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KING'S COLLEGE HOSPITAL
MEDICAL SCHOOL

AN

INTRODUCTION

TO THE

PRACTICE

OF

MIDWIFERY.

By THOMAS DENMAN, M.D.

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KING'S COLLEGE HOSPITAL
MEDICAL SCHOOL.

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PREFACE.

BEFORE the firſt appearance of theſe papers in two volumes octavo*, the greater part of them had been ſeparately printed, and of many of them there had been more than one impreſſion. By this mode of publication I had an opportunity of correcting many errors, though, with all that I have been able to do for the amendment of the work in general, I am yet very ſenſible of its deficiencies and imperfections. But the reader will diſcover, that pains have been taken to render it leſs unworthy of his regard; and the hope of being uſeful to thoſe, who are engaged in ſtudies of this kind, has converted the trouble into pleaſure. Very much ſtill remains to be done for the perfection of this branch of the profeſſion, not by the ſpeculative and preſuming, who are ever miſleading us; but by men of induſtrious attention and reſearch, capable of reducing into order the obſervations they will have many opportunities of making, and of converting them to practical uſe and advantage. In medical writings, ſtrict veracity is above all other things required; and to this I have conſtantly adhered, to the beſt of my knowledge and judgment.

Of the medical treatment of the diſeaſes peculiar to women, and of the practice of midwifery in particular, we have no accounts from the earlieſt writers, but ſuch as are very imperfect, and involved in works, which the life of one man would ſcarcely be ſufficient to glean; while after all his labour, though his curioſity might be gratified, he probably would not, at this period of time, gain for himſelf, or afford to others, much ſatisfaction. The cultivation of

* A new and corrected edition is now publiſhed.

medicine at large, eſpecially of that branch of which we are about to treat, is of a recent date in our own country. This, to one glance of the eye, exhibits a view of the ſteps, by which human beings, in a courſe of years, emerge from a ſtate of abſolute ignorance and barbariſm, become civilized, and arrive at eminence in every art and ſcience.

In what country medical knowledge was firſt cultivated, and reduced into ſcientific order, cannot now be traced; for, beyond a certain period, the records we have are crowded with fable, and being chiefly ſupported by conjecture, are by no means entitled to unreſerved confidence. But, long before the eſtabliſhment of ſyſtems, there muſt have been a time, when means were uſed for the cure of diſeaſes, and the relief of accidents. There muſt alſo have been a time, when the rude but well-meant endeavours of one friend, to relieve another in diſtreſs, ceaſed, and application was made to thoſe, who were ſuppoſed to have more information, or greater ſkill. This would properly be the origin of the art. By what ſteps or means the *Greeks* became ſooner and better informed, in all arts and ſciences, than many other nations, we cannot now decide; whether it depended upon the force of their own native genius, to which ſomething muſt be granted*, or whether this knowledge were communicated by ſome preceding or neigbouring people. But it is probable, that the *Greeks* were inſtructed by the *Egyptians*; and theſe, as many contend, by the natives of *India*: yet by whatever means they acquired their information, to the *Greeks* the diſtinguiſhed glory is due of having conveyed, in their own language, the rudiments not only of medicine, but of almoſt every art and ſcience, to all the weſtern world. Though the moderns have availed themſelves of every advantage they could obtain by the ſtudy of the ancient writers, it may be truly ſaid, that they have not always

* See *Stuart's* Antiquities of Athens.

been

been too liberal in their acknowledgments. But of this poſthumous reputation *Hippocrates* has had his full ſhare, for his very name ſeems to have inſpired with enthuſiaſm every ſucceeding writer; as all thoſe, of whom we have been accuſtomed to think with veneration, or to ſpeak with reſpect, have mentioned him with admiration, and held him up to our view as an example to be imitated, or as a pattern to be exactly copied. Whether we conſider his writings with regard to the ſtrict morality which they inculcate, the liberal conduct which they recommend, the ſtrong and extenſive obſervations with which they abound, or the order and method in which theſe are conveyed, it is not poſſible to withhold our eſteem *. He had likewiſe the good fortune of writing in a language, which was not only known, but ſpoken with claſſical purity, for a longer time than any other; for *Hippocrates* lived near five hundred years before the Chriſtian era, yet the *Grecian* was the popular language at *Conſtantinople*, even at the time when this city was taken by *Mahomet* the ſecond, in the fifteenth century. The *Greeks* alſo maintained an acknowledged ſuperiority in literature and arts, for a long time after their political ſovereignty was loſt. But if there be any progreſſive power in the human mind, if any advantage be obtained in the practice of medicine by the knowledge of the circulation of the blood, or of an infinitely more correct anatomy and phyſiology at large; by the vaſt diſcoveries, improvements, and application of chemiſtry; by a more copious and more efficacious *materia medica*; by the recorded experience of ſo many ages; or by the ſeveral collateral arts, which medicine calls in to its aid; we may ſurely be permitted to ſay, that *Hippocrates* ought not to be conſidered as the guide of phyſicians at the preſent time, or as having in any degree limited either the perfection or extent of the art, but as an

* See a ſhort but elegant abſtract of the medical obſervations and practice of *Hippocrates*, in the *Hippocrates Contractus* of Dr. *Burnet*.

illuſtrious ſpecimen of ancient medical knowledge and practice. If this obſervation hold good with reſpect to *Hippocrates*, it will have more force when applied to all his tranſcribers and commentators, many of whom ſeem to have loſt, in their attachment to him, the uſe of their own reaſon and judgment; conſtantly praiſing learning at the expenſe of knowledge, and rejecting every improvement, which could not be explained or juſtified by his writings. To the *Greeks* we are indebted for the works of *Ariſtotle* in the time of *Alexander* the Great; and it was the firſt object of the *Romans*, who ſubdued them, to acquire a knowledge of their ſciences, and to poſſeſs themſelves of examples of their arts. With information of almoſt every other kind, the *Greeks* are to be conſidered as the inſtructors of the *Romans* in medicine; and, allowing for ſome change in the arrangement, a ſtrong intelligence in his ſelections, the addition of what he had collected from other writers, a few improvements in ſurgery, and the local application of principles before known, *Celſus*, who lived at *Rome* in the early part of the firſt century, may be conſidered as an inſtructive and elegant abridger of the writings of *Hippocrates*.

The flouriſhing ſtate of the *Romans* was of ſhort duration. In the fourth century the empire was divided into the eaſtern and weſtern. *Rome*, which was the capital of the latter, was taken by *Odoacer*, king of the *Heruli*, under whoſe ſubjection it remained; and the *Romans* ceaſed to ſpeak the *Latin* language in the beginning of the ſeventh century. But neither the conqueſt of *Rome* by *Odoacer*, that of *Alexandria*, under the Caliph *Omar*, nor the permanent ſubjection of *Conſtantinople* by *Mahomet* the ſecond in the fifteenth century, extinguiſhed that knowledge, and thoſe arts, which had been ſo long and ſo ſtrenuouſly cultivated and exerciſed. From the deſtruction of the library at *Alexandria*, which had many bad and ſome good conſequences, were produced the ſchools of *Antioch* and *Haran*, or what may be called the *Arabian* ſchools, the principal medical

medical writers of which were *Rhazes*, *Avicenna*, *Avenzoar*, and *Albucaſis*. The ſentiments and manners of no people could be leſs favourable to learning than thoſe of the *Arabians*; and we accordingly find in every hiſtory, that when they ſpoiled *Alexandria*, the intention of their chiefs was to deſtroy all kinds of ſcience, by burning the magnificent libraries which had been there collected; and every book which eſcaped the general havoc was preſerved by the care or partiality of private men. The writings of the *Arabian* phyſicians were chiefly, though imperfectly, tranſcribed from the *Greeks*. Theſe it will be allowed are ſcarcely ever read; but they are ſaid to contain little of importance, except that the firſt account of the ſmall-pox, and of a few other diſeaſes of leſs conſequence, was given by the *Arabians*; and that *Avicenna* was the firſt, who deſcribed the *forceps*, an inſtrument contrived for the purpoſe of delivering women in caſes of difficult parturition, preſerving at the ſame time the life of the child.

After the deſtruction of the library at *Alexandria*, the *Grecian* manuſcripts, which were preſerved, were tranſlated into the *Syriac*, *Perſian*, and *Indian* languages; and the learned were diſperſed in different countries. For it appears, that, in the year 767, *Almanzur*, the founder and Caliph of *Bagdat*, ſent for a ſkilful and learned phyſician from *India*; which I mention, as it ſeems to explain an obſervation made by the *Raja* of *Kiſhenagur*, and reported by the learned Mr. *Halhed* in the preface to his *Perſian* Grammar, without any violence to other chronologies. Thus wars and apparent devaſtation, became, in the hands of Providence, the means of diffuſing learning over many countries, which might otherwiſe have remained in ignorance.

But the firſt ſchools, from which the weſtern part of *Europe* derived knowledge, were eſtabliſhed in *Italy* in the eighth century; and the moſt famous of thoſe, in which the art of medicine was taught, were at *Padua*; whither all, who aimed at excellence, reſorted,

reſorted, with the view of purſuing their ſtudies, and of qualifying themſelves for practice. From the contiguity of the two countries, from the frequent wars carried on between *France* and *Italy*, or from other cauſes, the *French* had many opportunities of acquiring knowledge. Schools were eſtabliſhed among them, encouragement was given to learning, many able men aroſe, and *France*, by its more convenient ſituation to *Britain* and the northern nations, ſucceeded *Italy* in literary reputation; *Paris* and *Montpellier* being the places, to which ſtudents in medicine, as well as other arts, reſorted for inſtruction, even down to the beginning of this century.

About fifty years before the birth of *Chriſt*, *Julius Cæſar* made a deſcent from *Gaul* into *Britain*, a country then but little known, the inhabitants of which were in a very uncivilized ſtate; if we except thoſe who lived on the ſouthern coaſt of the iſland, perhaps not one degree more enlightened than the *Indians*, whom their poſterity afterwards diſcovered in *America*. The *Romans* continued long enough in *Britain*, to humble and render more tractable the ferocious ſpirit of the natives, to prepare them for civilization, and to teach ſome of thoſe arts, by which the evils of their ſtate might be leſſened, and a portion of the comforts of life acquired. On the retreat of the *Romans* from the iſland, about the year 426, ſuch of the natives, as, after an impotent oppoſition to their arms, and a rejection of their government, had been driven to the diſtant parts, poured with irreſiſtible fury on thoſe, who had ſubmitted to the dominion of *Rome*. Theſe called in the *Saxons*, to aſſiſt and to protect them, about the middle of the fifth century. Subjection is uſually the lot of thoſe, who claim or receive political protection; and the *Saxons* aſſumed the government of *Britain*. Being but little

more civilized than thoſe they came to defend, they could furniſh few means of improvement; and the *Danes*, in their ſubſequent invaſions, checked and reduced the ſmall advancement, which the *Britons* had made towards learning, notwithſtanding the encouragement afforded by *Alfred*, about the year 900. The *Norman* conqueſt took place in 1066, and the change, with all its diſadvantages, was productive of ſome general good to the nation: but the great proſpect of literary improvement aroſe towards the concluſion of the twelfth century, when *Richard* the Firſt undertook his cruſade to the Holy Land. It appears, however, that there was not a ſingle man in his whole army, who underſtood the *Grecian* or *Syrian* language; ſo that, without any advantage to balance the loſs of his ſubjects, or the expenditure of his wealth, in all likelihood, he and his people returned to *England* almoſt as ignorant as they departed. During all this barren and dreary time, that is, for the ſpace of nearly thirteen hundred years, the excellence of the *Britons* ſeems to have been in the ſtrength of their arms, for they were conſtantly engaged in wars foreign or domeſtic, and mention is ſcarcely made of any man, who had a claim to be conſidered as learned in any ſcience, before *Roger Bacon*, who lived in the thirteenth century. He was a man endowed with a very ſuperior and excelling genius, who, among other branches of philoſophy, applied himſelf to chemiſtry, which he carried to higher degrees of perfection than his predeceſſors of any age or nation, as well as laid the foundation of many modern improvements. A few other names of medical men indeed are recorded, as *Richardus Anglicus*, *Nicholas de Ferneham*, *Johannes de Sancto Ægidio* or *Giles*, *Hugh of Eveſham*, and *Gilbertus Anglicus* *; but *John a Gaddeſden* was the firſt *Engliſhman*, according to *Dr. Freind*, who acquired ſufficient reputation to be appointed Phyſician to the Court, which *Gaddeſden* was, in the reign of

* See Aikin's Biographical Memoirs.

Edward

Edward the Second. His work, which he called the "Roſa Anglicana," was never printed in *England:* and if it be compared with thoſe of the *Greeks*, and perhaps of ſome other phyſicians of his time, he may deſerve the ſeverity of that cenſure, which has been unſparingly paſſed upon him. But ſurely much allowance is to be made, and ſome honour muſt be given, to the firſt man in any country, who, by diſtinguiſhing himſelf, was preferred to a place of ſuch high truſt and importance. About the ſame time lived *John Ardern*, a Surgeon of great reputation at *Newarke* in *Nottinghamſhire*, who compoſed many works, none of which have been printed, except his treatiſe on the "Fiſtula in Ano."

In every country knowledge muſt be acquired by the mere induſtry and genius of the natives; or by communication with other countries, in which it already exiſts; or the rudiments, derived from ſome other nation, may be carried to greater perfection by the induſtry and genius of thoſe, who originally received their inſtruction from foreigners. If knowledge were conveyed from the *Babylonians* or *Indians* to the *Egyptians*, thoſe would probably afford an example of the firſt; the *Greeks* of the ſecond; and all Europe of the third. But the progreſs of knowledge would in the beginning be exceedingly ſlow, in every nation; and even ſuppoſing the powers of the mind were not diverted from the purſuit by more favourite objects, it would be long before men thus circumſtanced could be put into competition with a people already informed. The abilities of particular men would very often be loſt by their death; and, if they were diſpoſed to convey their knowledge by writing, the number of copies would be comparatively ſmall, full of the errors of tranſcribers, and difficult to be underſtood, from unavoidable changes in the meaning of words, and the conſtruction of the language in which they might be written. Nor would a people deſerve the name of ſkilful and learned, becauſe there were a few men of diſtinguiſhed abilities among them, but becauſe the generality were ſo well informed,

formed, as to be able to execute with aptitude and intelligence what was required of them for the good of ſociety.

All or the greater part of the impediments to the acquiſition or diffuſion of knowledge in general were happily removed in the fifteenth century, by the diſcovery of the art of printing, by *John Fauſt*, or *Fuſt*, a *German*, about the year 1432. This art was introduced into *Britain* in the year 1470, by *William Caxton*, who hired himſelf as a ſervant at *Cologn*, for the purpoſe of qualifying himſelf as a working printer. There are two books, which, it is ſaid, were printed by him before his return, of one of which we ſhall have occaſion to take notice. Another event extremely favourable to the improvement of medicine took place early in the next century, that is, in the year 1518. This was the eſtabliſhment of the College of Phyſicians in *London*, by the charter of King *Henry* the Eighth. The words of the charter of the college denote its view; *Improborum hominum qui medicinam*, &c. *audaciam compeſcere*; the kind of inſtitution, *inſtitutarum civitatum in Italia exemplum imitati*; and the perſons to whom it was granted, *gravium virorum doctorum*, &c. *precibus inclinati*. For certain purpoſes, intending or promoting the good of ſociety, theſe men were directed to form a college, with powers for their internal regulation, as forcible as thoſe ever granted to any other univerſity or college; provided ſuch regulations, and ſuch only, were made and executed, as preſerved and promoted thoſe intereſts of ſociety, which were committed to their truſt. I mention theſe circumſtances, becauſe the ſelecting power of the Fellows of this College, though allowed to all others, has been diſputed by ſome very able and worthy men, who, perhaps, did not reflect, that before its eſtabliſhment, no ſchool, or even lectureſhip for medicine, had been founded in this country, nor had a ſingle book of any eſtimation been written by a native of it; but that the art was then practiſed without reſtraint, by men as bold as they were ignorant: or foreſee, that, if the college were to be ſuppreſſed, or the exerciſe of

its powers perpetually checked and conteſted, the art would, in all probability, decline into its primitive ſtate of ignorance and confuſion. It would, moreover, be eaſily proved, that, ſince the year 1518, there have been, at every period of time, phyſicians of diſtinguiſhed abilities and eminence, and that the general literature of this country has been in many inſtances very effectually aſſiſted by the members of this college. There can ſcarcely be a doubt, but that very important benefits have accrued to ſociety from the eſtabliſhment of the College of Phyſicians, and that the rank and dignity of the profeſſion have been raiſed and ſupported by it. As early proofs of the firſt, I may mention the diſcovery of the circulation of the blood, by *Harvey*; the doctrine of irritability, firſt cultivated by *Gliſſon*; the reduction into order, and more accurate anatomical knowledge of the brain and nervous ſyſtem, by *Willis*; the diſcovery, or at leaſt the great improvement of our knowledge of the glandular and lymphatic ſyſtem, by *Jolliffe*, *Wharton*, *Needham*, *Willis*, and many other very able men of their time; and the diſcoveries of *Mayow*, whom I am proud of having contributed to reſcue from oblivion. The ſecond poſition is ſelf-evident. Even thoſe who are not members, eventually partaking of its advantages, and profiting by its eminence, are intereſted in its ſupport. In the courſe of time, the rules of this, like thoſe of many other foundations of a ſimilar kind, may require alterations according to the progreſs and improvement of ſcience: but the powers already granted might be effectually exerted, to prevent the frauds, hinder the impoſitions, and curb the audaciouſneſs of ignorant and unprincipled men; and the exerciſe of this authority was never more neceſſary, than at the preſent time. It is probable, that this important purpoſe would be anſwered if no patent for any medicine were to be granted, or any noſtrum allowed to be ſold, without a teſtimonial of its efficacy and ſafety from the college of Phyſicians; and by compelling every perſon practiſing medicine in any form, to become a member of the college

of

of Phyſicians, of the college of Surgeons, or the company of Apothecaries. Nor does it ſeem difficult, to make regulations, ſo ſtrict that they ſhould reſiſt any claims to the privileges of the college by the preſumptuous, yet ſo liberal as not to withhold them from the deſerving; and thus improve both its public and profeſſional benefits.

One of the firſt books printed by *Caxton* was "Bartholomeus dé Proprietatibus Rerum." He is named in the firſt tranſlation, which was made under the protection of one of the earls of *Berkley*, as *B. Glanville*; but the title of the copy of the book which I have, probably *Caxton's*, is this—"Incipit prohemium de proprietatibus "rerum Fratris Bartholomei, Anglici, de Ordine Fratrum Minorum." This is in the nature of a *Cyclopædia*; and being a book not much known, I allow myſelf the liberty of making an extract from it, which will ſhew the nature of the work. His obſervations on fire, which will exhibit his philoſophy, are in this order—*De forma—De elemento —De igne—De flamma—De fumo—De carbone—De ſcintilla—De favilla—De cinere.*—The following from his chapter *de infirmitatibus* will ſhew his medicine.—*De febre—De febre effymera—De ethica—De febre putrida—De ſignis putridæ febris—De febre cotidiana—De febre terciana et ejus ſignis et cura—De quartana et ejus ſignis et remediis —De febre ſimplici et compoſita.* He has a chapter *de obſtetrice*, and another *de umbilico*, but they both relate almoſt wholly to the management of the child. A book like this promiſed to be of great ſervice; but, though the circle was comprehenſive and regular, it was filled, not with the obſervations of a man of real knowledge or experience, but with popular opinions; and theſe collected, without much diſcrimination, from other writers. A tranſlation of this work, by *John Treviſa*, was printed by *Wynkin de Worde* in 1507, another edition by *Berthelet* in 1535, and I believe ſeveral others. Very few medical books ſeem to have been printed about this time; and from the examples, their loſs is not to be regretted. The "Judycyall of Vryns" was printed in 1512; "A litel boke for

the infirmities and grete Sickneſſe called Peſtilence," which paſſed through many editions; and "A little treatyſe called the Gouernail of Helthe." But in the year 1522, *Linacre*, who was the firſt preſident of the college, publiſhed, when ſixty-two years of age, a tranſlation of different parts of *Galen*, which he thought moſt uſeful to be known. The ability and elegance, with which this tranſlation was made, are univerſally acknowledged, and great honour was juſtly given to *Linacre*, on this, and many other occaſions. But the Engliſh practitioner did not reap much advantage from the work; for, though there might not have been ſix men in the nation at that time able to read or tranſlate *Greek*, and probably ſome hundreds who underſtood *Latin*, yet the bulk of the people were ſtrangers to both the languages; and of this *Linacre* himſelf ſeems to have been ſenſible, for he immediately afterwards publiſhed his "*Rudimenta Grammatica Linguæ Latinæ.*" Nor can I here help lamenting two defects even in *Linacre's* plan; one, when the college was eſtabliſhed, that he did not encourage the publication of papers on medicine, under the auſpices of the college; a defect ſeen by the eſtabliſhers of the Royal Society, who publiſhed ſuch papers in their tranſactions, a place not the moſt proper for them; the other, that he did not print his works in *Engliſh*; in which they would have been generally read, have afforded immediate inſtruction, ſtood as good examples, and taught a proper method of writing. It is amongſt the moſt remarkable things I have met with, that no writer in any other language, than that of the country in which he lives, ever ſeems to be generally underſtood by the people of that country, of which I could adduce ſeveral proofs. But this not being done by *Linacre*, the *Engliſh* medical writers returned to their former ſtyle; and for many years little real progreſs in knowledge was made, or any titles heard of but thoſe of *Urynals, Judgment of Urynes, Anatomies of Urynes, Treſuries of Helth, Mirrours of Helth, Anthidotaries, Breuiaries of Helth*, the *Treſures of poore Men, Herbals*, and the like, by

by medycyners and aſtronomers. But about the year 1540 ſome attempts were made to tranſlate books of reputation into the *Engliſh* language; as Sir *Ulrich Hutten* on the wood called *Guaiacum* that healeth the Frenche Pockes, by *Paynell*, Canon of *Marten Abbey*, who had alſo tranſlated many other books about 1533; the *Caſtell of Helthe* by Sir *Tho. Elyot*, who was not a phyſician; *Albertus Magnus*; *Prognoſticacions out of the books of Ypocras, Auicen*, &c. and the *Queſtionarie of Cyrurgyens, with the formularie of lytell Guydo in Cyrurgie.* In the year 1540 was alſo publiſhed the firſt book on the ſubject of midwifery in *England**, called "The Byrth of Mankynde," otherwiſe named "The Woman's Booke," by *Thomas Raynold*, Phyſition; the ſecond edition of which was imprinted at *London*, by *Thomas Ray*, whoſe name is not mentioned either by *Ames* or *Herbert*, in their hiſtory of printers. This was alſo the firſt medical book which has prints reaſonably well executed from neat drawings. As every one of theſe books went through ſeveral editions, we may conclude they were in high eſtimation. Then (1545) came forth alſo an abridgment of *Veſalius*, of which the copies are not ſcarce, under the title of, "Compendium totius "Anatomiæ delineatio ære exarata, per Thomam Geminum Lon-"dini." *Geminie* was an engraver. The knowledge of *Veſalius* was more extenſively ſpread from his book being ſtudied by painters and artiſts. In the original work of *Veſalius*, a great part of the engravings, it is ſaid, were deſigned by *Rubens*.

But one of the firſt *Engliſh* medical books, of any value, properly ſpeaking, I take to be "a ſhort and profitable treatyſe touching the cure of the diſeaſe called *Morbus Gallicus*; withe ann account of

* Dr. *Combe* has in his poſſeſſion the identical manuſcript copy of this work, which was preſented to *Catherine*, Queen of *Henry* the VIIIth. This copy is ſigned with the name of ——*Jonas*, but it does not appear why the book was afterwards publiſhed in the name of *Raynold*.

the nature of Quickſilver, by *G. Baker*, Maiſter of Chirurgerie, 1579," and the firſt book in ſurgery, called, "An Excellent Treatyſe of wounds made with Gun-ſhot, &c.; by *Thomas Gale*, Maiſter in Chirurgerie, (1563.)" The dedication to *Ambroſe Parè's* work is dated Feb. 8, 1379, and it was tranſlated into *Engliſh* in 1634 by *Thomas Johnſon*; ſo that it may be doubted whether *Gale* did not precede *Parè* in the recommendation of a more ſimple method of treating gun-ſhot wounds. The ſame *Thomas Gale*, who was a very meritorious and indefatigable man, alſo printed "An Encherridion of Chirurgerie," and many other works relating both to ſurgery and medicine, together with the "Inſtitution of a Chirurgeon." Near the ſame time *John Halle* publiſhed what he calls the "Chirurgia Parva Lanfranci;" and *John Banniſter* "a Treatyſe of Chirurgerie;" and ſoon afterwards *William Clowes* "A briefe and neceſſarie treatyſe touchynge the cure of the diſeaſe called Morbus Gallicus, or Lues Venerea, by unctions and other approved waies of curing." There had been publiſhed in the year 1577, a profytable treatyſe of the anatomie of man's bodie, compyled by that excellent Chirurgeon, *M. Thomas Vicary*, Eſq. Sarjaunt Chirurgeon to *Edward* the Sixth, Queen *Marie*, and Queen *Elizabeth*, and alſo chiefe Surgeon of *St. Bartholomew's Hoſpitall*. There was alſo printed in 1597, "The whole courſe of Chirurgerie," by *Peter Lowe*, a Scotchman, Aurelian Doctour in the facultie of chirurgerie at *Paris*, which is quoted in the Critical Enquiry publiſhed about fifty years ago by *Samuel Sharp*, one of the moſt expert and able ſurgeons this country ever produced. I find a few books publiſhed by phyſicians about this time.—"A "ſhort diſcourſe of the moſt rare and excellent Virtue of Nitre"—"A Greene Foreſt, or a Natural Hiſtorie," by *John Mapler*, M. A. and ſtudent at Cambridge.—"The Hammer for the Stone," by *Walter Carie*;—and a briefe treatyſe called "*Carie's* Farewell to "Phiſicke"—"Stirpium Adverſaria Nova perfacilis inveſtigatio lu-"culentaque acceſſio ad priſcorum Materiam Medicam"—"The Be-

"nefit

" nefit of the auncient Bathes of Buckſtone, and the Bathes of " Bathes ayde; by *John Jones*, Phyſician"—" Hygeina, &c. authore " *Timotheo Brighto*, Cantabrigienſi Medicinæ Doctore:" and a Treatyſe of Melancholie, by the ſame author; " Praxis Medicinæ Univerſalis" (1598), and many others in number, but not of much value, though they ſhew very ſatisfactorily the pains taken by the *Engliſh* to acquire knowledge by their own induſtry, and by tranſlating many of the works, which were then held in particular eſteem. But it appears alſo, that the progreſs made by the *Engliſh* phyſicians and ſurgeons, for the improvement of the reſpective branches of the profeſſion, had not been very rapid, and that much remained to be done at the commencement of the ſeventeenth century; and particularly that the practice of midwifery had not been yet attended to, unleſs as a part of ſurgery.

It is neceſſary to obſerve, that this order, in which we are ſpeaking of different writers, is not meant as recommending an order of ſtudy; becauſe it ſeems to be univerſally agreed, that it is beſt for learners to begin with acquiring a knowledge of thoſe authors, who have written on the principles and practice of the preſent time, and thence to proceed to the ſtudy of former writers and of the ancients.

In the year 1560, *Francis Bacon*, afterwards Lord *Verulam*, was born, a man whoſe fame will receive no addition from any applauſe, which it is in my power to give. He was a meteor, from whoſe luſtre all nature received ſome light. Though he did not apply himſelf particularly to the ſtudy of medicine, he has left many uſeful obſervations relating to it; and he promoted this, and almoſt every other branch of knowledge, by teaching and practiſing the only effectual method of acquiring it. The more profound works of this writer are perhaps to be ſtudied with advantage only by men who have a greater ſhare of genius than common, or by thoſe who have been bleſſed with a learned education; but his tractate *de Augmentis*

Scientiarum

Scientiarum may be of uſe to all, as, if read with care, it is not difficult to underſtand, and abounds with the moſt acute obſervation and profitable inſtruction, though he himſelf ſpeaks of it in lowly terms.

In the year 1578 *William Harvey* was born at *Folkſton*, in *Kent*; and, having completed his ſtudies at *Cambridge*, he went to *Padua*, where he was admitted to the degree of Doctor in unuſually flattering terms of approbation, in 1602. In the year 1615 he was appointed by the College of Phyſicians, to read the lectures on anatomy and ſurgery; and in theſe he firſt promulgated his diſcovery of the circulation of the blood, a diſcovery ſo complete, that no perſon has ever controverted one poſition, or amended his explanation. With all the ſagacity and perſeverance of a truly great man, he applied himſelf to form an entire hiſtory of the generation of animals, with that of the preceding and accompanying changes; but his ſtudies were interrupted, and many of his papers loſt, in the time of the civil war. It does not appear, that he had determined to publiſh the reſt, though finiſhed with admirable correctneſs, till he was prevailed upon by the ſolicitations of his intimate friend Sir *George Ent*, who ſuperviſed the printing of them in *Engliſh*, in the year 1653; but I have no other authority for this fact than the preface to that edition written by Sir *George*. By inclination, or the neceſſity of his affairs, *Harvey* was engaged in the practice of Midwifery, by which means he got that information, which enabled him to write his "*Exercitatio de partu*," and the many excellent obſervations upon that ſubject, with which his works abound. He clearly entertained an opinion, that the knowledge of the circulation, the conſtituent parts, and properties of the blood, would enable phyſicians to cure all diſeaſes; but experience has not confirmed its truth. The diſcoveries which *Harvey* made, the many ſubjects which he illuſtrated, and the delicacy and patience which he exerciſed in his inveſtigations, then unknown in this country, entitle him to the higheſt honour as an anatomiſt, and as a man of ſcience. He died at eighty years

of

of age, honoured and beloved for the greatneſs of his abilities, the ingenuouſneſs of his diſpoſition, and the mildneſs of his manners. His character is ſtrongly marked in a fine picture of him, taken in his old age, now in the muſeum of the late Dr. *Hunter*.

From the gradual progreſs of ſcience, from the encouragement it received, or from the example of the two illuſtrious men juſt mentioned, *Harvey* and *Bacon*, a happier proſpect dawned upon *Britain*, to which I muſt beg leave to call your particular attention*.

Thomas Sydenham was born in the year 1624, and graduated at *Oxford*. He applied himſelf to the practice of medicine, and wrote his account of the continued fever of 1661, and the three following years; which fever he probably then ſuppoſed to be the only one in nature. But farther experience convinced him, that there were many kinds of fever; and of theſe he has given an account to the year 1683, together with diſſertations on the ſmall-pox, dropſy, gout, hyſteric, and many ſporadic diſeaſes. Some notice is alſo taken of the diſeaſes incident to women in childbed, and of many of the complaints of children. His works, originally written in *Engliſh*, and afterwards tranſlated into *Latin* by his friend Dr. *Mapletoft*, were publiſhed in diſtinct parts, and at different times, as the occaſions occurred to him. The writings of *Sydenham*, whether we conſider the ſagacity and order with which the obſervations are made, or the fidelity with which they are recorded, have been held by all ſucceeding phyſicians in the higheſt eſteem; and, from the time of *Hippocrates* to the preſent, he has been deſervedly conſidered as the beſt example of a faithful obſerver of diſeaſes, and practical phyſician. Though it muſt be acknowledged, that he was often wrong in his theory, and in ſome inſtances in his practice, his

* The greater part of this Preface was given as an introductory Lecture.

deſcriptions of diſeaſes are allowed to be excellent; but his omitting to ſpecify the preciſe times or ſtages of diſeaſe, when his method of treatment was to be applied, very much leſſens the value of his work. He died in the year 1689.

Francis Gliſſon was educated at *Cambridge*, where he became *Regius Profeſſor*. He was one of the phyſicians to Queen *Elizabeth*, and to *James* the firſt. In 1654 he publiſhed his "Anatome Hepatis," on the internal ſtructure of which *viſcus* he made ſeveral new obſervations; in 1659, his "Tractatus de Rachitide," which diſeaſe he was the firſt who deſcribed; and after ſome years (in 1676) his book "De Ventriculo & inteſtinis," in which he firſt took notice of the irritability of the ſimple fibre; ſo that he has an undoubted right to the credit of being the father of all the doctrine of irritability, ſince unjuſtly attributed to *Haller*, and on which ſo many volumes have been written without the mention of *Gliſſon's* name. This could not have happened, if his works had been printed in the *Engliſh* language. He alſo publiſhed a treatiſe "*De Naturæ Vita, vel ſubſtantiæ energeticæ*," which he calls the *prodromus* of his Treatiſe de *ventriculo & inteſtinis*, but of this I have never ſeen a copy. *Gliſſon* lived to be upwards of one hundred years of age*, and died at *Streatham*, to which place he had retired.

Thomas Willis, *Sedleian* Profeſſor at *Oxford*, was born in the year 1621, and publiſhed, as the foundation of a large deſign, his "Cerebri-Anatome, cui acceſſit Nervorum Deſcriptio & Uſus," in 1663. In this work he was much aſſiſted by Dr. *Lower*, who was in fact his diſſector and demonſtrator, and the drawings were taken by the famous Sir *Chriſtopher Wren*. The terms in which *Willis* ſpeaks of *Lower* ſeem deſcriptive of both their characters—*cujus cultelli & ingenii aciem, lubens agnoſco—emicuit viri ſolertia plane admiranda,*

* See the general Biographical Dictionary; or the Annual Regiſter for the year 1767.

admiranda, nec non indefatigabilis induſtria, nulloque obice ſiſtendus labor. In 1672 he publiſhed his work "De Anima Brutorum," which is to be conſidered as a ſequel to the former. It is a work of infinite labour, reflection, and ingenuity, in which he deſcribes the cauſes and effects of the diſeaſes ariſing from nervous influence. There are in this book four plates, three extremely fine, repreſenting a diſſected oyſter, a lobſter, and an earthworm.—In 1673 he publiſhed the firſt part of his "Pharmaceutice Rationalis, ſive Diatriba de "Medicamentorum Operationibus in Humano Corpore," a work compoſed of anatomical, phyſiological, and practical obſervations, with many curious plates of the lymphatics, vaſa vaſorum, and other finer parts of anatomy. He died before the ſecond part of this work was printed; and in the preface to it there is a ſhort account of his life and writings. The works of *Willis* are very numerous and uſeful, and bear indubitable marks of great learning, genius, and induſtry, but they are ſeldom ſtudied. Perhaps his medical works may be too philoſophical for practical phyſicians, and his philoſophical works too much blended with medicine, to pleaſe philoſophers; and it does ſeem poſſible, by the ſtudy of arrangement and ſubtilties of ſcience, to loſe ſight of practice, as by the preſent ſyſtems of botany its relation to medicine is become almoſt forgotten. But there is ſcarcely a ſubject connected with the ſcience or practice of medicine, which has not been cultivated by *Willis*. His chapter on the puerperal fever, when ſimply inflammatory, is judicious and good. He died in the year 1675, having founded a lectureſhip in the church of St. *Martin* in the Fields, where prayers are read at an early hour chiefly for the convenience of medical men. His practical works were badly tranſlated into *Engliſh* in 1685, and afterwards all his writings, but in a language never very good, and now become obſolete.

Nathaniel Highmore wrote his "Diſquiſitiones Anatomicæ," in 1651, and "A hiſtory of the Generation of Plants and Animals,"

in which it appears, that he made many diſcoveries, particularly of the *antrum* in the upper jaw, to which his name has ever ſince been given.

Contemporary with theſe was *Walter Needham*, educated at *Cambridge*, then appointed phyſician to the Charter-houſe in *London*, but who afterwards reſided at *Shrewſbury*. He wrote "Diſquiſitio Anatomica de Formato Fætu," a work of deſervedly high eſtimation, in which he takes the opportunity of treating not only upon the contents and economy of the gravid *uterus*, but upon the lacteals and lymphatic ſyſtem, and many other anatomical ſubjects.

In the year 1656 *Thomas Wharton* publiſhed his "Adenographia," a work of eſtabliſhed reputation, in which, among other things, he has obſerved ſome which relate to the gravid *uterus*. This work is quoted in the firſt edition of *Nuck*. On the claims to the firſt diſcovery of the lymphatics there ſeem to have been early debates, and from the verſes prefixed to *Ruyſch*, who firſt deſcribed their valves, the diſputes appear to be national. But if we conſider the labours of Dr. *William Hunter* on this ſubject, and above all the perſpicuous and connected arrangement he has made of the glandular and lymphatic ſyſtem, we muſt be convinced that the principal merit in this part of anatomy is due to him.

Nathaniel Henſhaw publiſhed his "Aero-Chalinos" in the year 1677. This contains the five following tracts:—"On Fermentation —Chylification—Reſpiration—Sanguification—The good effects of changing Air."

About the ſame time lived *Walter Charlton*, who publiſhed "Onomaſticon Zoicum" in the year 1668, and in the following year his "Economia Animalis," of which Sir *George Ent* gave this character—*opus maturo conſilio inchoatum, magna cura elaboratum ingenio denique et doctrina ſingulari perfectum*. *Charlton* wrote ſeveral other works, particularly "De cauſis Catameniorum et Uteri Rheumatiſmo." He alſo publiſhed the works of *Theodore Mayerne*, to whom

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a vain monument was erected in the church of St. *Martin* in the Fields.

In 1668 Dr. *Mayow* of *Oxford* publiſhed his works, entitled "Opera omnia Medico-Phyſica" in the *German* edition, which is the only one I have ſeen.

Theſe conſiſt of the following eſſays:—1. De Sal-Nitro et Spiritu Nitro-aereo.—2. De Reſpiratione.—3. De Reſpiratione fætus in utero & ovo.—4. De Motu Muſculari & Spiritibus Animalibus.—5. De Rachitide. In theſe he treats of many other intereſting and curious ſubjects, which have been lately brought into public notice, and much approved, though *Mayow* ſeems to have been greatly neglected; but this may be accounted for by his dying at the age of thirty-five.

Dr. *Richard Lower*, before mentioned in the account of *Willis*, in 1676 publiſhed his "Tractatus de Corde, item de motu et colore "Sanguinis, et chyli in eum tranſitu."

This celebrated work has many obſervations on the lymphatics, and the *receptaculum chyli*, which he conſidered as their general centre, as early as *Pecquet*. He alſo made many curious anatomical and phyſiological experiments, and in this work aſſerts his claim to the invention of the art of transfuſing blood, to which he ſeems to have been very partial.

The Chirurgical Treatiſes of *Richard Wiſeman* were dated in 1676, and allowing for the time when they were written, are acknowledged to have great merit. He may not unjuſtly, perhaps, be eſteemed the firſt *Engliſh* ſurgeon. "The Comes Chirurgorum," containing Dr. *Read's* Lectures, was printed in 1686. But the improvements in ſurgery did not keep pace with thoſe in phyſick, for in the laſt, and even in the beginning of this century, it was not unuſual for foreign ſurgeons to come into this country, to perform the nicer and more difficult operations, ſuch as thoſe for lithotomy, all diſeaſes of the eyes, and every thing which related to the teeth.

teeth. But *Cheſelden* acquired ſo much fame by his dexterity in cutting for the ſtone, that the King of *Sweden* ſent his ſecretary of ſtate into *England*, for the expreſs purpoſe of having that operation performed by *Cheſelden*, who ſucceſsfully extracted from him a ſtone of an unuſually large ſize. Every operation appertaining to the eyes is now performed with the moſt conſummate ſkill and dexterity, and with correſponding ſucceſs, by *Wathen*, *Ware*, and *Phipps*; and thoſe for the teeth by the *Spences*, and many others. It is at the preſent time univerſally acknowledged, that the *Engliſh* ſurgeons equal, in every reſpect, if they do not exceed, thoſe of any other nation.

Dr. *Nehemiah Grew* publiſhed ſeparately, though they were afterwards collected into one volume, his "Anatomy of Plants," in which there are many obſervations reſpecting the ſolutions of ſalts; his "Anatomy of Roots"—"Comparative Anatomy of Trunks," between the years 1670 and 1680—"Coſmologia Sacra," and ſeveral other works.

At the ſame time lived *John Ray*, the celebrated Botaniſt.

Clopſton Havers publiſhed his "Oſteologia Nova," in 1690.

In this work he deſcribed the mucous glands of the joints, which he diſcovered, and the internal ſtructure and diſeaſes of the bones, cartilages, &c.

In the year 1695 *Ridley* publiſhed his "Anatomy of the Brain," of which he is ſaid to have diſcovered the lymphatic veſſels; and "his Obſervations," in which he treats on ſeveral abſtruſe parts of anatomy.

Dr. *Richard Morton* publiſhed his "*Phthiſiologia*" in 1689; his "Pyretologia ſeu de Morbis acutis univerſalibus" in 1691; and his work "De Febribus inflammatoriis" in 1694. *Sydenham's* treatment of Fevers was almoſt univerſally antiphlogiſtic; *Morton's*, on the contrary, was cordial and ſudorific; but we have between theſe two writers

writers moſt of the arguments, which have been advanced in favour of both methods of practice.

The firſt edition of *Cowper's* "Myotomia Reformata" was publiſhed in 1695; and *Keil's* Anatomy in 1698.

By the writings of theſe very eminent men, and of many others whom I might have named, particularly of the celebrated *Robert Boyle*, it appears, that the phyſicians of this country were, from the beginning to the end of the laſt century, indefatigable in the acquiſition and improvement of ſcience; that they were not only acquainted with the general knowledge of the *Greeks*, *Romans*, *Arabians*, *Italians*, and *French*, but might fairly be put in competition with thoſe of any other nation, if they did not excel them; and that all the changes we have ſeen were produced in leſs than two hundred years, that is, from the time when the College of Phyſicians was eſtabliſhed, in the year 1518, to the termination of the ſeventeenth century. Early in the eighteenth century the benefits of medicine to ſociety were rendered conſpicuous by the introduction into *England* of the practice of inoculating for the ſmall-pox, for the knowledge of which we were indebted to the ſagacity and judgment of Lady *M. W. Montague*. The mortality attending that diſeaſe in a natural way was eſtimated as one in eight; but by inoculation it ſcarce exceeds one in a hundred. Many objections were made to inoculation, when firſt introduced; but the practice being conducted with much caution and underſtanding, by able medical men, and protected by Queen *Caroline*, at length became general. It required, however, the experience of fifty or ſixty years, to bring inoculation to its preſent ſtate of perfection, the merit of which is excluſively due to *Engliſh* phyſicians and ſurgeons. Inoculation for the cow-pox, as a preventive of the ſmall-pox, has been lately recommended and carried to a conſiderable length by Dr. *Jenner*, a phyſician of great worth and abilities, to whom only we are alſo indebted for the firſt account of the cow-pox, as a part of natural hiſtory, and for

our knowledge of the treatment of the diſeaſe when inoculated. As far as can be judged at preſent, Dr. *Jenner's* propoſal, when carried into execution, will be the means of ſaving much anxiety, and many lives, and may perhaps lead to the extinction of the ſmall-pox.

I muſt in this place beg leave to make a digreſſion. In the year 1668 *Herman Boerhaave* was born near *Leyden*. He was originally deſigned for the church, but was led by inclination, and the ill ſtate of his own health, to apply himſelf, when very young, to the ſtudy of medicine. He graduated in the year 1693, was choſen Lecturer on the Inſtitutes of Medicine in 1701, and enjoyed all the honours, which the univerſity could beſtow, or the city of *Leyden* confer upon him. He raiſed the reputation of this ſchool of medicine beyond that of any other in *Europe*. The induſtry of *Boerhaave*, in the purſuit of knowledge of every kind, is almoſt incredible; that of any other man compared with his may be called amuſement; the facility, with which he communicated this knowledge to others, was beyond expreſſion happy; and his whole conduct, in every religious, moral, and ſcientific view, to the higheſt degree laudable. He was honoured in his life, and his memory is univerſally reſpected. His hiſtory, which was written by Dr. *Samuel Johnſon*, muſt ever remain a very uſeful ſtudy to medical men, and an example of fine compoſition. *Boerhaave* died in the year 1738, in the 70th year of his age.

Among the favourite ſtudents of *Boerhaave* was *Alexander Monro*, who in the year 1719 returned from *Leyden* to *Edinburgh*, a city at that time not diſtinguiſhed by any eminence in medicine. But in the following year Dr. *Monro* being choſen profeſſor of Anatomy and Surgery, and Dr. *Alſton* of Botany, they began to give Lectures, and by their abilities ſoon acquired that high reputation, which enabled them to eſtabliſh a ſchool of medicine, which they had the very great ſatisfaction of raiſing to an equal degree of honour with that of any preceding or preſent time. Dr. *Monro* died in the year 1767, leaving

leaving behind him many valuable works, which were afterwards collected into one volume, and publiſhed by his ſon Dr. *Alexander Monro,* who ſucceeded his father as profeſſor. By this eſtabliſhment, the further advantage was gained to *Britain* of having at *Edinburgh* a ſucceſſion of very able and eminent men, who dedicated the chief part of their time to the acquiſition and improvement of medical ſcience, and to the inſtruction of thoſe who were intended for the profeſſion.

Here I ſhall conclude theſe general obſervations, and confine myſelf to ſuch only as relate to the practice of midwifery, premiſing a ſhort remark on a ſubject, in which the intereſts of ſociety, and the claims of individuals, are deeply concerned.

The economy of the medical profeſſion has, in this country, undergone many alterations, according to thoſe of ſociety at large. Phyſicians, who are called to take charge of all caſes of uncommon difficulty or danger, or of the lives of perſons of high rank and eminence, have generally ſuch an education, as leads not only to the acquiſition of medical knowledge, but to the cultivation alſo, and higheſt improvement of all the powers of the mind. But the operative, and all the inferior parts of the profeſſion fall under the conduct of thoſe, who were educated as ſurgeons, or apothecaries. By theſe are performed all the operations in ſurgery, many of which require an admirable combination of mental and perſonal qualities; and to their ſkill and care the lives of the greateſt part of the lower claſs of people, and of thoſe who ſerve in the army and navy, are almoſt conſtantly ſubmitted. In order to their being duly qualified for theſe important duties, young men, having received a reaſonable ſhare of claſſical education, are bound, for a certain term of years, to ſome perſon competent to give them proper inſtruction and information. To ſuch young men it can only be neceſſary to obſerve, that they will at ſome future time be called upon, to take charge of the *lives of men,* for which they muſt be reſponſible, not

only to the laws of God, but to the law of the land; which has the power of inflicting ſuch puniſhment, as any particular inſtance of ignorance or negligence may be proved to deſerve; and, which is beyond all other puniſhment, their names become ignominious. I may therefore be permitted to recommend the profeſſion of any part of medicine, as a very ſacred truſt to thoſe who engage in it; the neceſſary and proper qualifications for which demand all their attention, and the ſober, conſtant, and moſt induſtrious application of all their abilities. But it is very much to be doubted, whether ſome of thoſe, who, both as parents and maſters, take the charge of ſuch young men, are not ſometimes ſelfiſh, and negligent in the performance of that ſhare of the duty, which they undertake; and whether, having received the gratuity uſually paid, they give due attention either to the morals of the young men, or inſtruct them properly in the knowledge of their profeſſion. Through this negligence of the maſters, or the thoughtleſſneſs and inattention of the young men, at the end of their ſervitude theſe muſt frequently be ignorant of many things which they ought to know, to their own misfortune and diſgrace, and to the great prejudice of ſociety.

By the nature of one part of my employment, that of giving Lectures, I have had too many opportunities of knowing the truth of this remark; and with the greateſt unwillingneſs to give offence, I feel called upon to make the preceding animadverſions, in confirmation of which I beg leave to add the following quotation from unexceptionable authority.

"Clerks and apprentices ought to be employed *entirely* in the "profeſſion or trade, which they are intended to learn. Inſtruction "is their hire; and to deprive them of the opportunities of inſtruc-"tion, by taking up their time with occupations foreign to their "buſineſs, is to defraud them of their wages*."

* *Paley's* Moral and Political Philoſophy, Vol. I.

The

The " Byrth of Mankynd, or the Woman's Book," with ſketches not badly intended or engraved, was printed in the year 1540: and as it went through many editions, and as I find no other book of equal value publiſhed about that time, I conſider it as having been the popular book for near one hundred years; that is, till the year 1634, when all the works of *Ambroſe Parè* were tranſlated in one volume. *Parè* was a man of much experience, ſome erudition, and not a little credulity, but he made many uſeful obſervations relative to midwifery. In the year 1653 *Harvey's* Exercitations were publiſhed in *Engliſh*, but whether tranſlated or original I cannot decide. About the ſame time alſo lived Dr. *Chamberlen*, a very celebrated phyſician, who applied himſelf to this branch of the profeſſion*. He had three ſons, who, with their father, were ſuppoſed to have a better method of relieving women in caſes of difficult parturition than any other perſon, by means of an inſtrument ſaid to be the *forceps*, but which I believe to have been a *vectis*; or perhaps they had more than one inſtrument. One of the ſons went over to *Paris*, with a view of ſelling the ſecret, or of making a fortune by practice; but being foiled in the firſt caſe to which he was called, and ſuffering more obloquy than he deſerved, he returned to *England*, and immediately publiſhed a tranſlation of *Mauriceau's* work, which remained for many years in very high eſteem. This was in the year 1672.

Having been favoured by the late Dr. *Kirkland* with a manuſcript written by Dr. *Percival Willughby*, who lived at *Derby*, and afterwards in *London*, I am able to give the reader ſome idea of the practice of that time, many of the caſes being dated from 1640 to 1670. This work is entirely practical, and was intended to be publiſhed for

* A very elegant monument was erected in *Weſtminſter Abbey* to this Dr. *Chamberlen* by the Duke of *Buckingham*, of whom he has alſo in his Eſſays given a very amiable character.

the uſe of midwives, there being a title page, and two copies with variations.

His preface is in this manner:

" I haue read many bookes, with all the late writers in midwifery, " and I do perceiue that they all follow one common roade, taking " their ſeueral ſcheemes and figures one from another.

" In ſeueral of theſe ſcheemes uarious things may be perceiued " which will be trubleſome to the labouring woman, which a judi- " cious practicioner will not followe. Let midwiues mark whatt " hath been written in my obſeruations, let them conſider diligently " the ſeueral reportes not faigned, or the ſurmiſed thoughtes, nuc- " tors, or man's fantaſie, ſitting and meditating in his ſtudye, but " which really haue been performed in the trauailing woman's " chambre.

" From mine and their directions let midwiues chooſe the beſt " and facileſt waies of relieuing women in affliction, and to decide " all diſputes, let reaſon be the judge, let experience argue the du- " bious points of practice; and, after a full debate, let unſpotted " truth recorde to ſucceedinge times what is moſt fitt to be followed " and uſed, &c."

This is a ſpecimen of his illuſtration. " Let midwiues obſerue " the waies and proceedinges of nature for the production of her fruit " on trees, or the ripening of walnutts and almondes, from theire " firſt knotting to the opening of the huſkes and falling of the nutt; " the greene huſkes ſticking ſo cloſe that it is not poſſible to ſeparate " the huſke from the ſhell, whileſt it is unripe; but as the fruite " ripeneth the huſke choppeth and with a fiſſure openeth, and by " degrees ſeparateth the fruite without any enforcement.

" An egge repreſenteth the wombe: now the henne with keeping " the egge warme doth breed the chicken, which when it comes " to maturitie doth chip the ſhell, and is by degrees hatched without " injurie. Theſe ſignatures may teach midwiues patience, and per-

" ſuade

" ſuade them to let nature alone to performe her owne worke, and " not to diſquiet women by their ſtrugglings, for ſuch enforcements " rather hinder the birthe than any waie promote it, and oft ruinate " the mother and uſually the childe; and let midwiues knowe that " they be nature's ſeruantes, &c." *Willughby's* practice is not much different from that of the preſent time. He divides labours into two kinds only, natural and unnatural. The particular rules I cannot pretend to deſcribe in this place; but the following letter, which he has quoted from a ſcarce work, correſponds ſo nearly with an obſervation it was my fortune to make ſome years before I ſaw this manuſcript, that I may be excuſed relating it.

