aggregates . . .	8593	10	1	Total	67957	194	49

British practice furnishes the following ratios: For frequency, one case in every 857; mortality, one in 7.2; German practice, for frequency, one in 920; mortality, one in 8; and American practice, for frequency, one in 859; mortality, one in 10.

TABLE XXX. — *Mortality to the Child in Placenta Prævia, when the Child was delivered before the artificial separation or spontaneous expulsion of the Placenta.*

For the means of constructing this table, I am chiefly indebted to "A Prize Essay: Statistics of Placenta

Prævia, by Dr. James D. Trask," published in the eighth volume of the "Transactions of the American Medical Association."

Authors.	Whole No. Cases.	Children saved.	Children lost.	Authors.	Whole No. Cases.	Children saved.	Children lost.
Dr. Trask	140	56	84	Brought up . .	263	97	166
Dr. Lever	33	18	15				
Dr. Merriman . .	89	22	67	Dr. Van Bibber . .	3	1	2
Dr. Storer	1	1		Dr. Metcalf . . .	3	1	2
Carried up . .	263	97	166	Aggregates . . .	269	99	170

Dr. Trask, in the Essay referred to above, gives an account of 277 cases of delivery, in which the child was born before the placenta was expelled or extracted. Of these, 207 mothers were saved, and 70 lost, not including 5 who died undelivered. Of the 277 deliveries, 227 were effected by artificial aid, and 50 were the result of the natural efforts. Of the 227, 164 were saved, and 63 lost; of the 50, 43 were saved, and 7 lost. These figures furnish the following ratios of mortality: For those delivered by artificial aid, one in 3.6; for the spontaneous deliveries, one in $6\frac{1}{7}$.

In 151 cases of spontaneous separation of the placenta before the birth of the child, 140 mothers were saved, and 11 lost; furnishing a ratio of mortality of one in 12.7.

In 60 cases of artificial detachment of the placenta before the birth of the child, 47 mothers were saved, and 13 were lost; furnishing a ratio of mortality of

one in 3.6, being the same ratio as obtains in those cases where the child was delivered before the placenta. But these 60 cases are shown to comprise a considerably larger proportion of severe cases than are ordinarily met with, and hence it would be unfair to compare them with those in which delivery of the child was accomplished before the delivery of the placenta; and therefore it seems to be safe to conclude, that a larger proportion of mothers would be saved after artificial detachment of the placenta, than would be were the labor allowed to proceed without it.

In almost every case of separation of the placenta, whether spontaneously or artificially effected, before the birth of the child, the hemorrhage directly ceases; and, were only the life of the mother concerned, this operation would be resorted to in all cases: but as, unless delivery very soon follows the operation, the child's life is compromised, we are directed, in those cases admitting it, by the preponderance of authorities, to accomplish the delivery without separating the placenta. In cases where delivery cannot be immediately attempted, — as, for instance, when the case is complicated by an unyielding rigidity of the os uteri, or where great prostration, from the previous hemorrhage, forbids the operation of version, — the separation should not be delayed; and it is to these two classes that this operation will most probably be confined.

I cannot close the consideration of the present subject better than by furnishing a condensed abstract of the conclusions of Dr. Trask's Essay: —

1. As there is less risk to the mother, and probably a better chance of preserving the life of the child at the full time, we should be unremitting in our endeavors to prevent abortion or miscarriage.

2. We should remember, that generally, not always, in cases where the os uteri is not fully occluded by the placenta, the hemorrhage may be controlled within limits of safety by a seasonable rupture of the membranes.

3. In cases of complete occlusion, and in partial, where the measures adopted do not control the hemorrhage, we should not forget the importance of an early delivery. We need not wait for a dilated os uteri; but we must wait for a dilatable condition of that portion of the organ, as otherwise we may inflict serious or fatal injuries by our manipulations. The period of greatest danger, in these cases, is while waiting for this dilatability of the os; and, to check the hemorrhage during this unavoidable delay, we should resort to the rupture of the membranes, the administration of ergot, ether, chloroform, &c.

4. Cases of placenta prævia, certainly while active hemorrhage continues, should not be left by the medical attendant, as dangerous and fatal flooding in the earlier stages of labor, as well as during the dilatation of the os uteri, occurs, and sometimes very suddenly; and thus, if the accoucheur be absent, the patient may lose her life by his neglect. Nor, as it seems to me, can we plead "the sacrifice of time" as a justification even for our temporary absence from the bedside, as allowed by Dr. Rigby.

5. The hemorrhage persisting, and the rigidity of the os uteri precluding artificial delivery, we are to put off the artificial separation of the placenta no longer; knowing that such procedure, although it is pretty sure to destroy the child, will be quite as sure to arrest the hemorrhage.

6. In cases where the os uteri may be dilated or dilatable, and the patient so prostrated as to render version hazardous, the placenta may be detached, and thus afford an opportunity for the patient to rally before she be delivered. When we are satisfied that the child is dead, the separation should be accomplished before the mother is prostrated by the hemorrhage.

As placenta prævia is one of the most dangerous complications met with in the practice of midwifery, I would respectfully urge the importance of preserving and publishing full reports of all the cases which may occur, so that some future statistician may be furnished with such a multitude of facts as shall give a permanent practical value to his deductions; confirming if true, invalidating if erroneous, the present received opinions upon this important subject.

TABLE XXXI. — *Analysis of Thirty Cases of Hemorrhage.*

The 1,768 cases of labor furnished 30 cases of hemorrhage, presented as follows; viz., —

No. of Case.	Hemorrhage before Labor.	Do. during Labor, and before Delivery.	Do. between Delivery of Child and do. Placenta.	Do. after Delivery of Placenta.	Presentation.	Number of Pregnancy.	Age when delivered.
1	F.				Vertex.	1	19
2		F.			,,	3	22
3		F.			Placenta.	4	26
4	F.	F.			Breech.	3	26
5	F.			F.	Vertex.	2	24
6			F.		,,	5	33
7				F.	,,	11	41
8	F.				,,	3	22
9	F.				Feet.	2	27
10			F.		,,	5	30
11		F.	F.		Vertex.	2	19
12				F.	,,	1	17
13		F.			Placenta.	2	27
14	F.			F.	,,	3	21
15			F.		,,	1	16
16	F.			F.	Vertex.	7	41
17			F.		,,	4	28
18		F.			,,	2	18
19			F.		,,	3	22
20	F.				Breech.	4	30
21		F.			Vertex.	5	33
22			F.	F.	,,	1	18
23		F.			Placenta.	1	21
24	F.			F	Vertex.	2	20
25		F.	F.		,,	3	20
26	F.				,,	1	17
27			F.		,,	3	23
28		F.			,,	14	39
29				F.	,,	1	21
30		F.			Placenta.	3	24

An inspection of the table shows that 10 cases of hemorrhage occurred before the incursion of labor; 11 during labor, and before delivery; 9 between the birth of the child and expulsion or delivery of the placenta; and 8 after the expulsion of the placenta. It will be noticed that hemorrhage occurred, in 8 cases, at two different periods. In 26, the hemorrhage was accidental; in 4, unavoidable.

There is some hemorrhage in all cases of labor; but the rule by which we measure that excess which we denominate *flooding* has not been, nor can be, very

accurately settled. Robust and plethoric subjects can lose with impunity such a quantity of blood as would reduce an anæmic patient to a dangerous state of prostration, and still we feel no alarm at its loss. In this matter, I am aware that what might be denominated by one accoucheur as flooding would not be noted as such by another; and that, very likely, what a junior practitioner in midwifery would enter in his record as a case of uterine hemorrhage, would, when he had been in practice twenty-five or thirty years, find no place for note or comment. In the present category, undoubtedly, some of the cases of hemorrhage noticed in the earlier periods of my experience would not be considered of sufficient consequence to be put under the ban of that "bad eminence" now.

Each one must be left to determine this matter for himself; being careful, on the one hand, that he suffers himself to be drawn into no premature intermeddling with a case that would do well if left to the natural efforts; nor, on the other hand, that he procrastinates his interference until the opportunity for successful assistance is irrevocably closed, and he finds himself overwhelmed by the crushing reflection, that a life has been sacrificed to his doubts and indecision.

Cases of dangerous flooding are among those accidents which call into exercise, beyond other complications incident to parturition, the skill and firmness of the obstetrical practitioner. Uterine hemorrhage frequently takes place suddenly and without warning. In many cases, there is no time for counsel. The life-blood of the sinking patient is fast ebbing without let

or hinderance; the blanched lips, the upturned eye, the sardonic laugh, the frantic call for fresh air, are so many demands upon our decision to come to the rescue ere the fatal prostration has been irremediably induced. In cases like these (and thankful should we be that they occur so seldom), the country practitioner cannot, like his city *confrère*, have the benefit of competent counsel, by calling in the next-door neighbor. He must decide, and that, too, alone and speedily; and he is quite too often deified or damned, not for any exercise or lack of skill, but solely by a result which no professional blunder could prevent, or the most consummate dexterity of manipulation arrest.

Most of the cases of the preceding table were such as require or admit of little comment. Of the 10 cases occurring before the commencement of labor, all but two occurred before the seventh month of utero-gestation. Many of them were so slight that no professional advice was sought; and their existence was only discovered by inquiry at the period of labor. Of one only was any note taken beyond the bare fact of occurrence. Case 8 occurred in a third pregnancy, and in a subject of a delicate and anæmic constitution. Although the quantity of blood lost was by no means excessive, yet the patient was reduced to a state of great weakness, and was for many weeks confined to the horizontal posture; as very little motion, while sitting up, would induce a return of the hemorrhage. At the period of the hemorrhage, opium, acetate of lead, with cold, wet cloths to the vulva, and a reduced

temperature of the room, were relied on for its arrest. Tonics and laxatives, with a suitable diet and regimen, were prescribed for the general health; and, before her full time, the patient had measurably recovered from the prostration consequent on the hemorrhage. The flooding occurred in the fourth month, and was attributed by the patient to a strong mental emotion, excited by an unpleasant occurrence in the family.

Of the 11 cases occurring during labor, and before the birth of the child, but four presented any thing worthy of note. These were the cases of placenta prævia, already spoken of. The third case of the present table was the first one of unavoidable hemorrhage. The other cases were the thirteenth, twenty-third, and thirtieth; the last being also the case where the child presented with the shoulder.