" Referam hoc caſu, quid beatæ meæ conjugi acciderit. Tertio " fœtu gravidam, nono prægnationis menſe, labores parturientium " arripiunt circa noctem. Mox rupta aqua (ut hic mulieres loqui " amant) extra genitale, infantuli manus propendit. Ubi obſtetrix " adveniſſet, uxorem meam in ſedili collocavit, eamque ad continuos " conatus (me nolente nec inſtigante natura) adegit. Cum vero res " eo modo non ſuccederet, meamque conjugem ſupra ſedem continuo " detineret, ac diris cruciatibus illapſum ex uteri cervice manum " brachiumque retrudere niteretur, quo fœtum ad exitum commodius " diſponeret. Ego præ dolore charæ meæ conjugis impatiens, ac " indeſinenter obſtetricem admonens, ne quidem elapſi membri " reductionem in uterum cogitaret poſſibile, multo minus moliretur, " ſecundam obſtetricem accerſiri juſſi, præſertim cum uxor mihi " nunciaret, quod obſtetrix eam dilaceraret per illam præconceptam " ac miſeram elapſi membri repulſionem. Cum inſequenti die, " obſtetrix altera veniſſet, illa manus ad opus applicans remque dili- " genter explorans, uxorem meam in lectum depoſuit, mandavitque " ut ſe quietam deteneret, nulloſque conatus excitaret, niſi quando " natura eam ſui admoneret officii.

" Interim obſtetrix illa prudens et expertiſſima prædixit mihi " amiciſque præſentibus, uxorem meam non ante parturam, quam

" fœtus

" fœtus in utero, ex indebito ſitu, conatibus ſtrangularetur, quod " eventus docuit. Multiplicati ſunt labores parturientis, et fœtus " inflexo ad dorſum capite, (ſalva matre) prodiit in lucem*."

By a genealogical manuſcript, written by the firſt Ducheſs of *Chandos*, in the poſſeſſion of Colonel *Kearney*, it appears, that this Dr. *Willughby* was one of the ſix ſons of Sir *Percival Willughby*, and grandſon of Sir *Francis*, ſo famous in the time of Queen *Elizabeth*.

It is probable, that the fortune and eminence acquired by the ſuppoſed advantages of the method of the *Chamberlens*, which they reſerved as a ſecret, might be the occaſion, that many gentlemen, engaged in practice, endeavoured to eſtabliſh themſelves upon the ſame principles, that is, of concealing the inſtruments they uſed; of which claſs was Dr. *Bamber*. Others might attempt to gain equal reputation and fortune by the very contrary means, that is by decrying the uſe of inſtruments of every kind, on any occaſion; for about the year 1723, Dr. *John Maubray* publiſhed a volume upon this ſubject, called " The Female Phyſician, or the Whole Art of " New improved Midwifery," in which he exclaims with great vehemence againſt their uſe, and the book, though written in quaint language, has ſome general merit. In the following year he alſo publiſhed an appendix, under the title of " Midwifery brought to " Perfection," in which he demands great credit for the many improvements he had made. This appendix is in truth no more than a *Syllabus* of his Lectures, a courſe of which conſiſted of twenty, twelve anatomical and phyſiological, and eight practical. I believe it would be unjuſt, to deny to *Maubray* the credit of having been the firſt public teacher of Midwifery in *Britain*. He gave his Lectures at his houſe in *Bond-ſtreet*.

In the year 1719 *Dionis'* Midwifery was tranſlated into the *Engliſh* language; and in the year 1729 *Deventer's* work was tranſlated and

* Novus exortus hominis et animalium. ANTON. EVERARD.

publiſhed:

publiſhed: and though it appears, that rather more credit has been given to this author than he deſerved, yet as he enters upon a diſcuſſion of the cauſes of many difficulties which occur in practice, and of the means of relieving them, and as he was generally averſe to the uſe of inſtruments, *Deventer's* work might be eſteemed a conſiderable addition to the ſtock of obſtetric knowledge in this country. *Deventer* was originally a watch-maker.

Dr. *Simſon*, profeſſor at *St. Andrew's*, publiſhed in 1729 his "Syſtem of the Womb," a work of ſufficient ingenuity, but not of much uſe in practice, even if his theory had been true.

About the year 1733 *Edmund Chapman* publiſhed his "Treatiſe "on the Improvement of Midwifery," in which there are ſeveral uſeful obſervations; and other writings of temporary conſequence only. *Chapman* was the ſecond public Teacher of Midwifery in *London*, and he was the firſt alſo who deſcribed the *Forceps*, in the third volume of the *Edinburgh* Medical Eſſays.

In the year 1734 Dr. *Hody* publiſhed a "Collection of Caſes in Midwifery," written by Mr. *William Giffard*. Theſe caſes, two hundred and twenty-five in number, ſeem to be written with great fidelity; and as they occurred in his own practice, they were leſſons of conduct which was to be purſued in ſimilar caſes, and may now be conſidered as examples of the ſtate of practice at that time. *Giffard* alſo gave a plate repreſenting the *Forceps*, and was, I believe, among the firſt who aſſerted, that the *placenta* might be attached over the *os uteri*.

"The midwife rightly inſtructed" was publiſhed in the year 1736 by *Thomas Dawke*; and the "Midwife's companion" by *Henry Bracken*, in the following year, with ſeveral other things equally unimportant.

About this time lived *Richard Manningham*, who quitted the profeſſion of Pharmacy, and applied himſelf with great aſſiduity to the practice of Midwifery. In a controverſial pamphlet, publiſhed

in the year 1730, he is mentioned as having been knighted. In the year 1739 he eſtabliſhed a ward, or ſmall hoſpital, in the parochial Infirmary of *St. James, Weſtminſter*, for the reception of parturient women, which was the firſt thing of the kind in the *Britiſh* dominions. At this ward, which was ſupported by public ſubſcription, he gave lectures, and the ſtudents had opportunities of being qualified for practice. He publiſhed a "*Compendium Artis obſtetricæ*," a "*Treatiſe on the Febricula*," on the "Uſe and Abuſe of Phyſick," "*Aphoriſmata Medica*," and many other eſſays, relating chiefly to the practice of Midwifery. Sir *Richard Manningham* was a man of much learning and information, eminent and ſucceſsful in practice, and very humane in the exerciſe of his art. He died about the year 1750. Before that time there had alſo been publiſhed a tranſlation of *Heiſter's* Surgery, and this, containing not only a general outline of midwifery, but many excellent practical obſervations, muſt have been a ſource of great benefit in a country not then overſtocked with information.

Sir *Fielding Oulde* of *Dublin*, in the year 1741, publiſhed a "Treatiſe of Midwifery," the moſt intereſting parts of which are his obſervations on the continuance of the thickneſs of the *uterus* during pregnancy, and his deſcription of the manner in which the head of a child paſſes through the *pelvis* at the time of birth; the truth of which obſervations has ſince been fully proved and acknowledged.

Having taken this ſhort and imperfect view of the progreſs of Midwifery in this country, from 1540 to the year 1740, it will be prudent to conclude, or this preface would be carried to an inadmiſſible length. The *Engliſh* might then be ſaid not only to have purſued, but to have been in full poſſeſſion of the ſubject; all the books written in the neighbouring countries being tranſlated, public lectures given, and an hoſpital eſtabliſhed for the farther improvement of the art, which was taught by men of ability and eminence in practice. As all the books and papers printed ſince that time may be

be readily procured, every gentleman has an opportunity of forming his own opinion of their reſpective merits without any laborious reſearch. But the College of Phyſicians having been pleaſed, in the year 1783, to form a rank, in which thoſe who dedicate themſelves to the practice of Midwifery ſhould be placed, I truſt that future accounts will be more appoſite and correct; and that this meaſure adopted by the College will promote the public benefit, by confining the induſtry and abilities of one claſs of men to this branch of the profeſſion. It is my earneſt wiſh, to ſupport their views in this wiſe and benevolent arrangement, as the fruits of which, I do entreat Doctor *Thomas Giſborne*, Preſident of the College of Phyſicians, not leſs dignified by his learning, and the integrity and liberality of his principles and conduct, than by his rank in the profeſſion, to accept this volume, dedicated, with all reſpect, by

his moſt obedient

and obliged ſervant,

THO. DENMAN.

London, December 1, 1800.

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* Printed V. by miſtake.

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INTRODUCTION

TO THE

PRACTICE OF MIDWIFERY.

CHAPTER I.

SECTION I.

ON THE PELVIS.

THE anatomical and phyſiological knowledge of all the parts concerned in parturition is indiſpenſably neceſſary for thoſe, who mean to excel in the practice of midwifery; even that of the whole body may, on various occaſions, be employed with advantage. In the inveſtigation of every ſubject there muſt however be ſome point of commencement, and, as there is much uſe and propriety in the method hitherto purſued by ſyſtematic writers, I ſhall follow their example, and give, in the firſt place, a deſcription of the ſituation, ſtructure, connexion, uſe, and diſeaſes of theſe parts; beginning with the *pelvis*, which is of great importance, on account of the direct influence which it has upon labours, and becauſe it may be eſteemed the foundation on which all the other parts are ſuſtained. But this is only intended ſo far as may be requiſite for the ſtudy and practice of midwifery.

The term *pelvis* has been indiſcriminately given to the infe-

rior part of the cavity of the *abdomen*, and to the bones which form the cavity; but it appears more eligible to confine the term to the bones, and to call the ſpace between them the cavity of the *pelvis*.

The *pelvis* in the adult ſtate is compoſed of four bones: the *ſacrum*, the *os coccygis*, and the *oſſa innominata*.

The *ſacrum* is ſituated at the poſterior and inferior part of the trunk of the body, and ſerves as a baſis for the ſupport of the ſpine, of which it is an imperfect continuation. Its figure is that of an irregular triangle, with the ſhorteſt ſide placed upwards. The anterior ſurface is ſmooth and flat, and has a conſiderable degree of inflection or curvature, called the hollow of the *ſacrum*, by which the cavity of the *pelvis* is much enlarged. The poſterior ſurface is convex and uneven, to which ſome of the muſcles of the ſpine and thigh are attached.

In the infantile ſtate, the *ſacrum* is compoſed of five, and in ſome ſubjects of ſix bones, called falſe *vertebræ*, cemented together by intervening cartilages, which in the adult become bone; leaving little ridges or lines on the anterior ſurface, indicating the parts where they had been ſeparate. Theſe bones diminiſh in their ſize as they deſcend, ſo that the loweſt, which makes the point of the *ſacrum*, ſcarcely maintains the character of one of the *vertebræ*.

The articulation of the upper part of the *ſacrum*, with the laſt of the lumbar *vertebræ*, is ſimilar to that of the *vertebræ* with each other; but, by the manner in which the *ſacrum* and *vertebræ* are joined, the latter inclining over the former, an obtuſe angle is made, called the great angle of the *ſacrum*.

Through the *ſacrum* there is a canal for the reſidence and ſecurity of the lower part of the *medulla ſpinalis*; but the poſterior part of the canal is incomplete below the third bone, a ſtrong ligamentous ſubſtance ſupplying the place of bone. That part of the *medulla* which is contained in the *ſacrum* is called the *cauda equina*.

On

On the anterior part of the *ſacrum* there are four pair of holes or perforations, or more, according to the number of bones of which the *ſacrum* was originally compoſed, through which large nerves paſs for the uſe of the parts contained in the *pelvis* and of the inferior extremities. On the poſterior part of the *ſacrum* there is an equal number of perforations diſpoſed in the ſame longitudinal order; but they are leſs than thoſe on the anterior part, and covered by membranes, which allow ſmall nerves to paſs through them.

The *ſacrum* is of a very cellular texture, and is ſaid to be lighter than any other human bone of equal magnitude.

The lateral parts of the *ſacrum* form a broad unequal ſurface, by which it is connected with intervening ligament and cartilage, to another uneven ſurface at the poſterior part of the *oſſa innominata*. The inequalities of theſe ſurfaces, receiving and being received by each other, contribute very much to the firmneſs of the union of theſe bones. An *anchyloſis* is not unfrequently formed between the *ſacrum* and *oſſa innominata*; and ſometimes in conſequence of their ſeparation an imperfect joint, which very much weakens that part, and impairs the manner of walking for the remainder of life.

To the inferior extremity or point of the *ſacrum* is ſubjoined the *os coccygis*, which has by ſome writers been conſidered as a diſtinct bone, and by others as an appendage to the *ſacrum*; and theſe form, by the manner of their union, an obtuſe angle, called the little angle of the *ſacrum*. In infancy the *os coccygis* is cartilaginous, but in adult age it is compoſed of three, or, more frequently, of four bones, connected by intermediate cartilages, the uppermoſt of which is ſomewhat broader than the lower part of the *ſacrum*. In ſome ſubjects theſe bones coaleſce and form a ſingle bone; and in others an *anchyloſis* is formed between the *ſacrum* and *os coccygis*; in conſequence of which the latter is ſhortened and turned inwards, ſo as to obſtruct the head of the child in its paſſage through the *pelvis*. But the impediment thereby occaſioned at the time of labour may

be overcome by the force with which the head of the child is propelled, and the *os coccygis* again ſeparated from the *ſacrum* with a noiſe loud enough to be diſtinctly heard, of which I have known more than one inſtance. In general however, between the bones of which the *os coccygis* is compoſed, ſome regreſſive motion is preſerved; and that which is produced between the *ſacrum* and *os coccygis*, when the latter is preſſed by the head of a child paſſing through the *pelvis*, occaſions a conſiderable temporary enlargement of the inferior aperture of the *pelvis* *. The inſertion of the *coccygæi* muſcles, of a part of the *levatores ani*, and of portions or ſlips of the ſacroſciatic ligaments into the ſides of the *os coccygis* keeps it ſteady, and prevents any lateral motion.

The *oſſa innominata* are the broad large bones which form the fore part and ſides of the *pelvis*, and the lower part of the ſides of the *abdomen*. In children each of theſe bones is compoſed of three; and, though they afterwards become one, the lines of original diſtinction may be obſerved at the *acetabulum*, or ſocket, which receives the head of the thigh bone. While the bones are diſtinct they have peculiar names, the *ilium*, the *iſchium*, and *pubis*, which names it is neceſſary to retain in the adult ſtate, that we may be able to deſcribe with more accuracy each individual bone, or allude to it in the deſcription of the adjoining parts and on many other occaſions.

The *ilium* is the largeſt and uppermoſt of the bones which form the *oſſa innominata*. It is flat, broad, unequally convex and concave; in ſome parts round, and in others of an irregular ſquare figure. It is divided by anatomiſts into the *criſta*, *baſis*, anterior and poſterior edge, and the two ſides, external and internal.

The upper part, which has a thick arched border, is called the *criſta*. The anterior and middle part of it is convex outwardly, and

* *Os coccygis adeo extrorſum ſæpe vertitur, ut integros deinde annos conquerantur de dolore, in partibus his reſiduo.* Ruyſch, Adverſ. Dec. 2.

the

the poſterior ſomewhat convex inwardly. The *criſta* has originally on its verge an *epiphyſis*, of which there are often marks to an advanced age.

The *baſis* or inferior part of the *ilium* is thick and narrow. It forms anteriorly a portion of the *acetabulum*, or ſocket, which receives the head of the thigh bone; and poſteriorly a large ſhare of the circumference of the *iſchiatic ſinus*, which is completed by the *iſchium* and ſacroſciatic ligaments.

The anterior edge of the *ilium* has two eminences, called ſpines, diſtinguiſhed as ſuperior and inferior, between which there is an excavation or notch, and another below the inferior ſpine.

The poſterior edge is ſhorter and thicker than the anterior, and terminates with two protuberances or ſpines, between which there is alſo an excavation.

The external ſide of the *ilium* is convex on the fore, and concave on the back, part. The internal ſide is irregularly concave; and upon that ſurface which is connected with the *ſacrum* there are ſeveral irregularities. From the upper part of this ſurface there runs a prominent line, which forms a margin, defining the upper aperture of the *pelvis*.

The *iſchium* forms the loweſt portion of the *oſſa innominata*. Its parts are deſcribed under the names of body, tuberoſity, or obtuſe proceſs, and *ramus*.

The body of the *iſchium* forms the loweſt and largeſt part of the *acetabulum*, and ſends out a ſmall *apophyſis*, which projects backwards and inwards, and is called the ſpine or ſpinous proceſs of the *iſchium*.

The tuberoſity or obtuſe proceſs of the *iſchium* is very thick and uneven, and is turned downwards. As it is the part on which the body reſts when we ſit, it hath alſo been called *os ſedentarium*. The convex portion was originally an *epiphyſis*; and, from the remains

mains of the tendons and ligaments which were affixed to it, has, in the freſh ſubject, a cartilaginous appearance.

The *ramus* is a flat thin proceſs or *apophyſis*, proceeding from the curvature of the tuberoſity, aſcending and joining to a ſimilar but ſhorter proceſs, which ſprings from the anterior and inferior part of the *oſſa pubis*. The *ramus* of the *iſchium*, aided by this ſhort proceſs, forms a large part of the outline of that opening called the *foramen magnum iſchii*. This opening, in the recent ſubject, is filled up by a ſtrong ligamentous membrane, which gives riſe to the external and internal muſcles called *obturatores*.

The *oſſa pubis* contribute the ſmalleſt ſhare towards the formation of the *oſſa innominata*. Each of them has been deſcribed in three parts, the body, the angle, and the *ramus*.

The body is that part which is placed tranſverſely before the anterior part of the *ilium*, to which it is united, forming by this union the oblique eminence, which diſtinguiſhes on the inner part of the *pelvis* theſe two portions of the *oſſa innominata*. The body of the *pubis* contributes alſo to the formation of the *acetabulum*. The upper edge has on its inner part an oblique ridge, which is called the *criſta*, and is continuous with that of the *ilium* before mentioned, as defining the margin of the *pelvis*.

The anterior part of the *pubis* is called the angle, and conſtitutes that ſurface, which, being joined to the oppoſite bone, forms the *ſymphyſis* of the *oſſa pubis*. This part of the bone is flat and thin. The *oſſa pubis* connected together form on the external or inferior ſide an unequal concavity; but on the internal or ſuperior ſurface they are pretty equally convex, and both the edges have a ſmall degree of flexure outwards.

The *ramus* is a flat, thin, ſhort *apophyſis*, which, running obliquely downwards, unites with that of the *iſchium*. The two *rami* of the *iſchia* and of the *oſſa pubis* form on the interior and inferior part

part of the *pelvis* an arch, which is uſually called the arch of the *pubis*. This arch is much larger in women than in men; which circumſtance is favourable to the emergence of the head of the child at the time of birth, and conſtitutes the moſt diſtinguiſhing mark between the male and female *pelvis*.

SECTION II.

THE advantage to be derived from the knowledge of the bones of the *pelvis*, in a dried or ſeparate ſtate, is not very evident. But we may conſider the previous intelligence of this and ſome other parts of our ſubject, as eſſentially uſeful and neceſſary, becauſe it comprehends the rudiments of a more perfect knowledge than can be otherwiſe acquired; we ſhall therefore proceed to examine the manner, in which theſe bones are connected.

To the two lateral ſurfaces of the *ſacrum* are joined the poſterior ſurfaces of the *oſſa innominata*, and theſe are covered with a thin intervening cartilage, or ligamentous cartilage; the inequalities, as was before obſerved, contributing very much to the firmneſs of the junction. The *oſſa innominata* are alſo joined at the anterior part by a thin cartilage, which covers the ſcabrous end of each bone, and the ſpace between them is filled up with a ligamentous ſubſtance. This connexion is called the *ſymphyſis* of the *oſſa pubis* *.

Within the circuit of the *pelvis* the *perioſteum* is thickened at the parts where the *oſſa innominata* are joined to the *ſacrum*, and at the *ſymphyſis* of the *oſſa pubis*. The *ſymphyſis* has alſo been deſcribed as connected by a thin tranſverſe ligament, or by ligaments which form what may be conſidered as a capſular ligament, adhering to the

* See a ſhort but very preciſe account of the connexion of the bones of the *pelvis* by Dr. William Hunter. *Medical Obſervations and Inquiries*, Vol. II.

part which it encloſeth, and to which it giveth the principal ſtrength. Greater ſtability could not be procured by any internal mode of union, without a diminution of the cavity of the *pelvis*.

But on the external parts of the *pelvis*, where the union of the bones could be more firmly eſtabliſhed by a ligament, there is no point where one is omitted; even the tendons of the muſcles inſerted into the projecting parts of the bones, though particularly deſigned for other purpoſes, eventually contribute to the ſtrength of the *pelvis*.

From the poſterior edges of thoſe ſurfaces of the *oſſa innominata* which are joined to the *ſacrum*, ſtrong ligaments paſs, which bind theſe bones firmly together; and all that unequal ſpace behind them is filled up with ſmall muſcles, or the ſmall parts of large muſcles, in ſuch a manner as to give in the freſh ſubject, when covered by their tendinous expanſion, a ſurface almoſt ſmooth.

From the obtuſe proceſſes of the *iſchia* ſtrong ligaments ariſe, which, expanding, paſs to the poſterior edges and *apophyſes* of the *ſacrum*, detaching in their paſſage ſmall portions to the *os coccygis*. Theſe ligaments are called the broad or external ſacroſciatic. From the ſpinous proceſſes of the *iſchia* ligaments ariſe, which, croſſing and adhering to the ligaments before deſcribed, paſs to the inferior and inner edge of the *ſacrum* and the upper part of the *os coccygis*, ſending ſlips or ſmall portions to the edges of this bone through its extent. Theſe are called the internal ſacroſciatic ligaments.

SECTION III.

By the knowledge of the parts where, and the manner in which, the bones of the *pelvis* are connected together, we are enabled to explain many uneaſy ſenſations which women have, and many infirmities

infirmities to which they are liable at the time of pregnancy and after their delivery.

It was for many centuries a received opinion, that theſe bones, though joined together in ſuch a manner as ſcarcely to afford any ſuſpicion of a ſeparation, were always ſeparated at the time of parturition; or that there was a diſpoſition to ſeparate, and an actual ſeparation, if the neceſſity of any particular caſe required that enlargement of the cavity of the *pelvis*, which was conſequent to it. The degree of ſeparation was alſo ſuppoſed to be proportionate to ſuch neceſſity; and if it did not take place, or not in ſuch a degree as was required, diſtending inſtruments were contrived and uſed to produce or increaſe it: and upon the ſame principle the ſection of the *ſymphyſis* of the *oſſa pubis*, of which we ſhall hereafter ſpeak, hath been lately recommended. This opinion ought probably to be aſſigned as one reaſon for the ſuperficial notice taken by the early writers in midwifery, of thoſe difficulties which are ſometimes found to occur at the time of parturition, from the ſmallneſs or deformity of the *pelvis* *. To this may alſo be referred much of the popular treatment of women in child-bed, and many popular expreſſions in uſe at the preſent time. But this opinion hath been controverted by many writers, who aſſert, that there is neither a ſeparation nor a diſpoſition to ſeparate; but that when either of them does happen, they are not to be eſteemed as common effects attendant on the parturient ſtate, but as diſeaſes of the connecting parts †.

The

* Edoctus aſſero, oſſa pubis ſæpe ab invicem in partu laxari, emollito eorum cartilaginoſo connexu, totamque hypogaſtrii regionem, ad miraculum uſque, ampliari; non quidem ab aquoſæ ſubſtantiæ profuſione, ſed ſua ſponte, ut fructus maturi excludendis ſuis feminibus ſolent hiſcere. *Harv. Exercitat.* lviii.

In partu difficili et laborioſo oſſa iſchii aliquantulum a ſe invicem dehiſcunt. *Ruyſch. Adv. Dec.* 2.

† Les uns et les autres diſent, qui ces os que ſe ſeparent ainſi a l'heure de l'accouche-

The diſputants on each ſide have appealed to preſumptive arguments, and to facts, proved by the examination of the bodies of thoſe who have died in child-bed, in juſtification of their ſeveral opinions. But, notwithſtanding all that has been ſaid upon the ſubject, I know not that we are authoriſed by the experience of the preſent time to ſay, that a ſeparation, or a diſpoſition to ſeparate, prevails univerſally at the latter part of pregnancy, or at the time of labour; yet that theſe effects are often, if not generally, produced, may be gathered from the pain and weakneſs ſo often mentioned and complained of, at the parts where the bones of the *pelvis* are joined to each other, before and after delivery. In ſome caſes pregnant women are alſo ſenſible of a motion at the junction of the bones, eſpecially at the *ſymphyſis* of the *oſſa pubis*, and the noiſe which occaſionally accompanies this motion, may be frequently heard by an attentive by-ſtander.

A ſtrong preſumptive argument in favour of the ſeparation of the bones has been drawn from quadrupeds. In theſe the ligaments which paſs from the obtuſe proceſſes of the *iſchia* to the *ſacrum*, on which the firmneſs of the junction of the bones very much depends, and which at all other times reſiſt any impreſſion attempted to be made upon them, are for ſeveral days previous to parturition gradually deprived of their ſtrength, and the animal walks in ſuch a manner as would incline us to believe could only be produced by a ſeparation of the bones of the *pelvis*. Now it is not reaſonable to conclude, that a circumſtance which generally takes place in one claſs of viviparous animals ſhould never occur in another, eſpecially in a matter in which there is no eſſential difference.

ment, y ont ete diſpoſez peu a peu auparavant, par des humiditez glaireuſes qui ſ'ecoulent des environs de la matrice, leſquelles amolliſſent pour lors le cartilage qui les joint firmement, en d'autres temps. Mais ces deux opinions ſont auſſi eloignees de la verité que de la raiſon. *Mauriceau, tom.* 1, *livr.* 2, *cap.* 1.

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We may, however, leave the queſtion to be completely ſettled by future obſervations. To inſiſt that either of the changes occurs in every caſe, or that they never occur, ſeems an attempt to ſupport opinions repugnant to daily experience. For no perſon, who has been converſant in the diſſection of women who have died in child-bed, can have wanted opportunities of ſeeing every intermediate ſtate of theſe parts; from a ſeparation in which the ſurfaces of the bones were completely looſened, and at a conſiderable diſtance from each other, to that in which there was not the leaſt diſpoſition to ſeparate.

It then appears that the degrees of ſeparation at the junctions of the bones of the *pelvis* to each other may be very different; and that, when it takes place beyond a certain degree, it is to be conſidered as morbid. Several caſes of this kind, which have occurred in my own practice, and a great number for which I have been conſulted, have laid me under the neceſſity of conſidering this ſubject with the moſt ſerious attention, and I preſume that it may be produced by two cauſes; firſt, a ſpontaneous diſpoſition of the connecting parts; ſecondly, the violence with which the head of the child may be protruded through the *pelvis* *. Of a ſeparation from each of theſe cauſes it will not be improper to give an example, to prove the fact, and to ſhow its conſequences.

CASE I.

A YOUNG lady of a healthy conſtitution, and lively diſpoſition, who was married in the twenty-firſt year of her age, was, in the beginning of 1774, delivered of her third child, which was unuſually

* In the 484th number of the Philoſophical Tranſactions there is an account of the ſeparation of the *ſymphyſis pubis* to the diſtance of four inches, occaſioned by the ſudden ſtarting of the horſe when a gentleman was riding.

large, after a very ſevere and tedious labour. For ſeveral days before her delivery ſhe was rendered unable to walk without aſſiſtance, by pain and weakneſs in her loins. Her recovery was favourable and uninterrupted, except that for ſeveral ſucceeding weeks ſhe was incapable of ſtanding upright or putting one foot before the other; the attempt to do either being attended with pain, and a ſenſe of looſeneſs or jarring, both at the parts where the *oſſa innominata* are joined to the *ſacrum* and at the *ſymphyſis* of the *oſſa pubis*. By the uſe of ſuch medicines and means as contributed to ſtrengthen her conſtitution, ſhe ſoon became able to walk, and, in a few months, was perfectly well.

Having before ſeen a caſe of the ſame kind, I ſuſpected, that theſe complaints were occaſioned by the weakneſs of the connexion of the bones of the *pelvis*; and, imputing this weakneſs to too frequent parturition, ſhe was adviſed to ſuckle her child a longer time. She accordingly continued a nurſe fifteen months.

After weaning her child ſhe ſoon conceived again; and when the time of her confinement drew near, the complaints which ſhe had in her former pregnancy were increaſed to ſuch a degree, that ſhe could neither walk nor ſtand; and, for three weeks before her delivery, there was reaſon to ſuſpect, that the bones of the *pelvis* were ſeparating.

July 7, 1777, ſhe was delivered of her fourth child. At the time of her labour ſhe had frequent faintings, great marks of diſturbance and irritability, and was wholly unable to move her inferior extremities.

A few days after her delivery ſhe had a fever, which terminated in an abſceſs in one of her breaſts. By this, which was very painful and diſtreſſing, ſhe was confined to her bed for near ſeven weeks. At the end of nine weeks ſhe could walk with crutches, when ſhe was ſent into the country, from which ſhe received much benefit; as ſhe believed ſhe likewiſe did by drinking half a pint of a ſtrong infuſion

fuſion of malt twice every day. In about five months ſhe was able to walk without aſſiſtance, though ſhe was ſometimes ſenſible of the motion of the bones, which ſeem never to have been perfectly united.

About Chriſtmas ſhe was again pregnant; and in July, 1778, being indiſpoſed to move, as ſhe imagined by the ſudden and uncommon heat of the weather, the pain and weakneſs in her back returned, and ſhe could not walk any more without aſſiſtance to the time of her labour, which came on October 11th. On the 13th ſhe was delivered of a very fine child. Her labour, which was unuſually ſevere and alarming, was made infinitely more fatiguing by her inability to move, all power of ſupporting herſelf being wholly loſt, and every neceſſary change of poſition, though ſhe was in bed, being made by her aſſiſtants.

On the fourth day after her delivery ſhe was ſeized with a fever, which was ſoon removed, but her ſituation remained really deplorable. The pain at the junction of the bones continued; ſhe had no command of her inferior extremities; and when ſhe was moved, the pain, which ſhe deſcribed as the cramp, became excruciating, as if ſhe was tearing aſunder. Her ſtomach was at all times much diſturbed, but, when ſhe had the pain in an increaſed degree, a vomiting, or oppreſſive nauſea, or hiccough was brought on. The pain alſo produced ſtrange ſympathies in various parts, as a very teaſing cough, a conſtant ſneezing, a ſenſe of weight in her eye-lids, which ſhe could not keep open, though ſhe was not ſleepy, noiſe in the bowels, and many other nervous affections. When, therefore, the pain was violent, ſhe had recourſe to opiates, which ſhe took diſcretionally, and the pain being quieted the ſympathies ſoon ceaſed.

At the requeſt of my patient I explained upon a ſkeleton the opinion entertained of her complaints; and, when I pointed out the manner in which the parts were ſuppoſed to be affected, ſhe was fully perſuaded of the truth of the opinion.

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In this ſituation ſhe had remained for ſeveral months, when it was thought expedient, that ſhe ſhould be raiſed from her bed, and make an effort to ſtand or walk, leſt her conſtitution ſhould be injured, and her complaints rendered worſe by the habit of reſting ſo long in an inactive ſtate. Every poſition was tried, and every contrivance made, which had a chance of being uſeful; but the power of ſupporting herſelf was totally gone; the motion of the bones was plainly perceived; and the conſequences of every trial were ſo painful and uncomfortable, that it was not judged proper to repeat them, but to wait till, by time, the connexion of the bones was more confirmed.

About ſix months after her delivery ſhe menſtruated, which ſhe continued to do at irregular periods; yet, though much benefit was expected from this circumſtance, no alteration was produced by it with reſpect to her complaints.

In the year 1779 ſhe was removed, upon a couch in a boat, to *Margate*, for the benefit of the air and bathing in the ſea, from which ſhe was always ſenſible of receiving advantage. There ſhe continued to reſide; when eight years were elapſed from the time of her delivery, ſhe became able to walk without crutches; and, though now perfectly recovered, her amendment was extremely gradual *.

CASE II.

MANY years ago I attended a young woman of a healthy but delicate conſtitution, who was in labour of her firſt child. The *os uteri* was fully dilated, the membranes broken, and the waters diſcharged, before I arrived at her houſe.

She was immediately put to bed, and the pains being very ſtrong,

* I have lately been informed of two other caſes of the ſame kind, in one of which the proceſs, by which the lameneſs was at length cured, alſo required eight years for its completion.

the head of the child was ſoon preſſed upon the *perinæum*, the laceration of which I endeavoured to prevent by ſupporting it in the uſual manner; but the head of the child was rapidly forced through the external parts in oppoſition to the reſiſtance which I was able to make.

At the inſtant when the head of the child was expelled I perceived ſomething to jar under my hand, and was even ſenſible of a noiſe, which led me to ſuſpect, that the *perinæum* was lacerated by the ſudden expulſion of the head, but on inquiry this was found to be perfectly ſafe.

After a ſhort time the *placenta*, being ſeparated and protruded into the *vagina*, was extracted without hurry or violence. The uneaſineſs of which ſhe then complained, being ſuppoſed to be what are called *after-pains*, did not make me ſolicitous, but a few drops of *tinctura opii* were given to appeaſe it.

On the following days ſhe complained of more than uſual pain in the lower part of the *abdomen*, which ſhe did not accurately deſcribe; but as there was no ſymptoms of fever, and the milk was duly ſecreted, no particular inquiry was made, and I preſumed that ſhe would ſoon be well.

On the fourth day after her delivery ſhe was taken out of bed, but could not ſtand or ſit in her chair on account of the pain and weakneſs in the part of which ſhe originally complained, and which I found to be immediately upon the *ſymphyſis* of the *oſſa pubis*.

For near three weeks ſhe remained in the ſame ſtate, perfectly well in her health, and eaſy in her bed, unleſs when ſhe attempted to turn on either ſide; but when ſhe was removed from her bed ſhe could neither ſtand nor make any effort to walk without aſſiſtance, though ſhe could ſit for a few minutes, reſting her elbows upon the arms of the chair.

The continuance of a complaint ſo very uncommon rendered it neceſſary to have a conſultation, and a gentleman of great experience

and

and ability was called in. After a very careful examination, we found the internal parts in the natural ſituation and free from diſeaſe; the *perinæum* was not lacerated, nor was there the leaſt appearance of injury about the external parts. But it was judged by the ſeat of the pain, by her inability to ſtand or walk, except in particular attitudes and poſitions, that the *ſymphyſis* of the *oſſa pubis* had given way, and was wholly ſeparated; and there was ſcarce a doubt, but that the ſeparation had taken place when the bulk of the head of the child was paſſing between the ſpinous proceſſes of the *iſchia*, when I was ſenſible of the jarring noiſe.

The opinion of the ſeparation was chiefly founded on the particular attitudes and poſitions in which the patient ſought relief, it therefore ſeems neceſſary to deſcribe them more fully, as they were very remarkable.

When ſhe endeavoured to ſtand upright, which ſhe could do better on one foot than both, and better with her feet cloſe than at a diſtance, together with the pain at the *ſymphyſis*, ſhe had a ſenſe of extreme weakneſs, accompanied with a faintneſs. When ſhe firſt ſat down in her chair, reſting her elbows upon the arms of the chair, the complaints became tolerable. When ſhe had remained a little time in this poſition, they were again importunate, and ſhe ſupported herſelf with her hands upon her knees, and preſently bent forwards, ſo as to lean her elbows upon her knees; this poſition becoming irkſome, ſhe was obliged to return to her bed, where ſhe was immediately eaſy. When ſhe firſt attempted to walk, ſhe was compelled to bend forwards in ſuch a manner as to reſt her hands upon her knees, making a ſtraight line from her ſhoulders to her feet.

The explanation of her caſe, and the comfort ſhe received from the aſſurance that was given of her recovery, encouraged her to bear her confinement and the preſent inconveniences ſhe ſuffered with compoſure; yet the knowledge we had acquired, preſuming our opinion to be true, was uſeful, rather by teaching us how to

avoid

avoid doing miſchief, than by enabling us to render any actual ſervice.

At the end of fourteen weeks, whilſt ſhe was in a coach, into which ſhe had often been lifted for the benefit of air and exerciſe, ſhe had a diſcharge, which ſhe ſuppoſed to be menſtruous; and, though it had ceaſed before her return, ſhe was ſenſible of immediate relief. From that time ſhe mended daily, and in ſix weeks was able to walk, her complaints having gradually left her.

She had afterwards three children, with all which I attended her. Her labours were eaſy; and neither before nor after her delivery had ſhe any tendency to the complaints I have been deſcribing.

The diſcharge which preceded her recovery was thought to be menſtruous; but as it had ceaſed before her return, and gave relief to a part not directly affected by menſtruation, it is more reaſonable to conclude, that it was from the *ſymphyſis*; and of whatever kind it was, that it had acted as an extraneous body, preventing the reunion of the bones.

Inſtances have occurred, though they are rare, of women who, after labours, have ſuffered much pain in the region of the *ſacrum*, and have loſt all power of moving their inferior extremities; and the inability has been imputed to ſome paralytic affection. They are ſaid to be *bedridden*, which deſcribes the effect, though it does not explain the cauſe, of their diſeaſe. As theſe patients have, after a confinement of ſeveral months, or even years, been generally reſtored to the uſe of their limbs, it is not unreaſonable to think, that their infirmity was occaſioned by a ſeparation of the bones, which, at different periods after the accident, according to the degree of ſeparation, had recovered their former connexion and ſtrength.

SECTION IV.

An inquiry into the manner in which the bones of the *pelvis* may re-unite when they have been ſeparated ſeems neceſſary, as the treatment to be enjoined, and the proſpect of ſucceſs, will be regulated by the idea we entertain of the ſtate of the parts when ſeparated.

When the connexion of the bones of the *pelvis* has either been impaired or deſtroyed, it is probable, that a confirmation or re-union takes place by a reſtoration of the original mode; by a *callus*, as in the caſe of a fractured bone; or by *anchyloſis*.

It is alſo poſſible for them to remain in a ſeparated ſtate; and that an articulation ſhould be formed by the ends of each bone, at the *ſymphyſis* of the *oſſa pubis*, and at the junction of the *oſſa innominata* with the *ſacrum*; of which, by the favour of Mr. Cline, I have ſeen an inſtance in the dead body, and have had reaſon to ſuſpect the ſame accident in the living.

In all the lower degrees of imperfection in the union of theſe parts, it is reaſonable to conclude, that the former mode is reſtored ſoon after delivery; for the complaints which women make of pain and weakneſs in theſe parts are almoſt always relieved, before their month of confinement is concluded. But, ſhould they continue a longer time, it appears, that the greateſt benefit will be derived from reſt and an horizontal poſition, which will leſſen the preſent inconveniences, and favour that action of the parts, by which their infirmity muſt be repaired.

But, if the complaint be in an increaſed degree, and the health of the patient likewiſe affected, a longer time will be required for the recovery of the part; which may be forwarded by ſuch means as invigorate the conſtitution, ſuch applications as quicken the action of the parts, or by mechanical ſupport.

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Should the injury be too great to allow of the reſtoration of the original mode of union, of which we are to judge by the conſequent impotence to move, a much longer time will be required for the formation of a callus, if that be ever done but as a previous ſtep to an *anchyloſis*, which has been obſerved by anatomiſts to take place at the junction of the *oſſa innominata* with the *ſacrum* not unfrequently, but never or very ſeldom at the *ſymphyſis* of the *oſſa pubis*. Under ſuch circumſtances, unleſs by an amendment of the general health, little good is to be expected from medicine, the proceſs which the parts muſt undergo being an operation of the conſtitution, which it will not be in our power to control. In the firſt caſe related, a variety of applications were tried, from the moſt emollient to thoſe which are active and ſtimulating; but from cold bathing only did ſhe receive any real advantage. The patient was alſo very much aſſiſted by the uſe of a ſwath, or broad belt, made of ſoft leather, quilted, and buckled with ſuch firmneſs over the lower part of the body as to leſſen, if not prevent, the motion of the bones; and this was reſtrained in its ſituation by a bandage paſſed between the legs, from the hind to the fore part of the belt. If this belt be made with a ſpring, it may be fixed over the ilia, worn tighter, and with leſs inconvenience.

In that unfortunate ſituation, in which a joint is formed between the ſeparated ſurfaces of the bones, all hopes of recovery of the patient to her former abilities may be given up; and what remains to be done for her relief will be by the uſe of a belt, or a ſimilar contrivance, to ſubſtitute as much artificial firmneſs as we can, for the natural which is loſt. In the caſe in which I ſuſpected this event to have happened, the life of the patient was truly miſerable; but I preſume that ſuch very rarely occur, having been lately informed of another perſon, who, after a confinement of more than eight years to her bed, in conſequence of the ſeparation of the bones at the

time of labour, was reſtored to the full and perfect uſe of her inferior extremities.

SECTION V.

THERE is a wonderful variety in the poſition of the *pelvis* of animals, as it relates to that of the body in general; and their powers and properties very much depend upon this circumſtance. But, with a view to this ſubject, they may be divided into three kinds; the ſtrong, the ſwift, and the mixed.

In thoſe animals, which poſſeſs the greateſt ſhare of ſtrength, the poſition of the *pelvis* is nearly perpendicular, and the two apertures of the cavity nearly horizontal, as may be ſeen in the elephant.

In thoſe which are diſtinguiſhed by their ſpeed or agility, the poſition of the *pelvis* is nearly horizontal, and the two apertures nearly perpendicular, as may be ſeen in the ſtag.

In mixed animals, or thoſe in which ſtrength and ſpeed are united, the poſition of the *pelvis* is neither horizontal nor perpendicular, but inclined; ſo as to partake, by different degrees of inclination, of a certain ſhare of the advantages of either poſition, as may be ſeen in the horſe and aſs. But this deſcription is taken from the dried ſkeleton.

In the human ſpecies, when the poſition of the body is erect, the *pelvis*, which, bearing the weight of the whole body, is ſtronger in proportion to their ſize than in any quadruped, is ſo placed, that a line paſſing from the third of the lumbar *vertebræ* will fall nearly upon the ſuperior edge of the *ſymphyſis* of the *oſſa pubis*; the cavity of the *pelvis* being projected ſo far backwards, that the *oſſa pubis* become the part on which the enlarged *uterus* chiefly reſts in the advanced

vanced ſtate of pregnancy *. If then we recollect the ſmallneſs of the *oſſa pubis*, the manner in which they are connected, and advert at the ſame time to the increaſing effect, which may be produced by the internal preſſure of the weight ſupported by them, in addition to that of the body, we ſhall not be ſurpriſed at the frequency of the complaints of pain and weakneſs at the *ſymphyſis*; eſpecially when the child is large, or the patient under the neceſſity of ſtanding for a long time. And ſhould there be any degree of weakneſs, relaxation, or diſunion, at the parts where the *oſſa innominata* are joined to the *ſacrum*, ſimilar effects will be produced; and one of theſe parts can ſcarcely be affected without an equivalent alteration in the other.

The conſequences of the ſeparation of the bones of the *pelvis*, or of their diſpoſition to ſeparate, will be more clearly comprehended, if we conſider the *pelvis* as an arch ſupporting the weight of the ſuperincumbent body. In this view the *ſacrum* may be called the key-ſtone; the *oſſa innominata*, as far as the *acetabula*, the pendentives; and the inferior extremities the piers of the arch.

If a greater weight be laid upon an arch than it is able to ſuſtain, one of theſe conſequences will follow; the key-ſtone will fly, the pendentives will give way, or the piers will yield to the preſſure.

To prevent the two firſt accidents, it is uſual to lay heavy bodies upon the different parts of the arch, the weight of which muſt bear a relative proportion to each other, or the contrary effect will be produced; for if too great weight be laid upon the key-ſtone, the pendentives will fail; and, if there be too much preſſure upon the ſides, the key-ſtone will be forced.

When the greateſt poſſible ſtrength is required in an arch, it is uſual to make what is called a counter-arch, which is a continuation

* This part has been conſidered as the centre of gravity in the human body; but *Deſaguliers* thought, that it was in the middle ſpace between the *ſacrum* and *oſſa pubis*.

of

of the arch till it becomes circular, or of any intended form. This contrivance changes the direction of the weight, before ſupported at the chord; and part of it will be conducted to the centre of the counter-arch, and borne in what is called the ſine of the arch.

If the reſemblance of the *pelvis* to an arch can be allowed, we may conſider all the fore or lower part of it, between the *acetabula*, as a counter-arch, which will explain to us the reaſon of ſo much ſtreſs being made upon the *ſymphyſis* of the *oſſa pubis*, when there is any increaſe of the ſuperincumbent weight; or when that part is in a weakened or ſeparated ſtate, as in the ſecond caſe before deſcribed, and particularly by the bending of that part in the *mollities oſſium*.

When the patient before mentioned lay in an horizontal poſition ſhe was perfectly eaſy, there being then no weight upon the *pelvis*.

When ſhe was erect, the weight borne by the *ſymphyſis* being greater than it could ſupport, ſhe could walk before ſhe could ſtand; or, if ſhe ſtood, ſhe was obliged to move her feet alternately as if ſhe was walking; or ſhe could ſtand upon one leg better than upon both. By theſe various movements ſhe took the ſuperincumbent weight from the weakened *ſymphyſis*, and conducted it by one leg, in a ſtraight line, to the ground.

The fatigue of walking, or of the alternate motion of the feet, being more than ſhe was able to bear, ſhe was obliged to ſit. When ſhe firſt ſat in her chair ſhe was upright, reſting her elbows upon the arms of the chair; by which means part of her weight was conducted to the chair, not deſcending to the *pelvis*. But there being then more weight upon the *ſymphyſis* than it was able to bear for any long time, and her arms being weary, by putting her hands upon her knees, ſhe took off more of the ſuperincumbent weight, conducting it by her arms immediately to her knees. When ſhe reſted her elbows upon her knees the ſame effect was produced in an increaſed degree; but, this poſition becoming painful and tireſome,

ſome, ſhe had no other reſource, and was obliged to return to her bed.

It cannot eſcape obſervation, that this patient inſtinctively or experimentally diſcovered the advantages of the particular attitudes into which ſhe put herſelf, and by which ſhe obtained eaſe, as exactly as if ſhe had underſtood her complaint, and the manner in which I have endeavoured to explain it.

In the wearineſs which follows common exerciſe, when we often change our poſition, apparently without deſign, the manner in which eaſe is procured to any particular part may be readily underſtood by a more extenſive application of the ſame kind of reaſoning, and it ſeems as if the ſlighteſt change was not made without ſome good effect.

SECTION VI.

THE violence which the connecting parts of the bones undergo, when the head of the child is protruded through the *pelvis* with extreme rapidity or difficulty, ſometimes occaſions an affection of the *ſymphyſis* of the *oſſa pubis* of more importance than a ſeparation; becauſe, together with all the inconveniences ariſing from the ſeparation, the life of the patient is endangered by it. This is the formation of matter on the looſened ſurfaces of the bones, preceded by great pain, and other ſymptoms of inflammation; though, in the beginning of the complaint, it is difficult to aſcertain whether the connecting parts of the bones, or ſome contiguous part, be the ſeat of the diſeaſe.

When ſuppuration has taken place in conſequence of the injury ſuſtained at the junction of the *oſſa innominata* with the *ſacrum*, the abſceſs has in ſome caſes been formed near the part affected, and been cured by common treatment. But in others, when matter has

been formed and confined at the *ſymphyſis* of the *oſſa pubis*, the ſymptoms of a hectic fever have been produced, and the cauſe has not been diſcovered till after the death of the patient. In others the matter has burſt through the capſular ligament of the *ſymphyſis* at the inferior edge, or perhaps made its way into the bladder; and in others it has inſinuated under the *perioſteum*, continuing its courſe along the *oſſa pubis* till it arrived at the *acetabulum*. The miſchief being thus extended, all the ſymptoms were aggravated; and, the matter making its way towards the ſurface, a large abſceſs has been formed on the inner or fore part of the thigh, or near the hip, and the patients, being exhauſted by the fever and profuſe diſcharge, have at length yielded to their fate. On the examination of the bodies after death, the track of the matter has been followed from the aperture of the abſceſs to the *ſymphyſis*, the cartilages of which were found to be eroded, the bones carious, and the adjacent parts very much injured or deſtroyed.

It may, perhaps, be poſſible to diſcover, by ſome particular ſymptom, when there is in this part a diſpoſition to ſuppurate; or it may be diſcovered when ſuppuration has taken place. In all caſes of unuſual pain, attended with equivocal ſymptoms, it will therefore be neceſſary to examine theſe parts with great care and attention. For, when there is a diſpoſition to ſuppurate, by proper means that might be removed; and when matter is formed, if there be a tumefaction at the *ſymphyſis*, more eſpecially if a fluctuation could be perceived, we might deliberate upon the propriety of making an inciſion to evacuate the matter; and by ſuch proceeding farther bad conſequences might be prevented *.

* See *Medical Obſervations and Inquiries*. Vol. II.

SECTION

SECTION VII.

THE form of the ſuperior aperture of the *pelvis* has been deſcribed by ſome as triangular, and by others as oval, with the wideſt part from one ſide to the other. But the inferior aperture, independent of the ligaments and ſoft parts, cannot be ſaid to reſemble any known or general form, on account of its irregularity, though the wideſt part is from the inferior edge of the *ſymphyſis* to the point of the *os coccygis*, allowing for the regreſſive motion of that bone.

The dimenſions of the ſuperior aperture of the *pelvis*, from the upper part of the *ſacrum* to the upper edge of the *ſymphyſis*, are generally ſtated to be rather more than four inches; and between the two ſides they ſomewhat exceed five *.

Of the dimenſions of the inferior aperture it is difficult to form a judgment; but, if the ligaments are preſerved, it may be ſaid that the proportions are reverſed, the narroweſt part being on each ſide. But in the form and dimenſions of the *pelvis*, in different women, there is an endleſs variety, not depending upon any alteration which may be produced by diſeaſe.

The depth of the *pelvis*, from the upper part of the *ſacrum* to the point of the *os coccygis*, is about five inches; but this will be increaſed when the latter bone is preſſed backwards. From the margin of the *pelvis* to the inferior part of the obtuſe proceſſes of the *iſchia* the depth is about three inches, and at the *ſymphyſis* about one and a half. It appears that the depth of the *pelvis*, at the poſterior part, is rather more than three times the depth at the anterior; and that there is a gradual change between the two extremes, if we admit the liga-

* Quæ menſuræ, pollice ferè integro, ſimiles menſuras capitis fœtus ſuperant. *Haller. Phyſiolog.* lib. xxviii.

ments to make a part of the outline of the inferior aperture. The knowledge of theſe circumſtances will enable us to judge in the living ſubject, how far the head of the child has proceeded through the *pelvis*, and prevent any deception to which we might be liable, if we were to form our opinion by the readineſs with which we can feel the head at the anterior part.

The cavity of the *pelvis* is of an irregular, cylindrical form; but, towards the inferior aperture, there is ſome degree of convergence, made by the points of the ſpinous and obtuſe proceſſes of the *iſchia* and the termination of the *os coccygis*. This convergence is of great importance in regulating the paſſage of the head of the child, as it deſcends towards the inferior aperture; and, being perfected by the ſoft parts, it gives to the *vertex*, or preſenting part of the head, the diſpoſition to emerge under the arch of the *pubis*.

On the concavity or hollow of the *ſacrum* the eaſe or difficulty with which the head of the child paſſeth through the *pelvis* will very much depend. A ſimilar curvature is continued by means of the iſchiadic *ſinus*, and by the diſpoſition of the ſacroſciatic ligaments, to the obtuſe proceſſes of the *iſchia*, where the ſides of the *pelvis* are perpendicular. The upper edge of the *oſſa pubis* has a ſlight reflection outwards, which prevents any obſtruction to the entrance of the head of the child into the *pelvis*; and at the lower edge there is ſome degree of divergence, by which the departure of the head out of the *pelvis* is very much facilitated.

SECTION VIII.

BEFORE we proceed to the examination of the manner in which the head of the child paſſeth through the *pelvis* at the time of birth, it is neceſſary to examine its dimenſions and ſtructure.

The largeſt part of the head of a child, not altered by compreſſion,

is from the hind to the forehead. The diameter from one ear to another is leſs by nearly the ſame proportion, as the ſpace between the *ſacrum* and *pubis*, at the ſuperior aperture, is leſs than that between the ſides of the *pelvis*.

The head of a child, which appears to be larger according to the ſize of the body than that of other animals, is at the time of birth incompletely oſſified at every part where the bones of which the *cranium* is compoſed afterwards unite; but chiefly at the greater fontanelle, or the centre of that part where the parietal and frontal bones meet in the adult. By this incomplete oſſification, and by the preſſure to which the head of the child is ſometimes ſubject in its paſſage through the *pelvis*, the form of the head may be very much altered, and the dimenſions leſſened; for the edges of the bones will not only accede to each other, but will lap over in a very extraordinary manner, without any detriment to the child. The degree of oſſification varies in different ſubjects; but the head of a new-born infant is univerſally (except in ſome very rare deviations) found to be incompletely oſſified, and the advantage reſulting from it is not only perceived in thoſe difficulties which may be occaſioned by the natural large ſize of the head of the child, but in thoſe alſo which are produced by all the leſs conſiderable degrees of deformity of the *pelvis*. It is evident beyond all doubt, if this proviſion had not been made, that many children muſt have been deſtroyed at the time of birth, or their parents muſt have died undelivered.

Daily experience very obviouſly and ſufficiently proves that there is a relative proportion between the head of the child and the *pelvis* of the mother; and, from the excellent order obſerved in all the operations of Nature, it would be reaſonable to conclude, that the largeſt part of the head is conformable to the wideſt part of the *pelvis*. By the examination of a great number of women, who have died in various ſtages of the act of parturition, it has appeared, con-

trary to the general doctrine of the ancient and of many modern writers, when the position of the head was perfectly natural, that the ears were placed towards the *sacrum* and *pubis*, or a little obliquely; and that the *vertex*, or that part where the hair diverges, is exactly or nearly opposed to the centre of the superior aperture of the *pelvis**. In the course of the descent of the head, there being some difference in the form of the *pelvis* at each particular part of the cavity, the position of the head is accommodated to each part, not by accident but compulsion, and at the lower part of the *pelvis*, in consequence of that convergence before mentioned. With respect to the *pelvis*, the lower the head of the child has descended, the more diagonal is the position of the ears; but they are not always placed exactly towards the sides of the *pelvis*, even when a portion of the head has emerged under the arch of the *ossa pubis*. But this description of the changing position of the head of the child in its passage through the *pelvis* is founded on the presumption that it presents naturally, and is guided by the form of the internal surface. If the head should present differently, there will be corresponding, but not the same, changes; or, if it should be very small, it will not be influenced by the *pelvis*, but may pass in any direction.

It does not appear, that any ill consequences would follow an erroneous opinion of the manner in which the head of the child is protruded through the cavity of the *pelvis* in a natural labour; for, no assistance being wanted, no principle was required for the regulation of our conduct. But in all cases in which there was a necessity of giving assistance, and where a change of what was deemed the wrong position of the head was improperly comprised as a very material part of that assistance, as in the use of the *forceps*, great mischief must often have been unavoidably done both to the parent and child.

* This observation was first made by Sir FIELDING OULDE about the year 1737. *See his Treatise on Midwifery.*

SECTION IX.

FROM the examination of the form and dimenſions of the cavity of the *pelvis*, and of the head of a child, attempts have been made to explain all the circumſtances of a labour upon mechanical principles, and to eſtabliſh the practice of midwifery upon the foundation of thoſe principles.

It may be ſuppoſed, for a moment, that the paſſage of the head of a child, through the cavity of the *pelvis*, ſhould be conſidered ſimply as a body paſſing through a ſpace; and we may try whether it is poſſible to apply mechanical principles with advantage for the explanation.

The firſt circumſtance to be conſidered in the attempt is, to aſcertain with preciſion the capacity of the ſpace. Now it is true that we have had many menſurations of the *pelvis* in all its parts, and that we have acquired a competent knowledge of the general dimenſions; but we know, at the ſame time, that there is in the *pelvis* of every individual woman ſome variety, and that the exact knowledge of theſe varieties, on which the explanation of a mechanical proceſs muſt depend, cannot be gained in any living ſubject.

It is equally neceſſary, that we ſhould have an accurate knowledge of the ſize of the body intended to be paſſed through this ſpace. But, though we have a good general idea of the figure and bulk of the heads of children at the time of birth, we are not ignorant, that thoſe of any two children were never found to be exactly alike, and that the peculiar difference cannot be diſcovered before a child is born.

The head of a child is of a limited ſize before it enters the cavity of the *pelvis*; but, by compreſſion in its paſſage, this is altered in a manner

manner and to a degree of which it is impoſſible to form any previous judgment.

In the conſideration of a body paſſing through a ſpace, there is alſo a neceſſity of knowing whether it be intended to paſs by its own gravity or force, or whether it is paſſive, and is to be propelled by any adventitious power. If by the latter, as is the caſe of a child at the time of birth, the knowledge of the degree of that power is neceſſary to enable us to form an eſtimate of the poſſibility or likelihood of its ſucceſs; but of the degree of this power we can form a very uncertain conjecture in any particular caſe.

If then we have neither preciſe ideas of the dimenſions of the ſpace, nor of the magnitude of the body, nor of the alterations in ſize or form which the body may undergo, nor of the power excited to propel the body, it does not appear poſſible to explain, upon mechanical principles, the progreſs of a labour.

So much is however to be granted to the introduction of mechanical principles into the practice of midwifery, that they afford the greateſt advantage in all thoſe caſes of extreme difficulty, in which the aſſiſtance of art is ultimately required, becauſe ſuch aſſiſtance muſt be given upon thoſe principles; and though they will not explain, they will illuſtrate the operations of the animal body, and, when applicable, are the ſureſt guides of human actions. But, on the whole, a fondneſs for, an imperfect knowledge, and ſome affectation of mechanical principles, ſeem to have been very detrimental; as to theſe the frequent and unneceſſary uſe of inſtruments, and ſometimes their improper uſe, in the practice of midwifery, may in a great meaſure be originally attributed.

SECTION X.

THE obſervations which were made on the form and dimenſions of the cavity of the *pelvis* relate to its natural ſtate; but theſe are alſo to be conſidered when the *pelvis* is diſtorted.

Of the diſtortion of the *pelvis* there are two general cauſes. The firſt is that diſeaſe incident to children in the very early part of their lives, known by the term *rachitis*, which preventing the bones from acquiring their due ſtrength, or ſufficient firmneſs to ſupport the weight of the ſuperincumbent body, they bend in different directions and degrees, according to their weakneſs and the weight impoſed upon them, and the diſtortion thereby occaſioned is often fixed for the remainder of life. The ſecond is a diſeaſe which may occur at any period of life, and from its effect is called *oſteoſarcoſis*, or *mollities oſſium* *. It is far leſs frequent than the *rachitis*, but more dreadful in its conſequences; which no medicine hitherto tried has had ſufficient efficacy to prevent or to cure. In this diſeaſe the oſſific matter is not thought to be diſſolved or altered, but to be re-abſorbed from the bones into the conſtitution, and carried out of the body by the common emunctories; or depoſited upon ſome other part where it is uſeleſs or prejudicial. The bones thus loſing the principle of their ſtability become ſoft, according to the degree and continuance of the diſeaſe; are unable to ſuſtain the weight of the body, and change their natural forms, in proportion to their weakneſs; ſo that in ſome inſtances the moſt diſtorted and frightful appearance of the whole body hath been exhibited †.



* Malacoſteon. Oſſium mollities. Vogel. Dxxiij.

† See Medical Obſervations and Inquiries, Vol. V. caſe 23. Memoirs of the Academy of Sciences, and various Authors. We ſhall afterwards refer to this ſubject.

The

The effect of either of theſe diſeaſes is not confined to the *pelvis*; yet it is ſcarcely poſſible, that either of them ſhould exiſt for any length of time without producing its influence upon it. Hitherto much advantage has not been obtained by the knowledge of *oſteoſarcoſis*, nor have the ſymptoms which precede or accompany it been accurately obſerved, before the effect was produced. Yet it is poſſible, by attending to the ſecretions, and diſcovering an exceſs or defect of phoſphoric acid or the like principles, the deficiencies and exceedings might be ſupplied or leſſened.

The *pelvis* is more commonly diſtorted at the ſuperior aperture than at any other part. This is particularly occaſioned by the natural projection of the upper part of the *ſacrum*, and the loweſt of the lumbar *vertebræ*; though, in very bad caſes, a conſiderable deviation from their natural poſition is given to ſeveral of the adjoining *vertebræ*. Should a diſeaſe exiſt in the conſtitution which is capable of weakening the bones, it will not appear extraordinary that the *ſacrum* ſhould be diſtorted, if we recollect, that its texture is originally ſpongy; that it ſupports, both in the erect and ſedentary poſition, a great part of the weight of the body; and that, by the manner of its junction with the laſt of the *vertebræ*, a conſiderable angle is made, which, if but little increaſed, will cauſe a very important change in the form and dimenſions of the ſuperior aperture of the *pelvis*. In ſome caſes an irregular convexity, and in others a concavity, are produced by the bending of the *oſſa pubis* in different ways and degrees; by which, together with the projection of the *ſacrum* and lumbar *vertebræ*, the dimenſions of the ſuperior aperture of the *pelvis*, which in the narroweſt part ſhould exceed four inches, have been, in ſome inſtances, reduced to leſs than one, and altered in every poſſible direction. It is probable that, from a mere view of a diſtorted *pelvis*, independently of the weight of the bone or other circumſtances, we might be able to diſtinguiſh, by the part chiefly

chiefly diſtorted, between a diſtortion occaſioned by the *rachitis* in infancy, and the *mollities oſſium* happening to an adult.

The form and dimenſions of the cavity of the *pelvis* may be changed in any part of its ſpace; but the moſt frequent alterations proceed from the *ſacrum*, which, beſides the projection before mentioned, may become too ſtraight, when the advantages which ſhould be derived from its concavity will be loſt. Or it may have too quick a curvature, by which the concavity will be rendered ſo ſmall as not to admit the head of the child; or an exoſtoſis may be formed on its internal ſurface, which will be the cauſe of inconveniencies equivalent to thoſe occaſioned by the want of a proper degree of curvature.

The *os coccygis* may be preſſed inwards in ſuch a manner, that the point of it may approach the centre of the cavity; or the motions between the different portions of the bone may be loſt; or an *anchyloſis* may be formed between that bone and the *ſacrum*; by all which changes, according to their degree, the head of the child may be impeded in its paſſage through the *pelvis*.

The *iſchia* may be diſtorted by the unnatural bent of the ſpinous proceſſes; and the effect of their preſſure may be obſerved, for ſome time after birth, on the temporal or parietal bones of the head of a child propelled between them with much difficulty. The dimenſions of the inferior aperture alſo may be leſſened by the tuberoſities of the *iſchia* bending inwards or forwards, by which the arch of the *pubis* will be leſſened, and rendered unfit to allow of the emergence of the head of the child under the *ſymphyſis* of the *oſſa pubis*.

When the ſtability of the bones of the *pelvis* is impaired, it is not poſſible to enumerate every kind of diſtortion which they may ſuffer; but it is principally in the degree that we are to ſeek for thoſe great, and ſometimes, though rarely, inſurmountable difficulties, which occur in the practice of midwifery, and prove dangerous to either, or both the parent and child.

In ſome caſes the diſtortion of one part of the *pelvis* produces an

enlargement of the reſt. Thus when the ſuperior aperture is contracted, the inferior may be expanded; and hence it is often obſerved in practice, when the head of the child hath paſſed the point of obſtruction with the moſt tedious difficulty, that a labour will be unexpectedly and ſpeedily completed.

When women have the appearance of being much deformed, it is reaſonable to think that the *pelvis* muſt be affected. But there have been many inſtances of extreme diſtortion of the ſpine, yet the *pelvis* has preſerved its proper form and dimenſions; and ſome women, who were in other reſpects ſtraight and well proportioned, have had a diſtorted *pelvis*.

If the inferior extremities are crooked, or if any part of the body was diſtorted at a very early period of life, and remained in that ſtate, it is ſaid that we may be aſſured the *pelvis* partakes of the diſeaſe, and is involved in its conſequences. But, when the ſpine becomes diſtorted at a more advanced period, as at twelve or fourteen years of age, it is not to be eſteemed a preſumptive ſign of a diſtortion of the *pelvis*, being generally occaſioned by a local diſeaſe of the ſpine. Theſe obſervations are, I believe, commonly well founded; but, as there are many exceptions, we ſhould not be juſtified in giving an opinion of a caſe of this kind, unleſs we were permitted to make an examination *per vaginam*. Nor ſhould we be able, by this examination, to determine with preciſion the exiſtence of every ſmall diſtortion, but ſuch only as was conſiderable in its degree. If we ſhould not be able to feel any projection of the *ſacrum* or *vertebræ*, we ſhould have a right to conclude, that there was no conſiderable deformity of the *pelvis*; but, if we could feel the *ſacrum*, or *vertebræ*, we muſt judge by the readineſs with which they can be felt, of the degree of diſtortion, and of the impediments which may be thereby occaſioned. But, in a matter which may be of ſo much concern, it behoveth us to be extremely circumſpect before we give an opinion, leſt, by our error, the peace of families and the comfort of individuals ſhould be deſtroyed.

CHAPTER II.

SECTION I.

ON THE EXTERNAL PARTS OF GENERATION.

THE preceding account of the *pelvis* appearing ſufficient to ſerve all the uſeful purpoſes of the practice of midwifery, we ſhall, in the next place, conſider the parts of generation, which have been properly divided into external and internal.

The external parts are the *mons Veneris*, the *labia*, the *perinæum*, the *clitoris*, and the *nymphæ*. To theſe may be added the *meatus urinarius*, or orifice of the *urethra*. The *hymen* may be eſteemed the barrier between the external and internal parts.

That ſoft fatty prominence which is ſituated upon the *oſſa pubis*, extending towards the groins and *abdomen*, is called *mons Veneris*. Its uſe ſeems to be chiefly that of preventing inconvenience or injury in the act of coition. If a line be drawn acroſs the anterior angle of the *pudendum*, all that part above it, which is covered with hair, may be called *mons Veneris*; below it the *labia* commence, which, being of a ſimilar, though looſer, texture, appear like continuations of the *mons Veneris*, paſſing on each ſide of the *pudendum*, which they chiefly compoſe. Proceeding downwards and backwards the *labia* again unite, and the *perinæum* is formed.

All that ſpace between the poſterior angle of the *pudendum* and the *anus* is called the *perinæum*, the external covering of which is the ſkin, as the *vagina* is the internal; including between them cellular and adipoſe membrane, and the lower part of the *ſphincter ani*. The extent of the *perinæum* is generally about an inch and a half, though in ſome ſubjects it is not more than one, and in others

is equal to three inches. The thin anterior edge is called the *frænum labiorum.*

Below the anterior angle of the *pudendum* the *clitoris* is placed, which riſes by two *crura,* or branches, from the upper part of the *rami* of the *iſchia.* The external part, or extremity, of the *clitoris* is called the *glans,* which has a prepuce or thin covering, to which the *nymphæ* are joined. The *clitoris* is ſuppoſed to be the principal ſeat of pleaſure, and to be capable of ſome degree of erection in the act of coition.

The *nymphæ* are two ſmall ſpongy bodies, or doublings of the ſkin, riſing from the extremities of the prepuce of the *clitoris,* leſs in ſize, but reſembling in their form the *labia.* They paſs on each ſide of the *pudendum,* within the *labia,* to about half its length, when they are gradually diminiſhed till they diſappear.

Immediately below the inferior edge of the *ſymphyſis* of the *oſſa pubis,* between the *nymphæ,* is the *meatus urinarius,* or termination of the *urethra,* which is about one inch and a half in length, and runs to the bladder in a ſtraight direction, along the internal ſurface of the *ſymphyſis,* to which, and to the *vagina,* it is connected by cellular membrane. On each ſide of the *meatus* are ſmall orifices, which diſcharge a mucus, for the purpoſe of preſerving the external parts from any injury, to which they might be liable from the acrimony of the urine.

There is a very great difference in the appearance of all theſe parts in different women, eſpecially in thoſe who have had many children, and at various periods of life. In young women they are firm and vegete, but, in the old, theſe, together with the internal parts, become flaccid and withered *.

* Partes genitales, cum earum nullus eſt uſus, marceſcunt, detrahuntur, ac veluti obliterantur. *Harv.*

SECTION

SECTION II.

THE external parts of generation are ſubject to many diſeaſes in common with the other parts of the body. They are alſo expoſed to ſome peculiar complaints, and to accidents at the time of parturition, of which we ought to be well informed, that we may, by our care, prevent them, or give ſuch relief as may be required when they have unavoidably happened.

The *labia* and *nymphæ*, as might be expected from their fatty and cellular texture, are liable to elongation, to excreſcences, and to the production of ſcirrhous tumours; which in ſome inſtances have grown to an enormous ſize, eſpecially in hot climates*. For preſerving all theſe parts in a healthy ſtate, nothing is more beneficial than the daily uſe of cold water.

It is not unuſual for one of the *labia* or of the *nymphæ* to be larger and more pendulous than the other; but the enlargement, or elongation, are not regarded as diſeaſes till ſome inconvenience is produced by them. The ſame obſervation may be made of excreſcences or ſcirrhous tumours, which are therefore generally found to have acquired a conſiderable ſize before they are divulged by the patient.

In all the ſubordinate degrees of theſe complaints, when there is reaſon to think that they ariſe from ſome conſtitutional cauſe, relief may be given by ſuch medicines or treatment, as will alter and amend the general health. Or if they are owing to any ſpecific cauſe, as the venereal diſeaſe, of which excreſcences in particular are a very frequent conſequence, preparations of quickſilver are to

* Nymphæ aliquando enormes ſunt; quare Coptæ et Mauri eas circumcidunt. *Haller. Phyſiolog.*

be

be uſed or given, till we are certain that the conſtitution is freed from the infection. Applications ſuitable to the ſtate they are in are at the ſame time neceſſary; and of theſe there will be occaſion to uſe a variety, from the moſt emollient and ſoothing, which may be proper when the parts are in a very irritable and inflamed ſtate, to thoſe which have different degrees of eſcharotic qualities; when we preſume there is a chance of removing the excreſcences by ſuch means. But when complaints of this kind have been of long continuance, or when the parts have increaſed to ſuch a ſize as to hinder the common offices of life, there is but little reaſon to hope for their removal by any application or medicines, and the diſeaſed part muſt be extirpated with the knife; which operation may be performed with ſafety, and the faireſt proſpect of ſucceſs. As the blood-veſſels are few, and naturally ſmall in proportion to the ſize of the parts, there is not much danger of an hemorrhage, though, in ſome caſes, this is ſaid to have been alarming and extremely difficult to manage *. But I have more than once ſeen the enlarged *nymphæ*, and ſeveral excreſcences of conſiderable ſize, removed by the knife at the ſame time, yet the ſurgeon has not been under the neceſſity of tying a ſingle blood-veſſel.

SECTION III.

EDEMATOSE ſwellings of the external parts may occur, either in a general anaſarcous ſtate of the whole body, or when any cauſe produces a temporary preſſure upon thoſe veſſels, which are intended to conduct the returning fluids from the inferior extremities: particularly the enlarged *uterus*, in the advanced ſtate of pregnancy. Whatever may be the cauſe of theſe ſwellings, if they ſhould in-

* See Mauriceau, Vol. ii. Obſ. clxxiv.

creaſe

creaſe ſo as to become troubleſome, the method of giving relief is obvious and eaſy, as it conſiſts only in making a few very ſlight ſcarifications in different parts of the *labia*, by which the ſtagnating fluids will be diſcharged, and the *labia* reduced to their natural ſize. It is not unuſual for theſe ſwellings to return two or three times towards the concluſion of pregnancy; in which caſe, or even in the time of labour, the ſcarifications, if neceſſary, may be repeated. A flannel wrung out of ſome emollient fomentation, and applied to the parts when they have been ſcarified, will contribute to the eaſy and perfect diſcharge of the fluids.

SECTION IV.

THE coheſion of the *labia* to each other has been mentioned as a complaint occurring to adult women, eſpecially in hot climates, if inflammation, preventing the due ſecretion of the mucus, with which theſe parts are naturally clothed on their internal ſurface, ſhould take place; or if they ſhould be excoriated by any accidental cauſe, and neglected in that ſtate. The *labia* will alſo very frequently cohere in children, in ſuch a manner as to leave no veſtige of a paſſage into the *vagina*, except at the anterior part, for the diſcharge of the urine; and lead us, by the general appearance, to apprehend a defect in the organization of the parts. In ſuch caſes, we have been directed to ſeparate them with a knife; and how far ſuch an operation may be neceſſary in the adult, if the parts ſhould cohere either in conſequence of ſome new affection, or if a coheſion originating in infancy ſhould continue to adult age, muſt depend upon the judgment of the ſurgeon. But, in infants, ſuch an operation is neither requiſite nor proper; becauſe a ſeparation may always be made, by a firm and ſomewhat diſtracting preſſure upon each *labium* at the ſame time, which ſcarcely makes the child complain;

plain; though the ſmall veſſels, which had inoſculated from one *labium* to the other, may be perceived to be dragged out during the continuance of the preſſure.

It is extraordinary that ſo little notice ſhould have been taken of a complaint which is very frequent in children; but it is probable that the conſtant and free uſe of their limbs, when they begin to walk, cauſes a ſeparation without any other aſſiſtance, otherwiſe the coheſion muſt frequently have occurred in adults, in whom the caſe is very rare. But on this expected probable ſeparation we ſhould be afraid to rely. When a ſeparation of the cohering *labia* has been made in the manner before mentioned, a folded piece of linen, moiſtened in a very weak ſolution of the *zincum vitriolatum*, or ſome lightly aſtringent liquor, ſhould be applied every night when the child is put to reſt, to prevent the reunion, to which there is a great diſpoſition; and which will certainly take place, if the *labia* are ſuffered to remain in contact immediately after the ſeparation.

SECTION V.

In conſequence of violent inflammation from accidental or other cauſes, the *labia* may become tumefied, and a large abſceſs has been ſometimes formed. This is attended with extreme pain, the deſire of relieving which has induced ſurgeons to open the abſceſs, and give vent to the matter as ſoon as it could be perceived to fluctuate. But though the pain may, for the preſent, be abated by the early diſcharge of the matter, the part continues indurated, is indiſpoſed to heal, and not unfrequently becomes fiſtulous. But, if the abſceſs be ſuffered to break of its own accord, the part will have the kindeſt tendency to heal, and, with common care, the cure be ſoon perfected. Should the pain be extreme during the ſuppuration, which

is

is often the caſe, beſides the uſe of fomentations and cataplaſms, recourſe muſt be had to opiates for its abatement. There is never any reaſon to ſuſpect this complaint to be a token of any venereal infection.

SECTION VI.

THOUGH the *perinæum* is not often affected with any particular diſeaſe, it is ſubject to a laceration from the diſtention which it undergoes, when the head of the child is paſſing through the external parts. This laceration, which is moſt likely to happen with firſt children, though with rude treatment, hurry, or neglect, either on the part of the patient or practitioner, it may occur with ſubſequent ones, eſpecially in thoſe women who have the *perinæum* naturally ſhort, differs in direction and extent, and may be, in every degree, from the *frænum*, or edge of the *perinæum*, to the extremity of the *ſphincter ani*, or even higher up into the *rectum*.

That ſome degree of laceration ſhould ſometimes occur will not be ſurpriſing, if we conſider the great change and violence, which all theſe parts ſuſtain, at the time when the head of the child is paſſing through them; or that when a laceration begins, it ſhould extend through a part rendered at that time extremely thin, and ſuffering an equal degree of force. When the *perinæum* is indiſpoſed to diſtend; or if, when diſtended, it cannot permit the head of the child to paſs with facility, the anterior part of the *rectum* is dragged out, and gives to the *perinæum* a temporary elongation. The true *perinæum*, and the temporary, as it may be called, thus forming an equal, uninterrupted ſpace, if a laceration ſhould commence at any part, it might extend through the whole. Of the method by which the laceration may be prevented, and of the treatment which may be proper when it has occurred, we ſhall

ſpeak in other places. At preſent we ſhall inquire into the cauſes of an accident, the prevention of which is the principal object of our attention in natural labours.

Though no means are uſed to prevent the laceration of the *perinæum* in quadrupeds at the time of parturition, it is remarkable that they are very rarely or never liable to it, except in thoſe caſes in which the neceſſity of their ſituation is ſuppoſed to require aſſiſtance; and this being given with ignorance and violence, may not improperly be eſteemed the cauſe of the accident. It is therefore reaſonable to preſume, that the frequent occurrence of this laceration in the human ſpecies, allowing that it is in ſome caſes unavoidable, ought to be imputed to ſome accidental cauſe, or to error in conduct, rather than to any peculiarity in the conſtruction of the part, or in the circumſtances of their parturition. For, I believe, no obſervation is more generally true, than that of the exiſtence of a power in the ſtructure and conſtitution of every animal, by which evils are prevented or remedied, and by which the greater part of the difficulties occurring at the time of their parturition are overcome; which power is commonly exerted with a degree of energy and effect proportionate to the difficulty.

The cauſes diſpoſing to, and capable of, producing a laceration of the *perinæum*, ſeem to be theſe:

Firſt, The increaſed tenderneſs and delicacy of the ſkin, occaſioned by peculiar habits or modes of living. That this and every other part of the body may, by alteration from its natural ſtate, become more ſuſceptible of pain, and leſs able to bear violence of any kind, is clearly proved by the different degrees of thoſe properties in parts of the body which are uſually clothed or uncovered.

Secondly, The poſition of women at the time of delivery. Women in this country, at the preſent time, are placed in bed upon their left ſide, with their knees drawn up towards the *abdomen*; which poſition, though convenient to the attendant, ſeems to occaſion

caſion a projection of the part of the child which preſents, in a line unfavourable to the *perinæum*. But, if they were to be placed upon their hands and knees, which is a poſition at that time perhaps the moſt natural, as it is often inſtinctively ſought for, and, in ſome countries, choſen in caſes of difficulty and diſtreſs; then the head or part preſenting would, by its line of gravitation, leſſen the preſſure upon the *perinæum*, and, of courſe, the hazard of its laceration.

Thirdly, The diſturbance of the order of a labour. Every change which is made in the parts, both external and internal, at the time of labour is ſucceſſive, and every pain ſeems to produce two effects; it dilates one part, and gives to ſome other part a diſpoſition to be dilated. If therefore, by hurry, or imprudent management, the head of the child, in its paſſage through the *pelvis*, be brought into contact with parts which have not yet acquired their diſpoſition to dilate; or if, by artificial dilatation, we attempt to ſupply the want of the natural, the parts will ſooner be lacerated than diſtended.

Fourthly, When animals bring forth their young, the effort to expel is inſtinctive, no part of the force exerted appearing to be voluntary. Women on the contrary, either from erroneous opinions, or from falſe inſtructions, exert a conſiderable degree of voluntary force, often indeed their whole ſtrength, with the hope and intention of finiſhing their labours ſpeedily. Now if we ſuppoſe that the *perinæum* is able to bear all the force inſtinctively exerted, without injury, but no greater; then the whole voluntary force will, in proportion to its degree, induce the danger of a laceration, unleſs its effect be counteracted by ſome adventitious help. On this principle it is uſual to ſupport the *perinæum*, not with the view of altering the direction of the head of the child, but of retarding its paſſage through the external parts. For the *perinæum* is not torn becauſe the head of the child is large, or paſſes in any particular direction, but becauſe it paſſes too ſpeedily, or preſſes too violently, upon the

parts, before they have acquired their dilatability; it therefore rarely happens, that the *perinæum* is lacerated in very ſlow or difficult labours.

SECTION VII.

THAT kind of laceration of the *perinæum*, which commences at the anterior edge, and runs obliquely or directly backwards, is alluded to in every diſſertation upon this ſubject. But there have been inſtances of another kind, which may be called a burſting or perforation of the *perinæum*, at that part which is connected with the circumference of the *anus*, when the anterior part is preſerved; and through ſuch perforations it is ſaid children have ſometimes been expelled *. In a caſe which occurred in my own practice, I was ſenſible of this kind of laceration before the expulſion of the head, which I guided through the natural paſſage, ſupplying the want of the *perinæum* with the palm of my hand. The external parts were, in this patient, extremely rigid and contracted; and, as I applied myſelf with great aſſiduity to preſerve them, at the anterior part of the *perinæum*, I imputed the accident to this circumſtance, rather than to the neceſſity of the caſe. The patient did not make any unuſual complaint immediately after delivery; but, on the following day, there was a violent inflammation of the parts, with a ſuppreſſion of urine, and the *lochia* were diſcharged through the ruptured part, but no *fæces* ever came through it, or by the *vagina*. By the uſe of fomentations and cataplaſms, of cooling laxative medicines, and occaſionally of opiates, the inflammation was ſoon

* There is in ſome French writer, whoſe name I cannot recollect, an account of a caſe of this kind, in which the head and body of the child were excluded through an opening in the *perinæum* thus caſually made, in which the *frænum* of the *perinæum* was preſerved entire. The common laceration of the *perinæum* does not always commence at the *frænum*, but further back, and then bears down before it all the anterior part.

abated.

abated. The ſuppuration being profuſe, the bark was given; and, at the end of ten weeks, the lacerated parts were healed. No particular examination was ever made during the cure, and none but ſuperficial dreſſings applied. When I attended this patient with her ſecond child, I obſerved a large round cicatrice at the rugous part of the *anus*, but ſhe ſcarcely ſuffered any inconvenience from it; and recovered as well as if no ſuch accident had formerly happened.

SECTION VIII.

THE *clitoris* is little concerned in the practice of midwifery, on account of its ſize and ſituation. But it is ſaid to have been ſometimes elongated and enlarged in ſuch a manner as to equal the ſize of the *penis*, when it makes one of thoſe many peculiarities which have been ſuppoſed to conſtitute an hermaphrodite *, or an animal partaking of the ſexual properties of the male and female; but if there are any examples of true hermaphrodites, the term is, in this caſe, improperly uſed †.

Should the *clitoris* increaſe to ſuch a ſize as to occaſion much inconvenience, it may be extirpated either with the knife or ligature ‡; but if the cauſe of the enlargement, which is commonly aſſigned, be true, it is not probable that any motive of delicacy or inconvenience will be a ſufficient inducement to ſuffer the pain of extirpation §.

* Hermaphroditi veri non dantur.—*Ruyſch. Theſ.* viii.

† *Clitoris* major in fœtu exiſtit.—*Ruyſch. Theſ.* vi. l. 1. *Cercoſis.* Clitoris prælonga. Vogel. ccccexxxv.

‡ See *Bruce's* Travels; and Travels in *Africa*, *Egypt*, and *Syria*, by *G. W. Browne*, in which we are told that it is always extirpated as a religious ceremony; yet of this there remains ſome doubt. See alſo *Sonnini*, Chap. 23.

§ Quæ extra venerem, in caſta femina, parva fuerat, ſuo etiam modo arrigit et intumeſcit, ut prepoſteræ veneri ſervire poſſit, multoque uſu ejus turpitudinis, denique moles ejus augetur.—*Haller. Phyſiolog.*

SECTION

SECTION IX.

THE bladder and *urethra* in women are naturally liable to fewer diſeaſes than the ſame parts in men, becauſe their connexion is far more ſimple, and their uſe is wholly confined to the reception and conveyance of the urine. Women have, nevertheleſs, a ſtone ſometimes formed in the bladder; and it has been thought an improvement in practice to evade the operation of lithotomy, by diſtending, with bougies gradually enlarged, the *urethra*, till it is of ſufficient dimenſions to allow a ſtone to paſs through it. It is proved by experience, that the *urethra* will diſtend, or may be artificially diſtended, ſufficiently to allow a ſtone of a conſiderable ſize to paſs, as I have known in many inſtances; but if the diſtention be carried beyond a certain degree, it is ſaid the tone of the part will be deſtroyed, and the patient ever remain ſubject to an involuntary diſcharge of urine, which is a greater evil than any of the common conſequences of lithotomy.

In the courſe of the *urethra*, and about the *meatus urinarius*, excreſcences ſometimes grow, which produce ſymptoms equally troubleſome, and ſimilar to thoſe which are cauſed by the ſtone or other diſeaſes in the bladder, for which they are often miſtaken. Theſe may be extirpated by the knife, by ligature, by cauſtic applications, or by wearing bougies, according to their ſize, or the part where they grow, which may render one method more convenient or preferable to the reſt. But theſe excreſcences, when they ariſe in the *urethra* or bladder, are ſometimes not to be removed without much difficulty and trouble.

SECTION X.

THE *pruritus*, itching, or ſtinging of the external parts, is a complaint to which women are liable at any period of life; but it is moſt frequently attendant on the ſtate of pregnancy, of which it is one of the moſt troubleſome conſequences. If it affect the internal parts, or be exceſſive in its degree, it is ſaid to terminate in the *furor uterinus*. It is ſometimes occaſioned by a diſeaſe or affection of the bladder, and is then equivalent to the itching of the *glans penis* in men; but it more commonly proceeds from ſome affection of the *uterus*, having been moſt frequently obſerved to occur in pregnancy, eſpecially when the child was dead, or about the time of the final ceſſation of the *menſes*, when there was a diſpoſition to diſeaſe in the *uterus*. I do not, however, recollect any inſtance of this *pruritus* either preceding or accompanying any truly cancerous diſpoſition of the *uterus* or its appendages.

The means uſed for the relief of the patient muſt depend upon the ſeat, the cauſe, and the degree of the complaint. When it happens during pregnancy, and at all other times, if attended with inflammation, it is neceſſary to bleed; to give gentle laxative medicines; and to uſe ſedative applications, of which perhaps the beſt is a weak ſolution of *ceruſſa acetata* as a lotion; or a decoction of poppy heads, with a ſmall quantity of *ceruſſa acetata* diſſolved in it, as a fomentation. But of all the applications I have ſeen uſed, none has more generally afforded relief than cold water frequently applied with a ſponge, and occaſionally made colder with the addition of ice, or a little vinegar and ſpirits. More active applications are often preſcribed; but I have ſuſpected that theſe, in many caſes, rather aggravate than leſſen the complaint, though much benefit is ſometimes derived from waſhing the parts with water moderately

rately acidulated with the nitric acid; or the application of one part of the *unguentum hydrargyri muriatic*, and three parts of the *unguentum ceruſſæ acetatæ*. If the patient be pregnant, the attempt to cure it will often be vain, and we muſt be ſatisfied with moderating it till ſhe is delivered, when it will generally ceaſe ſpontaneouſly. When this complaint is independent of pregnancy, originates from an affection of the *uterus*, and is of long continuance, the applications muſt be varied, and ſuch medicines given as promiſe relief by changing the ſtate of that part. Sulphur, taken internally, has ſometimes been of much ſervice; or applied to the part as a powder, liniment, or lotion. The burnt ſponge with nitre, and the *extractum cicutæ*, have alſo been given with advantage; together with a lotion compoſed of equal parts of the *aqua zinci vitriolati cum camphora* and roſe water; or the application of the *unguent. hydrargyr. fort.* I have alſo frequently given five grains of *Plummer's* pill every night at bed-time for a month, and a pint of the decoction of *ſarſaparilla* daily; though there was no ſuſpicion of any venereal infection, of which the itching is, I believe, a very unuſual ſymptom. But when this complaint has been occaſioned by an affection of the bladder, the conſtant or daily uſe of a bougie in the *urethra* has, in ſome caſes, effectually cured the patient.

SECTION XI.

THE *hymen* is a thin membrane or a ſemilunar, or circular form, placed at the entrance of the *vagina*, which it partly cloſes. It has a very different appearance in different women, but it is generally, if not always *, found in virgins, and is very properly eſteemed the

* Membrana hymen, quæ utrum detur, necne, ſub judice lis olim fuit, hoc autem tempore in anatomia magis verſatis nihil notius eſſe poteſt.—*Ruyſch. Theſ.* iii. No. xv.

teſt

teſt of virginity, being ruptured in the firſt act of coition; and the remnants of the *hymen* are called the *carunculæ myrtiformes* *. The *hymen* is alſo peculiar to the human ſpecies; from which circumſtance a moral writer might draw inferences favourable to the eſtimation of chaſtity in women.

There are two circumſtances relating to the *hymen* which require medical aſſiſtance. It is ſometimes of ſuch a ſtrong ligamentous texture, that it cannot be ruptured, and prevents the connexion between the ſexes. It is alſo ſometimes imperforated, wholly cloſing the entrance into the *vagina*, and preventing any diſcharge from the *uterus*; but both theſe caſes are extremely rare.

If the *hymen* be of an unnaturally firm texture, but perforated, though perhaps with a very ſmall opening, the inconveniences thence ariſing will not be diſcovered before the time of marriage, when they may be removed by a crucial inciſion made through it, taking care not to injure the adjoining parts.

But the imperforation of the *hymen* will produce its inconveniencies, when the perſon begins to menſtruate †. For, the menſtruous blood being ſecreted from the *uterus* at each period, and not evacuated, the patient ſuffers much pain from the diſtention of the parts; many ſtrange ſymptoms and appearances are occaſioned, and ſuſpicions injurious to her reputation are often entertained. In a caſe of this kind, for which I was conſulted, the young woman, who was twenty-two years of age, having many uterine complaints, with the *abdomen* enlarged, was ſuſpected to be pregnant, though ſhe perſevered in aſſerting the contrary, and had never menſtruated. When ſhe was prevailed upon to ſubmit to an examination, the circumſcribed tumour of the *uterus* was found to reach as high as the

* Hymenis diſſoluti reliquiæ, et corruptæ adeo pudicitiæ indicia.—*Haller. Phyſiolog.*

† Menſes a membrana vulvam claudente ſuppreſſi, perque hujus inciſionem evacuati.—*Ruyſch. Obſ.* xxxii.—*and all the older writers.*

navel, and the external parts were ſtretched by a round ſoft ſubſtance at the entrance of the *vagina*, in ſuch a manner as to reſemble that appearance which they have when the head of a child is paſſing through them; but there was no entrance into the *vagina*. On the following morning an inciſion was carefully made through the *hymen*, which had a fleſhy appearance, and was thickened in proportion to its diſtention. Not leſs than four pounds of blood, of the colour and conſiſtence of tar, were diſcharged; and the tumefaction of the *abdomen* was immediately removed. Several ſtellated inciſions were afterwards made through the divided edges, which is a very neceſſary part of the operation; and care was taken to prevent a re-union of the *hymen* till the next period of menſtruation, after which ſhe ſuffered no inconvenience. The blood diſcharged was not putrid or coagulated, and ſeemed to have undergone no other change, after its ſecretion, but what was occaſioned by the abſorption of its more fluid parts. Some caution is required when the *hymen* is cloſed in thoſe who are in advanced age, unleſs the membrane be diſtended by the confined menſes, as I once ſaw an inſtance of inflammation of the *peritonæum* being immediately produced after the operation, of which the patient died as in the true puerperal fever, and no other reaſon could be aſſigned for the diſeaſe

The *carunculæ myrtiformes*, by their elongation and enlargement, ſometimes become very painful and troubleſome. Under ſuch circumſtances they may be managed, or extirpated, if requiſite, in the ſame manner as the diſeaſed *nymphæ*.

CHAPTER III.

SECTION I.

ON THE INTERNAL PARTS OF GENERATION.

THE internal parts of generation are the *vagina*, the *uterus*, the *fallopian* tubes, and the *ovaria*. The ligaments may be eſteemed appendages to the *uterus*.

That canal which leads from the *pudendum*, or external orifice, to the *uterus*, is called the *vagina*. It is ſomewhat of a conical form, with the narroweſt part downwards, and is deſcribed as being five or ſix inches in length, and about two in diameter. But it would be more proper to ſay, that it is capable of being extended to thoſe dimenſions; for in its common ſtate, the *os uteri* is ſeldom found to be more than three inches from the external orifice, and the *vagina* is contracted as well as ſhortened. The *vagina* is compoſed of *two* coats, the firſt or innermoſt of which is villous, interſperſed with many excretory ducts, and contracted into *plicæ*, or ſmall tranſverſe folds, particularly at the fore and back part; but, by child-bearing, theſe are leſſened or obliterated. The ſecond coat is compoſed of a firm membrane, in which muſcular fibres are not diſtinctly obſervable, but which is endowed to a certain degree with contractile powers like a muſcle. This is ſurrounded by cellular membrane, which connects it to the neighbouring parts. A portion of the upper and poſterior part of the *vagina* is alſo covered by the *peritonæum*.

The entrance of the *vagina* is conſtricted by muſcular fibres, originating from the *rami* of the *pubis*, which run on each ſide of the *pudendum*, ſurrounding the poſterior part, and executing an equivalent office, though they cannot be ſaid to form, a true *ſphincter*.

The upper part of the *vagina* is connected to the circumference of the *os uteri*, but not in a ſtraight line, ſo as to render the cavity of the *uterus* a continuation of that of the *vagina*. For the latter ſtretches beyond the former, and, being joined to the *cervix*, is reflected over the *os uteri*; which, by this mode of union, is ſuſpended with protuberant lips in the *vagina*, and permitted to change its poſition in various ways and directions. When therefore theſe parts are diſtended and unfolded at the time of labour, they are continued into each other, and there is no part which can properly be conſidered as the preciſe beginning of the *uterus*, or termination of the *vagina*.

The form of the *uterus* reſembles that of an oblong pear, flattened, with the depreſſed ſides placed towards the *oſſa pubis* and *ſacrum*; but, in the impregnated ſtate, it becomes more oval, according to the degree of its diſtention*.

For the convenience of deſcription, and for ſome practical purpoſes, the *uterus* is diſtinguiſhed into three parts; the *fundus*, the body, and the *cervix*. The upper part is called the *fundus*, the lower the *cervix*, and the ſpace between them, the extent of which is undefined, the body. The *uterus* is about three inches in length, about two in breadth at the *fundus*, and one at the *cervix*. Its thickneſs is different at the *fundus* and *cervix*, being at the former uſually rather leſs than half an inch, and at the latter ſomewhat more; and this thickneſs is preſerved throughout pregnancy, chiefly by the enlargement of the veins and lymphatics, there being a ſmaller

* Facies uteri anterior planior eſt, convexior poſterius; latera pene in aciem extenuata.—*Roederer.*

change

change in the ſize of the arteries *. But there is ſo great a variety in the ſize and dimenſions of the *uterus* in different women, independent of the ſtates of virginity, marriage or pregnancy, as to prevent any very accurate menſuration.

The cavity of the *uterus* correſponds with the external form. That of the *cervix* leads from the *os uteri*, where it is very ſmall, in a ſtraight direction, to the *fundus*, where it is expanded into a triangular form, with two of the angles oppoſed to the entrance into the *fallopian* tubes; and at the place of junction between the *cervix* and the body of the *uterus* the cavity is ſmaller than it is in any other part. There is a ſwell, or fulneſs, of all the parts, towards the cavity, which is ſometimes diſtinguiſhed by a prominent line running longitudinally through its middle.

The villous coat of the *vagina* is reflected over the *os uteri*, and is continued into the membrane which lines the cavity of the *uterus* †. The internal ſurface of the *uterus* is corrugated in a beautiful manner, but the *rugæ*, which are longitudinal, leſſen as they advance into the *uterus*, the *fundus* of which is ſmooth. In the intervals between the *rugæ* are ſmall orifices, like thoſe in the *vagina*, which diſcharge a mucus, ſerving, beſides other purpoſes, that of cloſing the *os uteri* very curiouſly and perfectly during pregnancy ‡.

The § ſubſtance of the *uterus*, which is very firm, is compoſed of arteries, veins, lymphatics, nerves, and muſcular fibres, curiouſly interwoven and connected together by cellular membrane. The muſcular fibres are of a pale colour, and appear alſo in their texture

* Pars magna craſſitiei uteri ad venas pertinet.—*All the older Writers.*

† Pulpoſum magis quam vaginæ velamentum aliquoties reperi.—*Haller; Phyſiolog.*

‡ Adeo abundans ut totam cervicem repleat, et oſculum quaſi obturet.—*Haller Phyſiolog. and many of the older Writers.*

§ In gravida femina in laminas poſſit dividi, et in morbis in lacinias, ſquamaſque.—*Noortwyck. Uter. Gravid.* 1 l. c.

ſomewhat

ſomewhat different from muſcular fibres in other parts of the body.

The arteries of the *uterus* are the ſpermatic and hypogaſtric.

The ſpermatic arteries ariſe from the anterior part of the *aorta*, a little below the emulgents, and ſometimes from the emulgents. They paſs over the *pſoæ* muſcles, behind the *peritonæum*, enter between the two *laminæ*, or duplicatures of the *peritonæum*, which form the broad ligaments of the *uterus*, proceed to the *uterus*, near the *fundus* of which they inſinuate themſelves, giving branches in their paſſage to the *ovaria* and *fallopian* tubes.

The hypogaſtric arteries are on each ſide a conſiderable branch of the internal iliacs. They paſs to the ſides of the body of the *uterus*, ſending off a number of ſmaller branches, which dip into its ſubſtance. Some branches alſo are reflected upwards to the *fundus uteri*, which anaſtomoſe with the ſpermatic arteries, and others are reflected downwards ſupplying the *vagina*.

The veins which reconduct the blood from the *uterus* are very numerous, and their ſize in the unimpregnated ſtate is proportioned to that of the arteries; but their enlargement during pregnancy is ſuch, that the orifices of ſome of them, when divided, will admit even of the end of a ſmall finger. The veins anaſtomoſe in the manner of the arteries, which they accompany out of the *uterus*; and then, having the ſame names with the arteries, ſpermatic and hypogaſtric, the former proceeds to the *vena cava* on the right ſide, and on the left to the emulgent vein; and the latter to the internal iliacs.

From the ſubſtance and ſurfaces of the *uterus* an infinite number of lymphatics ariſe, which follow the courſe of the hypogaſtric and ſpermatic blood-veſſels. The firſt paſs into the glands of the internal iliac *plexus*; and the other into the glands which are ſituated near the origin of the ſpermatic arteries. Of theſe *Nuck* firſt gave a delineation.

The

The *uterus* is ſupplied with nerves from the lower meſocolic *plexus* and from two ſmall flat circular ganglions, which are ſituated behind the *rectum*. Theſe ganglions are joined by a number of ſmall branches from the third and fourth ſacral nerves. The *ovaria* derive their nerves from the renal *plexus*. By the great number of nerves theſe parts are rendered extremely irritable; but it is by thoſe branches which the *uterus* receives from the intercoſtal, that the intimate conſent between it and various other parts is chiefly preſerved.

The muſcular fibres of the *uterus* have been deſcribed in a very different manner by anatomiſts, ſome of whom have aſſerted, that its ſubſtance was chiefly muſcular, with fibres running in tranſverſe, orbicular, or reticulated order; whilſt others have contended, that there were no muſcular fibres whatever in the *uterus*. In the unimpregnated *uterus*, when boiled for the purpoſe of a more perfect examination, the former ſeems to be a true repreſentation; and when the *uterus* is diſtended towards the latter part of pregnancy, theſe fibres are very thinly ſcattered; but they may be diſcovered in a circular direction at the junction between the body and the *cervix* of the *uterus*, and ſurrounding the entrance of each *fallopian* tube in a ſimilar order. Yet it does not ſeem reaſonable to attribute the extraordinary action of the *uterus* at the time of labour to its muſcular fibres only, if we are to judge of the power of a muſcle by the number of fibres of which it is compoſed, unleſs it is preſumed, that thoſe of the *uterus* are ſtronger than in common muſcles.

With reſpect to the glands of the *uterus* none are diſcoverable diſperſed through its ſubſtance. Upon the inner ſurface of the *cervix*, between the *rugæ*, there are *lacunæ* which ſecrete mucus, and there are ſmall follicles at the edge of the *os uteri*. Theſe laſt are only obſervable in a ſtate of pregnancy, when they are much enlarged.

From the angles at the *fundus* of the *uterus* two proceſſes, of an irregularly round form, originate, called, from the name of the firſt

deſcriber, the *fallopian* tubes. They are about three inches in length, and, becoming ſmaller in their progreſs from the *uterus*, have an uneven, fringed termination, called the *fimbriæ*. The canal which paſſes through theſe tubes is extremely ſmall at their origin, but it is gradually enlarged, and terminates with a patulous orifice, the diameter of which is about one third of an inch, ſurrounded by the *fimbriæ*. It is alſo lined by a very fine vaſcular membrane formed into ſerpentine *plicæ*. Through this canal, the communication between the *uterus* and *ovaria* is preſerved. The *fallopian* tubes are wrapped in duplicatures of the *peritonæum*, which are called the broad ligaments of the *uterus*; but a portion of their extremities thus folded hangs looſe on each ſide of the *pelvis*.

The *ovaria* are two flat oval bodies, about one inch in length, and rather more than half in breadth and thickneſs, ſuſpended in the broad ligaments at about the diſtance of one inch from the *uterus*, behind, and a little below the *fallopian* tubes *.

To the *ovaria*, according to the idea of their ſtructure entertained by different anatomiſts, various uſes have been aſſigned, or the purpoſe they anſwer has been differently explained. Some have ſuppoſed, that their texture was glandular, and that they ſecreted a fluid equivalent to and ſimilar to the male *ſemen*; but others, who have examined them with more care, aſſert that they are *ovaria* in the literal acceptation of the term, and include a number of veſicles, or *ova*, to the amount of twenty-two of different ſizes, joined to the internal ſurface of the *ovaria* by cellular threads or pedicles; and that they contain a fluid, which has the appearance of thin lymph. Theſe veſicles are in fact to be ſeen in the healthy *ovaria* of every young woman. They differ very much in their number in different *ovaria*, but are very ſeldom ſo numerous as has juſt been ſtated. All have agreed, that the *ovaria* prepare whatever the

* Ovaria in vetulis admodum exilia, ut plurimum viſuntur. *Ruyſch. Obſ. Anatom.* xlv.

female

female ſupplies towards the formation of the *fœtus*; and this is proved by the operation of ſpaying, which conſiſts in the extirpation of the *ovaria*, after which the animal not only loſes the power of conceiving, but deſire is for ever extinguiſhed.

The outer coat of the *ovaria*, together with that of the *uterus*, is given by the *peritonæum*, and whenever an *ovum* has paſſed into the *fallopian* tube, a fiſſure may be obſerved at the part through which it is ſuppoſed to have been transferred. Theſe fiſſures healing, leave ſmall longitudinal cicatrices on the ſurface, which are ſaid to enable us to determine, whenever the *ovarium* is examined, the number of times a woman has conceived.

The *corpora lutea* are oblong glandular bodies, of a yellowiſh colour, found in the *ovaria* of all animals when pregnant, and, according to ſome, when they are falacious. They are ſaid to be *calyces* from which the impregnated *ovum* has dropped; and their number is always in proportion to the number of conceptions found in the *uterus*. They are largeſt and moſt conſpicuous in the early ſtate of pregnancy, and remain for ſome time after delivery, when they gradually fade and wither till they diſappear. The *corpora lutea* are extremely vaſcular, except at their centre, which is whitiſh; and in the middle of the white part is a ſmall cavity, from which the impregnated *ovum* is thought to have immediately proceeded.

From each lateral angle of the *uterus*, a little before and below the *fallopian* tubes, the round ligaments ariſe, which are compoſed of arteries, veins, lymphatics, nerves, and a fibrous ſtructure. Theſe are connected together by cellular membrane, and the whole is much enlarged during pregnancy. They receive their outward covering from the *peritonæum*, and paſs out of the *pelvis* through the ring of the external oblique muſcle to the groin, where the veſſels ſubdivide into ſmall branches, and terminate at the *mons veneris* and contiguous parts. From the inſertion of theſe ligaments into the groin, the reaſon appears why that part generally ſuffers in all the

diſeaſes and affections of the *uterus*; and why the inguinal glands are in women ſo often found in a morbid or enlarged ſtate.

The duplicatures of the *peritonæum*, in which the *fallopian* tubes and *ovaria* are involved, are called the broad ligaments of the *uterus*. Theſe prevent the entanglement of the parts, and are conductors of the veſſels and nerves, as the meſentery is of thoſe of the inteſtines. Both the round and broad ligaments alter their poſition during pregnancy*; appearing to riſe lower and more forward than in the unimpregnated ſtate. Their uſe is ſuppoſed to be that of preventing the deſcent of the *uterus*, and to regulate its direction when it aſcends into the cavity of the *abdomen*, but whether they anſwer theſe purpoſes may be much doubted.

SECTION II.

THE diſeaſes of the internal parts of generation will be beſt underſtood if they are deſcribed in the order obſerved in the deſcription of the parts.

The diſeaſes of the *vagina* are, firſt, ſuch an abbreviation and contraction as render it unfit for the uſes for which it was deſigned; ſecondly, a coheſion of the ſides in conſequence of preceding ulceration; thirdly, cicatrices, after an ulceration of the parts; fourthly, excreſcences; fifthly, *fluor albus*.