There were nine cases of hemorrhage between the birth of the child and delivery of the placenta. In two of these only was it found necessary to introduce the hand into the uterus. The seventeenth case of the table was one of these. The patient averred, that, in three prior deliveries, the placenta had been force-delivered. In the present instance, the flooding supervened immediately after the birth of the child, and was so excessive that the patient soon became faint. The pains were now hardly perceptible; and as the hemorrhage continued in excess after a strong dose of laudanum and acetate of lead had been taken, and in view of the fact that the placenta had been found adherent in all her former pregnancies, I concluded to wait no longer. The hand was accordingly, with

little resistance, introduced into the uterus, and the placenta found still partially adherent to the fundus. The separation was effected by grasping the placenta with the outstretched hand, and waiting for the uterus to contract before it was withdrawn from the organ. The twenty-seventh was the other, and only other, case where the hand was introduced for the extraction of the placenta. In this case the attachment was to the fundus, and by more than half its surface. It was with difficulty that its connections were broken up. In both cases the patients were affected with nausea and occasional retching for some hours after delivery; and, in the first case, the after-pains were more than ordinarily severe.

There were 8 cases noted of hemorrhage occurring after the expulsion of the placenta, but in no case was the flooding alarming. Opium, and acetate of lead, a compress to the abdomen, and, in a case or two, cold, wet cloths to the vulva, were found sufficient to restrain the flow of blood within due bounds. Some practitioners of my acquaintance make it a rule to administer a dose of ergot just before the birth of the child; affirming that they have less trouble with the placenta, and less hemorrhage. In the "Southern Medical and Surgical Journal" for January, 1848, Dr. Blackburn, of Barnesville, reports, that, in two cases where ergot had failed to induce uterine contractions, he had succeeded with a strong decoction of the cotton-plant (*Gossypium herbaceum*). In the last number of "Braithwaite's Retrospect" (XXXII.), quoting from the "Dublin-Hospital Gazette," Feb. 1,

1855, it is stated that Mr. Harris, in the "Virginia Medical Journal," relates cases in which a strong decoction of uva ursi produced vigorous pains, which soon caused the expulsion of both fœtus and placenta; and that he preferred its use to ergot, being less dangerous, as he avers, to the child. Of these last two agents, for the purpose here recommended, I have no experience.

TABLE XXXII. — *Frequency and Mortality of Flooding.*

AMERICAN PRACTICE.										
Authors.	Whole No. Cases.	Cases Flooding.	Mothers lost.	Children lost.	Accidental Hemorrhage.	Mothers lost.	Unavoidable Hemorrhage.	Mothers lost.	Hemorrhage after Labor	Mothers lost.
Dr. Potter	247	6	0	0					6	0
Dr. Van Bibber	1787	52	0	0	35	0	2	0	15	0
Dr. Thomas F. Cock *	588	28	1		16		6	1	6	0
Bellevue Hospital, N. Y.	1410	23			4		1		18	
Dr. Metcalf	1768	30	0	2	18	0	4	0	8	0
Aggregates	5745	139	1	2	73	0	13	1	53	0
RESUMÉ.										
Countries.										
England	47214	700	95	107	151	24	168	47	264	23
Germany	14748	26	2	2	4		16	2	6	
United States	5745	139	1	2	73	0	13	1	53	0
Total	67707	865	98	111	228	24	197	50	328	23

Laying aside the first 5 entries in the table,† against which the "whole number of cases" are not placed,

* Of the New-York Hospital. — See page 80. † Details of British Practice, not printed.

and we have for frequency in British practice, as the ratio for cases of hemorrhage, one case in 95; for the mortality to the mother, taking all the "cases of flooding," we have the ratio of one in 7.3; mortality to the children, one in 6.5; ratio of mortality for accidental hemorrhage, one in 3.6; placenta prævia, one in 3.5; and, for hemorrhage after labor, one in 11.5. In German practice, the ratio of frequency is one in 567; mortality to mother and child (both the same), one in 13; accidental hemorrhage, no mothers lost; for placenta prævia, the ratio of mortality is one in 12; and, in hemorrhage after labor, no mothers lost. In American practice, the ratio of frequency is one in 41.3; mortality to the mother, one in 139; to the child, one in 69; in accidental hemorrhage, no mothers were lost; in placenta prævia, one in 13; and, in hemorrhage after labor, none.

TABLE XXXIII. — *Retention of the Placenta.*

In the 1,768 cases, the subject of the present analysis, the interval between the birth of the child and the delivery of the placenta was noted in 864 cases, and is set down in the table as follows; viz., —

Intervals	Within 5 minutes.	Between 5 and 10 do.	Between 10 and 15 do.	Between 15 and 20 do.	Between 20 and 25 do.	Between 25 and 30 do.	Between 30 and 35 do.	Between 35 and 40 do.	Between 40 and 45 do.	Between 45 and 50 do.	Between 50 and 60 do.	Between 1 and 1½ hrs.	Between 1½ and 2 do.	Between 2 and 2½ do.	Between 2½ and 3 do.	Between 3 and 9 do.	Between 9 and 24 do.
No. Placentas } 864	85	280	215	100	96	60	5	7	2	1	3	2	3	2	1	1	1

According to this table, the mean length of the interval between the birth of the child and the delivery of the placenta is 19 minutes, abating a fraction. Dr. Clarke found the mean interval to be 20 minutes; and Dr. Churchill tells us, that, in 250 cases out of 277, the placenta was expelled within 15 minutes.

How long after the birth of the child is the placenta to remain undelivered, to be denominated a retained placenta? Like the question, How much blood must be lost to denominate the case one of flooding, it admits of no definite answer. Dr. Churchill fixes the time at "an hour and a half, or thereabouts, for ordinary cases;" Dr. Meigs abates the "thereabouts," and says nothing about the "ordinary cases," but, while fixing the time at "an hour and a half," thinks it probable "that cases may and do occur in which a longer delay might be advisable;" while Dr. Robert Lee, cancelling the fractions, is of opinion, that, "in all cases, whatever the cause of the retention may be, if the placenta, at the end of an hour, is not detached from the uterus and expelled, it should be withdrawn artificially."

The last two cases in the preceding table were returned by a correspondent without note or comment. Of the remaining cases, if we adopt, as a rule, that one hour and a half shall measure the interval, after the delivery of the child, for retained placentæ, we have 6 cases falling within that category. All these cases occurred after protracted labors. The causes assigned for the retention were as follows: Inertia of the uterus, four; irregular contraction, one; unusual

adhesion, one. In the case of the longest interval, that of 3 hours, no pain and no contraction of the uterus were felt until just before the expulsion of the placenta. None of the placentæ, in the cases of inertia, were force-delivered. These cases all occurred in the earlier periods of my practice; and I attribute, in part at least, the length of the retention to the fears I then entertained of severing the funis, and the lack of means used to promote contraction of the uterus. In the cases of hour-glass contraction, and unusual (morbid?) adhesion, the placentæ were delivered by introducing the hand into the womb, and breaking up the attachments. In none of the cases was there sufficient hemorrhage to be called flooding.

TABLE XXXIV. — *Frequency of Retained Placenta, Causes, and Result to the Mother.*

AMERICAN PRACTICE.							RESUMÉ.						
Authors.	Whole No. Cases.	Retained Placenta.	Inertia.	Irregular Contraction.	Morbid Adhesion.	Mothers lost.	Countries.	Whole No. Cases.	Retained Placenta.	Inertia.	Irregular Contraction.	Morbid Adhesion.	Mothers lost.
Dr. Potter . . .	304	5		5		0	England . .	39,709	264	67	51	63	36
Dr. Van Bibber	1,787	18		1	17		Germany . .	219,541	196	1			
Dr. Cock	533	16		2	14	0	United States	4,410	45	4	9	32	0
Dr. Metcalf . .	1,786	6	4	1	1	0							
Aggregates . .	4,410	45	4	9	32	0	Total	263,660	505	72	60	95	36

Passing by the figures against the names of Mr. Giffard, Mr. Perfect, and Dr. Ramsbotham, in the *re-*

sumé of English practice, who do not report the whole number of cases, we find the 39,709 cases in British practice give 194 cases of retained placentæ; furnishing a ratio of one case in 204. German practice furnishes a ratio of one in 1,120; and American, of one in 98. The whole number of cases (263,660) gives 435 cases of retained placentæ; furnishing a ratio of one in 606. The great discrepancies in the ratios of frequency, in the different countries and among the different reporters, must be mainly attributable to the different standards of measurement as to what shall be called retention. The fact, too, that many of the cases were seen in consultation, and so may be supposed to be cases of severity, would somewhat vary the proportions. In regard, also, to the ratio of mortality in British practice, Dr. Churchill tells us that large allowance should be made, from the fact that many of the cases were in the hands of incompetent midwives before the accoucheur was called.

In cases of retention of the placenta from inertia, it is not often necessary to introduce the hand into the uterus, as the contraction of that organ will generally be excited by some of the means recommended for that purpose. M. Mojon, and some other European practitioners, recommend the injection of cold water into the umbilical vein, as a means of exciting the dormant powers of the uterus. I have no experience in this practice, but cannot sympathize with Dr. Churchill in his fears of inducing inflammation by its use; and would make a trial of its efficacy in any case, where other means should fail, rather than

introduce the hand into the uterus. Ergot, in most cases, is a reliable remedy, and serves the double purpose of expelling the placenta and arresting consecutive hemorrhage.

The uterus may contract irregularly, and thus prevent the expulsion of the placenta. In treatises on midwifery, we are told of an hour-glass contraction, and a cylindric contraction; but do we not find a globular contraction, which sometimes retains the placenta? I cannot be mistaken, I think, that I have many times found the expulsion of the placenta delayed by this kind of contraction. You make extension upon the cord, and you find there is no yielding. Passing the hand upon the abdomen, you find the uterus contracted to the size of your outspread hand, and that it is perfectly globular in shape. An examination *per vaginam* reveals a rigid and unyielding os uteri, contracted, in some cases, almost to the size of the umbilical cord; and this is the reason why the placenta is retained.

If there were any certain means of distinguishing cases of inertia and irregular contraction from what is usually denominated "morbid adhesion" of the placenta, we should not, in the absence of hemorrhage, so scrupulously regard time as a measure of our delay before engaging in its forcible extraction. But as we cannot be certain, that, although there may be inertia or irregular contraction, there may not be complicated with either of these conditions morbid adhesion also, and inasmuch as the weight of authority is against any prolonged delay, we must pay some

regard to the period to which we procrastinate our interference. Having but little experience in this branch of the obstetric art, I should notwithstanding be disposed, I think, to avail myself of the longest period of delay, and hence should vote for the "hour and a half, or thereabouts," of Dr. Churchill; finding the value of the "thereabouts" to be another half-hour.