This abbreviation and contraction of the *vagina*, which uſually accompany each other, are produced by original defective formation; and they are ſeldom diſcovered before the time of marriage, the conſummation of which they ſometimes prevent. The curative intentions are to relax the parts by the uſe of emollient applications, and to dilate them to their proper ſize by ſponge or other tents, or

* Ovariorum eorumque ductuum ſitus mutatur, tempore geſtationis et puerperii.—*Ruyſch.* Theſ. ix. No. xv.

which

which are more effectual, by bougies gradually enlarged. But the circumſtances which attend this diſorder are ſometimes ſuch as might lead us to form an erroneous opinion of the diſeaſe. A caſe of this kind which was under my care, from the ſtrangury, from the heat of the parts, and the profuſe and inflammatory diſcharge, was ſuſpected to proceed from venereal infection; and with that opinion the patient had been put upon a courſe of medicines compoſed of quickſilver for ſeveral weeks without relief. When ſhe applied to me, I prevailed upon her to ſubmit to an examination, and found the *vagina* rigid, ſo much contracted as not to exceed half an inch in diameter, and not more than one inch and a half in length. The repeated, though fruitleſs, attempts, which had been made to complete the act of coition, had occaſioned a conſiderable inflammation upon the parts, and all the ſuſpicious appearances before mentioned. To remove the inflammation, ſhe was bled, took ſome gentle purgative medicines, uſed an emollient fomentation, and afterwards ſome unctuous applications; ſhe was alſo adviſed to live ſeparate from her huſband for ſome time. The inflammation being gone, tents of various ſizes were introduced into the *vagina*, by which it was diſtended, though not very amply. She then returned to her huſband, and in a few months became pregnant. Her labour, though ſlow, was not attended with any extraordinary difficulty; ſhe was delivered of a full ſized child, and afterwards ſuffered no inconvenience.

Another kind of conſtriction of the external parts ſometimes occurs, and which ſeems to be a mere ſpaſm. This is to be removed in ſome caſes by ſuch applications as ſooth and allay irritation, and in others by ſuch means as diſtend them by reſiſting the ſpaſm, which is ſometimes ſo forcible as to require the uſe of bougies of a proper ſize for a long time, even in women who are married or have borne children.

SECTION III.

By the violence or long continuance of a labour, by the morbid ſtate of the conſtitution, or by the negligent and improper uſe of inſtruments, an inflammation of the external parts, or *vagina*, is ſometimes produced in ſuch a degree as to endanger a mortification. By careful management this conſequence is uſually prevented; but, in ſome caſes, when the conſtitution of the patient was prone to diſeaſe, the external parts have ſloughed away, and in others equal injury has been done to the *vagina*. But the effect of the inflammation is uſually confined to the internal or villous coat, which is ſometimes caſt off wholly or partially. An ulcerated ſurface being thus left, when the diſpoſition to heal has taken place, cicatrices have been formed of different kinds, according to the depth and extent of the ulceration; and there being no counteraction to the contractile ſtate of the parts, the dimenſions of the *vagina* become much reduced: or, if the ulceration ſhould not be healed, and the contractibility of the parts continue to operate, the ulcerated ſurfaces being brought together may cohere, and the canal of the *vagina* be perfectly cloſed. The inconveniencies and ill conſequences of this complaint may in general be prevented, or very much leſſened, by proper attention at the time of healing; but in many of the caſes I have ſeen, the firſt inflammation being neglected, and the ſloughing from the *vagina* overlooked, the coheſion had taken place long before it was ſuſpected

SECTION IV.

CICATRICES in the *vagina* very ſeldom become an impediment to the connexion between the ſexes; when they do, the ſame kind of aſſiſtance is required as was recommended in the natural contraction or abbreviation of the part, and I believe they always give way to the preſſure of the head of the child in the time of labour, though in many caſes with great difficulty. Sometimes the appearances may miſlead the judgment; for I was lately called to a woman in labour, who was thought to have become pregnant, the *hymen* remaining unbroken. But, on making very particular inquiry, I diſcovered that this was her ſecond labour, and that the part which, from its form and ſituation, we ſuppoſed to be the *hymen*, with a ſmall aperture, was a cicatrice, or unnatural contraction of the entrance into the *vagina*, conſequent to an ulceration of the part after her former labour.

When the ſides of the *vagina* cohere together, it may be requiſite to ſeparate them with a knife; and, when they are in a healing ſtate, their reunion may be prevented by tents or bougies, or by a leaden canula of a proper ſize, introduced into, and worn in the *vagina*. But, if the coheſion has taken place far up in the *vagina*, the knife muſt be uſed with the utmoſt circumſpection, or irreparable injury may be done to the bladder, *rectum*, or the adjoining part, as they all are drawn cloſely together. A patient under theſe circumſtances, who applied to me for relief, and in whom the menſtruous blood was ſecreted, though it could not be diſcharged, was adviſed to defer any operation; as I preſumed the menſtruous blood, at ſome future time, would be collected in ſuch a quantity as either to ſeparate or protrude the cohering parts in ſuch a manner as to render the operation more ſecure, effectual, and eaſy. Accordingly when they were

ſtretched

ſtretched and protruded by the retained *menſes*, the point moſt eligible for perforation was indicated, and the operation was performed eaſily and ſafely. But in ſome caſes of coheſion it has not been thought juſtifiable to attempt to ſeparate the united parts by inciſion, and the patient has been obliged to ſubmit to the injury for the remainder of her life.

SECTION V.

FUNGOUS excreſcences ariſing from any part of the *vagina* or *uterus* have been diſtinguiſhed, though not very properly, by the general term, *polypus*. Theſe are of different forms and ſizes, and may ſprout from any part of the cavity of the uterus, and perpend in the *vagina*; or from the *os uteri*; or from the *vagina*. The texture of the excreſcences is alſo very different, being in ſome caſes fleſhy and firm, and in others truly fungous and almoſt as ſoft as coagulated blood. Some of them hang by a ſmall pedicle, and others have a broad baſis, eſpecially at their commencement. But theſe ſubſtances not having been accurately deſcribed by anatomiſts, nor the accompanying ſymptoms marked by noſologiſts, thoſe who are not very guarded in their practice are often led into error, in their prognoſtic and treatment of theſe caſes.

The cauſe of *polypi* may be ſome accidental injury done to the part at the time of labour or otherwiſe; but more generally it is a ſpontaneous diſeaſe, proceeding from a certain diſpoſition of the conſtitution or of the part itſelf, as thoſe who have a *polypus* of the *uterus* for inſtance, are apt to have excreſcences from other parts, and they frequently exiſt in thoſe who have never been pregnant, and even in virgins.

Thoſe which are of a ſmall ſize are not impediments either to conception

conception or parturition; at leaſt if they ſpring from the *vagina* or *os uteri*.

In the firſt ſtage, a *polypus* may be accompanied with all thoſe ſymptoms which proceed from uterine irritation; and in its progreſs and advanced ſtate with a mucous, ſanious, or ſanguineous diſcharge, increaſing in quantity, frequently changing its appearance, and irregular in the times of its continuance, according to the growth of the diſeaſe and the ſtate of the conſtitution. By theſe diſcharges, and often by the continual pain, the patient may at length be reduced to extreme weakneſs; and if relief be not given by the extirpation of the *polypus*, ſhe may periſh from mere loſs of ſtrength, or the production of other diſeaſes. But theſe ſymptoms being common to ſome other affections of the uterus, the cauſe of them is frequently overlooked. When therefore no advantage is obtained in ſuch caſes, by the uſe of ſuitable and efficacious medicines, it ſhould be made a general rule to inquire whether there may not be a *polypus*, or what is the nature of the local diſeaſe.

The *polypus* may be removed by exciſion, or by ligature, but the latter is by far the preferable method, and the ligature is to be uſed in the ſame manner, and on the ſame principle as in the extirpation of naſal *polypi*. The kind of ligature I have generally uſed has been either one of the laces made of ſilk, uſed in the dreſs of women, or a piece of fine whipcord. The difficulty of the operation lies in the proper application of the ligature, and this depends upon the diſtance of the part to be tyed from the external orifice, upon the ſize, and thickneſs of the baſis or ſtem of the *polypus*. If the circumſtances of the caſe will admit of delay, the operation will be rendered more eaſy by deferring it, as the tumour will deſcend lower, and the ſtem or pedicle become thinner and longer.

This is the manner of tying the *polypus*; draw the ligature, doubled, through the canula or ligator commonly uſed for this purpoſe, and then conduct the bow of the ligature with the fingers, all round and

over the bulk of the *polypus*, taking care that it does not hitch on one ſide when it is paſſed over the other, which it is apt to do if the *polypus* be large. The ligature being paſſed over the *polypus* and upon its ſtem, the canula is to be carried to the ſtem, and both the ends of the ligature carefully drawn through till it is tightened. We are then to examine with the finger, whether the ligature be fixed upon the moſt eligible part, which is uſually as high up as we can reach, but there is not occaſion to fix it upon any preciſe part of the root of the ſtem, becauſe the part beyond the ligature decays and comes away with the reſt, leaving the *uterus* clear.

I have found it better to draw the ligature ſlowly to what may be called its bearing, than to tighten it haſtily, leſt the ſtem ſhould be cut through prematurely, if the ſubſtance were tender, and then there would be an awkward diſcharge for ſome time afterwards. I therefore gradually tighten the ligature every day till it comes away, which cannot happen till the ſtem is ſeparated, which is uſually on the fourth or fifth day according to the thickneſs or texture of the ſtem. The firſt ſign of a ſucceſsful operation is the ſcent of ſomething putrefying. The ligature being looſened and taken away, there is ſeldom any difficulty in extracting the *polypus*, unleſs it were very large; but of this we ſhall afterwards ſpeak.

During the operation of the ligature we muſt carefully watch any tendency there may be to pain or inflammation in the *abdomen*, and if either of theſe ſhould come on in any material degree, we muſt proceed more circumſpectly.

It has been mentioned as a general rule, that we ought not to paſs the ligature round a *polypus*, unleſs we can feel the ſtem; but in caſes of extreme danger this rule muſt be diſregarded. We muſt alſo diſtinguiſh a *polypus* from an inverted *uterus*; and there is in ſome reſpects a reſemblance between the two complaints, and ſometimes they exiſt together even when the *polypus* is not large.

Should a *polypus* ariſe from the ſubſtance of the part, with a baſis

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as large or larger than the excreſcence, the ligature cannot be fixed, for it will either ſlide off, or take a partial hold. In ſuch caſes attempts to paſs the ligature produce no advantage, for in general ſuch tumours have a cancerous diſpoſition. When the *polypus* has a ſmall pedicle, the caſe is commonly more favourable than where the pedicle is of a conſiderable thickneſs.

Before the ligature is paſſed, we ſhould be informed of the ſtate of the *uterus*, for if this be diſeaſed the patient will not profit by the extirpation of the *polypus*, and we may acquire no credit, though acting with the greateſt ſkill, in the operation.

The *polypus* has ſometimes terminated favourably without aſſiſtance, or with aſſiſtance of a different kind. After a long continuance of the diſeaſe, which may not have been ſuſpected, or perhaps miſtaken for ſome other, the tumour has preſſed through the *vagina* and external orifice, and the ſtem being too weak to ſuſtain its weight, or to afford nouriſhment, it has decayed and dropped away; or when the *polypus* has puſhed through the external orifice, a ligature has been fixed round the ſtem, and the *polypus* been eaſily and perfectly extirpated. But in ſuch caſes the *uterus* is more frequently inverted by delaying to remove the *polypus* at a proper time, and the patient is unneceſſarily expoſed to a continuance of ſuffering and an increaſe of danger.

As little has been ſaid on this ſubject by any writer in this country, I preſume it may be of uſe to give a detail of ſome caſes not common, eſpecially as it will give me an opportunity of mentioning ſome circumſtances unnoticed in the foregoing deſcription of the operation.

CASE I.

A ſingle lady, twenty-two years of age, had for a conſiderable time been ſubject to frequent and profuſe returns of uterine hemorrhage,

which reſiſted all the means that could be deviſed for her relief, and at length reduced her to a ſtate of great weakneſs. Dr. *Turt* (whoſe worth and continued friendſhip to me I am happy on every occaſion to acknowledge) was the phyſician who attended, and he, ſuſpecting ſome local diſeaſe, deſired I might be permitted to make inquiry. I diſcovered a *polypus*, not of a large ſize, lying low in the *vagina*. When I came to paſs the ligature, there was much embarraſſment from the ſtate of the parts, any injury to which I was ſolicitous to avoid. On the fifth day from the time of my paſſing the ligature it came away, but the *polypus* could not be extracted without much caution and trouble. There was no return of the hemorrhage, ſhe ſoon recovered her ſtrength, and in a few months was married. She has had ſeven fine children with ſafe and eaſy labours. This *polypus* weighed about four ounces.

CASE II.

ANOTHER young lady had long ſuffered from frequent uterine hemorrhages, together with moſt violent pains, recurring in the manner of thoſe of labour. High up in the *vagina*, juſt cleared through the *os uteri*, I diſcovered a ſmall *polypus*, round which a ligature was with difficulty paſſed. The late Mr. Hunter was with me at the time. When I began to tighten the ligature ſhe complained of very ſevere pain, and preſently vomited. The ligature was immediately ſlackened, but on every future attempt to draw it tighter, the ſame ſymptoms were inſtantly produced. After many trials I was obliged to deſiſt altogether, leaving the ligature looſe round the *polypus*, merely to keep up in the mind of the patient ſome faint hope of benefit. The health of this patient was very bad when I firſt ſaw her, and in about ſix weeks from the time of the operation, ſhe died.

Leave being given to open the body, the *uterus* was found inverted, and

and the ligature to have paſſed over the inverted part, which occaſioned all the ſymptoms before mentioned. This *polypus* could not have weighed more than one ounce, and had a very ſhort, if it could be ſaid to have any ſtem; ſo that the *uterus* could not in this caſe have been inverted mechanically, but by its own vehement action excited to expel the *polypus*, which, like any other extraneous and offending body, was a perpetual cauſe of irritation.

CASE III.

MANY years ago I viſited a lady, who had for a long time ſuffered greatly from various uterine complaints, and was ſupppoſed to have a cancer in the *uterus*, of which her general aſpect gave very ſtrong indications. But on examination I found a large *polypus* in the *vagina*. The late Dr. *Ford*, than whom no one was more intelligent or expert in practice, was in conſultation with me. I paſſed the ligature and drew it tight, confidently expecting a happy termination of the caſe. The ſtem of the *polypus* was very thick, and it required eight or nine days action of the ligature to divide it. When I had removed the *polypus*, I was very much mortified to find a new ſubſtance, nearly of the ſize of that which had been taken away, in the *vagina*. Her health being very infirm, it was thought adviſable for her to go to a ſhort diſtance in the country, for the chance of re-eſtabliſhing her health, before another operation. But a colliquative diarrhœa with aphthæ came on, ſhe gradually declined, and about the end of the month died.

Of this repullulation, if it was ſuch, I have never ſeen any other inſtance, and it might be attributed, 1. to the thickneſs of the ſtem; or, 2. to the ſlow decay of the ſtem; or, 3. to a cancerous diſpoſition of the *uterus*. If a caſe ſimilar to this were to occur to me, I ſhould certainly act more ſpeedily with the ligature, and however reduced the patient might be, ſhould feel juſtified in paſſing the li-

gature on the ſecond excreſcence, as affording the only chance of ſaving the patient.

CASE IV.

A LADY about ſixty years of age, who had had ſeveral children, had, with violent pain, frequent hemorrhages from the *uterus*, ſo profuſe as to bring her at each time of their return into the greateſt danger. When ſhe permitted me to take an examination, there was no *polypus* in the *vagina*, but the *uterus* was much diſtended, and the *os uteri* being opened nearly to one third of its circumference, I could diſcover within, and preſſing upon it, a tumour of apparently a very large ſize. In the courſe of a few weeks an immenſely large *polypus* dropped into the *vagina*. Her health was much reduced, and the extirpation of the *polypus* appearing the only chance of ſaving her, I made many and ſtrenuous attempts to paſs the ligature, but without ſucceſs. I then procured a longer and different inſtrument, like that uſed in tying the tonſils, but with this I was alſo foiled. In my endeavours to paſs this inſtrument round the *polypus*, the ſurface was abraded, a blood-veſſel of a conſiderable ſize was wounded, and there was a loſs of blood, which rendered the patient ſtill more weak. After a few days, without any inſtrument, I gradually introduced my hand into the *vagina*, got the ligature over the *polypus*, and then tightened it. Dr. Orme and Mr. Croft were with me at the time. But many complaints came on, and ſhe died in a few days before the *polypus* could be extirpated.

The blood veſſels which convey nouriſhment to a *polypus*, probably bear a relation to its ſize, and muſt, of courſe, be ſometimes very large; ſo that in paſſing the ligature, it behoves us to be very careful that we do not wound the *polypus*; and, perhaps, in every caſe when the *polypus* is large, it would be better, if poſſible, to introduce the

hand, for the conveyance of the ligature, than to uſe any inſtrument. Much will alſo depend on the texture of the *polypus*, which is ſometimes ſo ſlight as to reſemble an injected and corroded liver or kidney. I remember a caſe in which, though I only took a common examination, and with the uſual caution, ſo violent an hemorrhage was occaſioned, that I thought the patient would have died inſtantly.

The three preceding caſes are the only ones among a very great number, in which I have not been ſucceſsful; and I have judged it right to ſtate them thus circumſtantially, to ſet others upon their guard, and to prepare them for the poſſibility of diſappointment.

In the muſeum of the late Dr. Hunter, there is a large *polypus*, and by the regiſter it appears that, after many attempts to paſs the ligature, without ſucceſs, this patient died. Perhaps by a knowledge of the cauſes of the miſcarriage of others (as in caſe 4 juſt recited), ſubſequent trials, even in *polypi* which are of the largeſt ſize, may be more fortunate. I have very great pleaſure in relating the following caſe, which was lately under my care.

CASE V.

A FOREIGN lady who was born, and had lived the greateſt part of her time, in a hot climate, applied to me. She had had every day, for more than three years, a very conſiderable diſcharge of blood from the *uterus*, together with others of a different kind and complexion, by which her ſtrength was much reduced. She had been attended by different gentlemen, who had not given any decided opinion of the nature of her diſeaſe. When I firſt examined her, I was indeed very much ſurpriſed, for not only the whole *vagina* was filled up with a fleſhy ſubſtance, but the *os uteri* was as completely dilated as when the head of a child is paſſing through it, and the cavity of the *uterus* was filled with the ſame ſubſtance. I at firſt

firſt heſitated whether I ſhould make an attempt to paſs the ligature, as I could not reach the ſtem of the ſubſtance, but after deliberating upon the ſtate of the patient, who muſt ſoon periſh, unleſs relief could be given, and knowing that if the ligature could be paſſed I ſhould have the power either of proceeding, or of ſtopping on the appearance of any untoward ſymptom, I determined to make a trial. The firſt and ſecond attempts to paſs the ligature were fruitleſs, but I at length conveyed the ligature beyond the bulk of the tumour and far beyond my reach, by means of a piece of thin cane, notched at the end. The ligature being daily drawn gradually tighter, was at liberty on the ſixth day. The external parts were unuſually contracted, and as any endeavours to bring away the *polypus* at that time muſt have failed, it was left in the *vagina* to ſoften and decay. On the ninth day ſhe had pains as regular as thoſe of labour, and when the *os externum* became ſomewhat dilated, I laid hold of a portion of the tumour, firſt with my fingers, and then with a ſmall ſharp pointed hook, favouring the expulſion of it as well as I could, during the pains by which it was propelled with conſiderable force. After a labour of four hours continuance the *polypus* was excluded. From that time to the end of five weeks there was no diſcharge of any kind, then ſhe menſtruated regularly, and returned home in perfect health.

This *polypus*, which was the largeſt I ever ſaw, was put into the hands of Dr. Baillie, who ſaw the patient during the operation. It weighed two pounds and three ounces, ſo that allowing for its decay, perhaps it could not originally have weighed leſs than three pounds.

When *polypi* are too large to be extracted without much difficulty after their ſeparation, no harm can ariſe from their remaining ſome days in the *vagina*, as I have found in ſeveral inſtances.

In the muſeum of the late Dr. W. Hunter, there is preſerved a *polypus*, which from its ſize appears to have inverted the *uterus*, and the ligature when paſſed over it, being out of reach, was found to have

have been fixed over the inverted part of the *uterus*, ſo that when drawn tight it had produced the ſame ſymptoms as thoſe deſcribed in caſe 2.

It is remarkable that this woman lived till the inverted portion of the *uterus* was more than half cut through by the ligature, and I am of opinion with very ſlow proceeding ſhe might have ſurvived the operation. For in a caſe in which I was concerned with Mr. Heaviſide and other gentlemen, the ligature being paſſed round a cauliflower excreſcence, as it is called, of the *os uteri*, a portion of the *os uteri* itſelf was included and came away with the excreſcence, and the patient lived ſeveral months after the operation. But the ſame cauſes and degrees of irritation differ ſo widely in their effects in different conſtitutions, the event of ſuch caſes muſt be both hazardous and doubtful.

The late Dr. Hamilton of Glaſgow obliged me with a drawing of a *polypus* which weighed one pound and four ounces, and had dropped through the *os externum*, inverting and dragging along with it the *fundus* of the *uterus*. The patient died. Had the nature of this complaint been underſtood in due time, it would in all likelihood have been poſſible to have tied and extirpated it, before it had occaſioned ſo much miſchief. It is an example, among many others, of the impropriety of waiting till the *polypus* is excluded through the *os externum* before we attempt to tie it, an opinion which ſome have entertained.

A very great part of thoſe on whom I have performed this operation have been foreigners, or perſons who have lived in hot climates; but it remains to be proved whether women in ſuch climates are more ſubject to the *polypus* than thoſe who live in cold ones, or whether this has been an accidental circumſtance.

I have ſeen ſeveral caſes of excreſcences, not above the thickneſs of a large earth-worm, ſpringing from the cavity of the *uterus* or *os uteri*, and growing to a great length. Theſe were eaſily tied and

and removed. In one caſe the *cervix* of the *uterus* was ſo much elongated as to drop through the external parts, aſſuming the appearance of a thickened membrane, but with this it was not thought prudent to interfere.

I am ſorry to have known reaſons for concluding this account with the following obſervation. When a *polypus* is diſcovered to exiſt, it does not ſeem right to proceed to the operation immediately, but to requeſt a conſultation; to prove the nature of the diſeaſe and the neceſſity of the operation, that the honour of the profeſſion, and of the perſon employed, may be preſerved inviolate.

SECTION VI.

A mucous, ichorous, or ſanious diſcharge from the *vagina* or *uterus*, is called the *fluor albus* *. Theſe diſcharges are various in their degrees as in their kinds, from a ſimple increaſe of the natural *mucus* of the part, to that which is purulent or of the moſt acrimonious quality; but the firſt is not eſteemed a diſeaſe, unleſs it be exceſſive in its degree. It is the moſt frequent complaint to which women are liable, and is by them ſuſpected to be the cauſe of every diſeaſe which they may at the ſame time ſuffer; but it is generally a ſymptom of ſome local diſeaſe, or a conſequence of great debility of the conſtitution, though, when profuſe, it becomes a cauſe of yet greater weakneſs. In many caſes the *fluor albus* is an indication of a diſpoſition to diſeaſe in the *uterus*, or parts connected with it, eſpecially when it is copious in quantity, offenſive in ſmell, or acrimonious in quality, about the time of the final ceſſation of the *menſes*; and before the uſe of ſuch means as are merely calculated

* *Leucorrhœa.* Nimia muci aut ichoris ex vulva profuſio.—*Vogel.* cxix. Cachexia uterina, ſive fluor albus.—*Hoffman.*

for

for the removal of the diſcharge, we muſt firſt endeavour to reſtore the *uterus* to a healthy ſtate.

The ſymptoms attending the *fluor albus*, whether it be an original diſeaſe, or a ſymptom of other diſeaſes, are very ſimilar. The complexion is of a pale, yellowiſh colour, the appetite is depraved, there is invariably a pain and ſenſe of weakneſs in the back and loins, the patient has uſually a feveriſh diſpoſition, with a waſting of the fleſh and reduction of the ſtrength, and ultimately becomes hectic or leucophlegmatic.

The method of relieving or curing the *fluor albus* muſt depend upon its cauſe, whether the diſcharge proceeds from the *uterus* or *vagina*. When it is occaſioned by general weakneſs of the conſtitution, all thoſe medicines which are claſſed under the general term of corroborants or tonics, eſpecially bark and preparations of iron, may be given, under a variety of forms, with great advantage. But their effect is not immediate; and, previouſly to their uſe, it will be proper and neceſſary that the patient ſhould take ſome mild purgatives, and in all caſes where there is any feveriſh diſpoſition, that is to be removed before the uſe of any kind of tonic medicine. Balſamic and agglutinating medicines of every kind, as the extract of bark with gum *olibanum*, *maſtic*, or *elemi*, and all the claſs of terebinthinate balſams, of which the beſt for internal uſe is that called the balſam of *Gilead*, are alſo frequently preſcribed, and often with much benefit. In ſome obſtinate caſes, preparations of quickſilver, eſpecially *calomel* in very ſmall doſes, have been given with advantage, when there was no ſuſpicion of any venereal infection. Gentle emetics have alſo been recommended in ſome caſes of long continuance, and they are ſuppoſed to be of ſingular uſe, not only by cleanſing the *primæ viæ*, or by making a revulſion of the humours from the inferior parts, but by exciting all the powers of the conſtitution to more vigorous action. Cold bathing, partial or general, particularly in the ſea, has often been of eminent ſervice.

In this, and all ſimilar complaints, good air, moderate exerciſe, nouriſhing and plain diet, and a regular manner of living, will of courſe be adviſed.

When there is reaſon to think that the complaint is local, and ariſes from the relaxation of thoſe orifices by which a neceſſary *mucus* is diſcharged on particular occaſions; or if the diſcharge ſhould continue after an amendment of the conſtitution, injections of various kinds may be uſed daily. But the ſafeſt and beſt are thoſe which are compoſed from aſtringent vegetables, as a ſtrong infuſion of green tea, or the leaves of the red roſe; proceeding cautiouſly to weak ſolutions of *ceruſſa acetata*, *zincum vitriolatum*, or *alum*, as is the practice in long continued defluxions upon the eyes. Though theſe applications cannot well be expected to produce an abſolute cure, they ſeldom fail to afford temporary benefit, which is a great comfort to the patient, and if cautiouſly and judiciouſly directed, they may be continued or repeated without hazard.

SECTION VII.

THE *uterus* is liable to many diſeaſes, and, being a part with which the whole body is readily drawn into conſent, there is ſcarce a diſeaſe under which women have at any time laboured, but what has been attributed to its influence: yet it is not proved, that there is any eſſential difference in thoſe diſeaſes of women to which men are equally ſubject, though there is ſome variety in the ſymptoms. We ſhall confine our attention to the moſt obvious diſeaſes of the *uterus*, and begin with the *prolapſus* or *procidentia*, which very frequently occurs.

By the *prolapſus* is meant a ſubſidence or deſcent of the *uterus* into the *vagina*, lower than its natural ſituation, and it is termed a *procidentia* when the *uterus* is puſhed through the external orifice

of

of the *pudenda* *. This ſometimes happens to ſuch a degree as to put on the appearance of an oval tumour growing from the external parts, depending very low between the thighs, cauſing great pain and uneaſineſs, and rendering the patient unable to perform the common offices of life. A moderate ſhare of circumſpection, eſpecially with regard to the ſtate of the *os uteri*, will enable us to diſtinguiſh the *procidentia* of the *uterus* from its inverſion, and from all reſembling diſeaſes.

There are many cauſes of the *prolapſus* or *procidentia* of the *uterus*; as long ſtanding during the time of pregnancy, carrying heavy burdens, an extreme degree of coſtiveneſs, and all ſudden and violent exertions of the body; whence they moſt frequently happen to women in the lower ranks of life. They may be occaſioned by the circumſtances of a labour, as the deſcent of the *os uteri* into the *pelvis*, before it is dilated; by the prepoſterous efforts of the woman in an erect poſition; by the rude and haſty extraction of the *placenta*, and by riſing too early after delivery. They may alſo be produced by mere relaxation of the parts, after a long-continued *fluor albus*, as unmarried women are ſometimes ſubject to them, though leſs frequently than thoſe who have had children. By a knowledge of the cauſes of theſe complaints, we are led to their prevention and cure; and it is worthy of obſervation, that, when a *prolapſus* or *procidentia* has been occaſioned by the circumſtances of one labour, they may generally be relieved, or ſometimes perfectly cured, by care and long confinement of the patient in an horizontal poſition after the next. When women who have a *prolapſus* are pregnant, the inconveniencies are increaſed in the early part of pregnancy, becauſe the *uterus*, being then more weighty and enlarged, ſinks lower than uſual into the *vagina*; but in the latter part, they are leſſened, as it is then ſupported above the brim of the *pelvis*. Yet,

* *Hyſteroptoſis.* Uteri vel vaginæ procidentia.—*Sauvag.* xlix.

when the *pelvis* is very capacious, and the parts much relaxed, the lower part of the *uterus*, including the head of the child, has in ſome caſes been puſhed through the external orifice, before the *os uteri* was dilated, even in the time of labour.

The *procidentia* is not, properly ſpeaking, a diſeaſe of the *uterus*, but a change of its poſition, cauſed by the relaxation or weakneſs of thoſe parts to which it is connected, and by which it ſhould be ſupported. It accordingly moſt commonly happens, that the firſt tendency to it is diſcovered by the protruſion or fulneſs of the anterior part of the *vagina*, and ſometimes alſo the poſterior part of the *vagina* firſt becomes tumid, forming a kind of pouch by the partial diſtention of the *rectum*; and this happens in ſome caſes where there is no deſcent of the *uterus*. But, in the principal degrees of the *procidentia*, the poſition of the *uterus* and *vagina* is not only very much altered, but that of all the contiguous parts, eſpecially the bladder*.

The intentions in the cure of the *procidentia* or *prolapſus* are, to reſtore the *uterus* to its proper ſituation, and to retain or ſupport it when replaced.

The reduction of the parts to their ſituation is not uſually attended with much difficulty, even in the worſt degrees of this complaint. In ſome caſes, however, it is neceſſary, by bleeding, confinement in bed, gently-purgative medicines, and emollient fomentations, to leſſen the inflammation and tumefaction, or to heal the ulceration of the parts if any exiſt; and eſpecially when the *procidentia* or *prolapſus* occurs ſoon after delivery, gentle means can only be uſed with propriety, as the parts are often in too irritable and tender a ſtate to bear any other without miſchief. When the parts are replaced, it will ſometimes be proper to uſe local aſtringent and

* Maximam veſicæ partem ſecum trahit.—*Ruyſch Advers. Dec.* 1. 6.—See Medical Obſervations and Inquiries, vol. iii. caſe 1. By Dr. *Thomas White* of *Mancheſter*.

aromatic

aromatic applications, in the form of a lotion or fomentation applied externally, or conducted into the *vagina* by means of a ſyringe or ſponge. But theſe will generally fail to anſwer our intention fully, and we ſhall be obliged to have recourſe to peſſaries, of which many have been contrived of various forms and ſubſtances.

The intention in the uſe of peſſaries is to ſupport the *uterus* in its ſituation, without injuring it, or the adjoining parts; but certainly many of the kinds now in common uſe are ill calculated for one or both of theſe purpoſes, as they can neither be introduced nor worn without inconvenience, and often fail to anſwer our intention. Previouſly to theſe I have commonly recommended a piece of ſponge of a ſuitable ſize, wet with red wine, to be tried; or a ſmall ball of the elaſtic gum moderately diſtended with cotton, and if theſe fail to anſwer the intention, a peſſary of a firmer kind muſt be introduced. Peſſaries are generally made of box or ebony wood, or of cork covered with wax. By ſome the circular form is preferred; by others the oval; whilſt others are perſuaded that globular ones are the moſt effectual*; and if they are made very light they are certainly very eaſy to wear, and completely relieve the complaint; but they cannot be uſed by women who live with their huſbands. Much dexterity and judgment alſo are required in the introduction of peſſaries, for, if they are too ſmall, they will not remain in the *vagina*; and, if too large, they will inflame and ulcerate the parts, mechanically cauſing the ſtrangury, obſtinate coſtiveneſs, and many other painful ſymptoms. The ſize of thoſe firſt uſed ſhould be ſufficiently large, and they may be gradually diminiſhed, till they are no longer neceſſary. When a peſſary has been introduced, it is requiſite that the patient ſhould, for ſome time, be kept quiet and in an horizontal poſition, by which the preſent inconveniencies will be

* For the firſt account of the globular peſſary, which was invented by Dr. *Sandys*, ſee London Medical Journal, vol. vii. 1786.

leſſened, and the good we expect to be derived from it will be increaſed; yet, there is no doubt but that we are often diſappointed in our expectations of the advantage to be gained by the uſe of peſſaries, from impatience or the want of attention in their application. Peſſaries, when introduced, are chiefly ſupported by the *perinæum*, but if this ſhould have been lacerated, the common ones cannot be uſed. A ſort has for ſuch caſes been contrived with ſtems, to which ligatures are to be fixed, and then brought forwards and backwards to a bandage paſſed round the waiſt. Theſe are always very troubleſome, and are therefore never recommended, unleſs no other kind is likely to anſwer, but I have never met with a caſe in which the globular peſſary could not be eaſily introduced and conveniently worn*.

From the long continuance of a common flat peſſary in the *vagina*, or from the entanglement and ſtrangulation of the *os uteri* within the opening at its centre, there has ſometimes been much difficulty when it was neceſſary to withdraw it. If it be poſſible to paſs a piece of tape through the circular opening, and if we pull in a proper direction by both ends of it, with a firm and gradually increaſed force, ſo as to give the parts time to diſtend, we can hardly fail of ſucceſs. But, if that be not poſſible, the rim of the peſſary muſt be broken, or divided by a pair of ſharp ſtrong *forceps*, of the kind uſed by watch-makers †. The globular peſſary may at any time be extracted with a ſmall *vectis*. But peſſaries when once introduced may generally be ſuffered to remain for a long time without any hazard or inconvenience, and I think I once extracted one which had remained in the *vagina* for fourteen years.

It has been obſerved, that the uſe of peſſaries, except the globular

* The ſtem peſſary has been very much improved by *Edye*, the truſs maker in Dean Street, Soho.

† See Chapman's Treatiſe on Midwifery, chap. lxviii.

ones, does not hinder the act of coition, or conception; and when a woman has a *procidentia* or *prolapſus* it is of great ſervice that ſhe ſhould live with her huſband *.

An opinion was formerly entertained, that a *procidentia* of the *uterus* was beneficial in ſeveral other complaints to which women are liable, and that it was not proper to replace it; but I have never ſeen any reaſon for this opinion, though the repoſition of the parts ſometimes occaſions a temporary uneaſineſs †. In ſome caſes it is alſo ſaid, that the *uterus*, the ſurface of which is frequently ulcerated, could not be returned, from its long continuance, or from the increaſed bulk of the neighbouring parts ‡; but I preſume that all ſuch caſes might have been managed by perſevering in the uſe of gentle evacuations, proper applications, and long confinement in an horizontal poſition; and a peſſary is not to be introduced till the *uterus* is healed, as well as reduced in its ſize.

SECTION VIII.

HYDATIDS §, or ſmall veſicles, hung together in cluſters, from one common ſtem, and containing a watery fluid, are ſometimes formed in the cavity of the *uterus*. Theſe have been ſuppoſed to proceed from *coagula* of blood, or portions of the *placenta*, remaining in the *uterus*; and the opinion is generally true, but there is ſometimes reaſon for thinking, that they are an original production of the *uterus*, independent of ſuch accidental circumſtances ‖.

* Peſſaires n'empêchent pas le femme d'uſer du coit, ni devenir groſſe.—*Mauriceau*, vol. i. l. 3. c. 6.

† Contigit uteri prolapſus; quem ego affectum ſalutarem illi fore prædixi.—*Harv. Exercit. de Partu.*

‡ Reſtitui non ſemper debet, nec poteſt.—*Ruyſch Advers.* ix. *Anat.* 9.

§ *Hydatis.* Veſicula cuticularis humore aqueo plena.—*Cullen.* cxxi.

‖ Hæc retentæ moles placentæ, penitus amittens genuinam ſuam indolem, quia eſt merus vaſorum ſanguiferorum contextus, integro ſuo corpore mutatur in congeriem hydatidum.—*Ruyſch. Adv. Anat. Dec.* 2. See alſo Dr. Baillie's Morbid Anatomy.

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The ſymptoms of this diſeaſe are ſuch as are common in all caſes accompanied with an increaſed degree of uterine irritation; and as there is alſo a conſiderable diſtention of the *abdomen*, from the enlargement of the *uterus*, for the hydatids are often excluded in an amazing large quantity, it is not ſurpriſing that theſe caſes ſhould be frequently miſtaken for pregnancy. In the early part of the diſeaſe, the ſymptoms are like thoſe which attend a diſpoſition to an abortion, and though troubleſome, are not alarming; but at ſome certain time before, or about the termination of nine months, the *uterus* makes its efforts to expel them, and the attending circumſtances are ſimilar to thoſe of a labour. If the hydatids ſhould be expelled without the occurrence of any dangerous ſymptom, there is no occaſion for our aſſiſtance or interference. But if an hemorrhage ſhould attend, or if the action of the *uterus* ſhould be inſufficient for their expulſion, it behoveth us to make gentle attempts to extract them, that the *uterus* may be at liberty to contract, and the orifices of the veſſels be thereby leſſened. We muſt, however, act with great caution; for, by haſty and rude proceeding, we ſhould incur the danger of greater miſchief than we mean to avoid, ſo that without ſome particular reaſon for giving aſſiſtance, it is commonly better to leave them to be excluded by the action of the *uterus*.

SECTION IX.

THERE are upon record many hiſtories of the dropſy of the *uterus*, which is deſcribed as a collection of water, or gelatinous fluid, in its cavity, the *os uteri* being ſo perfectly cloſed as to prevent its eſcape*. It is ſuppoſed to be occaſioned by an increaſed ſecretion, and a diminiſhed abſorption of lymph, as in collections of water in other cavities. The ſymptoms of this dropſy are the ſame as thoſe which

* Aſcites Uterinus.—*Sauvag.* Hydrometra.—*Cullen.*

occur

occur in the caſe of hydatids, and when the action of the *uterus* comes on, the patient is uſually imagined to be in labour; but, after a ſudden diſcharge of water, the *abdomen* ſubſides, and, though chagrined at her diſappointment, ſhe recovers her former health.

The common explanation of the manner in which the water is confined in the *uterus* ſeems unſatisfactory, and, in the few caſes of this kind which I have ſeen, is not juſt. For in theſe, the water being diſcharged, a membranous bag was afterwards voided, which, when inflated, put on the form of the diſtended *uterus* of which it appeared to be a lining; ſo that what has been called a dropſy of the *uterus* is, probably, no more than one large hydatid.

Another kind of dropſy has been mentioned as appertaining to the *uterus*. In this the water, originally contained in the cavity of the *abdomen*, has been abſorbed by the termination of the *fallopian* tubes and conveyed to the *uterus*, from which it was diſcharged; but of this kind of operation or proceſs I have never known any ſatisfactory proof. But I muſt confeſs, I have ſeen ſome caſes of water collected and repeatedly diſcharged from the *uterus* which I was unable to explain.

SECTION X.

It has been ſaid, that wind may be collected and retained in the cavity of the *uterus* till it is diſtended in ſuch a manner as to reſemble pregnancy, and to produce its uſual ſymptoms, and that by the ſudden eruption of the wind, the tumefaction of the *abdomen* may be removed, and the patient immediately reduced to her proper ſize. Of this complaint I have never ſeen an example; but many caſes have occurred to me of temporary exploſions of wind from the *uterus* *, which there was no power of reſtraining. When

* Phyſometra. Tympanites uteri.—*Cullen.* lxx.
Oedopſophia. Flatuum per urethram, vaginam, vel uterum, emiſſio.—*Sauvag.* xxxv.

no injury has been done to the parts in former labours, I preſume that this complaint happens to women with feeble conſtitutions, and ſome particular debility of the *uterus*; it is reaſonable, therefore, to expect advantage from ſuch means as ſtrengthen the habit in general, or give energy to the *uterus* itſelf, of which one of the beſt means is the injection of the Bath water. It is however right for me to acknowledge, that I have not been able in many caſes to render much ſervice to patients labouring under this complaint, by any means I could deviſe; but as it has not prevented conception, or produced any injurious effects at the time of parturition, it has given me no uneaſineſs, and after a certain time it has either ſubſided ſpontaneouſly, or ceaſed to draw attention.

SECTION XI.

By the term mole* authors have intended to deſcribe very different productions of, or excretions from, the *uterus*. By ſome it has been uſed to ſignify every kind of fleſhy ſubſtance, particularly thoſe which are properly called *polypi*; by others, thoſe only which are the conſequence of imperfect conception, or when the *ovum* is in a morbid or decayed ſtate; and by many, which is the moſt popular opinion, every *coagulum* of blood, which continues long enough in the *uterus* to aſſume its form, and to have only the fibrous part, as it has been called, remaining, is denominated a mole.

There is ſurely much impropriety in including under one general name appearances ſo contrary, and ſubſtances ſo different. Of the *polypus* we have already ſpoken. Of the ſecond kind, which has been defined as an *ovum deforme*, as it is the conſequence of conception, it might more juſtly be arranged under the claſs of monſters; for though it has the appearance of a ſhapeleſs maſs of fleſh, if

* *Mola.* Maſſa carnea, vaſculoſa, ex utero excreta. Ovum deforme.—*Vogel.* cccIx.

examined carefully with the knife, various parts of a child may be diſcovered, lying together, in apparent confuſion, but in actual regularity. The pedicle alſo, by which it is connected to the *uterus*, is not of a fleſhy texture, like that of the *polypus*, but has a regular ſeries of veſſels like the umbilical cord, and there is likewiſe a *placenta* and membranes containing water. The ſymptoms attending the formation, growth, and expulſion, of this apparently confuſed maſs from the *uterus*, correſpond with thoſe of a well-formed child.

With reſpect to the third opinion of a mole, an inciſion into its ſubſtance will diſcover its true nature; for, though the external ſurface appears at the firſt view to be organized fleſh, the internal part is compoſed merely of coagulated blood *. As ſubſtances of this kind, which moſt commonly occur after delivery, would always be expelled by the action of the *uterus*, there ſeems to be no reaſon for a particular inquiry, if popular opinion had not annexed the idea of miſchief to them, and attributed their formation, or continuance in the *uterus*, to the negligence or miſconduct of the practitioner. Hence the perſuaſion aroſe of the neceſſity of extracting all the *coagula* of blood out of the *uterus*, immediately after the expulſion of the *placenta*, or of giving medicines to force them away; but abundant experience hath proved, that the retention of ſuch *coagula* is not, under any circumſtances, productive of danger, and that they are moſt ſafely expelled by the action of the *uterus*, though at very different periods after their formation.

SECTION XII.

THE *ovaria* are the ſeat of a particular kind of dropſy, which moſt commonly happens to women at the time of the final ceſſation of the *menſes*, though not unfrequently at a more early period of life.

* Excretiones uterinæ, ſanguineæ, ſæpe imponunt pluribus. – *Ruyſch.*

It is of the encyſted kind, the fluid being ſometimes limpid and thin, and at others diſcoloured and gelatinous. In ſome caſes it has been found to be contained in one cyſt, often in ſeveral; and in others the whole tumefaction has been compoſed of hydatids not larger than grapes. Of theſe different kinds we may often be able to form a judgment by the evidence or obſcurity of the fluctuation, and by the inequalities of the *abdomen*, eſpecially in its early ſtage. I have however ſeen many caſes of a beginning dropſy of the *ovarium*, which, from the firmneſs of the tumour, had been conſidered as fleſhy ſubſtances.

From the veſicular ſtructure of the *ovaria* there may be in them ſome inherent diſpoſition to this diſeaſe, or they may at firſt be affected like any other gland in the body, as it often happens to women with ſtrumous conſtitutions. But this kind of dropſy has uſually been attributed to other cauſes; as accidents and rude treatment at the time of parturition, ſuppreſſion of the *menſes*, obſtructions of the *viſcera*, or accidental injuries of the part. The ſymptoms attending it are pain in the lower part of the *abdomen*, with a circumſcribed tumour on one or both ſides, gradually extending higher up, and acroſs the *abdomen*, which, when there is a ſuppreſſion of the *menſes*, is often miſtaken for pregnancy; there is alſo, in ſome caſes, a ſwelling of the thigh or leg of the ſame ſide with the diſeaſed *ovarium*. In the early ſtate of the diſeaſe, this dropſy may be diſtinguiſhed from the *aſcites*, for which it is often miſtaken, by the circumſcription of the tumour; but when it is increaſed to a large ſize, unleſs it be of an irregular form, and we are acquainted with the early ſymptoms, the diſtinction is very difficult, or ſometimes impoſſible. It is to be obſerved, that the ſecretion of urine is but little, if in any degree diminiſhed, and the conſtitution apparently not affected in the beginning of the dropſy of the *ovaria*; and that, even after a long continuance of it, the principal inconveniences ſeem to ariſe from the preſſure it makes,

from

from the unwieldineſs of the patient, and from apprehenſion of future miſchief. It is alſo very remarkable, that this diſeaſe in many caſes proceeds ſo very ſlowly, that twelve or fourteen years, and often a much longer time, may paſs from its commencement to its greateſt enlargement, though in others it makes a very quick progreſs; and that if one *ovarium* only be affected, the patient may nevertheleſs conceive and bring forth healthy children.

In the beginning of this dropſy, when the increaſing *ovarium* is firſt perceptible through the integuments of the *abdomen*, there is often ſo much pain, as to require repeated local bleeding by ſcarification or leeches, bliſters, fomentations, laxative medicines, and opiates to appeaſe it. I have alſo endeavoured to prevent or remove the firſt enlargement by a courſe of medicines, the principal of which was the *unguentum hydrargyri* rubbed upon the part, or calomel, given for a conſiderable time in ſmall quantities, with an infuſion of burnt ſponge; or the *ferrum tartariſatum* or *ammoniacale*; trying occaſionally what advantage was to be obtained from bliſters, from a plaſter compoſed of gum ammoniacum diſſolved in the *acetum ſcillæ*, or laſtly from electricity. From all or ſome of theſe means I have frequently had occaſion to believe ſome preſent advantage was obtained, or much miſchief prevented; but when the diſeaſe has made a certain progreſs, though a variety of medicines and of local applications have been tried, no method of treatment has hitherto been diſcovered ſufficiently efficacious to remove it or prevent its increaſe. Inciſion into, or extirpation of the part, has been recommended, but ſeldom practiſed *. The fluid, once depoſited, ſeems to be out of the power of the circulation, its abſorption not being promoted by the uſe of any of thoſe evacuating medicines, which ſometimes

* In the cccIxxxi number of the Philoſophical Tranſactions, there is a caſe of a dropſy of the *ovarium*, which was cured by an inciſion. I have alſo ſeen one caſe, in which, after drawing off the fluid by a puncture, ſome wine was injected. But general inflammation followed, and the patient died on the ſixth day.

prove

prove ſucceſsful in the other kinds of dropſy, or by local applications, though I have tried a great number eſteemed the moſt efficacious and powerful, as the ſquills, the *digitalis*, and the *elaterium*. When the diſeaſe is ſo much increaſed as to occaſion difficulty of breathing or other untoward ſymptoms, recourſe muſt be had to the operation of the *paracenteſis*, by which preſent relief is afforded; and by a repetition of the ſame operation, as often as the return of the abdominal ſwelling to a certain ſize may require it, the life of the patient has been prolonged to extreme old age. Nevertheleſs, I believe it is in general the beſt practice, to defer the operation, till we are driven by neceſſity to perform it, as the progreſs of the diſeaſe is afterwards more rapid. Should there be any ſuſpicion that the water is contained in different cyſts, or that the tumour may be compoſed of hydatids, or the fluid gelatinous, it is proper to inform the friends of the patient, that the operation will not ſucceed, or not in a manner equal to our wiſhes; and it ſhould be eſtabliſhed as a general rule, that we be aſſured, by an examination *per vaginam*, that women are not pregnant, before this operation is performed, even ſuppoſing they have undergone the operation before; provided they are at a time of life and under circumſtances which juſtify any ſuſpicion of pregnancy. For, through the want of this circumſpection, deplorable and irremediable miſchief has in ſome caſes been done to the patient, and the profeſſion very much diſgraced. I have ſeen ſeveral caſes of the dropſy of the *ovarium*, in which the diſeaſe was cured by ſome unexpected change or natural proceſs, as in the following example.

A lady, who had had ſeveral children, was brought to bed in January, 1798; and had perfectly recovered her health. She menſtruated regularly till the following June, when ſhe became ſenſible of a pain in the right ſide of the *abdomen*, near the groin, which, though not violent, prevented her from lying with eaſe, or ſleeping on that ſide. About the middle of January, 1799, ſhe was ſuddenly

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ſeized with a violent pain in her bowels, tenſion of the *abdomen*, and much ſoreneſs on preſſure, accompanied with vomiting, conſtipation, and frequent faintings. Theſe complaints were relieved chiefly by glyſters and gentle purgative medicines, but not entirely removed without many repetitions of them. Before this attack, ſhe had been much weakened by profuſe diſcharges of blood from the *uterus*, and about ten days after, ſhe ſuffered very violent pain in the loweſt part of the back, ſeemingly near the extremity of the *ſacrum*, which joins the *os coccygis*, extending to the loins and acroſs to the hips, eſpecially the right, and down that thigh. The ſlighteſt preſſure on the *ſacrum*, or hip, brought on excruciating pain in all the neighbouring parts, which continued for ſeveral minutes after the preſſure was removed. This pain was conſidered as the ſciatica, and it was relieved by the warm bath, and the occaſional uſe of opiates. By a return of uterine hemorrhage, every ſix or eight days, together with loſs of appetite and want of reſt, ſhe became extremely weak, irritable, and emaciated. On every return of uterine hemorrhage, the pains in the back were much increaſed, as they alſo were by the evacuation of a coſtive ſtool, for which reaſon glyſters were daily injected. She never had much difficulty in voiding her urine, but frequent inclination to do it; yet there never was in it any diſtempered appearance.

About the middle of February, ſhe could bear to be turned from her back to her ſide, but at thoſe times ſhe felt as if ſome heavy ſubſtance was contained in the *abdomen*, which ſhifted its place as ſhe was turned. After a confinement of ſix weeks to her bed, the painful ſymptoms were mitigated, ſhe was able to ſit in a chair, with her feet raiſed high and her knees drawn up, but ſhe was ſoon obliged, by the pain in her back, to return to a recumbent poſition; nor was ſhe able to ſuffer her right leg to approach the ground, or bear the leaſt weight upon it.

Her health and ſtrength however gradually improved, and in March

March ſhe was able to move and walk a little, but inſtead of her former complaints, there were great tenſion and pain above the *oſſa pubis*, and the whole hypogaſtric region was full and hard, but not ſore to the touch, except on the right ſide, where the hardneſs was firſt perceived. One day about this time, while ſhe was in the warm-bath, ſhe diſcovered a large and hard tumour, extending to the right ſide of the navel, the increaſe of which was ſo rapid, that in the courſe of a few days it occupied the whole *abdomen*. She was then freed from pain in all the parts contained in the *pelvis*, could turn herſelf in bed, and lie on either ſide, and not only move her legs, but walk much better. She frequently after this had ſlight ſhivering fits, and a ſenſe of coldneſs down her back, followed by reſtleſſneſs and feveriſh heat, eſpecially in her hands and feet in the evening, which went off with a free perſpiration towards morning. Her pulſe was at all times very quick.

Though one or more ſtools had been regularly procured every day, an immenſe quantity of hardened fæces, of a large volume, were now diſcharged for three or four ſucceſſive days, by which her ſize was much leſſened. She was ſoon after able to bear a journey to London, her friends being ſolicitous that the nature of her complaint ſhould be aſcertained, as there had been various opinions and repreſentations made of it, by different gentlemen who had ſeen her in the country.

On Sunday, March 31ſt, I viſited this lady, and as it ſeemed of principal importance to diſcover in the firſt place the ſeat and nature of her diſeaſe, it was neceſſary to be particular in my inquiries and examination. The whole *abdomen* was diſtended by a circumſcribed tumour, evidently connected with, and ſpringing from the right ſide, near the groin, thence extending acroſs, and high up in the *abdomen*. This tumour, though not perfectly uniform over its ſurface, was diſtinctly circumſcribed, and I thought I could perceive an obſcure fluctuation in it. I could alſo feel an angle

of

of the tumour in the poſterior part of the *pelvis*, by which the *os uteri* was projected ſo high, and ſo far forwards, as to be almoſt beyond my reach, as is the caſe in a retroverſion of the *uterus*. I could alſo aſcertain that ſhe was not pregnant. I did not therefore heſitate to give my opinion, that it was a dropſy of the *ovarium*; and by ſuppoſing this, early in the diſeaſe, to have dropped low down in the *pelvis*, and afterwards to have ariſen according to its increaſe, all the ſymptoms, which had occurred in the courſe of the diſeaſe, could be ſatisfactorily explained.