I cannot better dismiss the present subject than by quoting the opinion of Dr. Denman upon the introduction of the hand into the uterus. "It is often mentioned," says the doctor, "as a slight thing; yet I am persuaded that every person who attends to the consequences of the practice will think it of importance, and that, if possible, it should always be avoided."

TABLE XXXV. — *Convulsions.*

In the whole number of cases (1,768), but three cases of convulsions were met with. They are analyzed as follows; viz., —

MOTHER.						CHILD.		
No. of Case.	Age when married.	Age when delivered.	No. of Pregnancy.	Duration of Gestation.	Duration of Labor.	Sex.	Weight.	Alive or dead.
1	21	22	1	9 months.	18 hours.	F.	7 lbs.	A.
2	17	19	1	9 "	12 "	F.	7¼ "	A.
3	18	19	1	9 "	8 "	F.	6½ "	D.

The first of the cases in this table was returned in the "abstract" of a correspondent, without comment. Case 2 was one of great severity, and of the epilepti-

form variety. The first convulsion occurred just before the birth of the child; the patient making, at the time, a screeching exclamation that her head would burst. The child was born during the second convulsion, which directly followed the first. A vein in the arm was immediately opened, and twenty ounces of blood drawn. The placenta was soon afterwards found in the vagina, and withdrawn. From this time, the convulsions continued strong and frequent for 48 hours, after which they grew less frequent. From the first, there was an entire loss of consciousness for four full days; and during a large portion of the time, while struggling with the convulsions, it required the aid of two or three attendants to keep the patient upon the bed. It was not until the fifth morning from her accouchement that the patient showed the least sign of returning consciousness; and never shall I forget the smile of recognition, which lighted up a countenance once more beaming with intelligence, as I paid my morning visit to her bedside. I found she had no recollection of a single occurrence from the first attack of the convulsions until the present morning. The last thing she remembered was an intense and rending pain in the head. During all this time, she did not utter a single word or make a solitary intelligent sign. On asking her if she knew she had become a mother, she answered, "I suppose I have, as I have just heard the cry of an infant in the other room; but I can remember nothing since last night (four nights had passed), when you was sitting by the side of the bed."

The third case, like the two previous ones, also

occurred in a primipara. On the day preceding the attack of the convulsions, the patient had rode some eight or nine miles. The weather was cold (it was the 30th of December); and, for some time after her arrival at home, she remained quite uncomfortable. At supper, she ate heartily of pork and beans, and at six, P.M., of the same evening, was attacked with the first convulsion. On my arrival at the house, which was in a few minutes, I found her lying quite calm, the convulsion having passed off. Consciousness had returned; and, complaining of nausea, I directed she should have a draught of warm water. In a few minutes emesis followed, and the stomach was relieved of its burden. It was about the full period, and she was daily expecting her confinement, but at this time complained of no pain, except in the head. The stomach having been fully evacuated, and the pain in the head slight, no further prescription was made. I was summoned again at eight o'clock, when she had another convulsion. She had, for the last half-hour, complained of some pain low down in the back. An examination *per vaginam* was made, and the os uteri was found dilated to the size of a dime. The uterine pains were soon more distinctly manifested; and no doubt was entertained that labor had commenced. The patient was now unconscious, and could not be roused from the coma. At ten and half-past eleven, there were two more convulsions, plainly of the epileptic character. At one, two, five, eight, and nine o'clock, A.M., of the succeeding day, the convulsions were again repeated. In the mean time, the labor had progressed slowly; the head had escaped from the

uterus, and was engaged in the superior strait. Between ten and eleven o'clock, there were two more convulsions; and it was advised by counsel (Dr. Robbins, of Uxbridge, he having been called some hours previous), that the delivery should be completed by the forceps. This was readily accomplished; and we now hoped the convulsions would cease. But we were disappointed, as they returned during the succeeding hour, and continued, at short intervals, until one, A.M., on Monday (the next) morning. From this time until half-past six, P.M., on Tuesday, being 67 hours from the first attack, she remained wholly unconscious. During the continuance of the convulsions, she was bled to the amount of seventeen ounces; had a cathartic operation from the bowels; and took antispasmodic medicines by the mouth, and by enemata. Ether was used in this case, though sparingly. Recovery took place after a very slow and protracted convalescence; and the patient, in the two successive labors which have since occurred, had no return of this dangerous complication.

TABLE XXXVI. — *Frequency of Convulsions.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Convulsions.	Countries.	Whole Number Cases.	Convulsions.
Dr. Burwell	588	13	England	38,546	79
Dr Potter	304	2	France	58,357	80
Dr. Van Bibber . . .	4,290	19	United States . . .	9,362	56
Dr. Cock	533	7			
Dr. Storer	451	3			
Bellevue Hospital, N.Y.	1,410	9			
Dr. Metcalf	1,786	3			
Aggregates	9,362	56	Total	106,265	215

In regard to the large ratio for the United States, it should be remembered that many of the cases of Dr. Chatard, reported by Dr. Van Bibber, were those seen in consultation; and that the cases of Dr. Cock, many of them, were the severer cases of two lying-in charities, with which he is officially connected.

TABLE XXXVII. — *Mortality of Convulsions to the Mother.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Mothers lost.	Countries.	Whole No. Cases.	Mothers lost.
Dr. Potter	2	1	England	152	42
Dr. Van Bibber . . .	19	3	United States . .	34	7
Dr. Cock	7	2			
Dr. Storer	3	1			
Dr. Metcalf	3	0			
Aggregates	34	7	Total	186	49

The ratio of mortality, as furnished by the table, is, for English practice, one for every 3.6; for American practice, one in 4.8. Notwithstanding this large ratio for the fatal cases, we have reason to believe that a larger proportion of recoveries is met with now than formerly. Jacob tells us, that in his time scarcely any recoveries took place; Dr. Parr, that six or seven out of every ten were lost; and Dr. Hunter, that the greater proportion died.

Are puerperal convulsions more likely to occur in a first than a subsequent pregnancy? By Dr. Ramsbotham and some others, I believe, it has been stated that convulsions more frequently, or at least as often, make their appearance in the multiparæ as the primi-

paræ. The statistics of the following table do not support such an opinion: —

TABLE XXXVIII. — *Frequency of Convulsions in Primiparæ.*

American Practice.			Resumé.		
Authors.	Whole No. Cases.	Primiparæ.	Countries.	Whole Number Cases.	Primiparæ.
Dr. Van Bibber . . .	12	8	England	96	79
Dr. Cock	7	6	United States . .	26	16
Dr. Storer	3	2			
Dr. Metcalf	3	3			
Aggregates	25	19	Total	122	95

In investigating the mortality of puerperal convulsions, every circumstance that will aid us in prognosticating their *incursion* must be of great importance and value. If future experience should confirm the observations of Dr. Levis, of London, that albumen is always present in the urine of women attacked with puerperal convulsions, may we not be furnished, by a timely diagnosis, with large additional means for combating this fearful complication? It would be no very difficult or troublesome matter to test the urine for albumen in almost every case of labor; and, when we should have reason to expect an attack of convulsions, might we not, by the institution of an opportune prophylactic treatment, do something to abate the fatality of this appalling disease?

Dr. Levis tells us that he has "investigated the

urine in upwards of fifty women from whom the secretion had been drawn during labor, great care being taken that none of the vaginal discharges were mixed with the fluid; and the result has been, that in no cases have I detected albumen, except in those in which there has been convulsions, or in which symptoms have presented themselves which are readily recognized as precursors of puerperal fits." Dr. Cock, in the article before referred to, says, "In five cases of puerperal convulsions, the urine was found to contain albumen in every instance."

When the convulsions partake of an apoplectic character, the safety of the patient depends upon the *speedy* adoption of a suitable treatment; and we must not shrink from a practice because the timid and vacillating have endeavored to bring it into disrepute, by attaching to it, with opprobious intent, the epithet "heroic." "Citus et diligenter" must be our motto, or we shall have reason to mourn the loss of an opportunity which no repentance can recall, and the consequences of a neglect which no subsequent exercise of skill can repair. Whatever is to be done must be done without delay, or we shall have a brain so profoundly congested that no art can relieve it from the fatal pressure. We must not be afraid of the lancet, or of its employment more than once; remembering (not for the purpose, however, of being repeated in every case) that Dr. Denman took forty, and Dr. Blundell seventy ounces of blood from a patient under these circumstances.

Vesico and Recto-Vaginal Fistula. — In the 1,786 cases of the present paper, vesico and recto-vaginal fistula occurred, as the disastrous sequel to labor, in a single instance. It was met with in a first pregnancy, in which the labor was protracted to 48 hours. The child was a male, and weighed 11 lbs., and was still-born. The head was engaged for many hours in the passage of the superior strait; and, notwithstanding the liberal use of chloroform, the patient suffered severely during its transit. After the head had come down into the vagina, and the perineal tumor was fully formed, the pains, which up to this time had been strong and frequent, became weak, and with long intervals between; and, for the purpose of expediting the delivery, an attempt was made to accomplish the process by the vectis. The instrument was applied towards the left sacro iliac junction (the presentation being that of the vertex), but, after a few unavailing efforts at extraction, was withdrawn. Soon after this, the uterine contractions again became strong and frequent, the external organs yielded, and, in a short time, the delivery was completed. On examining the head of the child, the sutures were found less open than usual. The day succeeding her confinement, the patient was found doing well, except an inability to retain the urine. As this is not a very unusually rare occurrence after protracted labors, especially when the head lies for some time impacted in the superior strait, the patient was advised that the parts would soon recover their tone, and that the trouble would thereupon cease. But the incontinence

of urine persisted, and the patient soon began to complain of great soreness and pain in the vagina. An attempted examination proved abortive, in consequence of the extreme suffering it induced. There were no circumstances attending the labor to justify the supposition that the bladder had been ruptured: the urine had been voided without pain, and the application of the vectis was at a point distant from the bladder and urethra. It was also too soon to expect sloughing, had the pressure of the head destroyed the vitality of the parts; and hence I can have no doubt, that, in the first instance, the incontinence of the urine was properly attributable to inertia of the sphincter. An intense inflammation had now fixed itself in the vagina, rendered more severe by the constant dribbling of the urine. The bowels were kept freely opened, and the usual topical treatment instituted and assiduously continued, but still with little or no improvement. By the aid of chloroform, a thorough exploration of the vagina was made on the tenth day after the accouchement, and the unwelcome fact revealed, that a slough had now taken place in the urethra, extending to the neck of the bladder. This was verified by the passage of the catheter. A faithful and close attention was kept upon the case, and the treatment adopted perseveringly followed: but still there was no abatement of the symptoms, or of the sufferings of the patient; and, on the twenty-sixth day from the conclusion of the labor, the case was further complicated by a sloughing of the recto-vaginal septum. Dr. Channing, of Boston, was now joined in