Having repreſented my opinion to the patient and her friends, though I could give but little hope of the diſeaſe being cured, I freed them from the fear and ſolicitude of any immediate danger.

The under-mentioned draught was the only medicine I adviſed.

℞ Flor. Chamæmel. pulv. gr. xv.
Rad. Rhei pulv. gr. v.
——Zingiber. pulv. gr. iij.
Aqu. Ment. ſativ. unc. ij. m. f. Hauſtus.
Sumat ter quotidie.

On the following day, ſhe informed me, that, after ſuffering conſiderable pain in the bowels, ſhe had had four or five copious motions, and that after every motion ſhe was ſenſible of her ſize decreaſing. The motions were unuſually offenſive, and, before they came away, the deſire to expel them was unnaturally urgent and painful. On examining them, I found that they almoſt wholly conſiſted of a gelatinous fluid, with many ſtreaks of blood, and with little or no mixture of fæces.

The ſame medicines were repeated.

On Tueſday, after ſeveral other motions of the ſame kind, the diſtention of the *abdomen* was leſſened more than one half, and, inſtead of being weakened by the evacuations, the patient felt herſelf very much relieved, and cheered with the proſpect of a

ſpeedy recovery. She took a ſufficient quantity of nouriſhment, and continued the ſame medicine.

On Wedneſday, I had nearly the ſame account of the number of motions, and of the gradual decreaſe of the ſwelling of the *abdomen*, which was now in fact wholly gone, except that I could feel the ſmall tumour formed by the cyſt, in which the fluid had been contained.

On examining this day *per vaginam*, the *os uteri* was found to be deſcended into its proper ſituation, and no tumour whatever remained in the cavity of the *pelvis*. The patient in ſhort felt, and conſidered herſelf as well, in which ſentiment I encouraged her; concluding in my own mind, that, in conſequence of preceding inflammation, an adheſion had taken place between the cyſt of the tumour and ſome part of the inteſtine, probably the *rectum*, the adhering portion of the bowel had given way, and, by that opening, the contents of the tumour had been evacuated.

But in other caſes, the diſeaſe has been entirely removed without any adequate evacuation, or my being able almoſt to diſcover how the fluid was carried off. I have therefore recommended ſuch exerciſe as was moſt likely to affect the part, as ſpinning, or turning the lathe. It is well known, when the *abdomen* is much diſtended, that by a fall, or ſome extraordinary motion, the cyſt has been burſten, and the water contained in it ſpeedily abſorbed and carried off by the common emunctories.

SECTION XIII.

THE *ovaria* are alſo ſubject, eſpecially a ſhort time after delivery, to inflammation, terminating in ſuppuration, and to ſcirrhous and cancerous diſeaſes, with conſiderable enlargement. In the former

ſtate

ſtate they generally adhere to ſome adjoining part, as the *uterus*, the *rectum*, the bladder, or the external integuments; and the matter is diſcharged from the *vagina*, by ſtool, by urine, or by an external abſceſs of the integuments of the *abdomen*, and of theſe caſes I have thought it neceſſary to ſubjoin an example. They are caſes which always require much care and ſkilful management, but in general, inſtead of aiming to cure them, it will be moſt ſerviceable to attend to the ſymptoms, and by quieting theſe, and ſupporting the ſtrength, the conſtitution at length cures the diſeaſe. But in ſimple enlargements, or beginning dropſies of the *ovaria*, they continue detached and free from any adheſion; and, ſinking lower down in the *pelvis* on one ſide, or in the hollow of the *ſacrum*, ſometimes produce inconveniences according to their ſize and ſituation by obſtructing the offices of the *rectum* or bladder. Of thoſe by which the progreſs of a labour may be impeded, we ſhall ſpeak in the detail of the cauſes of difficult labours; but an inſtance of a diſeaſed *ovarium*, occaſioning the ſymptoms of a retroverted *uterus*, is ſo well deſcribed in a caſe ſent to me by my very ingenious friend Mr. *Everard Home*, now one of the ſurgeons of *St. George's* hoſpital, that I ſhall beg leave to relate it.

Suſannah Fletcher, in the twenty-third year of her age, had a ſuppreſſion of urine, which frequently required the uſe of the catheter. Not being able to ſupport the expence of medical attendance, ſhe obtained admiſſion into the *Glouceſter* infirmary, where having continued for ſeveral months, without any other than temporary relief, ſhe gave up all hope of being cured, and returned to her huſband. She ſoon became pregnant, and, in a ſhort time, was ſurpriſed to find that her complaint left her, though it returned immediately after her delivery. It diſappeared a ſecond time in the ſame manner, and under the ſame circumſtances. Her huſband went abroad while ſhe was pregnant, and, after her delivery, ſhe was obliged to go to ſervice for her maintenance; but the daily neceſſity ſhe was under of having

the catheter introduced, rendering her unfit for that ſituation, ſhe was admitted a nurſe in the royal hoſpital at *Plymouth*, of which I was one of the aſſiſtant ſurgeons, in *December* 1778.

She was then unable to void any urine without the catheter, ſhe was habitually coſtive, her ſtomach was eaſily diſturbed, and ſhe was ſubject to hyſteric fits. In all other reſpects ſhe was tolerably healthy, and menſtruated with regularity.

In *May* 1779, in the agitation of a violent fit, ſhe vomited a large quantity of blood; and this hemorrhage frequently returning, ſhe died in the beginning of *June* following.

The body was opened in the preſence of ſeveral gentlemen belonging to the hoſpital.

All the *viſcera* of the *abdomen* were in a healthy ſtate, except the ſtomach and *duodenum*, which were ſomewhat inflamed on their external ſurface, and the former internally alſo near the *cardia*; but we could not diſcover the orifice of the veſſel, which had been ruptured.

Examining the contents of the *pelvis*, we found the *uterus* puſhed forward toward the *oſſa pubis*; and the right *ovarium*, which was enlarged beyond the ſize of a hen's egg, and lying between the *vagina* and *rectum*, had formed a bed, and was ſo much fitted to that poſition, that it could not eaſily be retained in any other. The left *ovarium*, *uterus*, and bladder, were free from diſeaſe.

The ſituation of the right *ovarium* was no ſooner obſerved, than it occurred to me that it had produced the ſame effect, as when the *uterus* falls back upon its *cervix* in the retroverſion of the *uterus*; and with this idea, all the ſymptoms of the diſeaſe under which the poor woman had laboured, the removal of the ſuppreſſion of urine during pregnancy, and its return after delivery, could be readily explained. The analogy between the ſymptoms of the retroverted *uterus*, and the effect produced by the diſeaſed *ovarium*, were in this caſe too obvious to eſcape obſervation; but if the cauſe of the diſeaſe had been

diſcovered during the life of the patient, it would have been difficult to have afforded relief, unleſs ſome ſurgeon had been intrepid enough to have paſſed a trocar through the poſterior part of the *vagina* into the *ovarium*, and diſcharged the fluid which it was found to contain.

There have been inſtances of one of the *ovaria* paſſing under *Poupart's* ligament into the groin, or through the tendinous opening of the oblique muſcles, where it has put on the appearance, and produced the ſame ſymptoms, as when a ſmall portion of the *omentum* or inteſtines is ſtrangulated: and relief has been obtained by the ſame mode of proceeding, as if it were a real *hernia* of the inteſtine *.

It is very remarkable that, in diſeaſes of the *ovaria*, teeth, hair, bones, and other extraneous animal ſubſtances, are found in them ſo frequently, that there is ſcarce a collection of anatomical curioſities, in which there are not various examples. Theſe ſubſtances have hitherto been conſidered as remnants or parts of an imperfect conception, but a celebrated anatomiſt of the preſent time, has fully proved that they may be formed without conception, or even any connubial intercourſe †.

* In Mr. *Pott's* works there is a very curious caſe of this kind, in which both the *ovaria* were extirpated. The patient recovered, but never menſtruated afterwards.

† See a very excellent work juſt publiſhed, The Morbid Anatomy of ſome of the moſt important parts of the Human Body, by Dr. *Matthew Baillie*, in which this ſubject is explained.

CHAPTER IV.

SECTION I.

THE principal parts contained in the cavity of the *pelvis* are, firſt, the *urethra*, which is connected with the internal ſurface of the *ſymphyſis* of the *oſſa pubis*, with its orifice terminating immediately below the inferior edge, and joined at its other extremity to the bladder, which, when diſtended with urine, aſcends into the cavity of the *abdomen*, in proportion to its diſtention, and reſts upon the upper edge of the *oſſa pubis*. Secondly, the *vagina*, or canal which leads from the *pudendum* to the *uterus*, paſſing obliquely upwards and backwards; connected poſteriorly with the lower part of the *rectum*, and anteriorly with the *urethra* and inner ſurface of the *oſſa pubis*, as is the *uterus*, in part, to the bladder. Thirdly, the *rectum*, or inteſtine, the poſterior part of which adheres to the hollow of the *ſacrum*. But we are not to conclude that any part of the cavity of the *pelvis* is unoccupied; for, beſides theſe principal parts, the nerves, and blood veſſels, ſome of which are of a conſiderable ſize, every ſpace between them is filled with cellular or adipoſe membrane; and it ſeems as if by the preſſure upon theſe, at the time of parturition, an effect equivalent to an abſolute enlargement of the cavity was produced.

The cavity of the *pelvis* is conſidered, by anatomiſts, as the inferior part of the cavity of the *abdomen*; but, in a deſcription of its contents, with a view to the practice of midwifery, it appears more convenient to ſpeak of them as diſtinct cavities, ſeparated by the *peritonæum*, which, deſcending from the fore part of the *abdomen*, paſſes over the *fundus* and poſterior part of the bladder, aſcends over the anterior

anterior part and *fundus* of the *uterus*, and then, making a deep inflection, covers the back part of the *uterus*, and the greateſt portion of the *vagina*. It then reverts over the anterior part of the *rectum*, and proceeds to form a lining to the cavity of the *abdomen*.

By this inflection of the *peritonæum*, the *uterus*, during pregnancy, is permitted to expand more freely, and to riſe without inconvenience into the cavity of the *abdomen*. But from the ſame cauſe women become liable to various diſeaſes, to the retroverſion of the *uterus*, to the *hydrocele*, or dropſy of the *perinæum*, and to that ſpecies of *hernia*, which is occaſioned by the deſcent of the inteſtines between the *vagina* and *rectum*. But quadrupeds, by their horizontal poſition, are exempt from every diſadvantage, to which the inflection of the *peritonæum* may ſubject women.

By the term retroverſion, ſuch a change of the poſition of the *uterus* is underſtood, that the *fundus* is turned backwards and downwards upon its *cervix*, between the *vagina* and *rectum*; and the *os uteri* is turned forwards to the *pubis*, and upwards in proportion to the deſcent of the *fundus*, ſo that, by an examination *per vaginam*, it cannot be felt, or not without difficulty*, when the *uterus* is retroverted. By the ſame examination there may alſo be perceived a large round tumour, occupying the inferior part of the cavity of the *pelvis*, and preſſing the *vagina* towards the *pubis*. By an examination *per anum*, the ſame tumour may be felt, preſſing the *rectum* to the hollow of the *ſacrum*; and if both theſe examinations are made at the ſame time, we may readily diſcover that the tumour is confined between the *vagina* and *rectum*.

Beſides the knowledge of the retroverſion which may be gained by theſe examinations, it is found to be accompanied with other very diſtinguiſhing ſymptoms. There is in every caſe, together with extreme pain, firſt a retention, and afterwards a ſuppreſſion, of urine;

* It is a true ſubverſion of the *uterus*, the *fundus* of which falls back upon the *vagina*.

and

and by the continuance of this diſtention of the bladder, the tumour formed by it in the *abdomen* often equals in ſize, and reſembles in ſhape, the *uterus* in the ſixth or ſeventh month of pregnancy. But it is neceſſary to obſerve, that the ſuppreſſion of urine is frequently abſolute only before the retroverſion of the *uterus*, or during the time it is retroverting; for, when the retroverſion is completed, there is often a diſcharge of ſome urine, ſo as to prevent an increaſe of the diſtention of the bladder, though not in a ſufficient quantity to remove it. There is alſo an obſtinate conſtipation of the bowels, produced by the preſſure of the retroverted *uterus* upon the *rectum*, which renders the injection of a clyſter very difficult, or even impoſſible. But it appears that all the painful ſymptoms are chiefly in conſequence of the ſuppreſſion of urine; for none of thoſe parts, which are apt to ſympathiſe in affections or diſeaſes of the *uterus*, are diſturbed by its retroverſion.

The retroverſion of the *uterus* has generally occurred about the third month of pregnancy, and ſometimes after delivery; it may likewiſe happen when the *uterus* is, from any cauſe, enlarged to the ſize it acquires about the third month of pregnancy, but not with ſuch facility as in the pregnant ſtate, becauſe the enlargement is then chiefly at the *fundus*. If the *uterus* is but little enlarged, or if it be enlarged beyond a certain ſize, it cannot well be retroverted; for, in the firſt caſe, ſhould the cauſe of a retroverſion exiſt, the weight at the *fundus* would be wanting to produce it; and in the latter the *uterus* would be raiſed above the projection of the *ſacrum*, and ſupported by the ſpine.

The ſuppreſſion of urine has hitherto been ſuppoſed to be the conſequence of the retroverſion of the *uterus*, which has been aſcribed to various accidental cauſes. But if we conſider the manner in which theſe parts are connected, and examine the effect produced by the inflation of the bladder in the dead ſubject, ſo as to reſemble, in ſome meaſure, the diſtention brought on by a ſuppreſſion

preſſion of urine in the living, we ſhall be convinced that the *uterus* muſt be elevated before it can be retroverted *. Now, as there appears to be no cauſe, beſides the diſtention of the bladder, capable of elevating the *uterus*, and at the ſame time projecting its *fundus* backwards; and as ſuch elevation and projection neceſſarily follow the diſtention of the bladder, it is more reaſonable to conclude that the ſuppreſſion of urine precedes the retroverſion, if we do not allow it to be a cauſe without which the retroverſion cannot exiſt. Moreover, if the *uterus* is in a ſtate which permits it to be retroverted, when the bladder is much diſtended, a retroverſion is a neceſſary conſequence, or it may be produced by a very trifling accident. If a woman, for inſtance, about the third month of her pregnancy, has a ſuppreſſion of urine continuing for a certain time, and producing a certain degree of diſtention of the bladder, we may be aſſured that the *uterus* is retroverted.

It would be vain and abſurd to contend for the opinion, that, firſt a retention, and then a ſuppreſſion of the urine are the cauſes of the retroverſion of the *uterus*; for, were it not juſt, it would be contradicted by daily experience. But the matter no longer reſts upon the foundation of opinion or conjecture: for, from the firſt caſe in which I thought I had reaſon to ſuſpect it, I have ſo conſtantly obſerved it, either by the reſerve of women of ſuperior rank in life, or by the reſtraint of thoſe in inferior ſituations, neglecting or being prevented from attending to the calls of nature, that there does not remain a doubt concerning it. The fact hath alſo been proved in a variety of caſes by practitioners of the firſt eminence, who have ſupplied me with the moſt unqueſtionable teſtimonies of its truth; and, in this caſe, it is a matter of great importance to diſcover the

* By repeated and ſtrong inflations of the bladder, and then preſſing out the air in the dead ſubject, I could give a very good idea of the retroverſion of the *uterus*; and probably, if I could have had an opportunity of making the experiment in a ſtate of pregnancy, I might have ſucceeded in producing an actual retroverſion.

cauſe of the diſeaſe, as the method of preventing it and relieving the patient is thereby immediately pointed out.

But the preceding ſuppreſſion of urine may be overlooked, as there is not occaſion for it to be of long continuance in order to produce this effect; eſpecially in a woman who hath a capacious *pelvis*, in whom the retroverſion of the *uterus* is moſt likely to happen. It muſt alſo be obſerved, that, though the ſuppreſſion of urine gives to the *uterus* its firſt inclination to retrovert, yet the poſition of the *os uteri* is ſuch, in the act of retroverting, and the tumour formed by the *fundus* is ſometimes ſo large, when actually retroverted, as to become, in their turn, cauſes of the continuance of the ſuppreſſion of urine.

Should any doubt remain of the cauſe of the retroverſion, it cannot, however, be diſputed but that all attempts to reſtore the *uterus* to its natural poſition, before the diſtention of the bladder is removed, muſt be fruitleſs, as the *uterus* will be irreſiſtibly borne down by the preſſure of the ſuperincumbent bladder. The firſt ſtep then to be taken for the relief of the patient is, to draw off the urine: yet there is always in theſe caſes great difficulty in the introduction of the common catheter, becauſe the *urethra* is elongated, altered in its direction, and preſſed againſt the *oſſa pubis* by the tumour formed by the retroverted *uterus*; and many women, when the *uterus* was retroverted, have loſt their lives from the want of expertneſs in introducing the catheter. But the attending inconveniencies may be avoided or ſurmounted by the uſe of a flexible male or female catheter, ſlowly conducted through the *urethra*. I ſay ſlowly, becauſe, whatever catheter is uſed, the ſucceſs of the operation, and the eaſe and ſafety of the patient, very much depend upon this circumſtance. For if we affect to perform it with haſte and dexterity, or ſtrive to overcome the difficulty by force, we ſhall be foiled in the attempt, or it will be ſcarcely poſſible to avoid doing very great injury to the parts. The catheter ſhould not be carried farther into the bladder, when the urine, often collected in an immenſe

quantity and miſtaken for ſome other diſeaſe, begins to flow, unleſs it ceaſes before the diſtention be removed; which, in ſome caſes, happens in ſuch a manner, as to give us the idea of a bladder divided into two cavities. External preſſure upon the *abdomen*, when the catheter is introduced, will alſo favour the diſcharge of the urine, after which the patient is ſenſible of ſuch relief, as to conclude that ſhe is wholly freed from her diſeaſe. A clyſter ſhould then be injected, or ſome opening medicine given, and repeated if neceſſary, to remove the *fæces*, which may have been detained in the *rectum* before, or during the continuance of the retroverſion.

But though the diſtention of the bladder is removed by the diſcharge of the urine, and all the ſymptoms occaſioned by it relieved, the *uterus* will continue retroverted. It has been ſaid, that the ſtate of retroverſion was injurious to the *uterus* itſelf, and would ſoon produce ſome dangerous diſeaſe in the part: it has alſo been aſſerted, that, if the *uterus* was permitted to remain in that ſtate, it would be locked in the *pelvis* by the gradual enlargement of the *ovum*, in ſuch a manner as to render its repoſition impracticable, and the death of the patient an inevitable conſequence. On the ground of theſe opinions we have been taught that it is neceſſary to make attempts to reſtore the *uterus* to its natural ſituation, with all expedition, when the urine is diſcharged, and that we are to perſevere in theſe attempts till we ſucceed. In caſe of failure by plain and common methods, the means we have been adviſed to purſue, many of which are ſevere, and ſome extremely cruel, as well as uſeleſs, would beſt deſcribe the dread of thoſe conſequences which have been apprehended from the retroverſion.

For both thoſe conſequences there cannot ſurely be reaſon to fear. If the *uterus* be injured, there will be no farther growth of the *ovum*; and if the *ovum* ſhould continue to grow, it is the moſt infallible proof that the *uterus* has not received any material injury. But it is remarkable that, in the moſt deplorable caſes of the retrover-

ſion of the *uterus*, thoſe which have terminated fatally, the death of the patient has been diſcovered to be owing to the injury done to the bladder only. It is yet more remarkable, in the multiplicity of caſes of this kind which have occurred, many of which have been under the care of practitioners, who had no ſuſpicion that the *uterus* could be retroverted, and who would of courſe make no attempts to replace it, that there ſhould be ſo few inſtances of any injury whatever. Yet every patient under theſe circumſtances muſt have died, if their ſafety had depended upon the reſtoration of the *uterus* to its proper ſituation by art; attention having only been paid to the moſt obvious and urgent ſymptom, the ſuppreſſion of urine, and to the prevention of the miſchief which might thence ariſe.

Opinions are often vain and deceitful, but, with reſpect to the matter now under conſideration, they have alſo been very prejudicial. For it has been proved in a variety of caſes, many of which were attended to with particular care by unprejudiced and very capable witneſſes, that the *uterus* may remain in a retroverted ſtate for many days or weeks, without any other detriment, than what may be occaſioned by the temporary interruption of the diſcharges by ſtool or urine: and, contrary to all expectation, it hath been moreover proved, that the *uterus*, when retroverted, will often be gradually, and ſometimes ſuddenly, reſtored to its poſition without any aſſiſtance, provided the cauſe be removed by the occaſional uſe of the catheter. It appears that the enlargement of the *uterus*, from the increaſe of the *ovum*, is ſo far from obſtructing the aſcent of the *fundus*, that it contributes to promote the effect, the diſtention of the *cervix* becoming a balance to counteract the depreſſion of the *fundus*; for I have found no caſes of the retroverted *uterus* admit of a repoſition with ſuch difficulty, as in women who were not pregnant, in whom the *uterus* underwent no change.

Allowing that we have the power of returning the *uterus* when retroverted to its proper ſituation; knowing alſo that it may continue

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tinue retroverted without any immediate ill conſequences; and preſuming that it is capable of recovering its ſituation by the gradual exertion of its own power, at leaſt that ſuch recovery is an event which ſpontaneouſly follows the change which the part naturally undergoes; it is neceſſary to conſider the advantages and diſadvantages which may reſult from our acting according to either intention.

If the attempt to replace the *uterus* be inſtantly made after the urine is diſcharged, ſo much force will often be required for the purpoſe as will, notwithſtanding all precaution, give much pain, induce the hazard of injuring the *uterus*, and often occaſion abortion; which, in ſome inſtances, is alſo ſaid to have happened when little force was uſed, and even when the *uterus* was actually retroverted: and of this I can no longer entertain any doubt. It muſt likewiſe be granted, that, in ſome caſes, by paſſing two or more fingers into the *vagina*, the *fundus* of the *uterus* may be raiſed beyond the projection of the *ſacrum* without much force, and the patient be ſoon and altogether freed from the complaint and its conſequences. But in other caſes, repeated attempts, with various contrivances, and with the patient at the ſame time placed in the moſt favourable poſitions, have failed to procure ſucceſs. It hath alſo been obſerved, when the *uterus* has been fully raiſed to its natural ſituation, that it has for ſome time afterwards, and from ſlight cauſes, been again retroverted.

If, on the contrary, we are perſuaded, that the *uterus* will ſuſtain no injury by its retroverſion, and that there is no danger of its being locked in the *pelvis*, but that it will be gradually reſtored to its natural poſition without aſſiſtance, we have then only to guard againſt thoſe inconveniences, which may be occaſioned by the diſtention of, or the preſſure made upon the bladder and *rectum*. By the former of theſe we ſhall be reduced to the neceſſity of uſing the catheter daily or frequently, which is generally done without difficulty, except the firſt time it is introduced. This operation, it muſt be acknowledged,

is,

is, in all cafes, very difagreeable and troublefome to the patient; and, in fome fituations, the neceffity we are under of performing it fo often, and for fo long a time, is in itfelf a fufficient reafon for our attempting to replace the *uterus* fpeedily. But the fuppreffion of urine does not always remain through the continuance of the retroverfion of the *uterus:* for, when the diftention of the bladder has been removed for a very few days, its power of action will be reftored, the preffure upon it leffened, and the patient will become able to void her urine without further affiftance, during the continuance of the retroverfion.

We may then bring the matter to this iffue: if the *uterus*, when retroverted, can be replaced by art, without the exertion of much force, or the rifk of mifchief, the immediate repofition, though not abfolutely neceffary, is at all times an event to be wifhed; as farther apprehenfion and trouble are prevented, the fafety of the patient enfured, and her mind quieted. But, when the *uterus* cannot be replaced without violence, it feems more juftifiable to wait for its return, and to fatisfy ourfelves with watching and relieving the inconveniences produced by the retroverfion. We fhall alfo find, that the longer the attempt to replace the *uterus* is delayed, the more eafy the operation will ultimately be, and the fuccefs more certain; though I have known many cafes in which the *uterus* was repeatedly retroverted in a fhort time after its repofition, without any additional mifchief.

To thofe who have been accuftomed to confider the retroverfion of the *uterus* as productive of immediate and urgent danger, it may feem ftrange to affert, that, when the urine is difcharged, the patients are often able to return to the common bufinefs of life without danger, and with very little trouble, if no eflential injury has been done to the bladder by the greatnefs or long continuance of the diftention. I do not mean that they will be as perfectly eafy as if the *uterus* was not retroverted; but the inconveniences they may

fuffer

ſuffer will be trifling and of ſhort duration, compared with thoſe which might ariſe from violent attempts to replace it.

I ſhall conclude theſe remarks with an obſervation which will appear extraordinary. Firſt, women who live in an humble ſituation of life, or in an unrefined ſtate of ſociety, are ſcarcely ever liable to this complaint, becauſe they are free from the conſtraint of company; and thoſe in the higheſt ranks of the moſt refined ſociety, not being abaſhed to withdraw from company, are nearly in the ſame ſituation. But thoſe who, in a middle ſtate of life, with decent, yet not over-refined manners, have not caſt off the baſhfulneſs of the former, nor acquired the freedom of the latter, are moſt ſubject to the retro-verſion of the *uterus*.

Secondly, from the time when the firſt accounts of the retro-verſion of the *uterus* were given in this country, which were written with great accuracy, but with too much apprehenſion, till within theſe few years, it was eſteemed to be a caſe of great danger, and to require the moſt delicate management. But, at the preſent time, no practitioner of credit conſiders it as a caſe of any difficulty, or feels any ſolicitude for the event, provided he be called to the relief of the patient before any miſchief is actually done *.

SECTION II.

ANOTHER complaint, ſimilar to that of which we have been ſpeaking, and which has been called a retroflection of the *uterus*, has occurred in practice. By this term is implied ſuch an alteration in the poſition of the parts of the *uterus*, that the *fundus* is turned downwards and backwards between the *rectum* and *vagina*, whilſt the *os uteri* remains in its natural ſituation; an alteration which can only

* See Medical Obſervations and Inquiries, Vol. IV. and ſubſequent volumes.

be

be produced by the curvature or bending of the *uterus* in the middle, and in one particular ſtate; that is, before it is properly contracted when a woman has been delivered.

A ſuppreſſion of urine exiſting at the time of delivery, and continuing unrelieved afterwards, was the cauſe of the retroflection of the *uterus* in the ſingle caſe of this kind of which I have been informed by Dr. *Thomas Cooper*; and the ſymptoms were like thoſe which were occaſioned by the retroverſion.

When the urine was drawn off by the catheter, which was introduced without difficulty, the *fundus* of the *uterus* was eaſily replaced by raiſing it above the projection of the *ſacrum*, in the manner adviſed in the retroverſion, and it occaſioned no farther trouble.

SECTION III.

THAT affection of the *vagina* and *perinæum*, which I have termed the *hydrocele*, or dropſy of the *perinæum*, is not an original diſeaſe of the part, but a ſymptom of the *aſcites*, occaſioned by the preſſure of the water contained in the cavity of the *abdomen*, upon the inflected part of the *peritonæum* between the *vagina* and *rectum*. The former, having no ſupport from the adjoining parts, and being unable to ſuſtain the weight of the column of water which reſts upon it, after a certain time, begins to yield; and the preſſure being continued or increaſed, the poſterior part of the *vagina* is diſtended, puſhed down, and at length protruded through the external parts, in ſuch a manner as to invert the *perinæum*. A tumour is then formed at the poſterior part of the *pudendum*, of which the *vagina* is the external coat, and the *peritonæum* the internal. This appearance occurs too rarely, or the inſtances recorded are too few, to juſtify the eſtabliſhment of any general mode of practice; but, by the hiſtory of the following caſe, we may be enabled to make a diſtinction of this

this particular tumour, and of the method of treatment which it may ſometimes be requiſite and adviſable to purſue.

In the year 1772 I attended a patient, who was then pregnant of her ſixth child. She had a ſlight cough, ſome difficulty in breathing, and an obtuſe pain in her right ſide. Her eyes had a yellow tinge, and ſhe had an uneaſy ſenſation, as if her ſtomach was ſwelled. Her urine, which was voided in ſmall quantities, was high-coloured, and depoſited a red ſediment. Her pulſe was quick, ſhe had a conſtant thirſt, and very little appetite. She reckoned that ſhe was in the ſeventh month of her pregnancy.

Six ounces of blood were taken from the arm, a ſaline draught was given, with a few grains of rhubarb, twice daily, or occaſionally. She was adviſed to drink whey or ground-ivy tea with milk, and ſweetened with honey, for her common drink, to live chiefly upon fruit and vegetables, and to go into the country. There ſhe reſided two months, during which time little alteration was made in her diet and medicines; but the *abdomen* was diſtended to an unuſually large ſize. She then returned to her family in town in daily expectation of being delivered.

In the courſe of my attendance ſhe had often mentioned a complaint, which was very troubleſome, and occaſioned great ſolicitude. This, from her deſcription, I conſidered as a *prolapſus* of the *uterus*; and, expreſſing a deſire to be more particularly informed, ſhe permitted me to examine it.

I was ſurpriſed to find a tumour of the ſize, and ſomewhat of the form, of an inflated calf's bladder, riſing from the *perinæum* internally, and paſſing forwards and outwards, ſo as perfectly to occlude the entrance into the *vagina*. By preſſure the tumour leſſened, and by a continuance of the preſſure it entirely diſappeared, leaving a looſe pouch within, and on the back part of the *vagina*. When ſhe ſtood up the tumour returned to its former ſize and ſituation; but when ſhe lay down, and the preſſure was renewed, it again diſappeared.

It had not the feel of *omentum* or inteſtine, but clearly contained a fluid, which muſt communicate with ſome other cavity. I afterwards examined the *abdomen*, and could readily perceive a fluctuation in it. A doubt then aroſe whether ſhe was with child; but, by an examination *per vaginam*, I could diſcover the head of a ſmall child reſting upon the *oſſa pubis*.

The peculiarity of this tumour, its receſſion when preſſed, and its return when the preſſure was removed and the patient ſtood upright, together with the aſſurance of there being water contained in the cavity of the *abdomen*, were preſumptive proofs that there muſt be a communication between the tumour and that cavity; and this communication could not be explained ſo ſatisfactorily as by ſuppoſing that the water had inſinuated itſelf between the *vagina* and *rectum*, and, by reſting upon, had at length protruded the poſterior part of the *vagina*.

If this opinion was juſt, it might yet be debated what was the moſt reaſonable method to be purſued for the relief of the patient; or whether it would not be more prudent to defer all attempts till ſhe was delivered. Several gentlemen of the firſt eminence in the profeſſion were conſulted upon the occaſion, and it was agreed, that we ſhould wait till ſhe was delivered, before the treatment of her other complaints was taken into conſideration.

About three weeks after this time her labour came on. The child being ſmall, and preſenting naturally, it was ſoon expelled, the tumour yielding gradually to the preſſure of the head of the child; though it appeared that the expulſion was completed by the action of the *uterus* only, the abdominal muſcles being too much diſtended to contribute any aſſiſtance. The *placenta* came away with great eaſe, and ſhe had no complaint till the fourth day after her delivery, when, after a few looſe ſtools, her ſtrength failed, and ſhe expired.

After her death I was very deſirous of knowing the truth of the opinion which had been entertained concerning her caſe; but her friends

friends would not conſent that the body ſhould be opened. They however permitted me to examine the tumour. A trocar being puſhed into it, upwards of a quart of water was immediately diſcharged. The water then came away more ſlowly; but I obſerved that the *abdomen* ſubſided in proportion to the water diſcharged through the *canula* of the trocar.

Mr. *Watſon*, a ſurgeon of great experience and ability, who ſaw this patient, informed me, that he had met with a ſimilar caſe in a woman who was not pregnant. He tapped the tumour with a ſmall trocar, and left the *canula* remaining in the orifice for ſeveral days. The water continued to drain away till the *abdomen* was perfectly empty. This woman recovered, and had no return of the dropſy.

I lately attended a patient, who had a tumour of the ſame kind as that above deſcribed, with Mr. *Daviſon*, ſurgeon in Chancery-lane. But as ſhe had been many times tapped before in the common way with ſucceſs, I was afraid to recommend his making the puncture in the tumour, leſt danger ſhould be incurred by an attempt to procure more perfect or permanent benefit. But I now think my fears were groundleſs, and that this patient would have had a better chance of recovering prefectly, if a puncture with a ſmall trocar had been made into the tumour at the poſterior part of the *pudendum* *.

SECTION IV.

By the deſcent of the inteſtines, or *omentum*, between the *uterus* and *rectum* is conſtituted a particular kind of *hernia*, of which the caſes recorded are very few †. The inconveniences thence ariſing will depend upon the bulk of the tumour formed, and the compreſ-

* See Medical Communications, Vol. I.

† Elytrocele. *Vogel.* ccccii. Hernia in vagina uteri eminens.

ſion which the parts thus ſituated may undergo. The methods by which relief can be obtained by art will immediately occur to every practitioner, as they conſiſt in making all prudent and reaſonable attempts to replace the diſarranged parts, and keeping them in their proper ſituation when replaced. It is happy for the patient that no immediate bad conſequences are likely to follow this complaint; though, under particular circumſtances, it may prove fatal, as in the following caſe, which was communicated to me by Dr. *Maclaurin*.

A ſervant in a gentleman's family, in a ſtate of perfect health, was ſuddenly ſeized with all the ſymptoms of a ſtrangulated *hernia*, though from the moſt accurate inquiry and examination, it did not appear that ſhe then, or at any preceding time, had a *hernia*. All the means uſed for her relief were ineffectual, and ſhe died on the third day of her illneſs. Leave being obtained to inſpect the body, a conſiderable portion of inteſtine was found lying between the *uterus* and *rectum*, in a gangrenous ſtate; and it was confined and compreſſed in this ſituation by a membranous bridle, which paſſed from the *fundus* of the *uterus* to the oppoſite part of the *rectum*.

CHAPTER V.

SECTION I.

ON MENSTRUATION.

FROM the *uterus* of every healthy woman, who is not pregnant, or who does not give ſuck, there is a diſcharge of blood, at certain periods, from the time of puberty to the approach of old age; and, from the periods or returns of this diſcharge, it is called Menſtruation.

There are ſeveral exceptions to this definition. It is ſaid, that ſome women never menſtruate, their conſtitutions or ſtructure not requiring or allowing of this diſcharge, of which I have known two inſtances, yet concealing the circumſtance, they imprudently ventured to marry. Some menſtruate while they continue to give ſuck, and others are ſaid to menſtruate during pregnancy; but of this I have never known an example. Some are ſaid to menſtruate in early infancy, and others in old age; but ſuch diſcharges may, I believe, with more propriety, be called morbid, or ſymptomatic; for when the female conſtitution from any cauſe is diſpoſed to or requires a ſanguineous diſcharge, it is commonly made from the veſſels of the *uterus*. There are alſo many varieties, as ſome have believed, in the part from which the diſcharge was made, whether from the *vagina*, or *uterus*; and with reſpect to its periods and appearance, from permanent cauſes or accidental influences; but the definition is generally true.

At whatever time of life this diſcharge comes on a woman is ſaid to be at puberty; though of this it is a conſequence, and not a cauſe.

The

The early or late appearance of the *menſes* may depend upon the climate, the conſtitution, the delicacy or hardineſs of living, and upon the manners of thoſe with whom young women converſe *. There ſeems to be an analogy between the effect of heat upon fruits, and the female conſtitution with reſpect to menſtruation, for, in general, the warmer the climate the ſooner the *menſes* appear. In *Greece*, and other hot countries, girls begin to menſtruate at eight, nine, and ten years of age; but advancing to the northern climes, there is a gradual protraction of the time till we come to *Lapland*, where women do not menſtruate till they arrive at maturer age, and then in ſmall quantities, at long intervals, and ſometimes only in the ſummer †. But, if they do not menſtruate according to the genius of the country, it is ſaid they ſuffer equal inconveniencies as in warmer climates, where the quantity diſcharged is much greater, and the periods ſhorter. In this country girls begin to menſtruate from the fourteenth to the eighteenth year of their age, and ſometimes at a later period, without any ſigns of diſeaſe; but if they are luxuriouſly educated, ſleeping upon down beds, and ſitting in hot rooms, menſtruation uſually commences at a more early period.

Many changes in the conſtitution and appearance of women are produced at the time of their firſt beginning to menſtruate. Their complexion is improved, their countenance is more expreſſive and animated, their attitudes graceful, and their converſation more intelligent and agreeable; the tone of their voice becomes more harmonious, their whole frame, but particularly their breaſts, are expanded and enlarged, and their minds are no longer engaged in childiſh purſuits and amuſements ‡.

The

* *Rouſſeau.*

† *Linnæi* Flora Lapponica; under the article *Muſcus.*

‡ Nec minus notum eſt, quanta virgini alteratio contingat, increſcente primum et tepefacto utero; pubeſcit nempe, coloratior evadit, mammæ protuberant, pulchrior vultus renidet,

The difference in the time of life when the *menſes* appear has been aſſigned as the reaſon why women, in hot climates, are almoſt univerſally treated as ſlaves, and why their influence is ſo powerful and extenſive in cold countries, where perſonal beauty is in leſs eſtimation *. In hot climates women are in the prime of their beauty when they are children in underſtanding; and when their underſtanding is matured, they are no longer the objects of love. In temperate climates their perſons and their minds acquire perfection at the ſame time; and the united power of their beauty and faculties is irreſiſtible.

Some girls begin to menſtruate without any preceding indiſpoſition, but there are generally appearances or ſymptoms, which indicate the change that is about to take place. Theſe are uſually more ſevere at the firſt than in the ſucceeding periods, and they are ſimilar to thoſe produced by uterine irritation from other cauſes; as pains in the back and inferior extremities, complaints of the *viſcera*, with various hyſteric and nervous affections. Theſe commence with the firſt diſpoſition to menſtruate †, and continue till the diſcharge comes on, when they abate or diſappear; returning, however, with conſiderable violence in ſome women, at every period during life.

The quantity of blood diſcharged at each evacuation depends upon the climate, conſtitution, and manner of living, but it varies in different women in the ſame climate, or, in the ſame women at different periods. Yet there is a common quantity to which, under the like circumſtances, women approach, and it may be eſtimated in this manner: Suppoſing the quantity to be about eighteen ounces in *Greece*, and two ounces in *Lapland*, there will be a gradual altera-

renidet, ſplendent oculi, vox canora, inceſſus, geſtus, ſermo, omnia decora fiunt.—*Harv. Exercitat. de Partu.*

* *David Hume*; but I do not remember in what part of his works.

† Ante menſes conſtanter ſatis, humor ſeroſus albicans effluit, etiam aliquot menſibus priuſquam ſanguis ſequatur.—*Haller. Phyſiolog.*

tion

tion between the two extremes, and in this country it will amount to about ſix ounces.

There is alſo a great difference in the time required for the completion of each period of menſtruation. In ſome women the diſcharge returns preciſely to a day or an hour, and in others there is a variation of ſeveral days, without inconvenience. In ſome it is finiſhed in a few hours, and in others it continues from one to ten days; but the intermediate time, from three to ſix days, is the moſt uſual.

There has been an opinion, probably derived from the Jewiſh legiſlator, afterwards adopted by the Arabian phyſicians, and credited in other countries, that the menſtruous blood poſſeſſed ſome peculiar malignant properties. The ſevere regulations which have been made, in ſome countries, for the conduct of women at the time of menſtruation, the expreſſions uſed *, the diſpoſal of the blood diſcharged, or of any thing contaminated with it, the complaints of women attributed to its retention, and the effects enumerated by grave writers, indicate the moſt dreadful apprehenſions of its baneful influence. Under peculiar circumſtances of health, or ſtates of the *uterus*, or in hot climates, if the evacuation be ſlowly made, the menſtruous blood may become more acrimonious or offenſive than the common maſs, or any other ſecretion from it; but in this country and age, no malignity is ſuſpected, the menſtruous woman mixes in ſociety as at all other times, and there is no reaſon for thinking otherwiſe than that this diſcharge is of the moſt inoffenſive nature †.

* Iſaiah, chap. xxx. and Ezekiel.

† Penis cum menſtruata concumbentis excoriatur, ſi novella vitis eo tangatur, in perpetuum læditur, ſteriles fiunt tactæ frŭges, moriuntur inſita, exuruntur hortorum germina; ſi mulier prægnans alterius menſtrua ſupergrediatur, aut illis circumlinatur, abortum facit; ei autem, quæ uterum non geſtat, concipiendi ſpem adimit; purgantis ſpiritus, et vapor ab ore, ſpecula atque eboris nitorem obſcurat: guſtatus hic ſanguis canes in rabiem agit, homines vero diris cruciatibus affligit, comitialem morbum, pilorum effluvium, aliaque elephanticorum vitia: idcirco a veteribus inter venena relatus; pari malignitate exiſtimatur, atque ſanguinis elephantici potus.—*De Graaf*, p. cxxiv.

At the approach of old age women ceaſe to menſtruate, but the time of the ceſſation is commonly regulated by the original early or late appearance of the *menſes*. With thoſe who began to menſtruate at ten or twelve years of age, the diſcharge will often ceaſe before they arrive at forty; but if the firſt appearance was protracted to ſixteen or eighteen years of age, independently of diſeaſe, ſuch women may continue to menſtruate till they have paſſed the fiftieth, or even approach the ſixtieth year of their age. But, in this country, the moſt frequent time of the ceſſation of the *menſes* is between the forty-fourth and forty-eighth year, after which women never bear children. By this conſtitutional regulation of the *menſes* the propagation of the ſpecies is, in every country, confined to the moſt vigorous part of life, and, had it been otherwiſe, children might have become parents, and old women might have had children, when they were unable to ſupply them with proper or ſufficient nouriſhment.

When women are deprived of the common uterine diſcharge, they are ſometimes liable to periodical emiſſions of blood from the noſe, lungs, ears, eyes, breaſts, navel, and almoſt every other part or the body *. Theſe have been deemed as deviations of the *menſes*, and communicated with the moſt ſcrupulous exactneſs, as if ſome great advantage was to be obtained by our knowledge of them. They may proceed from an inaptitude of the *uterus*, ſome defect in the organization of that part, or from ſome accidental cauſe, but the propriety of conſidering them in this point of view ſeems very doubtful. I ſuſpect that they generally ought rather to be eſteemed as diſcharges belonging to ſome diſeaſe under which the patient may labour, or to the ſtate ſhe is in; and that they often proceed from cauſes totally independent of thoſe of menſtruation, as hemorr-

* Illa (menſtrua) per vomitum, alvum, urinam, per oculos, nares, aures, gingivas, mammas, umbilicum, minimum manus digitum, ac alias inſuetas corporis partes interdum promanare.—*De Graaf*, p. cxxix.

hages of every kind, in either ſex, are frequently obſerved to be periodical.

Some men alſo have had a periodical diſcharge of blood from various parts of the body, but generally from the hemorrhoidal veſſels. We might ſuppoſe that ſuch conſtitutions reſembled thoſe of women, though the eſſential peculiarity, independent of ſtructure, cannot be diſcovered.

SECTION II.

THE cauſes of menſtruation have been divided into efficient and final; and though little has been ſaid upon this ſubject which is likely to procure any practical advantage, ſufficient attention has been paid both to the diſcovery of the cauſe and end of menſtruation; and, where our ſenſes have failed to procure evidence, the imagination hath been called to their aid. To unſophiſticated obſervation, and to a mere relation of facts, or the inferences plainly to be deduced from them, men are unwilling to ſubmit, as the powers of the imagination by ſuch proceeding would be checked or ſuppreſſed, the want of underſtanding concealed, and the parade of learning loſt. Hence a multitude of opinions are formed and tranſferred by the writers of one age to be controverted by thoſe of the next; and we are amuſed or perplexed, but not inſtructed. Of this truth there will not be a doubt, if we conſider for a moment the number of opinions which have devolved upon us, with reſpect to menſtruation and conception; the fallacy of which it would be the buſineſs of one man's life to confute. But, though we are not to be immerged in ſuch inquiries, a curſory view of what has been ſaid of the cauſes of menſtruation ſeems neceſſary, to preſerve the unity, as it may be called, even of a practical diſcourſe.

It has been ſaid, after *Ariſtotle*, that the fluids of the human body were,

were, like the ocean, influenced according to the phaſes of the moon, and that menſtruation reſembled the tides. This diſcharge has been attributed to a *plethora* of the conſtitution, or of the *uterus*; to a ferment generated in the *uterus*; or to ſome humour of the conſtitution *, as the bile, producing this ſpecific effect upon the *uterus*. Some have preſumed that it was a ſimple diſcharge of blood, others that it was a ſecretion; ſome that it was a conſtitutional diſcharge, and others that it was merely local.

That menſtruation is not occaſioned by the moon, or any general phyſical cauſe, is evident from the circumſtance of women menſtruating at every moment of its increaſe or decline; and if this reaſon were admitted, it would prove that men and animals ſhould alſo menſtruate. It is not probably occaſioned by *plethora*, as the loſs of ſeveral times the quantity of blood diſcharged previous to, or in the very act of menſtruation, from the arm, or any other part of the body, does not prevent or interrupt the flowing of the *menſes*; and in thoſe complaints which ariſe from obſtructions of the *menſes*, greater relief is afforded by a few drops of blood from the *uterus* itſelf, than by ten times the quantity from any other part. There ſeems to be no reaſon for the opinion of any fermenting principle being the efficient cauſe of menſtruation, no part of the *uterus* appearing fitted for its ſecretion or reception; and the idea of bile acting with any peculiar influence upon the *uterus* was aſſumed, becauſe of the reſemblance between the ſymptoms ariſing from an exceſs or defect of bile, and thoſe depending on menſtruation; together with the aggravated ſymptoms, to which thoſe who are of bilious conſtitutions are liable at the time of menſtruation. But this reaſon, like ſome of the former, would prove too much for the intended purpoſe, if it was admitted.

Among the early cultivators of anatomy, it ſeems to have been

* See Charlton, Drake, and many other writers.

thought of great importance to decide from what veſſels the menſtruous blood was diſcharged, ſome contending that it was from veins*, and others ſtrenuouſly maintaining that it was from arteries †. The opinion of there being receptacles in the *uterus* for its collection is of a modern date ‡; this cannot be true, as, from the examination of the *uteri* in women, at every intermediate period, ſuch receptacles could not have been overlooked, if they had exiſted. From the appearance of the menſtruous blood in a healthy woman, and from that of the veſſels by which it is diſcharged, which evidently run in a tortuous manner during the act of menſtruation at leaſt, many have not heſitated to pronounce it arterial.

The menſtruous diſcharge has commonly been conſidered ſimply as blood, though of a different kind from the general maſs, as it has been obſerved not to coagulate ‖. All uterine diſcharges of blood, in which there were *coagula*, have therefore been diſtinguiſhed from menſtruation, and aſſigned to ſome other cauſe. Whether menſtruation ought to be eſteemed a ſecretion made in a manner ſimilar to that by other glands of the body, and does not coagulate becauſe it is eſſentially different from blood, which I believe; whether it be a ſecretion from the *uterus* peculiar in its manner to that part, without analogy or reſemblance to that of any other part, or whether the coagulation is prevented by a mixture with the diſcharge from the mucous glands, may be proved by future obſervations and experiments.

The various opinions of menſtruation being a local or a conſtitu-

* Ex venis uterum patentibus, menſtruas purgationes evacuari indubitatum eſt, at quomodo fiat, et per quas potiſſimum venas, &c. ambigas.—*Veſalius*, lib. v. cap. xv.

† Sanguis exit de corpore per dilatatas tectas arterias naturaliter, in menſtruorum excretione, in fæminis.—*Ruyſch. Epiſtola ad Boerhaavium.*

‡ Syſtem of the Womb.—*Simſon.*

‖ *Haller* has quoted *Dionis* for this obſervation, but I could not find it in any part of his works.

tional

tional diſcharge, may continue to be ſupported by thoſe who think them of conſequence. Every diſcharge is local, though its effects muſt be conſtitutional; but it does not appear that the ſymptoms of the ſuppreſſion of the *menſes* ſupply a ſtronger argument in favour of the latter opinion, than the regurgitation of bile upon the ſkin, or its diſcharge by urine, when the natural paſſage is obſtructed.

SECTION III.

NUMEROUS as the opinions have been of the efficient cauſe of menſtruation, two only have been entertained of its final cauſe; firſt, that it was deſigned to preſerve the *uterus* in a ſtate fit for conception; ſecondly, that this blood, being more in quantity than was neceſſary for the ordinary purpoſes of the conſtitution, became, during the ſtate of pregnancy, nouriſhment for the *fœtus*, without any reduction of the ſtrength of the parent.

The firſt of theſe opinions, I believe, is not controverted, obſervation having fully proved that women who do not menſtruate from the *uterus*, or who are not in a ſtate diſpoſed to menſtruate, cannot conceive; even though they ſhould have a periodical diſcharge of blood from any other part of the body. Hence we may conclude, whether menſtruation be neceſſary for the conſtitution of a woman or not, that it is a circumſtance on which the due and healthy ſtate of the *uterus* very much depends. It has alſo been obſerved that all animals, at the time of their being ſalacious, or in a ſtate fit for the propagation of the ſpecies, have a diſcharge equivalent to menſtruation, which is generally mucous; but, in ſome inſtances, in very hot ſeaſons, and climates, becomes, in many of them, ſanguineous, as I have often obſerved.

Of the truth of the opinion, that the menſtruous blood contributes to the formation or nutriment of the *fœtus*, there is much

reaſon to doubt. The former ſeems to have been founded on the obſervation, that women who did not menſtruate could not conceive; and this, if carried to its full extent, might have led to another concluſion, that the time of menſtruation was moſt favourable to conception; which is allowed not to be juſt, there being the readieſt diſpoſition to conceive, not during, but ſoon after a period of menſtruation. As to the ſhare which the menſtruous blood might have in the nouriſhment of the *fœtus*, as all animals, whether menſtruating or not, ſupply their conception with nouriſhment of a proper kind, and in a ſufficient quantity to bring them to perfection, we may be permitted to conclude that it is by ſome common principle. If there had been a gradual abatement of the diſcharge, in proportion to the increaſe of the *fœtus*, its nouriſhment might have been preſumed to be one of the final cauſes of menſtruation. But, as there is an inſtant and a total ſuppreſſion of the *menſes* when a woman has conceived, they muſt either be ſuperfluous in the early, or deficient in the advanced ſtate of pregnancy.

The mucous diſcharge from the *uteri* of animals proves that they are in a ſtate favourable to the propagation of their ſpecies; and the menſtruous diſcharge is a proof of the ſame in women, as far as the *uterus* is concerned. For the reaſon of this difference we are to ſearch in the ſtructure of the *uteri* of the different claſſes of animals. The deſire of procreation exiſts in animals only at certain ſeaſons of the year; by theſe it is regulated in ſuch a manner, that the offspring will be produced at the time when they are likely to ſuffer the leaſt injury from the climate in which they are to live, ſo that it is accommodated to every climate; unleſs the genuine nature of the animal be changed by indulgent treatment, or by defect of nouriſhment. Women, on the contrary, having every month that diſcharge which proves them capable of conceiving, propagate their ſpecies at every ſeaſon of the year, and the gratification of the attendant deſire,

deſire, when enjoyed with prudence, may be eſteemed a peculiar indulgence granted by Providence to mankind.

SECTION IV.

ALL the common circumſtances attending menſtruation have been well and fully deſcribed by various authors, but as I have very often obſerved a ſubſtance expelled with the menſtrual diſcharge, which has hitherto eſcaped notice, and as I apprehend the knowledge of this ſubſtance may be of uſe in practice, I feel it incumbent on me to deſcribe it.