consultation. The inflammation was so intense, and the suffering so severe, that no examination could be tolerated, except when the patient was under the influence of chloroform. The examination showed the whole vaginal surface deeply injected, and of a bright red color. The opening into the rectum was about two inches above the inferior commissure of the labia, and of the size of a half-dime. The opening at the juncture of the urethra with the bladder was somewhat less. The result of the counsel was, that the patient should be made as comfortable as possible, and that nothing could be done for her permanent relief until the inflammation of the vagina should be abated. To this end, the treatment hitherto instituted was continued; but it was many weeks before any perceptible reduction of the inflammation was effected. From this time there was a very gradual abatement of the sufferings of the patient; though she was not able to walk about the house until February, 1853, — almost a year from her confinement. In the autumn of that year, she was seen by Dr. J. Mason Warren, of Boston; but so little confidence was felt in the success of an operation, that none was proposed. The patient has never been able to make use of any apparatus to prevent the flow of the urine over the surface of the irritable vagina. A sponge, or even a metallic canula, has invariably given rise to such a degree of inflammation as to speedily forbid the use of either. At this time, the general health of the patient is quite good; but the fistulous openings remain without change. The urine is sometimes retained for two or three hours;

and sometimes a night is passed without any flow. The recto-vaginal opening gives her less trouble than formerly, unless diarrhœa be present. When the bowels are somewhat costive, fecal matter seldom finds its way into the vagina.

Puerperal Fever. — In the 1,786 cases of midwifery, puerperal fever was developed in 12 instances. None of the cases proved fatal. Two only occurred in my own practice, and 10 were collected from the "abstracts" of correspondents. The treatment in all the cases was similar, — free purging with calomel and salts in the beginning; and, where the disease did not yield, alterative doses of calomel, combined with James's Powders, completed the cure. But a single case was bled. In one of the cases, the lacteal secretion returned at the end of three months; when the child was put to the breast, and continued to nurse the usual period.

TABLE XXXIX. — *Frequency and Mortality of Puerperal Fever.*

AMERICAN PRACTICE.				RESUMÉ.			
Authors.	Whole No. Cases.	Cases Puerperal Fever.	Died.	Countries.	Whole No Cases.	Cases Puerperal Fever.	Died.
Dr. Potter. .	304	2	1	England . .		672	283
Dr. Storer. .	451	6	0	United States	2,541	20	1
Dr. Metcalf .	1,786	12	0				
Aggregates .	2,541	20	1	Total . . .	2,541	692	284

The vast difference in the ratios of mortality in British practice is to be accounted for, undoubtedly, by the reasonable supposition, that some of the observers, as Dr. Leake, Dr. Hunter, Dr. Clarke, &c., saw the disease as it prevailed epidemically; while the cases reported by Dr. Gordon, Dr. Campbell, &c., were of the sporadic type. Cases that are observed in an epidemic cannot legitimately be collocated with sporadic cases, at least to determine the ratio of mortality, — as, otherwise, the discrepancies between the various reporters will destroy all confidence in the value of the analysis; and the preceding table is constructed more for the sake of preserving the cases occurring in American practice, than for any purposes of comparison or deduction.

In puerperal fever, when peritonitis is the predominant local affection, the prognosis is unfavorable, even when it occurs in a sporadic type. Occurring as an epidemic, it exhibits a frightful mortality. By some, it has been declared to equal the plague. When it prevailed at Paris in 1746, at Edinburgh in 1773, and at Vienna in 1795, there were no recoveries. Dr. Ferguson, in his "Treatise on Puerperal Fever," tells us, "To save two out of three may be termed good practice, in an epidemic season."

TABLE XL. — *Analysis of Eleven Cases of Twins.*

Number of Case.	Age when married.	Age when delivered.	Number of Pregnancy.	Duration of Labor.	No. of Placentæ.	Presentation.	Sex.	Weight.	Interval between the Births.	Alive or Dead.
1	20	27	4	10	2	Vertex. — Breech.	F. — F.	5½ — 4¼	5 min.	A. — D.
2	24	38	5	4	2	Vertex. — Vertex.	F. — M.	7 — 8	10 ,,	A. — A.
3	24	40	7	24	1	Vertex. — Vertex.	F. — F.	7¼ — 7¼	15 ,,	A. — A.
4	28	38	8	10	2	Vertex. — Feet.	M. — M.	7 — 7¼	30 ,,	A. — A.
5	25	31	2	15	2	Vertex. — Vertex.	M. — F.	8¼ — 6¼	30 ,,	D. — A.
6	21	26	3	17	1	Vertex. — Breech.	M. — F.	8 — 7½	5 hrs.	A. — D.
7	19	24	2	11	2	Vertex. — Feet.	M. — M.	7¾ — 7¾	20 min.	A. — A.
8	19	21	2	13	2	Vertex. — Breech.	F. — F.	7 — 6½	15 ,,	A. — A.
9	18	24	3	24	1	Vertex. — Feet.	M. — F.	7½ — 8	20 ,,	D. — A.
10	23	25	1	30	1	Vertex. — Face to Pubis.	F. — F.	7 — 6¾	15 ,,	A. — A.
11	20	27	4	30	1	Vertex. — Feet.	M. — M.	8 — 7¼	20 ,,	A. — A.

By adding one for each twin case, it will be seen that the 1,786 cases of labor gave birth to 1,797 children. The mean age of the mothers included in the foregoing table, at marriage, is 21 years 10 months and 27 days; when delivered, 28 years 6 months and 16 days. The number of pregnancies for each is $3\frac{8}{11}$. The mean duration of labor, 17 hours and 5 minutes. The presentations were, of the vertex, 14; of the breech, 3; of the feet, 4; and of the face to the pubis, one. The mean weight of all the children was 7 lbs. 3 oz.; mean weight of the males, $7\frac{3}{4}$ lbs.; females, $6\frac{3}{4}$ lbs. In the case where the interval between the birth of the children was five hours, the first child was born in an extraordinary short space of time after the commencement of labor. The mother was awakened from a sound sleep by a pain; and, in less than 15 minutes afterwards, the child was born. Of the

children, 18 were alive, and 4 were dead. The two deaths, in the table, of presentation of the vertex, had taken place some time before delivery; in one case, so long before that the cuticle was loosened. The cases, where other presentations than the vertex occurred, may be found under the different tables of such presentation.

TABLE XLI. — *Frequency of Plural Births.*

AMERICAN PRACTICE.					RESUMÉ.				
Authors.	Whole No. Cases.	Twins.	Triplets.	Quadruplets.	Countries.	Whole Number Cases.	Twins.	Triplets.	Quadruplets.
Dr. Burwell . .	588	10			England . .	155,226	2,438	36	2
Dr. Potter . . .	304	2			France . .	36,570	332	6	0
Dr. Van Bibber .	2,508	17			Germany . .	250,386	2,967	35	2
Dr. Cock . . .	533	15			United States	7,575	83	1	
Dr. Storer . . .	451	5							
Bellevue Hos., N.Y.	1,410	23							
Dr. Metcalf . .	1,786	11	1						
Aggregates . .	7,575	83	1		Total . . .	449,757	5,820	78	4

The aggregates of the foregoing table furnish the following ratios: For British practice, twins, one case in 63; triplets, one in 4,312; quadruplets, one in 77,613. For French practice, twins, one case in 110; triplets, one in 6,095. For German practice, twins, one case in 84; triplets, one in 7,153; quadruplets, one in 125,193. For American practice, twins, one in 91; triplets, one in 7,575. The ratios for the whole number of cases (449,757) are, for twins, one in 77; triplets, one in 5,766; and for quadruplets, one in 111,939.

TABLE XLII. — *Mortality to Children in Plural Births.*

AMERICAN PRACTICE.					RESUMÉ.				
Authors.	Cases Twins.	Children lost.	Cases Triplets.	Children lost.	Countries.	Cases Twins.	Children lost.	Cases Triplets.	Children lost.
Dr. Storer	5	1			England	540	401	12	8
Dr. Cock	15	6			Germany	157	16		
Dr. Metcalf	11	4	1	0	United States . . .	31	11	1	0
Aggregates	31	11	1	0	Total	728	428	13	8

The results of this table are as follows: Of the 728 cases of twins (1,456 children), 428 children were lost, furnishing a ratio of mortality of one in 4.6; of the 12 cases of triplets (36 children), 8 were lost, furnishing a ratio of one in 4.5.

A distinction should be preserved between children set down as lost and those set down as still-born. All children born dead are still-born; but, unless the death was a result of labor, they should not be marked as lost. The difference in the ratios of mortality in the preceding table seem to indicate, that, with some of the observers, all born dead were reported as lost; while others only arranged in that category those children whose death was one of the results of labor. In reporting children dead at birth, this distinction should, in all cases, be remembered; as, otherwise, our statistics will not give a proper

credit to the presentation, mode of delivery, complication, &c.

In regard to the mortality to the mothers in plural births, a sufficient number of observations have not been preserved to form the basis of any reliable comparison. By some, the fatal cases have been estimated as one in 20. In 240 cases reported by Dr. Collins, 7 died; furnishing a ratio of one in $34\frac{2}{7}$ for the deaths.

TABLE XLIII. — *Sexes in Twin Cases.*

AMERICAN PRACTICE.					RESUME'.				
Authors.	No. Twin Cases.	Both Males.	Both Females.	Male and Female.	Countries.	No. Twin Cases.	Both Males.	Both Females.	Male and Female.
Dr. Storer .	5	2	1	2	England . .	457	131	145	181
Dr. Cock . .	12	2	7	3	United States	38	11	17	10
Dr. Burwell .	11	3	4	4					
Dr. Metcalf .	10	4	5	1					
Aggregates .	38	11	17	10	Total . . .	495	142	162	191

Of the 990 children born of the 495 cases, 475 were males, and 515 were females; showing a preponderance of 30 in favor of the females. The statistics of the table also show that twin children are more frequently male and female, and that twin sisters are more common than twin brothers.