In the examination of that diſcharge, for the purpoſe of inveſtigating the ſtate of the *uterus*, and the diſcovery of ſome complaints thereon depending, a membranous ſubſtance was often ſhewn me, which was uſually conſidered as the token of an early conception, or as the caſual form of coagulated blood. But on examining this ſubſtance with more attention, I conſtantly found that one ſurface had a flocky appearance, and the other a ſmooth one; that it had in all reſpects the reſemblance of that membrane, which *Ruyſch* had called the villous, of the formation of which *Harvey* has given a very curious deſcription, and which the late Dr. *Hunter* at length deſcribed with his uſual preciſion, and called the *decidua*. To put the matter out of doubt, ſeveral years ago I requeſted the favour of Dr. *Baillie* to examine ſome portions of this membrane; and he agreed with me in thinking it was an organiſed membrane, and ſimilar in ſtructure to the *decidua*. As the firſt caſes, in which this membrane was diſcharged, were thoſe of women who were married, a doubt aroſe in my mind, whether it was not really a conſequence of early conception; but I have lately had the moſt undoubted proofs that it is ſometimes diſcharged by unmarried women, and may be formed without connubial communication; and that the *uterus* has, occaſionally

ſionally or conſtantly, in ſome women, the property of forming it, at, or in the interval between, the periods of the menſtrual diſcharges. It ſeems particularly neceſſary to eſtabliſh this fact, as the appearance of the membrane has more than once given riſe to erroneous opinions, and unjuſt aſperſions. Nor is this the only circumſtance, in which ſome women, at each period of menſtruation, have ſymptoms like thoſe which accompany pregnancy or parturition.

In every caſe in which this membrane has been diſcharged, the women have menſtruated with pain, and the diſcharge has flowed ſlowly and apparently with difficulty till the membrane was come away, which in ſome caſes has been in ſmall flakes, and in others in pieces equal to the extent of half the cavity of the *uterus*, of which they retained the ſhape. I ſuſpect, but my experience does not enable me to decide, that this membrane is expelled in every caſe of habitual painful menſtruation.

No woman in the habit of forming this membrane has been known to conceive; and this obſervation leads me to ſpeak of the means, which have been uſed for making ſuch a change in the ſtate of the *uterus*, that it ſhould be diveſted of the property of forming this membrane at the time of menſtruation.

There does not appear any external peculiarity of conſtitution, or diſpoſition to any other complaint, in many of thoſe who have been liable to the formation of this membrane, which is in fact a proper office performed at an improper time. Recourſe has been generally had to preparations of quickſilver, chiefly to calomel given ſometimes as an active purge, and ſometimes in ſmall quantities continued ſo long as even to raiſe a ſlight ſalivation. Together with the calomel I have directed a large doſe of the *Tinctura Cinchonæ Ammoniata* to be given twice in the courſe of the day; the infuſion of burnt ſponge with bark; myrrh and the different preparations of iron; and the *Tunbridge* or *Spa* waters. In ſhort, every medicine, which could have

have the power of altering the ſtate of the glandular ſyſtem in general, or that of the *uterus* in particular, has been tried, but not conſtantly with ſucceſs. I think I have in one inſtance known the uſe of an injection chiefly compoſed of the *Aqua Zinci Vitriolati cum Camphora* remove this complaint, by its application perhaps exciting a new and diſtinct action of the part. But this membrane not being uninterruptedly formed at each period of menſtruation, the capability of conceiving may exiſt at any interval of freedom from its formation.

SECTION V.

ALL women have an opinion, that menſtruation is to them a cauſe of diſeaſes from which men are exempt; and their apprehenſions of danger are chiefly confined to the times of the firſt appearance, and of the final ceſſation of the *menſes*. It is not however proved, that more women ſuffer at the time of puberty than men, though there may be ſome difference in their diſeaſes; nor is it decided that thoſe diſeaſes, which occur at the time of the final ceſſation of the *menſes*, though ſometimes very dreadful, are more frequent or more dangerous than thoſe, to which men are liable at an equivalent age. Some advantage ſeems to be derived to women from their natural capability to menſtruate, eſpecially to thoſe whoſe conſtitutions or particular ſituations require diſcharges of blood for their relief: for ſuch, at all periods of life, are uſually made with great facility from the veſſels of the *uterus*; whereas, in men, theſe evacuations often happen from parts, which ſuſtain much conſequent injury. The circumſtances attending menſtruation are, however, ſometimes ſuch as to require medical aſſiſtance, and theſe I ſhall conſider in the following order; firſt, obſtruction of the *menſes*; ſecondly, exceſs of the *menſes*; thirdly, painful menſtruation; and then I ſhall ſpeak of the

treatment, which may be proper at the time of the final ceſſation of the *menſes*.

By the term obſtruction is properly underſtood the defect or failure of the appearance of the *menſes* at a time of life when they might be expected; and by ſuppreſſion, a total ſtoppage of the menſtruous diſcharge which had before appeared *. But the terms are indiſcriminately uſed.

Theſe were generally eſteemed original diſeaſes, producing many troubleſome, and ſometimes dangerous conſequences; but the moderns have, with more propriety, conſidered them as ſymptoms of ſome diſeaſe, with which the conſtitution was primarily affected. Yet, in ſome caſes, the ſuppreſſion of the *menſes* ſeems to be an original affection, often, though not univerſally, ſucceeded by a certain train of untoward ſymptoms; for it appears, in ſome women, to be a ſimple interruption of the diſcharge, not neceſſary for the conſtitution at ſome particular times, and when the interruption happens to thoſe who are married it ſometimes gives fallacious hopes of pregnancy. The preciſe reaſon of this temporary ſuppreſſion it would be difficult to inveſtigate; but I have obſerved it to happen, together with a reduction of the ſize of the breaſts, in very chaſte women, who have been under the neceſſity of living ſeparate from their huſbands.

As very different diſeaſes may become cauſes of the obſtruction or ſuppreſſion of the *menſes*, and as theſe may in different conſtitutions produce very oppoſite effects, it is not extraordinary that we ſhould find thoſe ſymptoms, which have been deſcribed as attendant on the ſuppreſſion of the *menſes*, ſo numerous and ſo unlike. But the two principal diſtinctions are to be made from the appearance

* Chloroſis. *Cullen.* G. xlv. Dyſpepſia, vel rei non eſculentæ deſiderium, cutis pallor vel decoloratio, venæ minus plenæ, corporis tumor mollis, aſthenia, palpitatio, menſtruorum ſæpe retentio.

Amenorrhœa. *Cullen*, cix. Menſium ſupreſſio.

of

of the patients, ſome of whom have a pale leuco-phlegmatic look, with every conſequence and indication of want of power and energy in the conſtitution, and a fulneſs of vapid fluids; but others have a florid complexion, with ſigns of a hectic diſpoſition. To either of theſe ſtates may be joined all the various ſymptoms, which ariſe from uterine diſturbance.

In the obſtruction of the *menſes* with a pale complexion, a variety of medicines have been given, which were ſuppoſed to poſſeſs the properties of immediately influencing the *uterus*, and of promoting the menſtruous diſcharge by ſome ſpecific operation, as for inſtance all the preparations of iron. But ſpeculative differences have been loſt in the uniformity of practice; for thoſe who have differed widely in their theories of menſtruation, and in their opinions of the operation of the medicines preſcribed, have agreed as to the individual medicines which they recommended; and it was of no importance to the patient, whether the effect was produced by ſome ſpecific operation, or was ſecondary to an alteration made upon the conſtitution. Every medicine which has the power of ſtrengthening or invigorating the habit, bitters, aromatics, and all the different preparations of iron, become eventually promoters of the menſtruous diſcharge. But, previous to their uſe, it will, in general, be neceſſary to give a gentle emetic and laxative medicines, for the purpoſe of freeing the conſtitution from the load of inactive fluids, and of cleanſing the *primæ viæ*, by which the operation of ſuch medicines will be rendered more effectual. Of theſe, the preparations of iron are juſtly ſuppoſed to be the moſt powerful and beſt adapted to the caſe; and they may be given in a variety of forms and quantities, alone or joined with bitters and aromatics, provided the patient has no fever. The chalybeate waters of our own country, or thoſe of *Spa*, are univerſally proper. In ſome caſes tepid bathing, or *pediluvia*, are of ſervice; and in others bathing in the ſea: and I have

obſerved that the guides to the ladies continue to go into the water during the time of menſtruation, without any inconvenience.

Medicines of this claſs do not always produce the menſtruous diſcharge, or its return, though they ſcarce ever fail to improve the health. In the conſtitutions of ſome women there is an idioſyncraſy, which withſtands the effect of ſuch medicines as are generally found to anſwer certain intentions; and yet the ſame end may be gained by ſome other medicine, in general leſs efficacious. Different preparations of quickſilver have ſometimes been given with advantage in this complaint. The root of madder has been adviſed, either in one or more large doſes, about the time when the *menſes* are expected, or to the quantity of half a dram twice or three times daily in the intervals *. Repeated emetics, which are ſuppoſed to operate, not by cleanſing the *primæ viæ* only, but by agitating and calling forth the powers of the conſtitution to more vigorous action, are ſometimes ſucceſsfully uſed. Electricity, directed to the region of the *uterus* and *ovaria*, has lately been practiſed and recommended by men of reputation; and often, I believe, with ſucceſs.

In the ſuppreſſion of the *menſes* with a pale complexion, the diet ſhould be generous, and wine may be allowed. Exerciſe of every kind is proper; but it ought not to be greater than the patient can bear without fatigue, as great exertions have ſometimes produced immediately dangerous, and even fatal effects. Such patients may often be invited by dancing or riding on horſeback, and theſe ſeem beſt adapted to their complaint, though I have lately ſeen ſome inſtances in which *ſwinging* anſwered better than any other exerciſe.

The ſuppreſſion of the *menſes* with a florid complexion is uſually combined with ſymptoms very different from thoſe, which occur when it is pale, and a method of treatment reverſe to the former is required; for the colour of the cheeks in theſe caſes is often the

* See *Riverius*, and, before him, *Sennertus*.

flush of disease, and not the glow of health. Such patients frequently have a slight cough, pains in the breast, some difficulty of breathing, fever, and other signs of a consumptive tendency. In such situations, instead of pursuing the former intention, with the view of producing or promoting the menstruous discharge, we must regard the disease, and endeavour to give relief by repeated bleeding in small quantities, by antiphlogistic and emollient medicines, by a vegetable diet, and by repose, forbidding all exercise but that of the most easy kind, and then the suppression of the *menses* may come under contemplation. The *tinctura melampodii* has been strongly recommended; but the principal good which it does seems to be produced by its operation as a gentle laxative, its other effects being very problematical.

The *menses* are sometimes suppressed by sudden exposure to cold, or by violent exercise and agitation during the time they are flowing. Even in these cases the suppression is subsequent to the attack of some disease; as a pleurisy, peripneumony, acute rheumatism, inflammation of the *uterus*, or the like; and under such circumstances the same treatment is to be advised as the particular nature of the disease may require, without regard to the *menses* *.

SECTION VI.

The excess or profusion of the menstruous discharge may be of two kinds †. It may consist either in the frequency of its return, or the superfluity of its quantity at each period; and the causes

* I have been informed that, in suppressions or deviations of the *menses*, injections *per vaginam*, in the composition of which there is some preparation of quicksilver, are of particular service; but of such I have not had any experience.

† Menorrhagia.—*Cullen*, G. xxxvii. Dorsi, lumborum, ventris, parturientium instar, dolores; menstruorum copiosior, vel sanguinis e vagina præter ordinem fluxus.

assigned

aſſigned for either of theſe are, too great fulneſs or activity, or a debilitated ſtate of the conſtitution, or the thin and acrimonious ſtate of the blood; together with external accidents. Inſtances occur in practice in which women menſtruate at each period a larger quantity than their conſtitutions are able to afford; yet thoſe caſes, which are uſually reduced under the term profuſion of the *menſes*, are very rare; what are called ſuch being either hemorrhages accompanying early abortions, or morbid or ſymptomatic diſcharges from the *uterus*. The ſymptoms of the profuſion of the *menſes* are the ſame as thoſe which are produced by hemorrhages from any other part of the body, with ſome peculiar to affections of the *uterus*.

If there ſhould be merely too large a quantity of menſtruous diſcharge at each period, or too frequent returns, ſuch medicines and regimen as ſtrengthen the conſtitution, or amend the health, will be proper; and when theſe complaints can be ſuppoſed to ariſe from the want of a due degree of contractibility in the blood veſſels, gentle emetics, occaſionally repeated, have been of great ſervice. However, in far the greater number of caſes of this kind which occur in practice, the diſcharge ſeems to be ſymptomatic, and dependant on the general feveriſh ſtate of the patient, or that of the *uterus* in particular. For if aſtringent or ſtrengthening medicines be given in the firſt inſtance, they are ſo far from removing the complaint, that they increaſe it, and the diſcharge will continue as long as ſuch medicines are adminiſtered; not to mention that a difficulty of breathing, and other dangerous ſymptoms, are often produced by too haſty or too liberal an uſe of aſtringent medicines. But, if the feveriſh diſpoſition be previouſly abated by bleeding and a proper regimen, ſuch medicines as were before recommended for the ſuppreſſion of the *menſes* may then be given with propriety and advantage. In diſcharges of blood from the *uterus*, proceeding from diſeaſes of the part, the treatment muſt depend upon the nature of the diſeaſe, of which we cannot form any juſt opinion without

an examination per *vaginam*; but this is not to be propoſed, till all the uſual means have been tried, and failed to anſwer our intention.

SECTION VII.

THE pain with which ſome women menſtruate at each period, is ſufficient, from its violence and duration, to render a great part of their lives miſerable *. Healthy, robuſt women, or thoſe in whom the proceſs is ſpeedily concluded, ſuffer very little at that time; the pain is therefore to be attributed to an increaſed degree of irritability in the habit, or to the difficulty with which thoſe veſſels, deſigned for the menſtruous diſcharge, become permeable. This pain, independent of the membrane before mentioned, is in general moderated, and ſometimes altogether removed, by the uſe of ſuch means as leſſen uterine irritation, or facilitate the diſcharge. Bleeding in ſmall quantities, gently purgative medicines, and opiates, of which the moſt efficacious is the *Confectio Damocratis*, repeated according to the urgency of the complaint, may be occaſionally directed with advantage. Soaking the feet in warm water, or receiving the ſteam of it upon the parts principally affected, will often do much ſervice; but no medicine of this kind gives equal relief with the warm bath, which may be uſed every evening, when the ſymptoms preceding menſtruation come on, and continued throughout the period. Electricity applied to the region of the *uterus*, previous to the expected diſcharge, has in ſome caſes afforded much benefit. Many medical writers have adviſed, and it is yet a popular cuſtom, to give medicines of that kind which have been called deobſtruent, with the view of promoting the diſcharge by quickening the action

* Dyſmenorrhœa. *Vogel* clxx. Profluvium ſanguinis uterini menſtruum dolorificum.

of

of the parts concerned; and in ſome conſtitutions theſe may be proper. But as many medicines of this claſs diſturb and increaſe the heat of the body, they are generally found, by experience, rather to increaſe than to abate the pain, though in ſome caſes I have thought it was prevented by the daily uſe of the madder root, given without interruption for ſeveral weeks.

SECTION VIII.

At the approach of old age the *menſes* diſappear, the conſtitution of women neither requiring nor allowing a continuance of the diſcharge. It was before obſerved, that this event uſually happens about the forty-eighth year of their age, though ſome inſtances have occurred of their final ceſſation ſo early as the thirty-fifth or ſooner, and of their duration to the ſixtieth year of the woman's age, but theſe are very uncommon.

The *menſes* ſeldom diſappear ſuddenly, but, before their departure, they become irregular in their periods, or in the quantity diſcharged. Theſe irregularities are not unuſually accompanied with ſome diſturbances of the conſtitution, particularly of the *viſcera*, and thoſe complaints which are called hyſteric.

All women are alarmed at the time of the final ceſſation of the *menſes*; and are perſuaded, that the ill conſequences which ſometimes enſue are to be prevented by proper care and management. But it muſt be obſerved, that ſcarce one of a great number of women ſuffers more than temporary inconvenience on that account; and it is not reaſonable to think, that any diſeaſe ſhould be a neceſſary conſequence of the ceſſation of a diſcharge, which is as perfectly natural as its appearance or continuance. But if there be a diſpoſition to diſeaſe in the conſtitution, eſpecially in the *uterus*, a more rapid progreſs is made when the *menſes* ceaſe; not becauſe theſe give exiſtence

exiſtence to, or increaſe the diſeaſe by any malignant quality, but becauſe the conſtitution, or the part diſpoſed to diſeaſe, are deprived of a local diſcharge, by which they were before relieved.

On the preſumption that the *menſes* retained became, by their malignant quality, the cauſe of diſeaſes, many medical writers have adviſed aloetic, and other ſtimulating medicines, which were ſuppoſed to poſſeſs the power of continuing the diſcharge a longer time than the natural. As the principle is not juſt, the practice is alſo in general very injurious; for I hardly recollect an inſtance, in which ſuch medicines did not evidently do miſchief, by increaſing all thoſe complaints which were imputed to, becauſe they occurred at the time of the final ceſſation of the *menſes*. But the preſent mode of practice is far more reaſonable and ſucceſsful, it being now uſual to bleed occaſionally, which women advanced beyond this period generally bear very well, and to give cooling and gently aperient medicines, avoiding all kinds of medicine and diet which are heating. It is, however, a well known fact, that the *uterus* is more liable to diſeaſes at the time of the final ceſſation of the *menſes* than at any other; and that theſe ſometimes terminate either in a ſcirrhus or cancer *, with conſequences the moſt painful and deplorable. We have, at preſent, no idea of a cancer but that it is an incurable diſeaſe, of which there are probably many varieties; and when it affects the *uterus*, beſides the general ſymptoms which ariſe from uterine irritation, or from other cauſes, there is, together with pain increaſing according to the progreſs of the diſeaſe, a ſerous, ichorous, or bloody diſcharge, frequently of ſuch an acri-

* We have at preſent ſo little knowledge of a *cancer*, that we are unable to give a tolerable definition of it, and have not yet made any diſtinctions of the diſeaſe. I have ſeen many inſtances of three kinds; the *horny*, as it may be called, from its colour and hardneſs; the *corroding*, or phagedenic, from the deſtruction of the parts; and the *enlarging*, from the increaſing bulk of the parts. It requires to be examined whether a cancer of any part has any ſpecific quality or effect according to the nature of the part affected.

monious quality, as to excoriate the parts in its paſſage, and at length to connect all the neighbouring parts into one maſs, or to corrode the bladder and rectum; admitting little other relief than what is afforded by *opium*, or other narcotic medicines, which have only the power of procuring an imperfect and ſhort inſenſibility to the tortures of the diſeaſe.

For the relief of thoſe who have ſuffered all the complicated evils of a cancer of the *uterus*, humanity and intereſt have inſtigated many practitioners to pay the moſt ſerious attention to this diſeaſe, with the view of diſcovering its cauſe, the means of preventing it, or ſome adequate remedy when it did exiſt; even the pretenſions of empirics have been examined with candour and tried with perſeverance. Of courſe, we have been led to the uſe of a variety of medicines, of which great expectations of benefit have been entertained; as preparations of quickſilver, of iron, of lead, of antimony, and even of arſenic; all the ſaline preparations; ſarſaparilla, bark, clivers or gooſe-tongue, the juice of the water-parſnip, and of a thouſand other herbs; but, above all, the hemlock in every form, ſeparately or combined with other medicines; and lately of the inſpiſſated juice of the *hyoſcyamus*, given at firſt to the quantity of one grain every ſix or eight hours, and gradually increaſed to four or five; which has alſo been found of great ſervice in phagedenic ulcers of various kinds when other means, as cicuta and opium, have failed. Baths, fomentations, fumigations, and injections of every kind, have been applied with many different contrivances. Some of theſe have evidently accelerated the progreſs of the diſeaſe: and though others have afforded temporary relief, few ingenuous men will heſitate to acknowledge, that the good to be expected from any mode of treatment, or medicine hitherto diſcovered, muſt be obtained by the relief of the ſymptoms, rather than the diminution or removal of the diſeaſe; and that, in its advanced ſtage, we may be happy if ſo much be in our power.

It is remarkable, that the cure of cancers affecting other parts of the body, where applications could be made with the greateſt facility and advantage, has not been attempted, when thoſe of the *uterus* have been undertaken with great confidence. This may be among the inſtances, in which the credulity of patients renders them liable to the impoſitions of empirics, who often pretend to cure a diſeaſe which never exiſted, or extol as a cure its mitigation. If it be however allowed, that this diſeaſe is incurable, and that regular practice deſpairs of giving aſſiſtance, when the diſeaſe is arrived at a certain ſtate, the trials of empiriciſm, under ſome reſtrictions, may not only be permitted but encouraged, with the expectation of ſome caſual good; and if, by the expenditure of money, hope, though of ſhort duration, can be procured, the purchaſe is cheap at almoſt any rate. It is upon this principle, that honeſt men are ſometimes obliged to equivocate, or to promiſe more than they are conſcious they are able to perform. But as by the favour of Providence, and the labours of men *, remedies have been diſcovered for many diſeaſes, which were once thought incurable, we may hope that one will at length be found for this moſt deplorable diſeaſe †.

But

* More than one caſe has occurred, of a diſeaſed lip, conſidered by very able men as cancerous, being cured by the conſtant application of a layer of the root of the common red onion. I tried a ſtrong decoction of the ſame root as an injection in a variety of uterine caſes, but without any apparent advantage.

† Many years ago, I drew up propoſals for the eſtabliſhment of a houſe for the reception of cancerous caſes only; to be under the direction of a very able phyſician, ſurgeon, and apothecary, whoſe abilities ſhould be wholly exerted for the inveſtigation of the nature of this diſeaſe, and for the examination of the effect of the medicines, which it might be prudent to try. If ſuch a houſe ſhould ever be eſtabliſhed, the medical attendants ought to receive public ſalaries, becauſe the profeſſed object would be to gain knowledge; whereas, in other hoſpitals, the principal object is to relieve the diſtreſſed, the acquiſition of knowledge being a ſecondary conſideration.

Lately ſome gentleman, now known to have been the late moſt benevolent and

But this eagerneſs, to diſcover ſome ſpecific remedy for a cancer, has, in one view, been productive of miſchief. Though the eſſential nature of the cancerous *virus* is unknown, one of its firſt effects is inflammation, with its concomitant ſymptoms. Or, perhaps more properly ſpeaking according to Mr. *Hunter*, a cancer may be ultimately produced either by a long continuance of one wrong action, or by a ſucceſſion of wrong actions; ſo that if we had the power of ſuppreſſing or quieting the firſt or ſecond action, we ſhould in fact be able to prevent, though we could not cure a cancer, which may be the reſult of the whole. As the diſpoſition to inflame and to be too ſuſceptible of irritation may often be removed or ſuſpended by bleeding, proper medicines, a very ſtrict and abſtemious diet, the part may be kept in a quieſcent ſtate, and the progreſs of the threatened diſeaſe be ſuſpended or retarded. For this purpoſe alſo, local bleedings, very frequently repeated, by ſcarification or leeches on the lower part of the back, or on the thighs, in uterine caſes, are often uſeful, even when the diſeaſe has made conſiderable progreſs; and iſſues have been found, in ſome caſes, to have done much ſervice; cooling and ſedative medicines are at the ſame time to be diligently uſed. But if theſe means of giving relief ſhould be neglected, which have indubitably been found to ſooth, to leſſen, to ſoften, and ſometimes entirely to diſſipate, inflamed, enlarged, or indurated tumours in the breaſts *, and other parts, the diſpoſitions of which were very much to be ſuſpected, and we are wholly engaged in the contemplation of an abſolute and effectual cure, if a cancer were actually eſtabliſhed, it appears that we reject a leſs preſent advantage, which is generally in our power,

liberal Mr. *Whitbread*, who added to the merit of the donation by the concealment of his name, has, at the expence of more than three thouſand pounds, formed an eſtabliſhment for this purpoſe in the *Middleſex Hoſpital*, from which I hope much good will be derived.

* I have lately ſeen ſeveral inſtances of tumours in the breaſt of long ſtanding, and with very unfavourable appearances, diſperſed by electricity.

for the purſuit of a greater, though diſtant good, which we may never obtain, as well as loſe the chance of preventing future miſchief. It muſt alſo be obſerved, that a very great number of caſes have occurred, in which thoſe ſymptoms, which commonly attend a cancer of the *uterus*, and which have been called cancerous, have come on with great rapidity and violence, yet were not really ſuch, as the patients have not only been relieved, but effectually cured, by activity and perſeverance in the antiphlogiſtic method of treatment *.

* See Fearon on Cancers, and Pearſon on Cancerous Complaints, books of great and ſubſtantial merit.

CHAPTER

CHAPTER V.

SECTION I.

ON CONCEPTION.

By the term conception is underſtood, the formation of an *embryo*, or of the rudiments of a new being, in conſequence of the mixture of the male and female *ſemen*, or of the operation of one or both of theſe, in or after the act of coition.

It has been much diſputed, whether conception be merely an aſſemblage of ſmall particles already prepared, and conſtituent of the kind; or firſt a production or change of, and then a coaptation of particles deſigned for that purpoſe. But the firſt part of the proceſs by which primordial exiſtence is eſtabliſhed, by the minuteneſs and complication of the objects to be deſcribed, and by the retirement of the attending circumſtances, is probably involved in too much obſcurity to be diſcovered by the human faculties. Even when the firſt changes have been made, the parts remain too ſmall, to admit a very accurate examination. But neither the difficulty of the inveſtigation, nor the acknowledged uncertainty of all reaſoning, without the ſupport of facts, has deterred ingenious and ſpeculative men, in every age, from hazarding their opinions on this ſubject. It is true, that little ſatisfaction or advantage is to be gained; but if we do not profit by the knowledge of their opinions, we may be convinced, that little has hitherto been ſaid on this ſubject for our information.

The firſt opinion recorded is, I believe, that of *Pythagoras*. He ſuppoſed, that from the brain and nerves of the male, a moiſt vapour deſcended

deſcended in the act of coition, from which ſimilar parts of the *embryo* were formed. Theſe were thought to be the ſeat of the ſoul, and of courſe the parts from which all the ſenſes were derived. All the groſſer parts, he imagined, were compoſed of the blood and humours contained in the *uterus*. He ſaid, that the *embryo* was formed in forty days, but that ſeven, nine, or ten months were required for the perfection of the *fœtus*, according to the laws of *harmony*. He alſo ſuppoſed, that the ſame laws, which guided the formation of the *fœtus*, influenced the conduct of the man.

It was a cuſtom with the *Scythians*, to cut the veins behind the ears, when they intended to procure impotence or ſterility; and it is remarkable, that this cuſtom remains, and an opinion like that of *Pythagoras* is entertained, among the inhabitants of ſome of the iſlands lately diſcovered in the South Seas. Changing the term *harmony* for magic, occult quality, and the like expreſſions, by which an imperfect idea is conveyed, or a conceſſion that we have proceeded to the extent of our knowledge is actually made, many ſucceeding writers have given us their conjectures.

Empedocles preſumed, that ſome parts of an *embryo* were contained in the *ſemen* of the male, and others in that of the female, and that by their mixture an *embryo* was formed. He likewiſe thought, that the deſire of procreation originated in the natural tendency of the ſeparated parts to be united.

That conception took place in the cavity of the *uterus*, by the mixture of due proportions of the male and female *ſemen*, in which were equally contained the organic principles of the *embryo*, was the opinion of *Hippocrates*.

Ariſtotle denied the exiſtence of *ſemen* in the female. He imagined, that the material parts of the *embryo* were formed by the menſtruous blood, and that the *ſemen* of the male furniſhed it, when formed, with the principle of life, by the operation of which it was brought to perfection. It is remarkable, that a philoſopher, with

every

every advantage which a ſuperior capacity, and the moſt extenſive opportunities of acquiring knowledge, could give, ſhould attempt to explain, what is common to all animals, by a circumſtance peculiar to one claſs.

Galen thought, that the *embryo* was formed by the ſubſtance of the male *ſemen*, and that the humour ſupplied by the female ſerved the mere purpoſe of nouriſhing it.

Harvey employed a conſiderable part of his life in obſerving the ſtructure of the *ovum*, and the progreſs of conception in a variety of animals. When he had completed his diſcovery of the circulation of the blood, this ſeems to have been his favourite ſtudy, which he proſecuted with the true ſpirit of inquiry, and in which he made many obſervations, worthy of that ſagacity and induſtry which were never exceeded. With his diſpoſition, abilities, and advantages, it was reaſonable to expect, that he would have been ſilent, or have ſaid ſomething ſatisfactory upon this ſubject. But, after much previous apology, for an opinion which admitted no other proof, than an alluſion to a circumſtance of all others the moſt incomprehenſible, he tells us, that as iron, by friction with a magnet, becomes poſſeſſed of magnetic properties, ſo the *uterus*, by the act of coition, acquires a plaſtic power of conceiving an *embryo*, in a manner ſimilar to that by which the brain is capable of apprehending and thinking *.

The opinion of *Hamme*, of the credit of which he appears to have been unfairly deprived by *Leewenhoeck*, was afterwards received with great applauſe, became the doctrine of the ſchools, and gave univerſal ſatisfaction, becauſe it was ſupported by a fact, which, by the help of his microſcopes, he preſumed he was able to demonſtrate. He aſſerted, that, in the *ſemen* of all male animals, there was an infinite

* Videtur ſane fœmina, poſt tactum in coitu ſpermaticum, eodem modo affici, nulloque ſenſibili corporeo agente prolifica fieri, quo ferrum a magnete tactum, hujus ſtatim vi dotatur, aliaque ferramenta ad ſe allicit.—*Harv.* Exercit. de Concept.

number

number of *animalcula*, in each of which were contained the perfect rudiments of a future animal of the ſame kind; and that theſe required no other aſſiſtance from the female, but a proper bed for their habitation, and nutriment for their expanſion.

From him *Needham* and many others diſſented; and, after ſeveral other objections of leſs importance, they adduced the obſervation of a mixed generation, as in the caſe of a hybrid or mule; which, being procreated by two animals of different ſpecies, partakes in an equal degree of the nature and likeneſs of the male and female parent. This ſeems to be a deciſive and unanſwerable refutation of the doctrine of *animalcula*; and I believe the ſentiments entertained at the preſent time are, that the moving bodies, which *Leewenhoeck* ſaw in the *ſemen*, were not *animalcula*, or organized parts, but parts fitted for organization.

From the manner in which the *vagina* and *uterus* are connected, it has been thought, that the male *ſemen* was not deſigned to be introduced into the *uterus* of the female; but being abſorbed from the *vagina*, that it paſſed in the common courſe of the circulating blood, and was conducted to one of the *ovaria*, where it performed its proper office by the impregnation of one or more *ova*. But the examination of the *uteri* of animals in the act of coition, and of many women who have died immediately, in, or ſoon after it, has fully proved, that the *ſemen* of the male is firſt received into the cavity of the *uterus* *.

It has been generally ſuppoſed, that conception was produced by the ſubſtance of the male *ſemen*. But ſome have contended, that the *ovum*, when encloſed in the *ovarium*, was impregnated by an *aura*, exhaled from the *ſemen*, which contained the principle and powers of life, of which *aura* the *ſemen* was merely the vehicle.

* Vidimus cavum uteri, albo, naturali atque bono ſemine maſculino repletum, utramque etiam tubam Fallopianam eodem ſemine plenam.—*Ruyſch.* Adv. Anatom. Dec. 1. See alſo *Cheſelden's* Anatomy.

Many objections being made to theſe and every other opinion which has been advanced upon this ſubject, the chemiſts undertook to ſolve all doubts, and to explain all difficulties, by the application of their principles. They preſumed, that the male *ſemen* was of an acid, and the female of an alkaline quality, from the mixture of which an efferveſcence aroſe. From ſome particles, which ſubſided on the concluſion of the efferveſcence, they fancied that the *embryo* was formed, the fluid parts becoming the waters of the *ovum*. Others imagined, that the male *ſemen* had the properties of milk, and the female thoſe of rennet, by which it was coagulated, the *fœtus* being formed from the curd, and the waters of the *ovum* by thoſe parts which reſembled whey *. Various other notions have been propoſed with a view of explaining this very abſtruſe operation; but they leave us in a ſtate of uncertainty. Some of them may amuſe, becauſe they are ludicrous, and in the deſcription of the parts concerned, the uſes they are intended to anſwer, and the manner in which they are ſuppoſed to perform their reſpective offices, the imagination hath been indulged with a freedom not very conſiſtent with the dignity of Philoſophy.

If we were able to diſcover the eſſential properties of the male *ſemen*, the preciſe ſhare which the male and female contribute towards the formation of the *embryo*, the part where, and the manner how, the effect was produced, the advantages which would thence accrue in practice do not appear; though it is difficult or impoſſible to ſay, to what the diſcovery of any truth may lead before it is diſcovered. But it is happy for us, that thoſe things which are beyond the comprehenſion, or which elude the obſervation of men of plain underſtandings, are of the leaſt importance in practice; Providence having

* Sicut lac mulſiſti me, et ſicut caſeum coagulaſti me.—*Job.*

Revera in illo tempore, cum embryones adeo exigui ſunt, comperio rudimenta noſtra, maximam haberi analogiam cum coagulo lactis—*Ruyſch.* Theſ. vi.

ordained, that the honeſt and induſtrious application of common capacities ſhould render us equal to the exigencies of life, and the duties we owe to ſociety.

SECTION II.

A GENERAL hiſtory of the manner in which the ſucceſſion of all natural ſubſtances is preſerved, and of which we ſhall take a ſhort view, might be a very uſeful introduction to an inquiry into the generation of animals. For, though there appears to be little reſemblance between this and the principle by which inanimate bodies are continued, it is not very unreaſonable to ſuppoſe, that there may be ſome common eſſential quality diffuſed through all nature, limited in its operation by the kind of matter on which it is deſtined to operate *.

Minerals conſtitute the loweſt order of all natural bodies, every kind of which has its own peculiar quality and external mark of diſtinction. Theſe have been thought to be increaſed by the mere aſſimilation or appoſition of ſuch homogeneous particles as were contained in the *matrix* or bed in which they lay. But many other cauſes have been aſſigned for the converſion of bodies into peculiar modifications; as the heat of the ſun, of the central fire, cold, and alternate heat and cold, by which the ultimate determination of every mineral ſubſtance into a certain form was ſuppoſed to be effected. Some naturaliſts have entertained more dignified opinions of the increaſe of minerals, believing that there was in theſe a principle of generation, and that a grain of ſand became a ſtone, by the

* Naturalia dividuntur in regna Naturæ tria, Lapideum, Vegetabile, Animale. Lapides creſcunt, Vegetabilia creſcunt et vivunt, Animalia creſcunt, vivunt et ſentiunt —*Linnæus*.

operation of a cauſe, equal and ſimilar to that by which a vegetable, from a ſeed, acquired the perfection of a plant *. Others are perſuaded, that, in mineral ſubſtances of every kind, there are two properties, the one ſpecific, the other general. To the firſt, to which the power of increaſe was attributed, the name of elective attraction is given; and to the latter, by which its form was preſerved, that of attraction of coheſion †. Theſe, which are moſt powerful in the largeſt maſſes of matter, imply ſome property ſuperadded to matter, which, though ſlow and obſcure in its operation, is equivalent for the purpoſes of its increaſe and preſervation, in all its various forms, with that of life, by which vegetables and animals are propagated and preſerved. In this view the term *ſpontaneous generation*, though not allowed in vegetables or animals, may properly be applied to minerals. It is alſo worthy of obſervation, that by the time required for the formation of matter, under every individual modification, its continuance under ſuch modification is regulated. For, if there had been no relation between the power of increaſe and the tendency to decay, the whole world, in a courſe of years, muſt have been compoſed of matter under one peculiar form.

Through all nature, there is not found a ſingle body which conſiſts of materials lying in confuſion. However ſmall and apparently inſignificant, every particle exhibits proofs of the majeſty and wiſdom of God; and it may be preſumed, that the minuteſt elementary parts of every ſubſtance are originally compoſed and wrought up in the moſt regular order, into what is called form. Yet in mineral ſubſtances it is a form ſo immerged in matter, that it is ever reſtrained from the acquiſition of the excellence of a living body,

* *Tournefort.*

† That force by which the parts of bodies cohere is ſtronger than its gravity. That force, whatever be its cauſe, we ſhall call the attraction of coheſion.—*Deſaguliers.*

unleſs

unleſs there be a previous deſtruction of its preſent form *. But the more refined the matter, the more perfect is the form; and the more perfect the form, the more exquiſite are the properties. Hence the common obſervation ſeems to have been made, of the encroachment, as it may be called, of one order of natural bodies upon another; of the near acceſſion of the firſt minerals to the loweſt vegetables, and of the firſt vegetables to the loweſt animals, in ſuch a manner that they can ſcarcely be diſtinguiſhed.

Of the mineral, vegetable, and animal kingdoms, there is to common ſenſe a clear and preciſe diſtinction, though language may be inſufficient to give a definition of vegetables, which will not apply to animals. It is not ſatisfactory to ſay, that vegetables have no power of locomotion, that they have leſs variety of parts, that their conſtituent parts are more ſimple, that they do not breathe, that they have no appetites, and do not digeſt food; that they have no ſenſation, and are only injured by ſuch things as deſtroy their organization. For it may be replied, that vegetables do perform ſome operation equivalent to reſpiration, as they cannot live without air; that they are greatly affected by light; that they require, diſtinguiſh, abſorb, and digeſt food, or nouriſhment; that ſome of them move, apparently in ſearch of nouriſhment, and others have a certain degree and kind of ſenſation.

Whatever may be the eſſential difference between vegetables and animals, it is probable, that they are both ſubject to the ſame influences; as in thoſe ſeaſons which are moſt favourable to vegetation, animals are generated in the greateſt number and perfection; and there is evidently much reſemblance in the manner of their propagation. The ſexual diſtinction of plants is now fully proved; or it is allowed,

* That ſtate in which all bodies are, during the time they are loſing their preſent form, or undergoing any change, was, by the ancients, called fermentation. In this ſenſe the term was applied to fevers; but many modern phyſicians have uſed the ſame term in a more confined ſenſe, and the application of it will not then bear examination.

that

that there is a diſtinction between two plants of the ſame kind, like to that between a male and female animal; and that thoſe vegetables, in which ſuch diſtinction is not obſerved, have both the male and female parts, and are therefore with propriety called hermaphrodites. For, though a female plant may produce ſeeds, to our view, in a perfect ſtate, theſe, without the intervention of the fecundating principle from the male plant, remain ſteril, as hath been fully ſhewn in the tribe of melons, the palm-tree, hemp, and many other vegetables. But a more ſatisfactory proof is afforded by hybrids, or mule-plants, which are produced when a female vegetable of one ſpecies hath had its ſeeds impregnated by the *farina* of one of another ſpecies growing near it.

In the form and ſtructure of the ſeeds of vegetables of every denomination there is ſome peculiarity. They all contain the rudiments of a future plant, with ſomething added to their form, of equal efficacy for the perfection of the plant, and therefore as juſtly called life, as that principle by which animals are brought to their perfection; for we know nothing of life but by its effects, the *thing* not admitting of any definition. Any ſeed, berry, or kernel, would be an adequate example of this ſubject; but we ſhall ſelect nuts; becauſe they are equally curious with the reſt, and more familiar.

A nut is contained in a foliaceous cup or huſk, by which it is connected to the tree. The broad end of the nut is cloſely attached to the cup by ſmall veſſels, which, in the early ſtate of the nut, are very numerous; but, as it advanceth towards maturity, theſe gradually wither away, till the few remaining ones becoming too feeble to ſupport the nut, it drops to the ground. This may in one ſenſe be called the birth of the nut, though it may with more propriety be likened to the ſeparation of the impregnated *ovum* from the *ovarium* in viviparous animals, or to the expulſion of the egg in oviparous ones. When the nut is fallen to the ground, if the bed which receives it and other circumſtances are favourable to germination,

nation, a new proceſs begins, the ſhell ſoftening by the moiſture abſorbed by that end of the nut which before adhered to the cup, and which is more porous than the other parts. The whole internal ſurface of the ſhell is lined with a flocculent ſubſtance for the prevention of injury to the kernel from the hardneſs of the ſhell, and for the reſerve and preparation of the moiſture already abſorbed. The kernel has alſo two membranes, the inner of which is fine and pellucid, but the outer is of a coarſer texture, reſembling that ſubſtance which lines the ſhell. On the internal ſurface of the broad end of the ſhell there is a congeries of veſſels, or a ligament, which paſſes, between the kernel and ſhell, to the *apex* of the kernel, to which it is attached, and probably ſerves the purpoſe of an umbilical cord. When the ſhell has continued in this ſituation for a certain time, it decays or burſts, and gives room for the expanſion of the kernel. During this interval, the proceſs of germination is going on in the kernel, which is not deprived of its coverings, ſo long as they are neceſſary for its protection. The *corculum*, or bud, begins to ſprout; the outer membranes decay or burſt, and, together with a great part of the kernel, ſerve as the firſt ſupply of nouriſhment. Then the radicle and other parts of the little plant are unfolded; and when they have acquired a certain degree of ſtrength, the kernel is diveſted of all its ſubſervient parts, the root ſtrikes into the ground, and the plant is perfected by the vigour of its own principle.

Between the production of vegetables from ſlips, and the multiplication of *polypi* from the ſection of their parts, there is at leaſt an equal ſimilitude with the mode of propagation of which we have already ſpoken. It is alſo deſerving of notice, that, as the operation of the principle of life is often ſuſpended for a very long time in the ſeeds of vegetables, without deſtruction, in very unfavourable circumſtances, the ſame hath been obſerved in inferior animals, particularly in ſnails*; though, in this reſpect, vegetables

* *Annual Regiſter*, vol. xvii.

* appear

appear to have the advantage; and from the proofs which have been given, by philoſophical men, of this ſuſpenſion of the operation of the principle of life, divines have, by no forced conſtruction, illuſtrated the doctrine of the reſurrection of the human body after its decay *.

SECTION III.

Of the mode of propagation of all the inferior orders of animals, diverſified and wonderfully curious as it is, particularly in the Surinam toad and the kangaroo, it is impoſſible to take notice. The greater part of theſe are oviparous, and it has even been aſſerted, that every living body was produced from an egg; but this is a very unjuſtifiable uſe of the term †.

It is probable, that the eggs, properly ſo called, of all animals, minute as many of them are, are compoſed of ſimilar parts with thoſe of the larger oviparous animals. We may therefore be permitted to take our example from the eggs of birds, in which all the circumſtances relating to the formation of the animal have been well deſcribed by many able men, but with peculiar accuracy by the illuſtrious *Harvey*.

The eggs of birds are compoſed of two principal parts, which, from their colour, are called the yelk and the white. The yelks only are found in the *ovarium*, to which they are attached, and

* See *Philoſophical Tranſactions* for the year 1784, in which there is a very curious paper on this ſubject by Mr. *John Hunter*, by which that doctrine is ſupported.

† Diximus antehac ovum eſſe tanquam fructum animalium. *Harv.* Exercitat. de Partu, and the plate prefixed to the Engliſh edition.

In omni genere animantium quæ ex coitione naſcuntur, invenies ovum aliquorum eſſe principium, inſtar elementi. Ovum vero digeſtio eſt feminis.—*Macrob. Saturnal.* Lib. vii. cap. xiv.

where,

where, it is preſumed, ſuch as are in a fit ſtate are impregnated. They are of different degrees of magnitude, and that which is the moſt perfect firſt drops into the *infundibulum*, by which it is carried into the *uterus*, collecting in its paſſage the white. In the *uterus* it is clothed with its membranes and ſhell, after which it is expelled in a firm ſtate *.

The texture of the ſhell is admirably calculated for preſerving the contained parts, and for receiving and retaining that heat, which is conveyed to them by incubation. Immediately within the ſhell is the common membrane, which lines the whole cavity of the egg, except at the broad end, where there is a ſmall ſpace filled with air. Within this membrane, the white, which is ſaid to be of two kinds, is immediately contained; and near the centre, in an exquiſitely fine membrane, the yelk. The white is of the ſame form with the ſhell, but the yelk is ſpherical. At each extremity of the yelk, next to the ends of the egg, is the *chalaza*, a white firm body, conſiſting of three globules like ſmall hail-ſtones. In the *chalaza*, the ſeveral membranes are connected, by which means the various parts, in every poſition of the egg, are retained in their proper place. Upon the yelk, near the middle, there is a ſmall, flat, circular body or veſicle, called the *cicatricula*, in which the rudiments of the chick are contained. In conſequence of incubation, or of continued heat of any kind to a certain degree, the reſpective changes are produced with great exactneſs; but, previous to any organization of parts, the firſt obſervable alteration of importance is the formation of blood, which *Harvey* has therefore deſcribed as the *primum vivens, ultimum moriens*. The heart, which is ſoon perceptible, is in a ſhort time diſcovered to be in motion, then the vaſcular ſyſtem, and

* I cannot forbear quoting the following beautiful paſſage from *Harvey*.—"Columba, præſertim ea, quæ ad nos ex Africa advehitur, gaudium a coitu mirum in modum exprimit: ſaltat, caudam diſtendit, eaque imam verrit humum, roſtro ſe pectit et ornat; quaſi fœcunditatis donum ſummam in gloriam duceret."—Exercitat. xxxiv.

the other conſtituent parts of the animal in regular order. The white of the egg becoming thinner, ſupplies the growing chick with nouriſhment, as does likewiſe the yelk, till it is of too large a ſize to be contained in the ſhell, which burſting, the chick is ſet at liberty, and carries in the *ductus inteſtinalis* a part of the yelk for its future ſuſtenance, till its powers are ſufficiently vigorous, to enable it to take and digeſt extraneous food.

SECTION IV.

THE regular diſpoſition and connexion of the various parts of matter of which the world is compoſed, and of the various living bodies by which it is inhabited, are not more ſurpriſing than the circumſtances by which they are diſtinguiſhed. For, though there is an evident ſeries of relations by which their connexion is preſerved, to each different being there is ſome outward mark or inward ſtructure, by which it is ſeparated from thoſe which precede and follow it. Thus in every order of animals there is obſerved a difference in the ſtructure of the parts concerned in parturition, and in the *ovum* or conception which they ſeverally produce, by which each claſs might be arranged as juſtly, as by the ſtructure of any other internal or external part. The human *uterus* alone is pyriform, and the *placenta*, which is flat and circular, adheres to it by a broad ſurface. But all animals have the *uterus* divided at the *fundus* into two branches, or horns; and the gradation from the human *uterus*, to that of an animal, debaſed to the loweſt extremity of the viviparous claſs, makes a very curious part of natural hiſtory. In the *pecora* the horns are convoluted, and terminated in a point, and the connecting ſubſtance between the *fœtus* and parent is divided into ſeveral portions called *cotyledons*, which adhere to as many temporary productions of the *uterus*, reſembling glands. In the *feræ*, there is a

variation in the horns of the *uterus*, and the connecting ſubſtance between this and the *fœtus*, though in one maſs, ſurrounds the *uterus* like an internal belt. In the *belluæ*, the horns of the *uterus* are reflected and obtuſe, and the *fœtus* has neither *placenta* nor *cotyledons*, but receives its nouriſhment by the very capacious veſſels of the membranes. Theſe and many other varieties in every claſs, to which it is not poſſible in this inquiry to pay attention, anſwer ſome very important purpoſe, in giving to each animal its diſtinguiſhing properties; and in the offices performed there is ſome peculiarity in manner, dependent upon ſtructure; ſo that from the circumſtances attending the parturition of animals of one kind, no inferences could be made, which would not be liable to many exceptions, if we compared them with thoſe of any other.

SECTION V.

Of all viviparous animals man is the chief. The manner in which his race is propagated is the object to which we are at preſent to confine our attention. But that ſucceſſion of opportunities neceſſary for ſuch an examination not being attainable in the human ſpecies, recourſe hath been had to inferior animals, on the preſumption, that there is not only a common principle by which viviparous animals are propagated, but alſo that common effects are produced by the operation of that principle. Great attention hath been paid to the cultivation of this ſubject; but in the detail of the circumſtances, which are ſaid to occur in the conception or production of the human *fœtus*, ſeveral are admitted which it would be extremely difficult to demonſtrate or prove.

Previous to or during the act of coition, it is preſumed, that one or more of the veſicles, or *ova*, contained in the *ovaria*, is brought to a ſtate fit for impregnation, and that the male *ſemen*, being

tranſmitted into the cavity of the *uterus*, is thence conducted by one of the *fallopian* tubes to one of the *ovaria*, where it perfects the rudiments of the *fœtus*, or impreſſes them already perfected with the principle of life. The prolific *ovum*, having undergone its firſt changes in the *ovarium*, is then looſened from its connexion, graſped by the *fimbriæ*, and reconveyed by one of the *fallopian* tubes to the cavity of the *uterus*.

When the *ovum* is impregnated, and while it remains in the *ovarium*, the *uterus* paſſes through ſome peculiar changes, by which it is rendered fit for the reception of the *ovum*. The blood veſſels of the *uterus* then appear to be enlarged, as in a ſlight degree of inflammation; the internal ſurface becomes ſofter and more ſpongy in its texture; and a white *mucus*, which has been likened, from the delicacy of its arrangement, to the web of a ſpider, is ſecreted; which, gradually aſſuming a more ſolid form and becoming vaſcular, adheres or is cloſely united to the *uterus*, to the whole cavity of which it forms a lining, except at the orifices which lead to the *fallopian* tubes and the *os uteri* *.

To this membrane various names have been given, and various opinions entertained of its formation †. A juſtly celebrated anatomiſt of the preſent time, in whoſe accuracy and judgment I ſhould willingly confide, has conſidered it as the inner *lamina* of the *uterus*, caſt off, like the *exuviæ* of ſome animals, after every conception, and has, from this circumſtance, called it the *decidua*; and from the manner of its paſſing over the *ovum*, the *decidua reflexa* ‡. It is, however, unneceſſary to debate upon the manner in which this membrane is formed, all writers upon this ſubject agreeing, that its formation is contemporary with conception; and that it precedes the

* See *Harv.* Exercitat. lxix.

† Villoſam, flocculentam, pſeudo-chorion, *ſpongy* chorion.

‡ Anatomia Uteri Humani Gravidi Tabulis Illuſtrata.—*Gul. Hunter.*

time

time when the impregnated *ovum* paſſes from the *ovarium* into the *uterus*, as it is found in the caſe of an extra uterine *fœtus*. It may, therefore, be deemed an indiſpenſably requiſite preparation of the *uterus*, for the reception of the *ovum*, and the ſubſtance by which this is afterwards connected to the *uterus*; ſo that if it were to receive a name from its uſe, it would not be improper to call it the connecting membrane of the *ovum* *.

SECTION VI.

THE contents of the human gravid *uterus* are compriſed under the general term *ovum*, or conception, of which the component parts are, the *fœtus*, the *funis umbilicalis*, the *placenta*, the membranes, and the waters. Of theſe it is reaſonable to think, that the *fœtus* is the only part immediately formed in conſequence of the act of coition, and that the reſt are previous or ſubſequent productions of the *ovarium* or *uterus*.

It has been thought that ſome of the parts of the *fœtus* were formed before the reſt, and much labour hath been beſtowed in aſcertaining the order of their formation †. But, as the ſkin of the ſmalleſt *embryo* which can be examined, is perfect, it may be preſumed, that what has been called addition or coaptation of parts, is, in fact, nothing more than the expanſion or unfolding of parts already formed. Of this we have a curious example in the deſcent of the teſticles into the *ſcrotum*, which happens only a few weeks before

* Of the formation of this membrane *Harvey* has given the following very curious account:—Per mediam utriuſque cornu atque etiam uteri cavitatem, mucoſa quædam filamenta, tanquam aranearum telæ, ab ultimo ſive ſuperiore cornuum angulo ducuntur; quæ ſimul juncta membranoſam ac mucilaginoſam tunicam, ſive manticam vacuam referunt. *Harv* Exercitatio ſexageſima nona.

† Embryones dicendi ſunt, quando membra non ſunt abſoluta.—*Ruyſch.*

the

the birth of the child, though their prior exiſtence in the *abdomen* is not to be doubted. This opinion is likewiſe illuſtrated by the ſeeds of plants, which muſt contain all the primordial parts of the plants, when they are firſt depoſited in the ground, from which they can draw only the means of nouriſhment and increaſe.

Much induſtry hath likewiſe been uſed to determine the weight, length, and dimenſions of the *fœtus*, at different periods of utero-geſtation. The utility of this inquiry, if the truth could be diſcovered, does not appear. But as children born of different parents, or thoſe born of the ſame parents, at the ſame or different births, vary at all periods of pregnancy, it is reaſonable to believe, that there is an original difference in their ſize and in other reſpects. Many of the varieties may alſo depend upon the ſtate of the health either of the parent or child before its birth, ſo that it ſeems impoſſible to bring this matter to a fair concluſion.