TABLE XLIV. — *Presentation of Twins.*

Authors.	Whole No. of Cases.	Both Head.	Head and Breech.	Head and Foot.	Both Breech.	Breech and Head.	Breech and Foot.	Both Feet.
Dr. Jos. Clarke	63	16		25	2	6	1	3
Dr. Collins	234	103	30	25	8	25	9	5
Mr. Lever	32	15	7	5	2		1	
Dr. Cock	14	7	3		2			
Dr. Burwell	10	5	3					1
Dr. Metcalf	11	3	3	4				
Aggregates	364	149	46	59	14	31	11	9

Authors.	Head, Hand, Cord, and Foot.	Foot and Head.	Breech and Elbow.	Head and Arm or Shoulder.	Face and Head.	Head and Face.	Foot and Hand.	Foot and Breech.
Dr. Jos. Clarke		10						
Dr. Collins		19	1	5	1	1	1	1
Mr. Lever				2				
Dr. Cock	2							
Dr. Burwell		1						
Dr. Metcalf						1		
Aggregates	2	30	1	7	1	2	1	1

It will be understood that the presentations are entered in the order of birth. As will be seen, presentation of the head, in both children, occurs in much the largest ratio; being one for every 2.4. Presentations of the head and breech, one in 8; and so on.

The following table shows the interval between the birth of twins in 238 cases; and although it contains

none of the wonders of Dr. Merriman's three cases, — where one child was retained for 14 days after the first; another, 6 weeks; while, in a third case, the patient, in the start, was delivered of a pair of twins, and, in two days afterwards, of another brace of boys, — still it may serve the purpose of future comparison, and be of some service to those who may turn their attention to this subject of investigation.

TABLE XLV. — *Interval between Twins.*

Authors.	Whole No. Cases.	5 m.	10 m.	15 m.	20 m.	30 m.	45 m.	1 hr.	2 hrs.	3 hrs.
Dr. Collins .	212	38	29	45	23	30	5	16	8	3
Dr. Cock . .	15					11				1
Dr. Metcalf .	11	1	1	3	2	3				
Aggregates .	238	39	30	48	25	44	5	16	8	4

Authors.	4 hrs.	5 hrs.	6 hrs.	7 hrs.	8 hrs.	10 hrs.	17 hrs.	20 hrs.	32 hrs.	48 hrs.
Dr. Collins . . .	5	4	2	1	1	1		1		
Dr. Cock . . .							1		1	1
Dr. Metcalf . .		1								
Aggregates . . .	5	5	2	1	1	1	1	1	1	1

It should be noted, that 11 cases of Dr. Cock are set down in the column for 30 minutes. In his article from whence they are taken, after noting the interval in 3 cases, he says, "In the others, the second labor came on so rapidly as not to require notice." Hence, for the sake of introducing the 3 cases with long intervals, the remaining 11 cases were collocated as above.

TABLE XLVI.—*Weight and Sex of Children.*

Of the 1,797 children of the present analysis, the weight and sex were noted in 1,169 instances, as follows: —

Weight in lbs.	1	2	3	3½	4	4½	5	5½	6	6½	7
Males	1	1	1	1	1	3	2	5	14	10	62
Females			2		4	6	9	11	5	37	68
Whole No. of Children	1	1	3	1	5	9	11	16	19	47	130

Weight in lbs.	7½	8	8½	9	9½	10	10½	11	11½	12	12½
Males	75	107	85	95	73	42	10	7	3	2	2
Females	111	114	72	68	22	22	8	5	2	1	0
Whole No. of Children	186	221	157	163	95	64	18	12	5	3	2

The aggregate weight of the whole number of children (1,169) is 9,482 lbs.; and the mean weight of each is 8 lbs. 1 oz. The aggregate weight of the males is 5,013 lbs.; and their mean weight is 8 lbs. 5 oz. The aggregate weight of the females is 4,469 lbs.; and their mean weight is 7 lbs. 13 oz. Of the sexes, 599 were males, and 570 females; showing a preponderance in favor of the males of 29.

Of the 1,410 cases furnished by Dr. Reynolds, of the Bellevue Hospital, the sex was noted in 1,345 instances, when there were 721 boys, and 624 girls. 715 births were completed A.M., and 596 P.M.; while 38 occurred at midnight. Of still-born, there were 104. Two cases were deformed; one having club foot, and one two thumbs on one hand. In one case,

the incisor teeth of the lower jaw were discovered on the second day after the birth. There were 20 cases of force delivery, and one fatal case of ruptured uterus. In one case, menstruation was regular during the first 4 months; in another, during the first 6; and, in 3 cases, during the whole term.

Dr. Burwell noted the sex, in 517 cases, as follows: Males, 277; females, 240. The average weight of 100 male children, at full term, he found to be 7 lbs. ¾ oz. The average weight of 100 female children, at full term, was found to be 6 lbs. 8½ oz.

TABLE XLVII. — *Period of Utero-Gestation.*

The period of utero-gestation was noted in 1,734 cases out of the 1,786, — the whole number of the present analysis. The table is to be read thus: Gestation terminated, in one case, at the end of 2 months; in 12 cases, at the end of 3 months; and so on.

Period of Gestation	2	3	4	5	7	8	9	10
Number of Cases	1	12	6	8	17	3	1685	2

As will be seen by the table, in 1,734 cases the labor was premature in 47 instances. Of the children, but 5 were alive at birth, and those were miscarriages at the seventh month. Of the labors that are set down as being protracted to the tenth month, I have no evidence, except the opinion of the mothers. Both had borne a number of children, — one 8, the other 7, — and both were possessed of more than ordinary intelligence. According to their reckoning, from

the last menstruation, and from the period of quickening, and by comparison with their former pregnancies, they both carried the child for 10 full months. Of the 47 cases, premature delivery had occurred, in one case, 4 times; in 5 cases, 3 times; and in 10 cases, twice. In the 31 remaining cases, it occurred for the first time.

TABLE XLVIII. — *Frequency of Premature Labor.*

AMERICAN PRACTICE.			RESUME'.		
Authors.	Whole No. Cases.	Premature Labor.	Countries.	Whole No. Cases.	Premature Labor.
Dr. Potter	304	14	England	19,319	379
Dr. Van Bibber . . .	4,309	98	France	22,380	151
Dr. Metcalf	1,734	47	United States	6,347	159
Aggregates	6,347	159	Total	48,046	689

By the table, it will be seen that premature labor occurred, in British practice, one in every 51 cases; in French, one in 148; and in American, one in 40. The whole number of cases (48,046) furnish a ratio of one in 69, or a per cent of 1.4.

TABLE XLIX. — *Period of Gestation in Seven Hundred and Sixty-one Cases of Premature Labor.*

Authors.	Whole No Cases.	1st mo.	2d.	3d.	4th.	5th.	6th.	7th.	8th
Mr. Whitehead * . .	602		35	275	147	30	32	55	28
Dr. Potter	14							13	1
Dr. Van Bibber . . .	98	1	8	8	8	6	24	28	15
Dr. Metcalf	47		1	12	6	8		17	3
Aggregates	761	1	44	295	161	44	56	113	47

* Manchester, Eng.

The causes of abortion are various; and among the most prolific may be reckoned leucorrhœa. Of the 47 cases occurring in my own practice, more than half of the number were known to be suffering with that disease. Mr. Whitehead and M. Boys de Loury speak of the frequency of ulceration of the cervix uteri; and, in 378 cases examined by the speculum, the lower portion of that organ was found to be diseased in 275 instances. Premature labor sometimes becomes habitual. In one of the cases reported by myself, the patient had suffered from 4 consecutive abortions. I was called in consultation, some years since, to a patient who had had 7 successive abortions in less than 3 years. In every instance, according to her own reckoning, she had not gone over 3 months. As may be supposed, her general health was greatly impaired, and she soon afterwards fell a victim to phthisis. Dr. Young had a patient who miscarried 13 times in succession; Dr. Schultze, one in whom premature labor took place in 22 successive pregnancies, and always near the same period of gestation. Dr. Churchill also reports a case in which abortion occurred 10 or 12 times within the space of three years, and always during the second month of gestation.

Extra-Uterine Pregnancy. — The following account of a case of extra-uterine pregnancy was kindly furnished to me by my friend Dr. James W. Robbins, of Uxbridge: —

The subject, Mrs. R—— E——, was of medium size, good form, and of a sound constitution. Her first pregnancy occurred in 1831. The child died

from delay in its birth, the presentation being one of the inferior extremities. The second pregnancy took place in 1832, the patient then residing in Holden. Nothing extraordinary was noticed during the early period of gestation. At a later period, the motions of the child were much more annoying than in her former pregnancy. To use her own expression, "it seemed as if it would burst through." She became very unwieldy from the bulk, which was decidedly greater than in either of her subsequent pregnancies, when she was carrying the retained fœtus. Pregnancy went on a full month after the time of her expected delivery; when she was taken, in April, 1833, with vomiting, which continued about two days. During this time, the motions of the child were very strong, and occasioned her great distress. There was, however, nothing resembling the pains of labor. Her physician, the late Dr. Warren Patridge, thought "all was natural." The last struggle of the child was very violent, and then "it sank down like lead." Vomiting about this time gradually ceased; and a quasi-menstrual flow supervened, and continued for a few days. A scanty lactation followed.

Soon after this, the bowels became very sore; and she remained in great distress, much of the time, throughout the summer: her appetite was impaired, and she became considerably emaciated. In the autumn, however, she began to improve; and, by the winter following, her health had become much better, and the fulness of the bowels greatly reduced. Eventually her size became about that of a woman six months

advanced in pregnancy. After the flow, which supervened upon the death of the child, no menstruation occurred until her health became confirmed; and then another pregnancy soon followed. Gestation went on favorably, and delivery was accomplished in September of the following year. The presentation in this instance, also, was either of the breech or inferior extremities; but which, I was not able to determine from the account given by the subject.

Her two next pregnancies (the second and third after the extra-uterine conception) occurred in Uxbridge; and I attended her in her accouchement in both instances. After her delivery, a rounded but uneven tumor, reaching above the umbilicus, could be distinctly traced, occupying a position, at that time, in the right side, although it was usually found in the centre of the bowels. In one of these labors, the presentation was one of the breech; and in the other, of the knee. In both instances, the child was saved with difficulty. The last one was born in November, 1839.