During the continuance of the *fœtus* in the *uterus*, its internal ſtructure is, in many reſpects, different from that of a child which has breathed; and the external figure of a child is very unlike that of an adult, in the proportions which the various parts bear to each other. Of thoſe peculiarities, which give a diſpoſition to particular diſeaſes, we ſhall ſpeak in another place.

From the time when the *fœtus* is completely formed, the head is large, if compared with the body and extremities; and the younger the *fœtus* is, the greater is the diſproportion. The ſuperior weight of the head is ſuppoſed to be the cauſe of its general preſentation at the time of birth; but there muſt be ſome other reaſon; for the ſame preſentation is equally common in quadrupeds, in whom the extraordinary weight of the head, if it exiſted, could not produce this effect.

The principal circumſtances in which the *fœtus* and adult vary, are in the vaſcular ſyſtem. In the heart of the former a communication is preſerved between the right and left auricle, by an opening called

called the *foramen ovale*, which cloſes ſoon after birth. But a valve prevents the return of the blood from the left to the right auricle *. There is alſo a communicating artery, between the pulmonary artery and the *aorta*, which is called the *canalis arterioſus*, and may be eſteemed a branch of the pulmonary artery. This branch, which diverts immediately to the *aorta* a large portion of that blood, which circulates in the lungs when the child has breathed, cloſes likewiſe ſoon after birth. In amphibious animals, the *foramen ovale*, and *canalis arterioſus*, are ſaid to remain open during life.

The liver in the *fœtus* is very large, nearly filling up both the *hypochondria*, and it has veſſels peculiar to that ſtate: firſt, the *vena umbilicalis*, which ariſes from the *placenta*, and, running through the *funis*, enters the *abdomen* of the child, and paſſes to the liver, which it penetrates on the inferior edge, terminating in the *ſinus* of the *vena portarum*. This likewiſe cloſes ſoon after birth, and, with the aſſiſtance of the *peritonæum*, becomes a ligament called the falciform. Secondly, the *canalis venoſus*, which, proceeding from the *ſinus* of the *vena portarum*, paſſes acroſs the liver to the hepatic vein, and thence to the *vena cava*. The *canalis venoſus* is ſmaller than the *vena umbilicalis*, and only carries a portion of the blood brought by the latter to the liver.

The internal iliac arteries are very large in the *fœtus* in proportion to the external. From theſe, two branches ariſe, which, running on each ſide of the bladder and the ſides of the *abdomen*, paſs out of the navel of the *fœtus*, and form the two arteries of the *funis*, which, cloſing ſoon after birth, become impervious, as far as to the bladder.

Theſe peculiarities in the vaſcular ſyſtem of the *fœtus* are provided, to allow of that mode of circulation of the blood, which is calculated for the life which it poſſeſſeth, during its reſidence in the *uterus*.

* See *Medical Tranſactions*, Vol. III. in which the imperfections in the conſtruction of the heart, with their conſequences, are very accurately deſcribed.

When

When the blood is brought by the *vena cava* into the right auricle of the heart, part of it paſſes by the *foramen ovale* into the left, and of courſe a ſmaller portion into the right ventricle. When the blood, thus diminiſhed, is propelled by the action of the heart from the right ventricle into the pulmonary artery, a farther portion of it is conducted by the *canalis arterioſus* directly to the *corta*. It has been conjectured, that about the fourth part of the blood which circulates through the lungs of a child which breathes, paſſed through them while it remained *in utero*.

The two branches of the internal iliacs, which afford the arteries of the *funis*, conduct a great portion of that blood, which flows through the *aorta*, by the *funis* to the *placenta*; but, when the child is born, that blood, which circulated through them, paſſes by the external iliacs to the inferior extremities, which therefore increaſe more ſpeedily after birth than any other part.

The blood brought by the vein of the *funis* from the *placenta* is carried to the *ſinus* of the *vena portarum*, from which it proceeds to the hepatic vein, and then to the *vena cava*.

The *thorax* is flatter and narrower in the *fœtus*, than in a child which has breathed, becauſe it has not been expanded by the inflation of the lungs, which are then of a more compact and firm texture. This ſtate of the lungs, which renders them heavier than water, is eſteemed a proof that the child has not breathed; but when the lungs are found to be lighter than water, which is diſcovered by their floating on the ſurface when put into that fluid, it is ſuppoſed to be an equally ſtrong proof that the child had breathed. Theſe circumſtances of the lungs were formerly produced in evidence in courts of judicature, and inferences of the utmoſt importance to the acquittal or condemnation of a preſumed innocent or guilty perſon have been made from them. But it is well known, that the lungs of a child which has lived many months, or even of an adult, may be rendered heavier than water by diſeaſe; and the lungs of a child

which

which has never breathed will become lighter than water by putrefaction; or if they have been inflated artificially, with the view of recovering a child born apparently dead. It is alſo to be obſerved, that ſome children juſt born will breathe two or three times, and then die, though every care be taken, and all proper means uſed for their recovery; yet the lungs will become lighter than water by this reſpiration, though of ſuch ſhort continuance. The appearance and ſtate of the lungs may be altered by ſo many circumſtances, that a judicious or an honeſt man would heſitate to put confidence in any opinion, which they have been ſuppoſed to prove; and accordingly juries are now, and have long been, directed to pay little regard to this kind of evidence. But when the murder of an infant by its mother can be clearly and poſitively proved, it deſerves to be ſeriouſly conſidered, on what principle extraordinary lenity ought to be ſhewn to one, who, in the firſt inſtance, breaking through the ſtrongeſt ties and reſtraints of human ſociety, afterward commits an irretrievable injury by the deſtruction of an innocent and helpleſs child, for the preſervation of her own character.

SECTION VII.

THE *funis umbilicalis* is that cord, which, paſſing from the *abdomen* of the child to the *placenta*, maintains the communication between the *fœtus* and *placenta*. In quadrupeds the *funis* conſiſts of two arteries and two veins, but in the human ſpecies it is compoſed of two arteries and one vein, the ſpace between which is filled up with a gelatinous *mucus* contained in cells, which prevents any obſtruction to the circulation of the blood from accidental compreſſion, or even when a knot is caſually made in it by the irregular changes of the poſition of the child. The *funis* is covered by the *amnion* or inner membrane of the *ovum*, and the vein is of a ſufficient ſize to reconduct

to the *fœtus* the whole or an equal quantity of blood, to that which is conveyed by the two arteries from it to the *placenta*. The arteries very often twiſt round the vein in a very curious and beautiful manner; ſometimes they run in a parallel line with the vein; and in ſome inſtances the arteries are contorted in ſuch a manner as to make, upon the *funis*, one or more large tumours, or bunches, reſembling excreſcences.

When the *embryo* can firſt be perceived, it is found adhering to what afterwards becomes the *placenta*, by a cloſe connexion of the *abdomen*. In a ſhort time the uniting part is elongated into a flat and then a conical form, and ſoon becomes a regular umbilical cord, the length and thickneſs of which are generally in proportion to the ſize of the *fœtus*; though every part of the *ovum* is larger according to the ſize of the *fœtus* in early than advanced pregnancy. The *funis* ſeems to be a production of the *placenta*; for, immediately after the birth of the child, there is a line which diſtinguiſhes the fœtal part, where the ſpontaneous ſeparation is afterwards made.

In the thickneſs of the *funis*, which chiefly depends upon the quantity of *mucus* contained in the cells, there is much variety in different ſubjects, and in its length, it being in ſome not more than one foot, and in others exceeding three, four, or even ſix feet; but it is moſt frequently about two feet in length. It is thickeſt near the *abdomen* of the child, and gradually becomes more ſlender as it approaches to the *placenta*, into which it is uſually inſerted about one third from the edge. But there is much difference in this reſpect alſo, and in ſome inſtances the blood veſſels ramify before they reach the *placenta*, and when this happens it may occaſion a difficulty in the extraction, or a ſeparation of the *funis*, even when little force is exerted.

SECTION

SECTION VIII.

THE *placenta* is a circular, flat, vaſcular, and apparently fleſhy ſubſtance, different in its diameter in different ſubjects *, but uſually extending about ſix inches or upwards, over about one fourth part of the ſhell or outſide of the *ovum*. It is more than one inch in thickneſs in the middle, and becomes gradually thinner towards the circumference, from which the membranes are continued. The *placenta* is the principal medium by which the communication between the parent and child is preſerved; but, though all have allowed the importance of the office which it performs, there has been a variety of opinions on the nature of that office, and of the manner in which it is executed.

That ſurface of the *placenta*, which is attached to the *uterus* by the intervention of the connecting membrane, is lobulated and convex; but the other, which is covered with the *amnion* and *chorion*, is concave and ſmooth, except the little eminences made by the blood veſſels. It is ſeldom found attached to the ſame part of the *uterus* in two ſucceſſive births; and, though it moſt frequently adheres to the anterior part, it is occaſionally fixed to any other, even to the *os uteri*; in which ſtate it becomes a cauſe of a dangerous hemorrhage at the time of parturition.

The *placenta* is compoſed of arteries and veins, with a mixture of pulpy or cellular ſubſtance †. Of theſe there are two orders, very curiouſly interwoven with each other. The firſt is a continuation of thoſe from the *funis*, which ramify on the internal ſurface of the *placenta*, the arteries running over the veins, which is a circum-

* In quibuſdam placenta reperitur craſſior, amplior, et ſanguine abundantior.—*Harv.*

† Placentæ ſubſtantia non conſtat glandulis, ſed mire vaſculoſa eſt.—*Ruyſch.*

ſtance peculiar to the *placenta*; and then, ſinking into its ſubſtance, anaſtomoſe and divide into innumerable ſmall branches. The ſecond order proceeds from the *uterus*; and theſe ramify in a ſimilar manner with thoſe from the *funis*, as appears when a *placenta* is injected from the veſſels of the *funis*, and from thoſe of the parent. The veins in their ramifications accompany the arteries as in other parts.

There have been many different opinions with reſpect to the manner in which the blood circulates between the parent and child during its continuance in the *uterus*. For a long time it was believed, that the intercourſe between them was uninterrupted; and that the blood propelled by the powers of the parent pervaded, by a continuance of the ſame force, the vaſcular ſyſtem of the *fœtus*. But repeated attempts having been made without ſucceſs, to inject the whole *placenta*, *funis*, and *fœtus*, from the veſſels of the parent, or any part of the *uterus* from the veſſels of the *funis*, it is now generally allowed, that the two ſyſtems of veſſels in the *placenta*, one of which may be called maternal, the other fœtal, are diſtinct. It is alſo admitted, that the blood of the *fœtus* is, with regard to its formation, increaſe, and circulation, unconnected with, and totally independent of, the parent; except that the matter by which the blood of the *fœtus* is formed muſt be derived from the parent *.

It is thought that the blood, which has probably undergone ſome preparatory changes in its paſſage through the *uterus*, is conducted by the uterine or maternal arteries of the *placenta*, to ſome cells or ſmall cavities in which it is depoſited; and that ſome part of it, or ſomething ſecreted from it, is abſorbed by the fœtal veins of the *placenta*, and by them conveyed to the *fœtus* for its nutriment †.

When

* Abunde me demonſtraturum arbitror, viviparorum quoque fœtum, dum adhuc in utero continetur, non matris ſanguine nutriri, ſpirituque ejus vegetari, ſed animo viribuſque ſuis frui, ut pullus in ovo ſolet, proprioque ſanguine gaudere.—*Harv.* Exercitat. xxxvi.

† There is a very ingenious paper in the 2d part of the Medical Journal for the year

When the blood which circulates in the *fœtus* requires any alteration in its qualities, or when it has gone through the courſe of the circulation, it is carried by the arteries of the *funis* to the *placenta*, in the cells of which it is depoſited, and then abſorbed by the maternal veins of the *placenta*, and conducted to the *uterus*, whence it may enter the common circulation of the parent. Thus it appears, according to the opinion of *Harvey* *, that the *placenta* performs the office of a gland, conveying air, or ſecreting the nutritious juices from the blood, brought from the parent by the arteries of the *uterus*, and carried to the *fœtus* by the veins of the *funis* in a manner, probably not unlike to that in which milk is ſecreted and abſorbed from the breaſts.

The veins in the *placenta* are mentioned as the abſorbents, becauſe no lymphatic veſſels have yet been found in the *placenta* or *funis*; nor are there any nerves in theſe parts; ſo that the only communication hitherto diſcovered, between the parent and child, is by the ſanguineous ſyſtem.

The proofs of the manner in which the blood circulates between the parent and child are chiefly drawn from obſervations made upon the *funis*. When it was ſuppoſed, that the child was ſupplied with blood in a direct ſtream from the parent, it was aſſerted that, on the diviſion of the *funis*, if that part next to the *placenta* was not ſecured by a ligature, the parent would be brought into extreme danger, by the hemorrhage which muſt neceſſarily follow. But this opinion, which laid the foundation of ſeveral peculiarities in the management of the *funis* and *placenta*, is proved not to be true. For, if the *funis*

year 1787, written by Doctor *John Clarke*, to prove that the *fœtus* is ſupplied with air by means of the *placenta*.

See a more particular account of the ſtructure of the *placenta*, in Mr. *Hunter's* Obſervations on the Animal Œconomy.

* Placenta ſuccum alibilem a matre provenientem nutriendo fœtui concoquit.—*Harv.* Exercitat. de Uteri Membranis.

be

be compreſſed immediately after the birth of the child, and whilſt the circulation in it is going on, the arteries between the part compreſſed and the child throb violently, but thoſe between the compreſſion and the *placenta* have no pulſation; but the vein between the part compreſſed and the *placenta* ſwells, and that part next to the *fœtus* becomes flaccid. But, if under the ſame circumſtances the *funis* be divided, and that part next the child be not ſecured, the child would be in danger of loſing its life by the hemorrhage, yet the mother would ſuffer no inconvenience if the other part was neglected. It is moreover proved, that a woman may die of an hemorrhage occaſioned by a ſeparation of the *placenta*, and the child be nevertheleſs born, after her death, in perfect health. But if the *placenta* be injured, without ſeparation, either by the rupture of the veſſels which paſs upon its inner ſurface, or in any other way, the child, being deprived of its proper blood, would periſh, yet the parent might eſcape without injury.

SECTION IX.

By the *placenta* and membranes which are expanded from its edge, a complete *involucrum* of the *fœtus* and waters is made. They form at the ſame time a lining to the *uterus*; and, when expelled after the child is born, go under the common term of after-birth, or *ſecundines*.

In the deſcription of the membranes of the *ovum*, given by different writers, there is great diſſimilarity; and it appears, that much of that confuſion which became the ground of controverſy, aroſe from the ambiguity of the terms uſed, and from the examination of the *ova* at different periods of pregnancy; ſo that every deſcription might have been juſt, though no two repreſentations had been the ſame. They have

have uſually been mentioned as two, the *amnion** and the *chorion*†; and the latter has again been divided into the true and the falſe. The third membrane, which from its appearance has likewiſe been called the villous or ſpongy‡, and from the conſideration of it as the inner *lamina* of the *uterus* caſt off, as was before obſerved, like the *exuviæ* of ſome animals, the *decidua*, has been deſcribed by *Harvey* not as one of the membranes of the *ovum*, but as a production of the *uterus*. How far a very accurate account of the conſtituent parts of the *ovum*, with all the changes they undergo, may be wanted for the perfection of natural hiſtory, I cannot pretend to decide; but in the practice of midwifery it doth not appear neceſſary.

It is, however, requiſite, that we ſhould have a competent knowledge of the membranes of the *ovum* at the full period of utero-geſtation, and the following explanation ſeems to be ſufficient. There is, firſt, the outer or connecting membrane, which is flocculent, ſpongy, and extremely vaſcular, completely inveſting the whole *ovum*, and lining the *uterus*; ſecondly, the middle membrane, which is nearly pellucid, with a very few ſmall blood-veſſels ſcattered over it, and which forms a covering to the *placenta* and *funis*, but does not paſs between the *placenta* and *uterus*; thirdly, the inner membrane, which is tranſparent, of a firmer texture than the others, and lines the whole *ovum*, making, like the middle membrane, a covering for the *placenta* and *funis*. With the two laſt the *ovum* is clothed when it paſſes from the *ovarium* into the *uterus*, where the firſt is provided for its reception. Theſe membranes, in the advanced ſtate of pregnancy, cohere ſlightly to each other§, though in ſome *ova* there is a conſiderable quantity of fluid collected between them, which, being diſcharged

* Quod fœtum amiciat et obvolvat.—*Harv.*

† A venarum copia ſive choro nomen obtinuit.—*Idem.*

‡ Mihi liceat nominare membranam placentæ, villoſam.—*Ruyſch.* Theſ. Anatom. vi. 41.

§ Amnios et chorion ſibi invicem leviter cohærent.—*Ruyſch.*

when one of the outer membranes is broken, forms one of the circumſtances which have been diſtinguiſhed by the name of *by*, or falſe waters.

Between the middle and inner membrane, upon or near the *funis*, there is a ſmall, flat and oblong body, which, in the early part of pregnancy, ſeems to be a veſicle containing milky lymph, which afterwards becomes of a firm and apparently fatty texture. This is called the *veſicula umbilicalis*, but its uſe is not known.

SECTION X.

All that fluid, which is contained in the *ovum*, is called by the general name of the waters, or the waters of the *amnion* or *ovum*. The quantity, in proportion to the ſize of the different parts of the *ovum*, is greateſt by far in early pregnancy. At the time of parturition, in ſome caſes, it amounts to, or exceeds, four pints, and in others it is ſcarcely equal to as many ounces. It is uſually in the largeſt quantity when the child has been ſome time dead, or is born in a weakly ſtate.

This fluid is generally tranſparent, often milky, and ſometimes of a yellow or light brown colour, and very different in conſiſtence; and theſe alterations ſeem to depend upon the ſtate of the conſtitution of the parent. It does not coagulate with heat like the ſerum of the blood; and, chemically examined, it is found to be compoſed of phlegm, earthy matter, and ſea ſalt, in different proportions in different ſubjects, by which the varieties in its appearance and conſiſtence are produced. It has been ſuppoſed to be excrementitious, but it is generally thought to be ſecreted from the internal ſurface of the *ovum*, and circulatory as in other cavities.

It was formerly imagined that the *fœtus* was nouriſhed by this fluid, of which it was ſaid to ſwallow ſome part frequently; and it was then

then aſſerted, that the qualities of the fluid were adapted for its nouriſhment. But there have been many examples of children born without any paſſage to the ſtomach; and a few, of children in which the head was wanting, and which have nevertheleſs arrived at the full ſize. Theſe caſes fully prove, that this opinion is not juſt, and that there muſt be ſome other medium by which the child is nouriſhed beſides the waters. The incontrovertible uſes of this fluid are to ſerve the purpoſe of affording a ſoft bed for the reſidence of the *fœtus*, to which it allows free motion, and prevents any external injury during pregnancy; and, encloſed in the membranes, it procures the moſt gentle, yet efficacious, dilatation of the *os uteri* and ſoft parts at the time of parturition.

Inſtances have been recorded, in which the waters of the *ovum* are ſaid to have been voided ſo early as in the ſixth month of pregnancy, without prejudice either to the child or parent. The truth of theſe reports ſeems to be doubtful, becauſe when the membranes are intentionally broken, the action of the *uterus* never fails to come on, when all the water is evacuated. A few caſes have occurred to me in practice, which might have been conſtrued to be of this kind; for there was a daily diſcharge of ſome colourleſs fluid from the *vagina* for ſeveral months before delivery; but there being no diminution of the ſize of the *abdomen*, and the waters being regularly diſcharged at the time of labour, it was judged that ſome lymphatic veſſel near the *os uteri* had been ruptured, and did not cloſe again till the patient was delivered. I have alſo met with one caſe, in which, after the expulſion of the *placenta*, there was no ſanguineous diſcharge, but a profuſion of lymph, to the quantity of ſeveral pints, in a few hours after delivery; but the patient ſuffered no inconvenience, except from the ſurpriſe.

The diſeaſes of the different parts of the *ovum* will be conſidered when we ſpeak of the cauſes of abortion.

SECTION XI.

It hath been obſerved, that the ſtate of the *uterus* is, in many reſpects, altered in conſequence of impregnation. Beſides the derivation of a greater quantity of blood to it and the neighbouring parts, on which the ſize chiefly depends in the early part of pregnancy, and the formation of the connecting membrane of the *ovum*, it becomes endued with the properties of diſtention and aſcent into the cavity of the *abdomen*.

The *fundus* of the *uterus* is the part firſt diſtended, and afterwards the inferior parts in regular order; at length the *cervix* is obliterated, except the mere circle of the *os uteri*, and the *uterus*, which was originally pyriform, becomes nearly oval. The diſtention is alſo more conſiderable on the poſterior than the anterior part, which is one cauſe of the change of poſition and courſe of the *fallopian* tubes and ligaments. Theſe, in the unimpregnated ſtate, depart from the corners of the *fundus* of the *uterus* nearly at right angles; but, towards the concluſion of pregnancy, they go off from the fore part near the *cervix*, as was before obſerved. This diſtention is evidently not mechanical from the enlargement of the *ovum*, but from the acceſſion of a new principle; for the *uterus* is never fully upon the ſtretch, like a bladder inflated with air, but relaxed in ſuch a manner as to be apparently capable of bearing the farther increaſe of the *ovum* without inconvenience.

The *uterus* is placed between the bladder and *rectum*, the *os uteri* being generally projected a little backwards, ſo that the *axis* of the cavity of the *uterus* correſponds with that of the *pelvis*. After conception, the weight of the *uterus* being increaſed, it ſubſides lower into the *vagina*, the ſhortneſs of which is therefore reckoned one of the equivocal ſigns of pregnancy. But, after a certain time, the

uterus, though more increaſed in weight, begins to aſcend, which it continues to do till it emerges out of the *pelvis*, acquiring ſupport from the ſuperior and anterior part of the aperture; in which diſpoſition and ſtate it remains, till the changes previous to labour come on. In the latter part of pregnancy the *vagina* muſt therefore be elongated, and the effects of the temporary abbreviation and elongation are readily diſcovered in thoſe pregnant women who have a *procidentia* of the *uterus*, or a tendency to it, in whom the complaint is aggravated in the early, and leſſened in the latter part of pregnancy.

In the firſt pregnancy the *uterus* riſes almoſt directly upwards, becauſe the integuments of the *abdomen* ſupport it forwards; and the diſtention may be readily perceived on each ſide, but commonly on one ſide more than the other, from the poſition of the child. In ſubſequent pregnancies the *uterus* projects forwards, the integuments generally yielding with greater or leſs readineſs, according to the number of children which a woman hath before had; but it always lies before the *viſcera* of the *abdomen*, which are raiſed higher, and protruded backwards, in proportion to its aſcent and diſtention. Through the integuments of the *abdomen* the *uterus* may be felt ſpringing out of the *pelvis*, about the fourth month of pregnancy; in the fifth about the midway between the *pubes* and navel; in the ſixth as high as the navel; in the ſeventh half-way between the navel and *ſcrobiculus cordis*; and in the eighth as high as the *ſcrobiculus cordis*: in the ninth month it uſually begins to ſubſide, ſo that, at the time of parturition, the *fundus* of the *uterus* is not higher in the *abdomen* than in the ſeventh, if the *uterus* be in a proper diſpoſition to act; but when that is not the caſe, the *fundus* will be as high as the *ſcrobiculus cordis*, even when the woman is in labour.

At the time of labour a new principle ſuperſedes thoſe of diſtention and aſcent*. This gives a diſpoſition to the *uterus* to exclude

* Expultrix uteri facultas inſurgit et excitatur. Fœtus ab utero compreſſus, propulſatus atque expreſſus. – *Fabr. ab Aquapendente.*

whatever is contained in its cavity, and the effect produced is in proportion to the energy of the principle and the power of the *uterus*. A perfect intelligence of this principle, and of the mode of its operation, would probably be of infinite use in practice, as we might be enabled to suppress the action thereby occasioned when premature, moderate it when too violent, strengthen it when too feeble, and regulate it in a variety of ways conducive to the welfare of our patients. On the knowledge we at present have of the manner in which this principle operates, and the circumstances by which it is influenced, the assistance which science and dexterity can give in cases of difficult parturition, very much depends.

But this expulsatory power, which takes place at the time of parturition, does not seem to be peculiar to the *uterus*, but to proceed from a general principle diffused through the whole body, which acts in a like manner whenever an offended part makes an extraordinary effort to free itself from any offending body; and the mode of its operation is according to the general laws of the animal economy, as is usually the degree according to the difficulty. It is in common observation, that no violent action can be of long duration; and it might therefore be expected, that the efforts made by the *uterus*, for the purpose of expelling the child at the time of birth, would be periodical; and attended with pain, from the distention and pressure which the resisting parts undergo, as we all have occasion to observe when we speak of natural labours.

It was said, that this expulsatory action was not peculiar to the *uterus*, but a property common to all parts of the body, when the longer continuance of any thing extraneous was likely to become hurtful. Their efforts on such occasions, like those of the *uterus* at the time of labour, are observed to be periodical, and accompanied with pain proportionate to the action and the sensibility of the part. Thus, in the case of a stone in the bladder, what is called a fit of the stone seems to be a consequence of an effort made by the bladder to

expel

expel the ſtone when injured by it; or when a ſmall ſtone is paſſing through the ureters from the kidnies to the bladder. In the coacervation of the *fæces* in the *rectum* alſo, when the common action of the inteſtines is not ſufficient for their expulſion, an extraordinary action is excited periodically, which is attended with pain, returning, like the action, at intervals, and proportioned to it. Perhaps a more appoſite illuſtration of a labour may be taken from ſtones paſſing from the gall-bladder to the inteſtine. Theſe may continue inoffenſive in the bladder for a conſiderable time after their formation; but when an effort is made to exclude them, it is always accompanied with pain, periodical in its returns, and excruciating in its degree, from the ſenſibility of the parts immediately affected or drawn into conſent.

Of the primary cauſes of this general property we may juſtly be ſaid to be ignorant, as we are likewiſe of that of the action of the *uterus* in particular, except from its effects. But the immediate cauſes appear to be different. Firſt, there is the genuine or original cauſe, which produces the action of the *uterus* at a proper time, and in a proper manner; ſecondly, adventitious cauſes operating upon the *uterus*, and producing that action to which it is diſpoſed, at an improper time, and in an irregular manner; thirdly, ſympathetic cauſes, when a diſturbance originates in ſome part connected with or conſenting with the *uterus*, and is transferred or ſpreads to the *uterus* from the part firſt affected. We may ſearch for the original or genuine cauſe of the action of the *uterus* in its ſtructure, form, or qualities, or ſome peculiar, though inexplicable impreſſion made upon it by the child, at the full period of utero-geſtation. The manner in which the effects are produced is much influenced alſo by the circumſtances of the conſtitution, as its ſtrength and diſpoſition to act; and it appears, that the blood is of much importance in this reſpect; for, in hemorrhages, though there be a diſpoſition in the

uterus

uterus to act, there is no power of action; and in other cases, when there is apparently no want of ſtrength, the diſpoſition to act is wanting.

The action of the *uterus* is totally independent of the will, and therefore often comes on during ſleep, having produced its effect before the patient is awake. But, if the whole frame be diſturbed by any violent emotion of the mind, the action of the *uterus* may be induced, obſtructed, or ſuppreſſed. The progreſs of a labour is therefore often retarded by ſuch paſſions as depreſs the ſpirits; as, on the contrary, it is accelerated by cheerfulneſs, by reſolution, and a certain preparation of the mind for enduring pain and fatigue.

Opinions were formerly much divided with reſpect to the ſtate of the *uterus* during pregnancy; but it was generally imagined to become thinner in proportion to its diſtention. Later obſervations however have proved, that if healthy, it retains its thickneſs through the whole period, to whatever degree it may be diſtended. By this thickneſs, which is the medium of its ſtrength, the human *uterus* is capable of exerting infinitely greater power for the expulſion of its contents, than that of any animal. Had there been a neceſſity for an equal degree of force, animals would have failed to perform the office of parturition, becauſe there is not the ſame medium, by which that force could have been exerted. As greater proportionate force is therefore required and exerted in human parturition, than in that of animals, there muſt of neceſſity be a greater degree of pain, even if we allow them to have an equal degree of ſenſibility.

The adventitious cauſes of the action of the *uterus*, which are numerous, may ariſe from the general ſtate of the body, as a fever; or the particular ſtate of the *uterus*, as a diſeaſe of the part itſelf; or ſome extraneous irritation of the *os uteri*, between which and the *uterus* there ſeems to be a conſent ſimilar to that between the *cardia* and the ſtomach. This was known to the ancients, who occaſionally introduced

introduced irritating ſubſtances into the *vagina*, for the purpoſe of facilitating or accelerating the birth of the child. But, with regard to adventitious cauſes of every kind, it appears that their effect continues only ſo long as they are applied, and the action of the *uterus* produced by them is leſs perfect, than when it ariſes from the genuine cauſe. Thus, if the premature action of the *uterus* be brought on by irritation of the *os uteri*, it proceeds only during the continuance of the irritation, unleſs it be urged till the original cauſe of the action of the *uterus* ſhould ſupervene. Hence the obſervation was made, that if the *os uteri* has been untimely dilated by any improper management, or any other cauſe, it will cloſe again, and the woman often go on to her full time, if ſhe be kept in a quiet ſtate *.

The ſympathetic cauſes of the action of the *uterus* may ariſe from the diſturbance of any part, with which the *uterus* is connected or diſpoſed to conſent, as is the caſe with all the contents of the *abdomen*, eſpecially with the lower part of the inteſtinal canal and the bladder, as in a *teneſmus* or ſtrangury. On the removal of theſe, the action of the *uterus* cauſed by them will preſently ceaſe; but if the diſturbance be violent, and of long continuance, the *uterus*, though the original cauſe be wanting, may aſſume that action, to which, by its ſtructure, it is diſpoſed, at any period of pregnancy, and the excluſion of its contents will of courſe follow.

From adventitious and ſympathetic cauſes the action of the *uterus* is often produced prematurely, at the latter part of pregnancy, and from the want of a juſt diſtinction they may be encouraged, to the great detriment of the patient. In ſuch caſes the action of the *uterus* may continue during the continuance of the cauſe, or it may become regular, proceeding after the cauſe is removed, or it may ceaſe entirely on the removal of the cauſe. Of all theſe there are

* See *Chapman's* Treatiſe on Midwifery, chap. v. caſe i.

frequent

frequent inſtances in practice; and, ſeeing there is ſuch variety in the cauſes of the action of the *uterus*, it is not ſurpriſing, that there ſhould be ſuch difference in the effect produced, and ſo many deviations from the ordinary courſe of labours.

All the difficulties attending parturition may be reduced to two kinds; firſt, thoſe which ariſe from the imperfect action of the *uterus*; ſecondly, thoſe which are occaſioned by the reſiſtance made to that action when duly exerted. The regulation of, or beſt methods of aſſiſting that action or power, and the removal of the impediments to its effects, conſtitute the chief objects in the practice of midwifery.

CHAPTER V.

SECTION I.

ON THE SIGNS OF CONCEPTION, AND THE DISEASES OF PREGNANCY.

CONCEPTION is ſucceeded by many important changes in the conſtitution, and uſually by affections of various parts, which, in the beginning of pregnancy, are eſteemed *ſigns* that a woman hath conceived. In the more advanced ſtate, the ſame or ſimilar changes and affections increaſed in degree, together with ſome ſupervenient ones, have been termed and conſidered as the *diſeaſes of pregnancy*. Yet, in either ſtate, theſe evidently do not depend upon pregnancy as a ſpecific cauſe, being often occaſioned by irritation or diſturbance of the *uterus* from other cauſes, eſpecially during the act of menſtruation. Nor do they commence with conception, and continue to the time of parturition; but are in general moſt frequent, and moſt troubleſome alſo, ſoon after conception, or in the early part of pregnancy, gradually abating, and often wholly diſappearing, as the patient advances in her pregnancy. The ſigns of conception muſt therefore be very ambiguous and uncertain; though, from the common occurrence of the caſe, and the particular attention which is paid, a faculty of diſcriminating them is acquired, which generally prevents error.

It is a popular obſervation, confirmed by experience, that thoſe women are leſs ſubject to abortion, and ultimately fare better, who have ſuch ſymptoms as generally attend pregnancy, than thoſe who

are exempt from them. The ſtate of pregnancy is then an altered, but cannot with propriety be called a morbid ſtate. But if the term *diſeaſe* be uſed on this occaſion, with the intention of giving a more intelligible explanation of the temporary complaints to which women are then liable, or to denote their irregularity, or an exceſſive degree of them, it may be retained. With this view the diſeaſes of pregnancy may be divided into two claſſes; in the firſt of which will be included all thoſe which occur in the early, and in the ſecond, thoſe in the latter part of pregnancy. The time of *quickening* may conſtitute the line of diſtinction between them, and we ſhall thus be led to the moſt uſeful method of proceeding, that of obſerving the complaints in the order in which they ariſe.

It appears, that every part of a living body has two principles, or performs two offices; one of which regards its own diſtinct preſervation and eaſe; the other, by which each part contributes to and partakes of the harmony or diſorder of the whole frame. The degree of diſpoſition and ability to perform theſe offices, and the manner in which they are performed, vary in different parts, and for peculiar purpoſes; but it may be preſumed, that they both potentially exiſt in every part, though not at all times actually exerted, as in the caſe of convulſions from an injury of ſome minute part. When theſe offices are executed in a manner and degree neceſſary for, and conſiſtent with, the common purpoſes of *being*, they are called natural; but when they are irregular or exceſſive, or are excited on extraordinary occaſions, though the exiſtence of the occaſion may render them needful or unavoidable, they are not improperly termed violent or morbid. The diſpoſition to act is called irritability, and the action, when produced, irritation. Irritation is deſcribed to be of two kinds. It may be confined to the part in which the cauſe exiſts, or it may be transferred and extended to ſome diſtinct or diſtant part. The firſt is called ſimple irritation, and the latter ſympathy

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or irritation by conſent. Sympathy *, or irritation by conſent, has again been diſtinguiſhed into two kinds, primary or direct, as between the *uterus* and ſtomach; and ſecondary or intermediate, as between the *uterus* and the brain by the intervention of the ſtomach. The modes of this conſent between diſtinct and diſtant parts have been variouſly explained, and aſſigned to many different cauſes †; but with the propriety of the explanations, or the ingenuity of theories, we are not, on the preſent occaſion, concerned.

The truth of no obſervation in medicine has been more generally acknowledged than that of the extreme irritability of the *uterus*, and of the propenſity which the whole body has to be affected or diſturbed by its influence ‡. Some parts are nevertheleſs more diſpoſed to this influence than others, ſome by direct conſent, and ſome by the interpoſition of other parts. Thoſe affections which occur moſt frequently during, or in conſequence of pregnancy, it is neceſſary that we ſhould underſtand, that we may be able to form a competent judgment of the ſubject; and for this purpoſe the following account will be ſufficient either in the way of illuſtration or example.

Between the *uterus* and the breaſts the conſent is ſo intimate and conſtant, that it is ſcarcely poſſible for them to be affected ſeparately.

* Diſtinguitur irritabilitas in primariam ſeu directam, et ſecundariam ſeuper conſenſum. —*Gliſſon, Tractat de Ventric. et Inteſtin.*

† Quinque adminicula, quibus una pars alterius affectum ſua naturali perceptione eouſque cognoſcat, ut eidem compatiatur, propoſuero. Primum eſt immediata continuitas, præſertim fibrarum et tunicarum partium; ſecundum nervorum a communi ſtipite derivatio; tertium, influxus per arterias mutatus; quartum, reductio per venas præpedita aut diminuta; quintum, contactus vel alia idonea vicinitas, qua una pars in aliam agat.—*Idem.*

Gliſſon, who was phyſician to queen Elizabeth, has a right to be eſteemed the father of the doctrine of irritability. He often ſeems to uſe the word *perception* for irritability, and the word irritability for ſympathy, or diſpoſition to conſent.

‡ Eſt enim uterus pars principalis, quæ totum corpus facile in conſenſum trahit.—*Harv.* Exercitat. de Partu.

The enlargement of, and ſhooting pains in, the breaſts, are therefore not improperly enumerated among the ſymptoms of pregnancy; though they are alſo obſerved to occur at the time of the final ceſſation of the *menſes*, when theſe are caſually obſtructed, and in ſome women in a ſlight degree at each period of menſtruation.

The *areola*, or brown circle round the nipples, has been repreſented as an indubitable mark of pregnancy. This is not however ſuſpected to be a primary conſequence of a particular affection of the *uterus*, but of the preceding enlargement and alteration of the breaſts: and, though it generally occurs in pregnancy, it may be produced by any cauſe capable of giving to the breaſts a ſtate reſembling that which they are in at the time of pregnancy, of which it can only be eſteemed a doubtful ſign. The *areola* is therefore found in many of the complaints which reſemble pregnancy, and though generally, not univerſally, I think, in pregnant women. Equally or more uncertain, for the ſame reaſon, is uneaſineſs in the region of the *uterus* and about the navel, though frequently attendant upon pregnancy; yet the latter, as far as I know, is a ſymptom peculiar to affections of the *uterus*. The navel alſo, according to the progreſs of pregnancy, is conſtantly emerging till it comes to an even ſurface.

There are few diſeaſes of much importance in any part of the body in which the ſtomach is not affected; but the conſent between this and the *uterus* is peculiarly frequent, and often violent. It is not therefore ſurpriſing, that the ſtomach during pregnancy ſhould ſo generally be diſturbed with *nauſea*, vomiting, heartburn, loſs of appetite, and indigeſtion; or that ſuch complaints ſhould, under certain circumſtances, have been conſidered as the ſymptoms of pregnancy.

In conſequence of theſe affections of the ſtomach, and perhaps by direct conſent with the *uterus*, any part of the inteſtinal canal may be diſturbed during pregnancy; but the particular part may be caſual, and the manner will depend upon ſome peculiarity in the conſtitution of different women, as the ſame cauſe may produce very different

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or contrary effects. Some women, who are at all other times conſtipated, have a *diarrhœa* at each period of menſtruation; and thoſe who are at other times ſubject to a *diarrhœa* then become unuſually coſtive; and ſimilar changes often take place when women are pregnant.

The whole habit of the body may be diſturbed by a certain ſtate of the *uterus*, and yet no individual part be peculiarly affected. Hence, at the time of pregnancy, there frequently occurs a feveriſh diſpoſition, with debility, emaciation, and many ſymptoms common to hectic fevers; by which the countenance becomes altered, the eyes appear larger, the mouth wider, and a ſharpneſs is given to every feature. In conſequence alſo of this general and perpetual irritation, the temper of pregnant women is ſometimes rendered leſs gentle and patient than is conſiſtent with their uſual character, and this claims compaſſion inſtead of reſentment.

The conſent between the *uterus* and ſtomach ſeems to be of that kind which has been called primary or direct; but affections of the brain, heart, and lungs, appear to be ſecondary, or by the intervention of the ſtomach. Pain and giddineſs of the head, dimneſs of the ſight, ſleepineſs, convulſions, palſy, palpitation of the heart, and peripneumonic complaints, though they ſometimes occur during pregnancy, are leſs frequent than ſuch as are produced by the direct conſent of any part with the *uterus*.

There are alſo many inſtances of affections of the *uterus* from its conſent with other parts. A ſtrangury, or *teneſmus*, may occaſion a ſimilar affection of the *os uteri*; and if it were to continue, a premature expulſion of the *fœtus*. Pain in the ſtomach or bowels, or of any part contiguous to the *uterus*, or with which it is prone to conſent, may diſturb it; and, if extremely violent, or of long continuance, may produce the ſame effect. From theſe it appears, that, when an abortion is apprehended, there is not only occaſion to attend to and moderate thoſe circumſtances, which may ariſe from

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original affections of the *uterus*, but thoſe alſo, which may be produced in ſome other part, and extend to the *uterus*.

From theſe obſervations it will not be inferred, that every complaint, which happens to pregnant women, is to be attributed to uterine irritation. For ſome appear to be cauſed mechanically by the preſſure of the enlarged *uterus*, and all of them to be aggravated by the erect poſition of the body. The diſtinction which was made will nevertheleſs be equally proper; for, before the time of *quickening*, the complaints are generally owing to an increaſed irritability of the conſtitution, or to the admiſſion of a new cauſe of irritation into the habit, and afterwards to the enlargement of the *uterus*. But, without a very ſtrict adherence to any general diſtinction, we will recollect, that a ſmall degree of enlargement of the *uterus*, with its conſequent irritability, may become the cauſe of diſeaſe in early pregnancy; and that ſuch a degree of irritability may ariſe or continue towards the concluſion, as may create ſymptoms like thoſe, which might be expected at the commencement.

SECTION II.

By the term *quickening* is underſtood the firſt ſenſation, which the mother has of the motion of the child, which ſhe has conceived. This happens at different periods of pregnancy, from the tenth to the twenty-fifth week, but moſt commonly about the ſixteenth after conception; yet the motion of the child is in ſome women ſo obſcure, or ſuch little attention is paid to it, that it is not perceived or regarded, and in others ſo indiſtinct as to be confounded with various other ſenſations. In caſes therefore of ſuppoſed, but miſtaken pregnancy, women often fancy that they feel the motion of the child; or, if the child died *in utero*, when there is, after birth, the fulleſt proof that it muſt have ceaſed to move for a long time.

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It is not unuſual for women to have a few drops of blood diſcharged from the *vagina* at the time of quickening without any inconvenience; but the ſymptoms which attend are generally ſuch as are occaſioned by ſurpriſe or agitation from any other cauſe, as fainting, or ſome hyſteric affection. Theſe being of ſhort duration require no other means of relief than expoſition to the open air, a glaſs of cold water, or ſome light cordial, and a ſhort confinement to an horizontal poſition.

The changes which follow quickening have been attributed to various cauſes. By ſome it has been conjectured, that the child then acquired a new mode of exiſtence; or that it was arrived to ſuch a ſize as to be able to diſpenſe with the menſtruous blood, before retained in the conſtitution of the parent, which it diſturbed by its quantity or malignity. But it is not now ſuſpected, that there is any difference between the aboriginal life of the child, and that which it poſſeſſes at any period of pregnancy, though there may be an alteration in the proofs of its exiſtence, by the enlargement of its ſize, and the acquiſition of greater ſtrength. It was before obſerved, that the notion of ſome pernicious influence from the retained *menſes* ſeemed to have been admitted without foundation. Others have believed, that the changes ought to be aſſigned merely to the enlargement of the *uterus*, increaſed by the growth of the *ovum* to ſuch a ſize, that it was ſupported above the brim of the *pelvis*; by which means all the inconveniencies, which aroſe from the dragging or ſubſidence of the *uterus* in the *vagina*, were removed: and this ſeems to be the true reaſon. Becauſe, in morbid enlargements of the *uterus*, not of a ſcirrhous or cancerous nature, there is an abatement of the ſymptoms, when they become of a certain ſize; which circumſtance has often rendered patients an eaſy prey to empirics, who have availed themſelves of the impreſſions made by the caſual and temporary relief as the critical moment for impoſition. But though this explanation may not be ſatisfactory,

the changes are very important and certain; for whatever complaints women before ſuffered, in general, after the time of quickening they decline or are wholly removed.

SECTION III.

A SUPPRESSION of the *menſes* is one of the never-failing conſequences of conception, at leaſt I have not met with a ſingle inſtance of any woman continuing to menſtruate when ſhe was pregnant; though I know, that popular opinion is againſt the aſſertion, and that exceptions to it are frequently mentioned by men of ſcience. What gratification the human mind is capable of receiving by the affectation of ſingularities of conſtitution, which do not depend upon our will or power, and from which neither reputation nor advantage can be derived, philoſophers may determine. But it is well known, that in practice there is great occaſion to be circumſpect; for, either from the miſrepreſentation of patients, or the credulity or vanity of writers, many medical works are filled with the moſt uſeleſs and improbable hiſtories, defective in the eſſential article of all records, truth; and this charge hath been made in the moſt pointed terms againſt many writers on the ſubject of midwifery *. Some who have ſaid, that women might menſtruate during pregnancy, have ſuppoſed the diſcharge to be made from the veſſels of the *vagina* or neighbouring parts; or they have conſidered every eruption of blood from the *uterus* as menſtruous. But if menſtruation, according to the definition already given, had continued in pregnancy, it is ſcarcely poſſible, but that abortion muſt often have followed, as a part of the *ovum* would neceſſarily have been detached from the *uterus* at every period; unleſs we conclude that, by ſome ſubſequent

* *Plena erroribus fabuliſque.* Ruyſch.

proceſs,

proceſs, their connexion had been occaſionally re-eſtabliſhed. As therefore, in caſes in which pregnancy can be ſuſpected, we have, in the ſuppreſſion of the *menſes*, the beſt proof of its exiſtence, and in their continuance, of the contrary; it will be wiſer to leave the buſineſs to be determined by time, or to place our confidence in, and to form our judgment by this circumſtance, as leaſt liable to error; rather than to involve ourſelves in doubt, by ſearching after equivocal appearances, which deſerting this circumſtance, cannot lead to any ſatisfactory concluſion. But though it may be laid down as a general principle, that, when women continue to menſtruate, they are not pregnant, it will not follow, that in every caſe of the ſuppreſſion of the *menſes* women are certainly pregnant, though pregnancy is always to be ſuſpected; as I have known many inſtances of young married women who have ceaſed to menſtruate for ſeveral months, independently of any diſeaſe, when they were not with child.

SECTION IV.

All the complaints attending pregnancy, and perhaps the ſtate of pregnancy, is accompanied with a febrile diſpoſition or increaſe of heat, which, when duly regulated, is probably intended to anſwer ſome important purpoſe to the child. This ſeems to be proved by the blood of pregnant women, which, independently of diſeaſe, is always found to have what is called a ſizy appearance, though of a peculiar kind, and evidently very different from that which is obſerved in caſes of inflammation, and which may be conſidered as a conſequence of ſome new and ſpecific action. But if any inflammatory diſeaſe ſhould occur in pregnancy, then the blood loſes its pregnant appearance, as it may be termed, and aſſumes that of the diſeaſe. An extreme degree of thoſe ſymptoms which appertain to

pregnancy may alſo produce the inflammatory appearance of the blood. From this ſtate of the blood, and from the relief which bleeding almoſt univerſally affords in the urgent complaints of pregnant women, even in conſtitutions which at other times do not well bear that evacuation, occaſion hath been taken, to attribute all the conſequences of pregnancy to a *plethora*, of which the retained *menſes* were thought to be the cauſe. But if it be true, that pregnant women have ſuch feveriſh diſpoſition, we have no reaſon to be ſolicitous about the inveſtigation of the cauſe, as, by bleeding at proper times, and in quantities ſuited to the conſtitution and indications, both the effects of uterine irritation and *plethora* are generally leſſened or removed.

Particular kinds of diet are found to add to this diſpoſition to inflammation, and to increaſe irritability. Of theſe the principal is animal food, though it is uſually recommended, together with liquids of a cordial and nutritive quality, to women when pregnant, on the preſumption that they are then in greater need of ſuch ſupport than at any other time. To ſome conſtitutions, and under particular circumſtances, theſe may be neceſſary; but if it be juſtifiable to draw inferences from the appetites of pregnant women, or if we may judge from the common conſequences of ſuch diet, we ſhall ſoon be convinced, that it is improper: for they have generally a diſlike to animal food of every kind, and under every form; and if prevailed upon to eat it incautiouſly, are ſenſible of much inconvenience. On the contrary, they uſually prefer vegetables, fruit, and every thing cooling, which they eat and drink with avidity, and in which they indulge without prejudice.

SECTION V.

PREGNANT women are not only encouraged to live more luxuriouſly, but more indolently alſo, exerciſe being thought improper, unleſs towards the concluſion of pregnancy, when it has been ſuppoſed to procure a more favourable delivery. Great care may in ſome caſes be neceſſary, but in general the contrary method of proceeding is the moſt eligible and proper: for the lower claſs of women, who are by neceſſity obliged to follow laborious occupations in the open air, and who are expoſed to all the viciſſitudes of the weather, not only paſs the time of their pregnancy with fewer complaints than the affluent, but have alſo more eaſy labours. Much allowance muſt be made to former habits of living; but thoſe who are in poſſeſſion of all the advantages of rank and fortune, which the eyes of inferiors are apt to look at with envy, muſt uſe them with the moſt cautious moderation, or they will ſuffer for every unreaſonable indulgence. By every kind of habitual irregularity the conſtitution becomes loaded, or the activity of its powers leſſened or perverted, and a diſpoſition to diſeaſe is often given, or all ſenſe of natural enjoyment is loſt. We have been accuſtomed to conſider parturition as a diſtinct act of the conſtitution, unconnected with any which precedes or follows; but there would be more utility in conſidering it as a part only of a proceſs, which begins with conception, and terminates with childbed, or even with lactation. We ſhould then preſume, that ſuch as the ſtate of the body is at the time of conception, ſuch will it probably be during pregnancy; and, according to the ſtate in pregnancy, will be that at the time of parturition; and on this again will depend the recovery from childbed, unleſs there be ſome peculiar imperfection in the conſtitution, or ſome diſeaſe not dependent upon that ſtate ſhould ſupervene.

On the due and regular exercise of all the functions and powers of the body, their disposition and ability to act, according to their original frame, must ultimately depend; and such as is their general condition at the time of labour, such will be that of the *uterus*, and of all the parts concerned in parturition. But if there has been indulgence in improper habits, or if exercise has been neglected at all other times, there is little cause to expect advantage from unfit and extraordinary efforts towards the conclusion of pregnancy; as no other end can then be answered by such conduct, but that of disturbing the frame, and bringing on premature labour. In quadrupeds, which apparently suffer little other inconvenience when they are with young, than that which arises from mere increase of bulk, their common pursuits are neglected, the gregarious disposition is suspended, and, if left to their own inclinations, they gradually lessen the exercise they use as they advance in pregnancy.

SECTION VI.

Vomiting is one of the most frequent complaints to which women are liable in the early part of pregnancy, and it sometimes continues to, or returns towards, the conclusion. If it should not be violent, and occur only in the early part of the day, though very troublesome, it is so far from being detrimental, that it is generally found to be serviceable, by exciting a more vigorous action of the *uterus*, and by bringing the stomach into a better state. For the vomiting of pregnant women is not always a mere effort of straining, or a discharge of the food and common humours of the stomach. The matter evacuated sometimes shews a very much disturbed, or a morbid secretion of such a kind as to be offensive to the stomach itself; and besides correcting or evacuating the offending humours,

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it is neceſſary that we uſe our endeavours to change, or to appeaſe the preſent action, before the indication to vomit be ſuppreſſed.

In plethoric habits the act of vomiting may render bleeding neceſſary, though the diſeaſe or ſtate of which it is a ſymptom might not require this evacuation. For that reaſon, and becauſe it leſſens the irritability of the habit, bleeding will be neceſſary in ſome caſes of inceſſant vomiting, though in others it may not be either requiſite or proper. But medicines of any kind are not wanted to reſtrain the vomiting, except it ſhould be extreme, ſo that the ſtrength of the patient is reduced, or other untoward conſequences follow. Then the common means uſed for the relief of this ſymptom in other caſes may be ſafely and properly adviſed for pregnant women; as the ſaline draughts in the ſtate of effervescence, or mixed with ſome abſorbent earth, in the manner of the *miſtura corallata* of *Fuller*; or magneſia in ſimple peppermint water; or the *Seltzer* water, whilſt it effervesces with a mixture of lemon juice and ſugar; or the acid elixir of vitriol in cold water; or ſmall quantities of *colombo* root; or chamomile flowers, joined with ſome aromatic, in ſubſtance or infuſion. Moderate cordials are ſometimes required; and of theſe the moſt grateful is the *confectio alkermes*, in ſimple mint or cinnamon water. Many other medicines of the ſame kind may be directed, in ſuch forms as are found to be moſt acceptable to the patient.

In caſes of exceſſive vomiting opiates are generally given, and often with great advantage. Perhaps no well grounded objection can be made to the occaſional uſe of opiates, when violent pain, or any other urgent ſymptom demands them. But I have perſuaded myſelf that their habitual or very frequent uſe is prejudicial to the *fœtus*, either by debarring it from a proper ſupply of nouriſhment, or by depraving that with which it is actually ſupplied; but of this opinion I begin to have ſome doubt. The ſame obſervation hath been frequently made on ſpirituous liquors, and probably the effect of both may be explained upon the ſame principle.