The patient remained in good health until the middle of the summer of 1840. Until the failure of her health, she continued to nurse the child; although, as the secretion of milk, as usual, was scanty, she had to feed it from the first. At this period, the bowels again became sore, and her appetite again failed. Being satisfied that the ill health of the patient was connected with some change going on in the retained fœtus, or the sac which contained it, Dr. Nathaniel Miller, of Franklin, was, at my request, joined with me in consultation. At a subsequent visit, Dec. 31,

at which Drs. L. L. and E. D. Miller were present, after an exploration with a trocar and canula, it was concluded to attempt the removal of the child. At the withdrawal of the trocar, it was noticed that a fetid gas escaped through the canula.

The operation was performed by Dr. L. L. Miller, of Providence, in the presence of some eight or ten physicians of the neighborhood. An incision was made in the linea alba, from above the umbilicus to near the symphysis pubis; and, the sac being opened, a hand of the child presented. The opening was then enlarged; and a full-grown child, weighing 4 lbs., was removed. An ulna and a portion of the cranium were found denuded by the process of putrefaction, which had doubtless much diminished the weight of the child. It was presented to the Boston Society for Medical Improvement, and still remains in its museum.

The wound was dressed with strips of adhesive plaster and bandages; and the patient, who had borne the operation with great fortitude, was left quite comfortable. On the next morning, however, it was found that fecal matter had been passed by the wound; plainly indicating that a communication had been established between some portion of the intestines and the sac in which the fœtus had been enclosed. There was a continual passage, in the state of chyme, of whatever alimentary matters were received into the stomach, through the opening, until her death, which took place on the first day of February succeeding the operation. From a day or two after the operation,

until her death, there were no alvine discharges, and the secretion of urine was very scanty. The emaciation became extreme; so much so, that the vertebræ projected from between the lips of the wound, which had never closed. No post mortem examination was permitted.

TABLE L. — *Distribution of Births among the several Months of the Year.*

Stating that the cases by Dr. Emerson, of Philadelphia, may be found in the "American Journal of the Medical Sciences" for November, 1831; that the month first written is the month of delivery; and the second, the corresponding one of conception, — the reading of the table will be sufficiently obvious.

Authors.	Whole No. Cases.	March. — June.			April. — July.			May. — August.		
		Total.	M.	F.	Total.	M.	F.	Total.	M.	F.
Dr. Van Bibber.	1771	172	76	96	124	62	62	134	74	60
Dr. Storer . . .	451	30			46			38		
Dr. Emerson . .	65542	5598	2896	2702	4805	2515	2290	4797	2503	2294
Dr. Metcalf . . .	1781	178	98	80	111	61	50	150	79	71
Aggregates . . .	69545	5978	3070	2878	5086	2638	2402	5119	2656	2425

Authors.	Whole No. Cases.	June. — September.			July. — October.			Aug. — Nov.		
		Total.	M.	F.	Total.	M.	F.	Total.	M.	F.
Dr. Van Bibber.	1771	144	87	57	147	81	66	140	71	69
Dr. Storer . . .	451	35			46			26		
Dr. Emerson . .	65542	4855	2523	2332	5221	2764	2457	5437	2798	2639
Dr. Metcalf . . .	1781	120	64	56	159	84	75	153	79	74
Aggregates . . .	69545	5154	2674	2445	5573	2929	2598	5756	2948	2782

TABLE L. *(continued.)*

Authors.	Whole No. Cases.	Sept. — Dec.			Oct. — Jan.			Nov. — Feb.		
		Total.	M.	F.	Total.	M.	F.	Total.	M.	F.
Dr. Van Bibber.	1771	149	75	74	154	71	83	131	73	58
Dr. Storer . . .	451	35			31			41		
Dr. Emerson . .	65542	5965	3112	2853	5567	2941	2626	5652	2954	2698
Dr. Metcalf . . .	1781	164	94	70	127	67	60	141	73	68
Aggregates . . .	69545	6313	3281	2997	5879	3079	2769	5965	3100	2824

Authors.	Whole No. Cases.	December. — March.			January. — April.			February. — May.		
		Total.	M.	F.	Total.	M.	F.	Total.	M.	F.
Dr Van Bibber.	1771	177	89	88	165	76	89	134	71	63
Dr. Storer . . .	451	27			53			43		
Dr. Emerson . .	65542	5937	3023	2914	5712	3012	2700	5996	3099	2897
Dr. Metcalf . . .	1781	153	79	74	175	90	85	150	77	73
Aggregates . . .	69545	6294	3191	3076	6105	3178	2874	6323	3247	3033

By an examination of the table, we find, that, of the 69,545 cases arranged therein, fewer deliveries took place in the months of April, May, and June, than in any other three months of the year; and consequently that the smallest number of conceptions occurred in the months of July, August, and September. The 451 cases of Dr. Storer, which do not furnish the same results as the aggregates of the table, are not taken into the account, as the paucity of their numbers, and the uncertainty of the length of the period through which they were distributed, properly exempt them (in the present case) from a comparison with a larger number of cases, whose period of distribution is known. The statistics of Dr. Emerson ran through a period of 24 years, from 1807 to 1830

inclusive; those of Dr. Van Bibber, through a period of 17 years, from 1829 to 1845 inclusive; and those reported by myself, through a period of 29 years, from 1826 to 1855 inclusive.

Some 25 years ago, an article was published in the "Annales d'Hygiène et de Médecine Légale" by Villermé, of Paris, which attributed the smaller number of conceptions (which had then been observed to occur in the months of July, August, and September), during the period in question, to the debilitating effects of the extreme heat of summer, and the insalubrity of the beginning of autumn. Whether we agree with Villermé or not, in regard to his assignment of the cause for the fact noted, the preceding table fully confirms the observations made by him in regard to the comparative infrequency of conception in the months of summer. Villermé also noticed that the presence of endemic and epidemic influences diminished the number of conceptions; and Dr. Emerson and Dr. Van Bibber, as one of the results of their investigations, came to the same conclusion.

Dr. Emerson, as quoted by Dr. Van Bibber, inclines to the opinion, that all causes which diminish the vital powers, while they diminish the liability to conception, also induce an increased proportion of female births. According to the statistics of Dr. Emerson, as well as those of Dr. Van Bibber, there was a preponderance of females born of the conceptions which took place during the years 1832 and 1833, — the first two years of epidemic cholera, — as well as during the perplexing and persistent financial difficulties which overwhelmed the country from 1837 to 1841.

TABLE LI. — *Length of the Child.*

Of the 1,797 children included in the present analysis, the length of 400 was ascertained and noted; and the table is to be read thus: 4 children were 17 inches in length; and so on.

No. of Children	4	4	28	55	68	130	56	21	12	10	8	4
Length in inches	17	17½	18	18½	19	19½	20	20½	21	21½	22	22½

This table gives, as the mean length of 400 children born at the full time, 19 inches and 37 hundredths. The following measurements by different observers, from "Guy's Principles of Forensic Medicine," is introduced for the sake of comparison: —

Authors.	Maximum.	Minimum.	Mean.
Hutchinson	26 in.	17 in.	19 to 22 in.
Foderé and Capuron	24½ in.	17 in.	20¾ in.
Quetelet	22 in.	17¼ in.	19½ in.
Billard			17½ in.
Petit			22½ in.
Metcalf	22½ in.	17 in.	19½ in.
Burwell	19 1-10 in.	18¾ in.	18 9-10 in.

The mean length of the child, deduced from these seven measurements, is $19\frac{6}{10}$ inches and a small fraction. When we consider that the weight and length of a new-born child are more reliable than any other facts for determining the duration of its fetal life, we must admit, I think, that no little importance should be attached to investigations upon this subject. The physician is summoned into court to give his testimony in a case of alleged infanticide, or perhaps in a

case of bastardy, and will be called upon to give his opinion, as an expert, as to the fetal age of the child at its birth. In such cases, would he not testify with more confidence, and would not his opinion be received with ampler credence, when based upon his own experience in the same district of country in which the case under consideration occurred, than when based upon data furnished by the statistics of the cities of Europe? The guilt or innocence of the party accused may hang upon the medical witness; and hence he should be careful, that while, on the one hand, the sacredness of justice should not be impaired, he should be equally careful, that, on the other hand, he does not heedlessly condemn the innocent to a life of contumely and shame.

TABLE LII. — *Insertion of the Funis.*

Of the whole number of the children, the insertion of the funis was noted in 585 cases, as may be seen, as follows: —

No. of Cases .	15	24	13	533
Insertion . .	2 inches below centre of body.	1½ below centre of do.	¾ below centre of do.	At the centre of do.

In the measurements here set down, it must not, of course, be expected that the same accuracy was obtained as if the rule was applied to a piece of board upon the bench of the joiner. The motions of the child, and the lack of skill in the attendant in dis-

playing its full dimension, must necessarily forbid a measure absolutely certain in all cases. The coincidence of the insertion of the funis with the central point of the length of the child is accounted as one of the evidences of the full period of utero-gestation, and is to be used as an element in the settlement of medico-legal questions admitting its applicability.

Diseased. — Of the 1,797 children, eleven were marked diseased. Two had spina bifida, three were anencephalous, and six were noted as "diseased" simply.

The two cases of spina bifida, and one of the anencephalous cases, occurred in my own practice. The first case of spina bifida was reported in the "American Journal of the Medical Sciences" for October, 1843, p. 339; and the other, in the October number of the same journal in 1847, p. 315. In the anencephalous case, no portion of brain could be discovered in the shallow basin of the skull that had been formed. The other cases were returned by correspondents without note or comment.

Deformity in the Mother. — Deformity of the pelvis was noted in three instances. In two of them, the antero-posterior diameter was shortened. In one of the cases, the child was expelled by the natural pains, after a tedious and painful labor of eighty-five hours. The child suffered from convulsions for two or three days after delivery, but finally recovered. In the other case, after a labor of ninety hours, the child was

delivered by the blunt hook, after the operation of craniotomy. In the third case, the oblique as well as the sacro-pubic diameter was lessened. The distortion of the pelvis, in this case, was very great; and the delivery was for some time delayed after the head had been lessened. Craniotomy had been resorted to in four former labors in this patient.

Deformity in the Child. — Deformity in the child, in the whole number of cases, was met with in eight instances. Of these, five occurred in my own practice; and two were returned in the "abstracts" of my medical friends, without remark.

Case 1. — The deformity in this case consisted in an additional number of fingers and toes, one to each hand and each foot. The supernumerary members were articulated to the last joint of the little fingers and toes. There were no corresponding metacarpal and metatarsal bones; and, after a few weeks, they were removed by the knife.

Case 2. — An appendage about the size of a kidney bean, and nearly of its shape, was attached at one end, by a short pedicle, to the lobula of each ear; which would have answered very well as jewels, had the mother not insisted upon their amputation. The difficulty of imitation should have recommended them to the mercy of surgery.

Case 3. — This was a case of talipes varus of both feet; and the parents removed to the "Far West" too soon to admit of any attempt to remedy the deformity.

Case 4. — This was extraordinary on more than one account. It was extraordinary in that both fore-arms should be wanting, the hands being articulated to the inferior end of the humerus; but still more extraordinary that the mother should have predicted the exact species of the deformity some time before her delivery, offering as a reason for her foreboding, that a little brother, who died of dysentery some five months before her confinement, for a day or two before his death kept his hands in continual motion, with the fore-arm constantly flexed upon the humerus. In this case, the funis was not over eight inches in length, and it was with great difficulty that the ligatures could be applied.

Case 5. — In this case, soon after the rupture of the membranes and the flow of an extraordinary quantity of water, the delivery was completed by the birth of a child, exhibiting the following deformities: —

The hand, if such it could be called, consisted only of a thumb, and index finger; the other fingers, with their corresponding metacarpal and carpal bones, being absent. The thumb and finger were well formed, and the nails perfectly developed. On examination of the fore-arm, the ulna was also found to be wanting; so that the osseous organization of the fore-arm and hand consisted only of the radius, the ossa scaphoides, trapezium, and trapezoides, the metacarpal bones of the thumb and index, with their respective phalanges. The fore-arms were bent up towards the humerus, and could not be extended, being held in that position by a rigid contraction of the skin and muscles at the

flexure of the elbow. The organs of generation presented the following malformation: A little fulness of the skin, upon and below the pubes, constituted what I ventured to call the rudiment of a scrotum. The usual site of the penis was occupied by a membranous tubercle, about the size and shape of a large pea, attached by a base of not quite its own diameter. Turning up the tubercle, upon its inferior surface, and partly in its base, a small orifice was found, which proved to be the entrance into the urethra, as a probe, properly bent, passed readily through it into the bladder.

Illegitimate Children. — Of the whole number of children (1,797), 17 were born out of wedlock; furnishing a ratio of 0.94 per cent. Of the mothers, two were widows, one of 36 and the other of 38 years of age. The remaining 15 had never been married; and of these, one was 43, one was 32, years of age; and all the rest were under 22 years of age.

Obstetrical Operations. — Although I have met with but very few cases of midwifery requiring the assistance of art for their completion, still I have thought proper to give them a passing notice in this connection.

1. *Induction of Premature Labor.* — I have had but two cases in which I recommended the induction of premature labor. In the first case, it was proposed on account of great deformity of the pelvis; being the

case heretofore referred to, in which the oblique as well as the antero-posterior diameter was shortened, and in which craniotomy had been performed in four successive deliveries. The induction of labor in the seventh month, it was thought, might possibly preserve the life of the child, or at least save the mother a portion of the great suffering she had always experienced. The opportunity, however, was lost, as the patient removed to a distance before the proposed period of interference had arrived. In the other case, it was suggested as a means of saving the child, which had perished in the eighth month in five consecutive pregnancies. Accordingly, toward the close of the seventh month, the membranes were ruptured, and the liquor amnii evacuated. Labor succeeded in the course of the next twenty-four hours; and the woman was delivered of a healthy female child, weighing 7¼ lbs. In every one of her miscarriages, the placenta was found unusually small, and of a much denser structure than common; and it was to this diminished size, and abnormal organization of the placenta, that I attributed the death of the children, and their premature expulsion.

2. *Version.* — I have performed the operation of turning the child, and delivering by the feet, in but three instances, — once in a presentation of the arm, and twice in cases of placenta prævia. In the case of arm presentation, and in the first of the cases of placenta prævia, the children were saved. In all the cases, the membranes were intact at the commence-

ment of the operation; and, in all, anæsthesia was induced by the use of chloroform, to the extent of abating, in a great measure, the susceptibility to pain. After the children had been turned, and the foot (in no instance were both feet brought down) had been drawn into the vagina, but little force was employed for the completion of the delivery, especially while the hips were passing the external organs. In every case, the pelvis of the mother was roomy; nor did the uterine contractions cease, after version was accomplished, until the completion of the delivery.

TABLE LIII. — *Frequency of Version.*

American Practice.			Resumé.		
Authors.	Whole No. Cases.	Version.	Countries.	Whole No. Cases.	Version.
Dr. Storer	456	2	England	42,729	167
Dr. Metcalf	1,797	3	France	87,479	400
			Germany	21,517	337
			United States	2,253	5
Aggregates	2,253	5	Total	103,978	909

The aggregates of the foregoing table furnish the following ratios: For British practice, version occurs one case in every 255; French practice, one in every 94; German practice, one in 63; and for American practice, one in 450. The ratio for the total number of the cases (103,978) is one in every 114.

TABLE LIV. — *Mortality to Mother and Child in Cases of Version.*

AMERICAN PRACTICE.				RESUMÉ.			
Authors.	Whole No. Cases.	Mothers lost.	Children lost.	Countries.	Whole No. Cases.	Mothers lost.	Children lost.
Dr. Storer . . .	2	0	1	England	106	10	64
Dr. Metcalf . . .	3	0	1	France	373		93
				Germany	63	1	25
				United States .	5	0	2
Aggregates . . .	5	0	2	Total	547	11	184

In the 174 cases of the table, in which the result to the mother was noted, we find there were 11 deaths; giving a ratio of one in $15\frac{9}{11}$. The result to the child was noted in all the cases (547); giving a ratio of one death in 2.97.

In regard to the mortality, whether to mother or child, in the operation of turning, we should remember that many times the fatality is justly chargeable to some other complication of labor than the one for which the operation was undertaken. Thus, in a case of placenta prævia, the flooding may have been so excessive, before our arrival at the bedside, that the death of mother or child, or both, should be attributed to the hemorrhage, and not to the operation.

3. *The Vectis.* — This instrument has been used but three times, and in each case to complete the delivery when the head was pressing on the perineum, and there was a remission of the uterine pains. It

was used in preference to a dose of ergot. In every case, but little traction was required; as the introduction and fixing the instrument seemed to excite the natural pains.

4. *The Forceps.* — In the 1,797 deliveries, the forceps were employed in four instances. In one case, the child was delivered by their aid after the mother was attacked with convulsions; in two cases, to assist the passage of the head through the inferior strait; and, in the remaining case, they were used after a prescription of ergot had failed to accomplish the delivery. In one of the cases, where the head was long detained in its passage through the inferior strait, it was supposed that at least some of its diameters were shortened, and that probably in a succeeding labor, should the woman become pregnant, the same difficulty would be manifested. This was not the case, however; for, in a subsequent labor, the head passed with no more than the ordinary delay, although both children were of the same weight. Of the children thus delivered, one was dead when born, and three were saved. The still-born delivery was the child of the mother suffering with convulsions. All the mothers recovered. The short forceps alone were employed.

The following table will exhibit the frequency of the operation, as reported by different accoucheurs: —

TABLE LV. — *Frequency of Delivery with the Forceps.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Forceps.	Countries.	Whole No. Cases.	Forceps.
Dr. Van Bibber . . .	4,290	144	England	45,643	126
Dr. Cook	533	29	France	44,736	277
Dr. Storer	456	8	Germany	262,224	1,702
Dr. Burwell	598	5	United States . .	7,674	190
Dr. Metcalf	1,797	4			
Aggregates	7,674	190	Total	360,277	2,295

Dr. Chatard, as quoted by Dr. Van Bibber, in commenting upon the cases reported in this table by Dr. Van Bibber, says, "As to the application of the forceps, they are evidently very numerous. The use of this instrument might have been reduced to the three-fourths; but feeling certain of not injuring the children, and desirous of abridging the sufferings of the mothers, I did not hesitate to make use of them." For the same reason, without doubt, we find a large ratio in the reports of other practitioners. Another consideration also should not be forgotten. Many of the accoucheurs, whose names occur in these tables, were gentlemen whose counsel, on account of their great skill and experience, was frequently sought in difficult cases; and thus a larger proportion than the mean of obstetrical operations will be found in the reports of their practice. The following table will exhibit the results of the operation to mother and child: —

TABLE LVI. — *Mortality to Mother and Child.*

American Practice.				Resumé.			
Authors.	Whole No. Cases.	Mothers lost.	Children lost.	Countries.	Whole No. Cases.	Mothers lost.	Children lost.
Dr. Storer. .	8	0	3	England . .	323	14	69
Dr. Cock . .	24	3	9	France . . .	175	14	43
Dr. Metcalf .	4	0	1	Germany . .	400	21	68
				United States	36	3	13
Aggregates .	36	3	13	Total . . .	934	52	193

The results of the table are as follows: In the 302 cases in British practice, where the result to the mother was noted, there were 14 deaths; giving a ratio of one in 21.5. In the 304 cases, where the result to the children was noted, 69 died; giving a ratio of one in 4.4. In French practice, the result to the mother was noted only in the 79 cases of Madame Lachapelle, in which 14 were lost; giving a ratio of one in 5.6. In the whole number (175) of cases, the children lost were 43; giving a ratio of one in 4. In German practice, in 400 cases, 21 mothers and 68 children were lost; giving, in the first, a ratio of one in 19; and, in the latter, a ratio of one in 5.8. The 36 cases of American practice afford a ratio, for mothers lost, of one in 12; for children lost, of one in 2.8.

The ratios for American practice, however, should be received with some abatement; as in the three cases of children lost, reported by Dr. Storer, one is marked as "some time dead;" in the nine by Dr. Cock,

in one case there was a deformed pelvis; in three cases the mother was suffering with convulsion; and, in another, the forceps were used for the extraction of the head, detained after a breech delivery, where proper manipulation would have saved the child. The child lost, among the cases reported by myself, was delivered after the mother had been many hours attacked by convulsions. Of the three mothers lost, reported by Dr. Cock, one was from placenta prævia, and two died of fever.

Craniotomy. — In the first printed book upon the subject of midwifery, entitled the "Byrthe of Mankinde, or the Woman's Book," written by Eucharius Röslin, translated into Latin about 1535, and into English in 1634, we find the operation of craniotomy thus described: "If so be," says the book, "that it lie the head forward, then fasten a hook either upon one of the eyes of it, or the roof of the mouth, or under the chin, or on one of the shoulders, — which of those parts shall seem most commodious and handsome to take it out by, — and, the hook fastened, to draw it out very tenderly, for hurting the woman. If the head be too large, it is to be opened with a sharp knife, or broken in pieces." Röslin also recommends excision of the extremities if they present, or evisceration (if the child be dead), to facilitate delivery. The work of Ambrose Parè, dated 1579, was also translated into English in 1634, and contained plates of different patterns of hooks for drawing out the child, and a knife for the amputation of the limbs.

The almisdach of Albucasis, which was a kind of forceps, with teeth, used for the purpose of crushing the head, stands as the acknowledged type of all those obstetrical instruments which the skill and ingenuity of the medical world, from the twelfth century to the present, have invented, or improved upon. Among the multitude of instruments which modern art has introduced into the practice of midwifery, the young obstetrician hardly knows where to choose; and, judging from the amount of success which has been achieved by different operators with different instruments, he is almost induced to believe, with Churchill, "that the hand which is to use the instrument is of more importance than the instrument itself."

In the delivery of the 1,797 children, the operation of craniotomy was resorted to in three instances. Once, where a child, weighing twelve pounds, had died during its impaction in the bony passage, and had made no progress, although the pains were strong, for eight hours; in a second case, where the child was dead and putrid, and the use of ergot had proved of no advantage; and, in a third case, on account of a deformed pelvis not admitting the passage of the head, without lessening its dimensions. This last is also the third case mentioned under the head "Deformity in the Mother."

TABLE LVII. — *Frequency of the Operation of Craniotomy.*

AMERICAN PRACTICE.			RESUMÉ.		
Authors.	Whole No. Cases.	Cranio-tomy.	Countries.	Whole Number Cases.	Cranio-tomy.
Dr. Van Bibber . . .	4,290	7	England	47,851	218
Dr. Storer	456	2	France	36.169	30
Dr. Cock	533	14	Germany	256,835	132
Dr. Burwell	598	5	United States . . .	7,674	31
Dr. Metcalf	1,797	3			
Aggregates	7,674	31	Total	348,529	411

The aggregates of the foregoing table furnish the following results: The ratio for the frequency of craniotomy, in British practice, is one in every 219 cases; in French, one in 1,205; in German, one in 1,944; and, in American practice, one in 247. In regard to the cases by Dr. Cock, in this table, it should be stated, that, of the 14 cases reported by him, but a single case occurred in his own practice, 13 being seen in consultation. Deducting these, as not properly belonging to the present comparison, and the ratio for American practice would be one in every 404 cases, instead of one in 247. An addition of the several aggregates of the table gives 348,529 as the whole number of deliveries, in which the operation of craniotomy was performed 411 times; furnishing a ratio, for its frequency, of one in 848.

TABLE LVIII.—*Mortality of Craniotomy to the Mother.*

American Practice.			Resumé.		
Authors.	Whole No. Cases.	Mothers died.	Countries.	Whole Number Cases.	Mothers died.
Dr. Storer	2	1	England	234	47
Dr. Cock	14	5	Germany	17	5
Dr. Metcalf	3	0	United States . . .	19	6
Aggregates	19	6	Total	270	58

The ratios of the foregoing table are, for British practice, one death in 4.9; in German practice, one in 3.4; and, in American practice, one in 3.1. The ratio of mortality for the whole number of cases is one in 4.6.

The smaller number of survivors after the operation of craniotomy than after the use of the forceps is to be attributed to that sacredness of human life which is held in estimation by every humane physician. He hesitates to destroy a life he cannot restore, and thus defers an operation which he finally finds to be inevitable, with the hope that the natural efforts alone, or the aid of the forceps, may accomplish the process with safety to both parent and offspring. Although the operation, in itself considered, is less dangerous than the use of the forceps, the delay in the mean time has rendered the patient more obnoxious to its fatal sequelæ. While, on the one hand, we are to remember that we should hold an operation in abeyance, by which the life of the child will be sacrificed, to the

last justifiable moment of delay; on the other hand, we are by no means to ignore the far weightier responsibility which rests on us, — never, in any case, to compromise the life of the mother. In deciding upon the point of time beyond which we should not postpone our interference, we are to be governed mainly by the following considerations: When the pelvis is so much distorted as to preclude the idea that the head can be made to pass; when the head has been long fixed in the passage, and no progress has been made under the pressure of strong and frequent labor-pains; when we are unable to fix the forceps, or, having properly and securely applied them, nothing is gained by our efforts at traction; or whenever the condition of the mother requires a completion of the process for her safety, — we are to wait no longer.

Induction of Anæsthesia in Labor. — Up to the period of the publication, in 1848, of Dr. Channing's work on "Etherization in Childbirth," I had had no experience in the use of anæsthetic agents during labor. Soon after the publication of that work, I began to use chloroform; and have been so well pleased with its effects, that I recommend its inhalation in almost every case to which I am called. I have now used it in 223 cases; and in every case, if I am called in a succeeding labor, the first question has invariably been, "Have you brought the chloroform?" In no single instance has any unpleasant consequences followed its use, and in but a single instance has the child been born when the mother was unconscious of

the fact. In this case, the effect passed off in a minute or two, the patient affirming that she had had a very pleasant dream while under its influence. In no case has delirium supervened, even for a few minutes, as we sometimes witness when chloroform has been given for other purposes. Ordinarily, I do not advise the inhalation until nearly the close of labor, when the pains are frequent and striving; though I sometimes direct it while the head is passing through the bony passage, when the pains are more severe than usual. In some cases, the inhalation has been continued, with intervals longer or shorter, as indicated by the severity of the pains, from one to three or four hours.

By a comparison of those cases of labor in which chloroform has been used, with those in which its recommendation has been overruled by the patient or her friends, or with those where prudential reasons have interdicted its use, I am constrained to believe that no inconsiderable portion of that depression of the nervous system, spoken of under the appellation of *shock*, is prevented by the induction of anæsthesia. With this belief, therefore, I feel warranted in recommending its administration: first, because it affords so much present comfort to the patient while passing through the process of delivery; and, secondly, because it greatly lessens that uncomfortable prostration, to call it by a no more opprobrious name, which, in most cases, results from the completion of that process. In the doses, I am not very particular. I take a napkin, doubled four or six times, apply it to the

mouth of the bottle, and, inverting it, hold it until I feel the chloroform coming through. After two or three inhalations, the patient is directed, the napkin being removed, to make as many full inspirations before the napkin is again applied to the mouth and nostrils. The dose of chloroform is renewed when the cloth is getting dry, unless it is thought proper to protract the interval. After a few trials, the patient is allowed to inhale *ad libitum*. I only direct when an additional dose shall be supplied. I have never used any other anæsthetic agent, either in general or obstetric practice, than chloroform. The quantity, in cases of childbirth, has varied from two or three drachms to as many ounces. Patients have been kept under its influence, more or less fully, for from ten minutes to three and four hours. In most of the cases, its peculiar anæsthetic effect has been produced in from five to fifteen minutes. Except in a single case, no patient has become entirely unconscious, or entirely insensible to pain. In midwifery, I do not intend to induce complete anæsthesia, but simply to lessen the sensibility of the patient, so that she may escape the severity of the pains. I have never met with a case of vomiting which could be attributed to the use of chloroform; nor one where there was any hysteric excitement, as is sometimes witnessed after its employment for dental and other purposes. I have met with but a single case where the uterine efforts were lessened after its employment; and, from the fact that it has been the only case, I am disposed to attribute the circumstance to some other cause,

rather than to the effect of the anæsthesia. On the other hand, I have sometimes thought the uterine contractions were rendered more regular and persistent by its administration; and am certain that it has operated in relaxing the os uteri, as well as the rigidity of the external organs.

I am aware it is objected to the use of anæsthetic agents in obstetric practice, that they should not be resorted to "merely to prevent the physiological pain" of the process of parturition. Why not? If, by the induction of anæsthesia, we can render a labor painless, or materially reduce the measure of its agonies, and the patient have as safe and speedy a recovery as though she had endured the full amount of the "physiological pain," what medical or profane logic, I ask, shall come in, with its foregone conclusions, to interdict its use? Suppose the transcendental physiology of Flourens be true, that, when the medulla oblongata is "overthrown" by anæsthesia, sudden death results; the hundreds and thousands of cases in which anæsthesia, partial or total, has been induced in obstetric practice, only prove, that, by some inexplicable condition of the parturient state, a link in the terrible catenation of sequences has been removed, so that the inevitable theoretical result never follows. And if it never follows, and, at the same time, the patient is delivered from the prostration, in some cases extreme, which is acknowledged to result from the "physiological pain," which, but for the induction of anæsthesia, she is doomed to suffer, — I ask, in all soberness, why should she be deprived of so great a

blessing? A theory, no matter how exquisitely constructed, no matter how strictly in accordance with certain preconceived physiological opinions, should not, certainly ought not, for a moment, to be allowed to hold our convictions in abeyance, when contradicted by acknowledged facts. Convinced, as I am, of the great value of anæsthesia in the practice of midwifery; that its induction is not attended with danger; that the present sufferings, as well as the dangerous sequelæ to labor, may be materially lessened by its prescription, — I cannot but express the hope, if there are those who have hitherto resisted its employment, that they will review their objections, and, finding their position no longer tenable, cheerfully adopt a practice, which, if it cannot be defended by the syllogisms of an *à-priori* logic, can summon to its aid the unanswerable arguments of facts and experience.

The almost innumerable collocations, comparisons, and ratios; the multitude of figures, "Pelion upon Ossa piled," necessary to any utilitarian elaboration of the almost infinite details of statistical analyses; the prevalent disinclination with which professional men even consent to examine the processes and results of statistical induction; the adoption of a wrong principle, or the lack of any principle at all, evident in the construction of many of the statistical tables scattered through the books, — were so many objections to be overcome in the selection of the present subject. Believing, however, that important truths may be discovered, and dangerous errors eliminated, by the process of numerical observation and comparison; that

present experience may be corrected or confirmed; and hoping that the Society might be induced to take the initiative in the institution of a systematic inquiry into the subject of obstetrical statistics in this Commonwealth, or at least that individual members might be persuaded to undertake a more definite exploration of this almost *terra incognita* of professional observation, — the present decision was made; and you have the result in the preceding pages of this discourse.