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Local applications of various kinds have been recommended, to abate exceſſive vomiting; and conſent is readily given to their uſe, though without the expectation of great advantage, becauſe no harm is apprehended from them. But a phyſician of great experience and ſtrict veracity informed me, that he had in theſe caſes ſeen the application of a piece of folded cloth, moiſtened with *tinctura opii*, to the region of the ſtomach, do much ſervice, when internal medicines of the higheſt eſtimation had proved ineffectual.

It is a general obſervation that the vomiting of pregnant women is moſt frequent and importunate in the morning; and the circumſtance evidently depends on the change of poſition, which then takes place, and not the peculiar time. When the poſition is horizontal, the patient may not have the leaſt ſenſe of uneaſineſs or diſturbance of the ſtomach; but the moment ſhe riſes from her bed, theſe come on, and continue till ſhe again reclines, unleſs ſhe is careful to bring the body erect by riſing ſlowly. Confinement to an horizontal poſition is therefore found both neceſſary and uſeful, not only when the ſtomach is violently diſturbed in conſequence of pregnancy, but from many other cauſes.

When there is a nauſea or inclination to vomit without any evacuation, a gentle emetic is the beſt remedy: and this may be repeated, whenever the urgency of any ſymptom requires it; experience having fully proved, that emetics may be given to pregnant women with perfect ſafety.

SECTION VII.

INDIGESTION, and depravity, or loſs of appetite, proceed from the ſame cauſe as the foregoing complaint, of which they are only different modifications; and the treatment commonly enjoined for their relief will be ſuitable for pregnant women. Of that depravity of the appetite,

appetite, which in pregnancy has uſually gone under the name of *longing*, the inſtances recorded in books, and formerly reported in converſation, are incredible, and too abſurd to deſerve, or, at leaſt, at this time, to require a ſerious refutation. *Longing* was not ſuppoſed to depend upon the fancy or other circumſtances of the mother, but to be a peculiarity in her appetite, produced by the influence of ſome cauſe exiſting in the child. Nor was it ſuppoſed, that the effect was confined to the ſimple refuſal or gratification of the appetite, however extravagant it was, or however unnatural it might appear; the *longing* of pregnant women was to be indulged, not merely through kindneſs to the parent, but for the intereſt of the *fœtus* alſo. If her wiſhes and inclinations were not gratified, ſhe might ſuffer; but the worſt conſequences were to be apprehended on account of the child, which would either be retarded in its progreſs, or bear the mark of the thing longed for on ſome part of its body; as if there was a connexion between the two beings incomprehenſible by us, and infinitely more exalted than is obſerved under any other circumſtances. Nor was the obſervation of ſimilar accidents in animals, or even in plants, conſidered as a valid argument againſt this extravagant opinion.

In times and countries barely civilized, can we ſuſpect, that it was thought neceſſary to adopt and to ſupport the opinion of the power of the imagination, in order to ſecure to pregnant women that indulgence and tenderneſs of treatment, which their ſituation was ſuppoſed to require? Or does there really exiſt any myſterious conſent between the parent and the *fœtus in utero* in the human ſpecies? I believe, that the opinion originated in the former cauſe; but that in the courſe of time, and by the habit of thinking and acting in a certain manner, a general conviction did take place, that ſome conſent of an inexplicable and perhaps of a divine nature, not to be defined or illuſtrated, really exiſted. An opinion, which might have been uſeful and neceſſary at the time when it was firſt adopted,

continued when there was no longer occaſion for it, and became a ſource of real diſadvantage. For the minds of women were frequently diſturbed, and themſelves rendered miſerable, by the dread of an effect, the cauſe of which was wholly imaginary; ſometimes alſo ſiniſter purpoſes were intended to be anſwered by the pretence. It then became neceſſary to examine the opinion, and it was proved to be groundleſs. In the early part of my own life nothing was more common, than to hear an inundation of examples of the dreadful events which were cauſed by diſappointed *longing*; or to ſee inſtances of the great confuſion and diſtreſs in families, from a perſuaſion of its importance. But at the preſent time, and in this country, the term *longing* is ſeldom mentioned, except among the loweſt claſs of people; though the cauſe, if any had exiſted, muſt have produced its effect at all times, and in all ſituations. Something is, however, to be granted to *longing*, conſidered as an appetite depending upon the conſtitution, of a certain ſtate of which it may be eſteemed an indication. If we believed the doctrine, that diſeaſes and tendencies to them were produced by an exceſs of acid or alkaleſcent humours, we might readily underſtand, why one pregnant woman prefers the moſt ſavoury and high-ſeaſoned food, and another acid fruits and cold water; and why they might both be indulged, not only without prejudice, but with advantage, as has been frequently obſerved, as well as in the delirium of fevers from a ſimilar cauſe. The appetite, unſophiſticated by bad habits, will probably never miſlead us as to the quality of our food. It may rather be eſteemed a guide implanted in us by nature, which we ſhall never err in following, if we act with diſcretion as to the quantity

SECTION VIII.

THE heart-burn is a painful ſenſe of heat in the throat and *fauces*, with ſudden gurgitations of thin ſour or acrid ſaliva in the mouth. In ſome caſes it ſeems to be a mere ſenſation ariſing from the conſent between the ſtomach and *uterus*; and in others to be cauſed by an accumulation of ſharp humours, ſecreted in the ſtomach by its wrong action. There is often reaſon to think that it is occaſioned by food, which is ſalt and high-ſeaſoned, or otherwiſe hard of digeſtion, and by fermented liquors; and perhaps by ſleeping in an erect poſition after a full meal. The medicines uſually directed for this complaint are given with the intention of abating or removing the ſenſation, of altering the properties of the fluid collected in the ſtomach, or of evacuating them. Theſe generally conſiſt of the various kinds of abſorbent earth, as the teſtaceous powders, or magneſia, alone, or mixed with rhubarb; or lime-water, or ſmall doſes of ſaline medicines, of which perhaps the beſt is the *aqua kali*, to the quantity of twenty drops in a large glaſs of cold water. But my highly reſpected friend Dr. John Sims has publiſhed the following, as a form of medicine which ſeldom fails to give immediate relief; and many trials have convinced me that his opinion of the efficacy of this medicine is juſt.

℞ Magneſ. uſt.
Aq. Ammon. pur. a ʒj.
——Cinnamom. ʒiij.
——Puræ ℥vſs. M.
Sumat cochlearia ij vel iij ampla, ſæpiùs in die, urgente cardialgia.

When the complaint is violent, a gentle emetic is the moſt effectual remedy; and, ſhould the diſpoſition to it originate in the debility of the powers of digeſtion, ſuch means are to be uſed, and ſuch medicines given, as promiſe to reſtore and invigorate them.

SECTION IX.

COSTIVENEESS is another troubleſome complaint, to which pregnant women are liable. It is often hurtful in its preſent effects, and ſometimes in its conſequences, being not uncommonly the cauſe of head-ach, fever, teneſmus, pain in the bowels, and abortion. Care muſt therefore be taken to obviate coſtiveneſs by the conſtant or occaſional uſe of manna, magneſia, ſenna, electuary of ſenna or of caſſia, *oleum ricini*, ſoluble tartar, Jeſſop's-well water, and the like medicines. But I was formerly much more aſſiduous in preventing coſtiveneſs than I am at the preſent time, having obſerved, that all women who go on properly, in the early part of pregnancy, are liable to this ſtate of the bowels, which may have ſome relation to the ſtrong action of the *uterus* at that time. Coſtiveneſs may therefore be conſidered as a ſtate of the bowels correſponding with that of the *uterus*; and we can never believe that to be injurious, which occurs ſo frequently as to be eſteemed a common conſequence.

The more gentle the means uſed for the removal of coſtiveneſs, the more eligible they are, provided they anſwer the intention. Aloetic medicines are forbidden during pregnancy, leſt they ſhould do miſchief by their ſuppoſed deobſtruent qualities: but they are in common uſe among the lower claſs of people, becauſe they are cheap, and conveniently given in the form of pills, and I have not obſerved any bad effects from them. The ſtomach of pregnant women is often in ſuch a ſtate, that no internal medicines can be retained, and we are obliged to have recourſe to clyſters, which are generally efficacious, and always ſafe. It is remarkable, that ſmall doſes of the *ſal catharticus amarus*, diſſolved in plain water, or ſimple mint-water, or in common emulſion, will often be kept upon the ſtomach, when things leſs obnoxious to the taſte are immediately rejected.

SECTION X.

By long-continued coſtiveneſs the *fæces* are ſometimes collected in ſo large a quantity, and by long confinement in the *rectum* and lower part of the *colon* become indurated to ſuch a degree, that they cannot be voided by the common action of the inteſtines; and the medicines uſually given, and the means uſed to procure ſtools, prove inſufficient for the purpoſe. This complaint is not peculiar to women when pregnant, being found to occur indiſcriminately in either ſex, if compelled by diſeaſe or accident to remain for a long time in an horizontal poſition; and it is not unfrequent in children, or even in animals. It has often been mentioned by medical writers, though no proper name has been given to it. It is vulgarly called the *ball-ſtool*.

There is reaſon to believe, that this complaint has often been overlooked in practice; for though the column of indurated *fæces* is ſometimes enormous, a ſmall quantity in a liquid ſtate, eſcaping between the column of hardened *fæces* and the ſide of the inteſtine, may be daily diſcharged; ſo that no ſuſpicion of the real nature of this caſe may be entertained, unleſs the ſtools be inſpected, or the patient be examined *per anum*.

When it has continued for a certain time, and the common efforts of the inteſtines, though repeatedly excited, are not equal to the expulſion of the *fæces*, their extraordinary action is raiſed, which is attended with pain, periodical in its returns, and violent in its degree. This action continues till the difficulty is overcome, or, by the effect of the long and fruitleſs action, the parts adjoining to the *anus*, and perhaps the internal parts, become inflamed; and, if proper and timely means were not uſed to prevent the miſchief, this complaint has ſometimes proved fatal by bringing on a ſphacelation of the parts.

Purgative medicines rather increaſe this complaint, by impelling a

greater quantity of *fæces* into the lower part of the inteſtinal canal, when they cannot be diſcharged. Suppoſitories and clyſters, at leaſt in the way in which they are commonly adminiſtered, cannot be received on account of the greatneſs of the obſtruction, to the removal of which they are not equal. Effectual relief is only to be obtained by dividing the indurated *fæces* into ſmaller pieces, by manual aſſiſtance, or by ſome convenient inſtrument conducted into the *anus*, and uſed with circumſpection, and then by waſhing them away with repeated clyſters. In women there is leſs difficulty in the management of theſe caſes, becauſe the column of *fæces* may not only be broken by the finger paſſed into the *vagina*, but their excluſion very much aſſiſted.

SECTION XI.

Perhaps women are by conſtitution, and by the ſedentary lives they lead, more ſubject to the hemorrhoids than men. They are generally eſteemed as indications of too great fulneſs of the habit, or as critical depoſitions of ſomething noxious, had it remained in the conſtitution: they are alſo an ordinary conſequence of long-continued coſtiveneſs, and, during pregnancy, they may be cauſed or increaſed by the derivation of a greater quantity of blood to the parts, or by the preſſure made upon the veſſels by the enlarged *uterus*. When this complaint is in a moderate degree, the patient is ſoon relieved by gently purgative and diuretic medicines; and thoſe compoſed of ſulphur are, in this caſe, uſually preferred; though ſome phyſicians have ſuſpected their propriety. Cooling applications are alſo adviſed, and of theſe the beſt is a weak ſolution of the *ceruſſa acetata* frequently renewed. Should the patient be feveriſh, or the hemorrhoids much tumefied and painful, bleeding, in quantities ſuited to the conſtitution and the exigence of the caſe, is neceſſary; or one or more

leeches

leeches may be applied to thoſe which are moſt prominent, if they do not diſcharge ſpontaneouſly. Emollient fomentations and cataplaſms are ſometimes proper. In general, unctuous applications do not agree; but ointment of elder flowers, mixed with an equal quantity of brown ſugar, or a ſmall quantity of ſome lixivial ſalt, is thought, in ſome caſes, to have done much ſervice. When the hemorrhoids are very numerous, and tumefied even to ſtrangulation, immediate relief may be obtained by firm and gentle preſſure, between the finger and thumb, of each diſtinct hemorrhoid, till they are all compreſſed, and reducible within the *anus*, ſcarce any tumour remaining but the external covering.

SECTION XII.

THE ſkin of women with child is often diſcoloured in ſpots or blotches, eſpecially about the neck and face, which, though diſagreeable to thoſe who are ſolicitous about ſuch matters, is not otherwiſe important. Women have ſometimes alſo a true jaundice, and, whether we attempt to remove the obſtruction to the due ſecretion of the bile, by emetics, purgatives, or deobſtruents, as they are called, there appears to be no reaſon why pregnant women ſhould not bear their operation, when they are neceſſary. Men of diſcretion will readily ſee the impropriety of giving a medicine, the operation of which might be more dangerous than the diſeaſe, which it is intended to cure; and the neceſſity of accommodating its quantity to the ſtate of the patient, as well as its quality to the diſeaſe.

SECTION XIII.

WOMEN with child are chiefly ſubject to thoſe complaints of the inteſtines, which may be ſuppoſed to ariſe from their inert action; but

but they are ſometimes liable to thoſe, which are occaſioned by too much irritability. Yet the latter are far leſs frequent than the former, though a teneſmus, a diarrhœa, or dyſenteric complaints, may happen at any period of utero-geſtation.

When theſe affections of the bowels are of ſufficient conſequence, to require medical attendance, the common mode of treatment is equally efficacious and conſiſtent with the ſafety of a pregnant woman, as under any other circumſtances. When there is a feveriſh diſpoſition, bleeding is proper; and when there are ſigns of diſturbance in the ſtomach, from offenſive humours, or preceding crapulous complaints, gentle emetics may be given, and the repetitions, if neceſſary, may be unlimited. If there be much pain in the bowels, or frequent efforts to go to ſtool, with little or inſufficient evacuations, purgative medicines, of which perhaps the beſt is the* *magneſia vitriolata* alone, or joined with rhubarb, ought to be given, and occaſionally repeated, according to the continuance of the pain, in any ſtage of the diſeaſe. Should the complaint remain after the evacuations, opiates are proper, mixed with ſome mild aſtringent medicines, as the *miſtura cretacea* with *tinctura cinnamoni*. In ſome caſes *ipecacuanha* in ſmall doſes, not exceeding a grain, or even half a grain, mixed with ſome abſorbent powder or two or three grains of *rhubarb*, and given every ſix hours, anſwers the purpoſe of quieting the diſturbance of the bowels, without procuring any evacuation. The free and frequent uſe of opiates is in many of theſe caſes indiſpenſable. Clyſters, compoſed of a decoction of linſeed, or of flower and water boiled to the conſiſtence of thin ſtarch, or of mutton broth, are both comfortable and uſeful; and to any of theſe a few drops of the *tinctura opii* may be occaſionally added.

Teneſmus, and alſo diarrhœa, are common attendants on abortions, of which they are juſtly eſteemed to be ſometimes the cauſe. In

* See *Cleghorn's* Treatiſe on the Diſeaſes of the Iſland of *Minorca*.

theſe

theſe caſes it appears, that the exiſtence of the irritation in the *rectum* is unfavourable to the proper action of the *uterus*, and may directly, or by conſent, become the cauſe of abortion. Emetics, by relieving the preſent inconvenience, and by changing the ſeat of the irritation, will often prevent any ill conſequences, but the greateſt reliance in ſuch caſes is to be placed on *opium*, in any of the uſual forms, eſpecially in clyſters.

SECTION XIV.

THE ſtrangury, which is a frequent inclination to void the urine, and a painful diſcharge of it in ſmall quantities, is not an unuſual complaint in pregnancy, in the early periods of which it ſeems to be occaſioned by the conſent between the *uterus* and bladder; but, towards the concluſion, by the mere preſſure of the enlarged *uterus*. It is ſometimes cauſed alſo by the reſtraint, which women impoſe upon themſelves, from motives of delicacy, when they are engaged in company. Under any of theſe circumſtances it always produces much inconvenience, and may terminate in a ſuppreſſion of urine, which, when the *uterus* is of a certain ſize, that is, about the third month of pregnancy, becomes the cauſe of its retroverſion.

For the relief of the ſtrangury, it is in ſome caſes neceſſary to bleed, and in all to procure ſtools by clyſters, or very gentle aperient medicines. A ſmall quantity of oil of almonds, with manna, in the common emulſion, and the addition of a few grains of nitre, is a commodious and often an effectual remedy. The common emulſion with the *ſpiritus ætheris nitroſi*, or barley-water with gum arabic, may be drunk at pleaſure; opiates are alſo frequently neceſſary. In a ſuppreſſion of urine the catheter muſt be introduced; and of the retroverſion of the *uterus* we have already ſpoken very fully.

At the latter part of utero-geſtation it is not uncommon for women

women to have an incontinence of urine, not perpetually, but occaſionally, when they ſtand upright, or make any ſudden though ſlight motion, eſpecially if they have a troubleſome cough. As far as either the ſtrangury or incontinence of urine depend upon the preſſure of the enlarged *uterus*, it will only be in our power to alleviate them, for the cauſe muſt remain till the time of delivery; and the peculiarity of the complaints may be owing to the compreſſion being caſually made either upon the neck or *fundus* of the bladder. It is ſome comfort to women to be informed, and I believe the obſervation is generally true, that affections of this kind are never produced, except in thoſe caſes, in which the preſentation of the child is natural.

SECTION XV.

THE *fluor albus* was before mentioned as a complaint, to which women were at all times liable; but in pregnancy the diſcharge is ſometimes exceedingly profuſe, and has very much the appearance, as if it was cauſed by, or accompanied with inflammation. It may then be occaſioned by ſome extraordinary fulneſs of the parts adjoining to the *uterus*, or by more than uſual irritation. It does not appear that any bad conſequences, either to the mother or child, follow this complaint, or that it requires any peculiar treatment. Perhaps, by the relaxation of thoſe parts, which are to be dilated at the time of parturition, they may then make leſs reſiſtance; at leaſt it is commonly obſerved, that women who ſuffer much from this ſymptom during pregnancy have eaſy labours. It is alſo proper to obſerve, that, in women who with a profuſe diſcharge are ſubject to miſcarriages, an injection of the *zincum vitriolatum* two or three times a day, into the *vagina*, has great power in preventing them.

SECTION XVI.

No complaint happens more frequently to pregnant women than pain in the hips, with numbneſs of the inferior extremities. This ſeems to be occaſioned by the untoward preſſure made by the enlarged *uterus* upon the iſchiatic nerves, and thoſe which paſs through the perforations on the anterior part of the *ſacrum*. As it is found to be increaſed in certain poſitions of the body, eſpecially when the patient is accuſtomed to ſleep on one ſide, a change of the poſition generally affords temporary relief. At all events it is not in itſelf of ſufficient importance, to require any medical aſſiſtance, and is entirely removed ſoon after delivery.

Erratic pains in various parts, eſpecially about the face, ears, and teeth, ſo often occur in pregnancy, as to be thought certain indications of that ſtate. They are evidently occaſioned by uterine irritation; and, although they will ſometimes be eaſed by *æther*, by ſolutions of *opium*, or other ſuch local applications, or by bliſters applied behind the ears, yet theſe commonly afford only temporary relief, and in ſome inſtances they aggravate the pain. The ſame obſervation may be made of the cramp, whatever part of the body it may affect. This is a very pertinacious ſymptom, and exceedingly troubleſome, eſpecially in the night; but, being void of danger, has too little attention paid to it. In either of theſe caſes, real benefit is to be obtained only by bleeding, and the uſe of ſuch means as abate irritation in general, or that of the *uterus* in particular, ſuch as ſmall doſes of *tinct. opii*, of the *ſyrup. papaver. alb.* or the inſpiſſated juice of *cicuta*.

SECTION XVII.

THE veins of the legs, thighs, and *abdomen*, frequently become varicous in the latter part of pregnancy, to ſuch a degree, in ſome inſtances, as to exhibit a ſtrangely tortuous, and a very alarming appearance. *Varices*, which are both elongations and enlargements of the veins, may be reaſonably ſuppoſed to proceed from the preſſure of the *uterus* preventing the reflux of the blood by the veins; and perhaps they may often be eſteemed as conſequences of the general fulneſs of the habit. They are uſually accompanied with the cramp; but which of theſe is the cauſe or effect has been much diſputed. No detriment has been obſerved to follow this very painful and troubleſome complaint; but if any thing is required to be done, it ſhould be with the intention of emptying the vaſcular ſyſtem, as moderate bleeding, gentle purging, and a ſpare diet. In ſome caſes it may be judged neceſſary to give ſupport, by moderately tight bandage, to the veins of any part which are particularly diſtended; or ſometimes to tie the vein above and below the tortuous part, but the time of pregnancy is not the moſt eligible for this operation.

SECTION XVIII.

INQUIETUDE and want of ſleep are very troubleſome complaints towards the concluſion of pregnancy. They are alſo frequently attended with ſlight pains in the region of the *uterus*, hardly to be diſtinguiſhed from the pains of labour, and other feveriſh ſymptoms. Theſe are moſt grievous in the night, the patient being reſtleſs, in ſpite of a ſtrong diſpoſition to ſleep, and obliged to riſe frequently, and expoſe herſelf to the influence of the cool air; yet, I know not

for what reaſon, after a ſhort repoſe at the dawn of day ſhe appears as much refreſhed, as after the moſt quiet night.

Perhaps the confinement of the air of the room, and the heat of the bed, may be the immediate cauſes of theſe complaints; but I have generally conſidered them as ariſing from the conſtant and ſtrenuous demands for nouriſhment made by the child upon the conſtitution of the parent: for it is remarkable, that thoſe women, who ſuffer moſt on this account, though reduced in appearance, bring forth luſty chlidren, and have eaſy labours. But if the mother has little uneaſineſs and grows corpulent during pregnancy, the child is generally ſmall; and, if the child ſhould die before the time of parturition, the inquietude entirely ceaſes. In the firſt caſe the abſorbing powers of the child ſeem too ſtrong for the parent; but in the latter the retaining powers of the parent are ſtronger than the abſorbing ones of the child, ſo that on the whole it appears natural, that women ſhould become thinner when they are pregnant.

Nothing affords more effectual relief to patients troubled with this inquietude than bleeding in ſmall quantities, with the occaſional uſe of cooling and laxative medicines. *Hoffmann's* anodyne liquor, to the quantity of thirty or forty drops, given in ſome common emulſion, or in cold water, every night at bed-time, has been found uſeful. Preparations of *opium* have little effect, unleſs they are given in large quantities and often repeated; but a perſuaſion that theſe are ultimately injurious to the *fœtus*, or to the parent, has long deterred me from uſing them on theſe occaſions. A glaſs of cold water drunk at bed-time is not a contemptible remedy; or a towel dipped in cold water and wrapped round the hand, with one corner hanging over the edge of the bed, has many times been ſerviceable in procuring ſleep, by leſſening the general heat of the body as a conductor.

SECTION XIX.

VERY few women, even thoſe who are on other occaſions patient and reſolute, paſs through the time of utero-geſtation without uſing expreſſions, which indicate ſome degree of apprehenſion for their ſafety. This ſolicitude may proceed from the mere dread of what they expect to ſuffer at the time of labour; or from reports inadvertently made of untoward accidents, which have happened to ſome of their friends or acquaintance, who were in the ſame predicament with themſelves.

It is ſufficient, in the firſt inſtance, to contrive amuſements for them, or to inſpire them with confidence, by pointing out the fortunate event of the generality of theſe caſes, and to impreſs them with favourable ſentiments of the ſkill and good fortune of the perſon, who is appointed to attend them. Sometimes, however, this apprehenſion of danger ariſes from another ſource, and is cauſed by uneaſy ſenſations, which they feel, but cannot well deſcribe. Then it is really a ſymptom of diſeaſe, and may be ranked with the terror, which attends the commencement of ſome dangerous diſeaſes, of which it is one of the worſt indications. Inſtead of conſidering it as an hyſteric affection not worthy of regard, we ſhall find, on inquiry, that the patient has ſome degree of fever; as increaſed heat, a white tongue and a quick pulſe, and frequently a fixed pain in ſome part of the *abdomen*; or peripneumonic ſymptoms; or ſome marks of local or general diſturbance in the habit, though not in a degree ſufficient to denote any particular diſeaſe. By bleeding in ſmall quantities, by cooling or appropriate medicines, by repoſe and a well-regulated diet, both the ſenſation and the apprehenſion may be removed before the time of delivery, and a happy recovery from childbed enſured. If, however, the complaint be not properly conſidered, but ſlighted or ridiculed merely

as

as lowneſs of ſpirits, the event may prove unfavourable; and on the recollection of the circumſtances there may be room to lament that it was miſconſtrued or diſregarded.

SECTION XX.

THE functions of the brain are often diſturbed in the time of pregnancy, by which headachs, drowſineſs, and vertiginous complaints, are occaſioned; and ſometimes pregnant women have a true *hemiplegia*, as well as many other nervous ſymptoms. Theſe have uſually been aſcribed to a fulneſs of blood in the veſſels of the brain, cauſed by an obſtruction to its deſcent into the inferior extremities, by the compreſſion of the enlarged *uterus*. But theſe do not more commonly happen to thoſe women, who are of full habits of body, than to thoſe who are of different conſtitutions, and if that was the cauſe, the effect muſt be pretty generally produced when women have arrived to a certain time of pregnancy. The palſy is always preceded by ſuch ſymptoms as indicate an uncommon degree of uterine irritation, on which it is reaſonable to conſider it may depend; more eſpecially as, though relieved, it is never cured during pregnancy, and ſcarcely ever fails to leave the patient perfectly free ſoon after delivery, as has been proved in a variety of caſes.

The blood of thoſe women who become paralytic whilſt they are pregnant, is always found to have the ſame appearance as in the moſt inflammatory diſeaſes; and the other ſymptoms indicate the like diſpoſition. It is not therefore ſurpriſing, that heating and ſtimulating medicines are obſerved to increaſe the complaint; or that it ſhould be relieved by bleeding, by gentle purging, by a cooling regimen, and by ſuch means as abate uterine irritation; not regarding the palſy as an idiopathic diſeaſe, but as a ſymptom occaſioned by pregnancy.

SECTION

SECTION XXI.

It was before obſerved, that anaſarcous ſwellings of the inferior extremities often occurred in pregnancy, and that thoſe ſometimes extended to the groins and ſides of the *abdomen*, and in ſome caſes to the external parts of generation, which become extremely painful, and tumefied to ſuch a degree, that the patient is unable to walk without much inconvenience. They appear to be occaſioned in ſome inſtances by too much, and in others by too little, exerciſe; but more frequently by the preſſure made by the *uterus* upon thoſe lymphatic veſſels, which are intended to drain the fluids from the inferior extremities. They have ſometimes been unjuſtly ſuppoſed to indicate ſuch a general hydropic tendency as might deter us from bleeding the patient, even in circumſtances which would otherwiſe demand it.

But in many of thoſe abdominal complaints, which occur in pregnancy, it has been obſerved, that the patient was ſenſible of much relief when the legs begin to ſwell; ſo that in ſome caſes this ſwelling may be eſteemed as a critical depoſition upon the inferior extremities of ſomething ſuperfluous or injurious to the conſtitution. Of the particular treatment which this complaint may require we have before ſpoken.

SECTION XXII.

There have been a few inſtances of women with child who have had a true *aſcites*; and thoſe who have an *aſcites* ſometimes become pregnant. Some caſes are recorded, and many reported, in which the

the mode of treatment enjoined has been founded on an erroneous opinion of theſe two ſituations; that is, of a dropſy being miſtaken for pregnancy, and pregnancy for a dropſy. The former is not productive of miſchief in any other way, than by delaying the uſe of ſuch means as might be conſidered likely to cure the diſeaſe if adminiſtered in its early ſtate. But the conſequences of the ſecond error have been deplorable. For, if any active remedies are uſed on the preſumption of a dropſy, the child will of neceſſity be often deſtroyed, and an abortion or premature labour occaſioned; and when the operation of the *paracenteſis* has been performed, it hath been known to prove fatal to the mother and child, and it always reflects great diſcredit both upon the operator and profeſſion. It, therefore, ſeems neceſſary, to eſtabliſh this general rule, that no woman, at a time of life, or under circumſtances which, in the moſt diſtant manner, ſubject her to a ſuſpicion of pregnancy, ſhould ever be tapped, or otherwiſe treated for a dropſy, till by examination *per vaginam*, or by waiting a due time, we are convinced that ſhe is not pregnant; even though ſhe may have before undergone the operation.

It has been ſaid, but whether upon ſufficient authority I know not, that a dropſy has ſometimes been cured by pregnancy or parturition.

SECTION XXIII.

THE manner in which the *abdomen* is diſtended, with the degree of its diſtention at different periods of pregnancy, has already been deſcribed. This generally appears to be uniform, though often on one ſide more than the other; and ſometimes there are partial diſtentions, which are popularly attributed to the head, elbow, or ſome other limb of the child, originally placed, or accidentally moved,

moved, out of the common ſituation. It appears, that this opinion cannot poſſibly be true, unleſs we preſume, that there is at the ſame time a partial diſtention of the *uterus*, which could ſcarcely happen without ſome important and dangerous conſequences. As this caſe moſt frequently happens when the *abdomen* is enormouſly diſtended, and as it has all the appearance of a ventral *hernia*, it is more probable, that it is occaſioned by the ſtarting of ſome of the abdominal muſcles, or the partial yielding of the integuments, or by an occaſional ſpaſm of the *uterus*. But the explanation of the caſe is of leſs importance, as it neither requires nor admits of any aſſiſtance, either before or at the time of labour, and diſappears before, or almoſt immediately after delivery.

From the great diſtention of the *abdomen*, eſpecially in corpulent women, an umbilical *hernia* is very frequently occaſioned, which, depending wholly upon the degree of diſtention, does not admit of any relief before the patient is delivered; when the elaſtic truſs, ſuited to the ſize and form of the *hernia*, ſeems a more eaſy and effectual remedy, than any inſtrument of the kind which has hitherto been recommended, though ſome prefer a piece of ivory, formed like a ſection of a globe, and fixed upon the part by adheſive plaiſter or any of the uſual bandages. This ſeems to be the only kind of *hernia* produced by, or which remains during pregnancy; for, unleſs the other kinds adhere to the *ſac* in which they are contained, temporary relief is afforded by that aſcent and ſupport of the inteſtines, which neceſſarily follows the enlargement of the *uterus*.

SECTION XXIV.

In ſome caſes the whole *abdomen* is diſtended beyond what it is able to bear without inconvenience; the ſkin becomes inflamed, and ſometimes

ſometimes cracks, ſo that there is a little oozing from various parts. The true ſkin alſo cracks when the outſide is not altered, by which there remains upon the integuments of the *abdomen* of women, who have had children, a number of ſmall cicatrices, as if the parts had been ſcarified, or there had been ſlight longitudinal ulcerations.

For the eaſe, both of the diſtention and conſequent ſoreneſs, ſome unctuous applications ſhould be rubbed over the *abdomen* every night at bed-time. The ointment commonly recommended for this purpoſe is compoſed of rendered veal fat beaten up with a ſmall quantity of roſe water.

By the extreme diſtention of the muſcles of the *abdomen* theſe are often the ſeat of pain during pregnancy, eſpecially at their inſertions; and it requires ſome attention to diſtinguiſh this from the pain which may ariſe from affections of the *ſymphyſis* of the *oſſa pubis*. When the weight of the *abdomen* in pregnant women is very great, and weakly ſupported by the integuments, it becomes pendulous, and occaſions to the patient much pain and difficulty in walking, and many other inconveniencies. It is then of ſervice, by a napkin or broad bandage, ſuited to the purpoſe, paſſed round the lower part and middle of the *abdomen*, to ſupport it with a moderate degree of firmneſs, and then by a ſcapulary to ſling the depending weight over the ſhoulders, by which the patient will be enabled to move and walk about with infinitely leſs trouble, and any inconvenience thence ariſing will be prevented or removed.

SECTION XXV.

INSTANCES ſometimes occur of pregnant women being affected with the venereal diſeaſe: and we have generally been adviſed to follow a mode of treatment, by which the diſeaſe was not intended to be

perfectly cured, but moderated and reſtrained from further progreſs; leaving the abſolute cure to be completed, when the patient was recovered from the ſtate of childbed. This method of proceeding has been recommended, on the preſumption that dangerous conſequences would reſult either to the mother or child, if a quantity of quickſilver was uſed, during pregnancy, ſufficient to root out the diſeaſe effectually from the conſtitution. If the patient has a *gonorrhœa*, there is clearly nothing in the medicines preſcribed, or in the treatment, which can prove hurtful to either at the time of utero-geſtation. But if there ſhould be a confirmed *lues*, as frictions with *unguentum hydrargyri* properly inſtituted and purſued, which, as it was one of the firſt, is yet acknowledged to be the moſt efficacious remedy; or if equal or greater confidence is placed in them than in any preparation of quickſilver internally given; it is reaſonable to think, and the opinion is confirmed by experience, that women might at any time of pregnancy go through a due courſe of them with perfect ſafety. It is ſcarcely neceſſary to obſerve, that medicines compoſed of quickſilver, whether internally given or externally applied, are not at this time uſed with a view to promote a ſalivation, or any other profuſe evacuation, but with the intention of filling the habit with that medicine, and retaining it as long as it is thought neceſſary for the extinction of the diſeaſe. The utility and propriety of this practice is allowed by thoſe, who differ widely in their explanations of the mode in which quickſilver is ſuppoſed to operate. I may be permitted to obſerve, that the principal cauſes of the failure of this medicine to anſwer our purpoſe of perfectly curing the *lues* are, either the hurry with which it is at firſt uſed, or a concluſion often, though erroneouſly, made, that the diſappearance of the ſymptoms is a proof of a perfect cure of the diſeaſe; whereas it frequently happens, that, if the frictions are not continued many days, or even ſeveral weeks, or, in ſome caſes, perhaps, months, after all the ſymptoms are gone, there will in a ſhort time be new appearances, which prove the return or exiſtence of the diſeaſe.

It

It has been ſuppoſed, that a child born of an infected parent could not at the time of birth be exempt from infection, and that the *virus* would be ſo intermixed with its frame that there would ſcarcely be a poſſibility of exterminating it. This is at leaſt a very dubious point; becauſe it has happened to every perſon engaged in practice in a city or large town, to attend patients of this deſcription, who have nevertheleſs brought forth children which were perfectly healthy. I do not recollect one deciſive inſtance of a child born with any ſymptoms of the venereal diſeaſe upon it; and the contrary, I am perſuaded, is often ſuſpected from a knowledge of circumſtances, which give riſe to the ſuſpicion, excluſive of the ſymptoms; though it muſt be allowed, that a child has a chance of receiving the infection in the act of parturition, by abſorbing the *virus* in its paſſage over ulcerated ſurfaces. But, with regard to the firſt opinion, it may perhaps be juſtifiable to reaſon in this manner. If the infection is received, it muſt be at the time of conception, or afterwards. If the prolific particles, whether in the male or female, were mixed with the venereal *virus*, the prolific properties would by ſuch mixture be deſtroyed; but if conception were previous to the infection, there ſeems to be no way in which the latter could be communicated to the child already conceived, all immediate intercourſe being ſecluded by the perfect cloſure of the *os uteri*.

Children brought forth by parents infected with the venereal diſeaſe will often be born dead; but this event may commonly be imputed with more propriety to the ſeverity of the means uſed for the extirpation of the diſeaſe, than to the diſeaſe itſelf.

SECTION XXVI.

When pregnant women have the ſmall-pox, there is much difference in the opinions entertained of the poſſibility of the child being

infected. Some have contended that, if the mother has this diſeaſe, the child could not eſcape; whilſt others are perſuaded, that the child could not, according to the laws of the animal economy, receive this diſeaſe. Caſes are recorded by various writers in confirmation of both the opinions; and many inſtances have been communicated to me by men of integrity and attention, with the view of deciding this point; but the caſes are contradictory to each other, and therefore prevent any preſent deciſion upon the ſubject. When, by the multiplication of well-atteſted facts, our knowledge is extended and corrected, ſhould it be proved, that the variolous infection is generally received by the *fœtus in utero*, if the parent has the diſeaſe when ſhe is pregnant, we may then conſider whether the knowledge of the fact can be turned to any practical advantage*.

It is an opinion almoſt univerſally received, that, if a woman with child ſhould have the ſmall-pox, and miſcarry; or, if at the full time her labour ſhould come on during the continuance of the diſeaſe; it would neceſſarily prove fatal to the mother. The event has too often proved the truth of this obſervation; yet it will probably ſtand upon more juſt ground, if it be ſtated in this manner. Should the attack of the diſeaſe be violent, and the eruptive fever run very high, patients may and have often eſcaped the danger, at any period of utero-geſtation, though the child were then expelled. But if a woman paſſes the time of the eruptive fever, and labour or a tendency to miſcarry ſhould come on towards the criſis of the diſeaſe, as far as my obſervation enables me to ſpeak, ſhe will then certainly die. She dies, in truth, not becauſe ſhe miſcarries or brings forth a child, but ſhe miſcarries or falls into labour becauſe ſhe is already in a dying or very dangerous ſtate, and by thoſe circumſtances the danger is infinitely increaſed.

When other diſeaſes occur in pregnancy, the treatment to be directed muſt be ſuch as the particular diſeaſe may require, making

* *Mauriceau* ſays, that he himſelf was born with the ſmall-pox upon him.

due

due allowances for that ſtate, by not preſcribing any violent names, unleſs the immediate ſafety of the patient may render them abſolutely neceſſary. Every morbid alteration of importance which happens during pregnancy ſuperſedes, if we may be allowed the expreſſion, all the changes which depend upon that ſtate; and whoever aims to eſtabliſh the character of a ſucceſsful practitioner in midwifery muſt pay attention to the health of his patients when they are pregnant. If there be no diſeaſe, or diſpoſition to it, the proceſs of a labour is generally uniform and ſafe. If any diſpoſition to diſeaſe ſhould exiſt at that time, the labour may be rendered irregular and dangerous, or the immediate cauſe of ſome diſeaſe peculiar to the child-bearing ſtate, not by giving, but by diverting ſuch diſpoſition to ſome part rendered by parturition more ſuſceptible of its influence.

CHAPTER VII.

SECTION I.

ON UTERO-GESTATION.

It was formerly aſſerted and believed, that the proper ſituation of the child in the *uterus*, in the early months of pregnancy, was ſedentary; with the breech reſting at the ſuperior aperture of the *pelvis*, and the fore-parts of the child turned exactly to the *abdomen* of the mother. At or towards the time of parturition it was thought that the child, partly by the increaſed weight of the head, but chiefly by its own inſtinct and powers, made a revolution, and turned with its head downwards, in ſuch a manner that the *vertex* was placed to the *pubes*, and the face to the *ſacrum*. In this poſition it was ſuppoſed to paſs through the *pelvis*. This change was called preſenting to the birth, of which it was judged to be the ſignal; and, from the terms uſed in different languages to expreſs the change, the opinion ſeems to have been univerſal. By the examination of women who have died at different periods of utero-geſtation, or in the act of child-birth, it is now aſcertained, that ſuch as is the ſituation of the child in the early part of pregnancy, ſuch it will be at the time of labour, unleſs, which can very rarely happen, the poſition be altered by ſome accidental violence. Perhaps this opinion of the ancients was not founded on obſervation, but on the preſumption that fatal conſequences would reſult from the continuance of the *fœtus* with its head downwards for nine months. They did not know, that there was a circulation of the blood; and of courſe were ignorant that an order of veſſels exiſted in the body, eſpecially calculated, by preſerving a particular communication

nication between different parts, to prevent any injury to the *fœtus*, either from its confinement or ſituation.

The natural poſition of the *fœtus* in the *uterus* is ſuch as to occupy the leaſt poſſible ſpace, ſo that the leaſt poſſible inconvenience is occaſioned to the parent, yet with the utmoſt eaſe to its own body and limbs*. In the poſitions which are eſteemed natural there is an endleſs variety, but they are moſt commonly after this manner†. The knees are drawn up to the belly, the legs are reflected backwards, the feet croſſed, and lying cloſe to the breech; the elbows are in contact with its ſides, and the hands turned up to its head, one of which is often placed upon the cheek or ear. The ſpine is incurvated, and the neck being bowed, the chin reſts upon its knees. There is that inflexion of the body into which we ſpontaneouſly fall when we ſeek repoſe; and as it is our poſition before we are born, it is that alſo to which we have an inclination in the decrepitude of old age.

The ſituation of a child, preſenting naturally, is with the head downwards, reſting upon the *oſſa pubis*, with one ſide of the head towards the *abdomen* of the mother, and the other towards the *ſacrum*, or in a ſmall degree diagonally. The bulk of the body of the child is not placed againſt the ſpine, but on one ſide, moſt commonly on the right, and the limbs turned towards the left, ſo that the *abdomen* of a woman with child is, in general, evidently diſtended more on one ſide than the other. When this circumſtance, though a neceſſary conſequence of the proper ſituation of the child, is obſerved, a ſuſpicion, wholly groundleſs, is often entertained, that its preſentation at the time of birth will be unnatural. A ſmall degree of permanent en-

* Quaſi in ſeipſum totus conglobatus —*Fabric. ab Aquapendente.*

† Adductis ad abdomen genibus, flexis retrorſum cruribus, pedibus decuſſatis, manibuſque ſurſum ad caput ſublatis, quarum alteram, circa tempora vel auriculas, alteram ad genam detinet; ſpina in orbem flectitur, caput ad genua incurvato collo propendet; tali membrorum ſitu, qualem in ſomno per quietem quærimus.—*Harv.* Exercitat de Partu.

largement may afterwards be perceived on that ſide on which the child has reſted, in which alſo, for ſome time after delivery, the mother is ſubject to pains reſembling thoſe which are conſidered as rheumatic.

SECTION II.

THE term of utero-geſtation is different in every claſs of animals, and the diverſity has been attributed to the nature and properties of the parents or the offspring. Thoſe, who were of opinion that it depended upon the parent, ſought for the reaſon in the ſtructure or conſtitution of the *uterus*, the heat or coldneſs, dryneſs or moiſture of which, according to the doctrines of the old philoſophy, were ſuppoſed to be the cauſes of the varieties: yet, if the term depended upon theſe, it would then remain to be proved, how it happened that one form or conſtitution was capable of bearing diſtention longer than the other. Thoſe, who imputed the time of the event to the offspring, aſſigned to them the ſame properties. It ſeems to have been generally believed, that, by the long or ſhort continuance of the *fœtus* in the *uterus*, the future ſize, duration, and qualities, of different animals were influenced; and that theſe were moſt perfect and permanent in thoſe animals which had the longeſt period of utero-geſtation. It was alſo thought, and perhaps with truth, that the longer the time of utero-geſtation, the longer the animals were before they came to full growth; and that on this depended their continuance in the mature ſtate, without any natural tendency to decay, one period of exiſtence regulating another *. In oviparous animals the time of incubation neceſſary for the production of their young is not altered by the qualities of the bird by which it is incubated, but follows its genuine nature; as in a hen's egg incubated by a duck. This favours the opinion that

* See Lord Bacon's *Hiſtor. Natural.*

the

the term is guided by the offspring, but it is by no means deciſive: for the circumſtances relating to the birth of oviparous and viviparous animals, though they may illuſtrate each other, cannot, with any intelligence, be compared, before the egg is expelled.

If the time of utero-geſtation be not interrupted by accidental cauſes, it proceeds in all animals with great, though not with exact regularity, as is proved by thoſe who are employed in breeding cattle, by whom a correct account is uſually preſerved. But in the human ſpecies there was ſuppoſed to be a conſiderable latitude in this reſpect, and examples have been recorded with great confidence, by grave writers, of children born after a term much exceeding the common, and of others after a term far ſhort of it, which were nevertheleſs in a perfect ſtate. This opinion hath alſo been countenanced to a certain degree by the laws or cuſtoms eſtabliſhed in different countries*.

The common time of utero-geſtation in women is forty weeks, or nine calendar months; and ſome men of ability and candour have been perſuaded, that it is poſſible for them to proceed as far as ten calendar months. By the laws of this country the term is not preciſely limited; ſo that if any caſe ſhould occur, in which this matter might be litigated, the deciſion would rather depend upon the circumſtances, or upon the confidence placed in the teſtimonies of the medical witneſſes, than upon any proof or conviction of the nature of the thing to be decided.

There muſt in general be much difficulty in determining with abſolute preciſion the time of utero-geſtation in individual women. But I have met with ſeveral inſtances of thoſe who from particular contingencies, ſuch as the caſual intercourſe with their huſbands, or their return to, or abſence from them, for a particular time, have been able to tell exactly when they became pregnant; and none of

* Spigelius Ulpianum juris conſultum immerito reprehendit, quod poſt decimum menſem editum neminem, ad legitimam hæreditatem admiſerit.—*Harv.* Exercitat. de Partu.

theſe have exceeded forty weeks. I am therefore perſuaded, that the term of utero-geſtation is as accurately limited in women as in animals. I do not mean that it is completed to a minute or an hour, as has been ſurmiſed, becauſe the birth of the child may be delayed by a multiplicity of accidents. But parturition will be accompliſhed, or the parturient diſpoſition will take place, before or at the expiration of forty weeks from the time of conception. Nor does it ſeem reaſonable that a law of nature, which is not altered by the differences of age, by the diet, by the extremes of climates, by the ſeverities of ſlavery or the indulgencies of luxury, ſhould be changed by circumſtances of leſs importance.

But the examples of women who have brought forth their children apparently in a perfect ſtate, and of a proper ſize, before the full time of pregnancy, are innumerable. As there is no mark in the external appearance, or internal conformation, which enables us to determine with preciſion whether a child has remained in the *uterus* its full time, this muſt continue doubtful, except as far as we are able to judge by the general probability, or by the ſize of the child. So many accidents occur, which may give to the *uterus* its diſpoſition to expel the child, that its premature expulſion can never be the occaſion of ſurpriſe; not to mention, that there is in particular women a ſpecific time, as the thirty-ſeventh or thirty-eighth week, beyond which they never paſs in many ſucceeding labours.

Though it ſhould be allowed that the natural term of pregnancy in women is forty weeks, there will be ſome difficulty in making the calculation. The diſappearance of the *menſes* is uſually the firſt change, which occaſions a ſuſpicion of pregnancy; and might therefore be eſteemed the era, from which we are to date its commencement. But, though women are more apt to conceive ſoon after than juſt before menſtruation, they may become pregnant at any part of the time between the two periods, when they did, and when they were expected to menſtruate. In order to avoid any great error it is

cuſtomary therefore to take the middle time, and to reckon forty-two weeks from the laſt act of menſtruation, by which method, if we are rightly inſtructed, we may avoid any egregious miſtake.

Women who give ſuck, and who do not menſtruate, ſometimes become pregnant, and having no alteration by which they can make any reckoning of the time of their delivery, all is left to conjecture. But there is uſually, in theſe caſes, a ſhort and imperfect menſtruation, which denotes the time when the *uterus* was in a ſtate fitted for conception. Some women alſo have conceived, who never did menſtruate regularly, or in whom menſtruation had been interrupted for many months. We can then only judge of the time when they conceived, by ſuch ſymptoms and appearances as ſhewed that they had acquired the diſpoſition to menſtruate, and would have menſtruated if they had not conceived. All calculations founded on the time of quickening, the ſize of the patient, and the like circumſtances, amounting only to conjecture, muſt be very liable to miſtake.

Some inconveniences are produced by attempts to make exact reckonings for pregnant women; for, when the time fixed for their delivery is paſt, the error creates much ſolicitude and impatience. When therefore it is neceſſary to give an opinion on this ſubject, it is better to mention ſome time beyond that which we really ſuppoſe; or, on the whole, it would perhaps be better, that labour ſhould always come on unexpectedly.

SECTION III.

At the expiration of forty weeks the proceſs of labour commenceth; and various opinions have been given with a view of explaining its cauſes. Of theſe opinions, which have been ſuppoſed to conſtitute a very important part of obſtetric knowledge, we ſhould not be ignorant,

rant, as it appears that the practice of midwifery has really been very much influenced by them.

It was ſaid by all the ancient writers, that a child was born by its own efforts, which it was incited to make by the neceſſity it felt of breathing cool air, for the purpoſe of moderating that heat which was generated by its long confinement in the *uterus*; or by the want of nouriſhment, the ſources of which failed, or were become depraved; or by the acrimony of the *meconium* and humours of its own body. By ſome the cauſe aſſigned for the exertions of the *fœtus* was the want of room for its further growth and enlargement; and that by its efforts it eſcaped out of the *uterus*, as out of a priſon in which it had been conſtrained. By others it was preſumed, that there was ſome analogy between the ripeneſs and falling of fruit, and the perfection and birth of a child. The peculiar cauſe was unimportant, but, from a general perſuaſion of the principle, it was preſumed, that the eaſe or difficulty with which labours were completed, depended upon the ſtrength or activity of the child. Another concluſion certainly followed: when the child was feeble the labour muſt neceſſarily be ſlow; and in caſes of unuſual difficulty we might be aſſured, that the child was dead, or could not poſſibly be ſaved. Of courſe, whenever the aſſiſtance of art was required, there was no occaſion to regard the child, the exiſtence of the difficulty proving the death or impoſſibility of preſerving the child. If we had no other circumſtance, by which the practice of the ancients could be compared with that of the moderns, this alone would decide in favour of the latter. Many expreſſions are, however, in uſe at the preſent time, which are founded on this opinion of the ancients; and it is not clear, that practice is not, in ſome inſtances, yet influenced by it.

No fact is more inconteſtably proved, than that a dead child, even though it may have become putrid, is commonly born after a labour as regular and natural in every part of the proceſs as a living one; and that children, after labours accompliſhed with the moſt extreme difficulty,

difficulty, will often be born not only living, but in perfect health. There muſt then be ſome other principle of birth beſides the efforts of the child, which in fact appears to be wholly paſſive.

It was by later writers ſuppoſed, that the child was expelled by the action of the *uterus*, aided by that of the diaphragm and abdominal muſcles. This doctrine, which I believe was firſt advanced by *Fabricius ab Aquapendente* *, is the baſis of all the modern improvements in the practice of midwifery; and it is ſo indiſputably proved, by the occurrences both in natural and difficult labours, that its truth is now almoſt univerſally admitted.

Ingenious men were not ſatisfied with the obſervation of the fact, but they endeavoured to diſcover the principle of the action of the *uterus*, and to aſſign reaſons for its coming on at a particular time. It was ſurmiſed that this expulſatory action of the *uterus* depended upon its form or ſtructure, or its inability to bear further diſtention; or upon its heat or coldneſs, dryneſs or moiſture; or upon the diſtinction of its muſcular fibres, which were ſaid to be arranged in a peculiar direction; or to the effort to menſtruate when the veſſels of the *uterus* were incapable of containing a greater quantity of blood than was already collected in them. Of theſe and many other opinions it would be uſeleſs to debate; but, as all viviparous animals bring forth their young at regularly ſtated times, and by proceſſes generally alike, it would not be judging according to any philoſophical rule, to attribute as the immediate cauſe of parturition, or of parturition at any certain time, a circumſtance peculiar to any individual claſs of animals.

The opinions of men upon the ſame ſubject are often in direct oppoſition to each other: and ſome, fearful that truth is not to be found in either extreme, have ſteered a middle courſe between the doctrine of the ancients and moderns. Theſe have ſuppoſed that

* Simul expultrix uteri facultas extemplò inſurgit, et excitatur.—See *Cap.* lxxxvi.

child-

child-birth is not completed ſolely by the efforts of the child, or by thoſe of the parent, but by the conjunction of their efforts. Of this opinion, which participates of the error of the ancients, there have been few ſupporters: and the arguments in its favour have been drawn from obſervations made in the firſt inſtance on vegetables and oviparous animals. How far the diſcovery of the particular cauſe of the birth of a child might lead to the improvement of practice it is impoſſible to determine. The knowledge of the fact, that children are expelled, has evidently been productive of much advantage; but the attempts to inveſtigate the cauſe do not give us more ſatisfaction than old *Avicenna*, who, with great humility and devotion, ſays, "At the appointed time, labour comes on by the command of God."

SECTION IV.

It was before obſerved, that pregnancy and parturition have uſually been mentioned as diſtinct operations of the conſtitution. But it ſeems better to conſider every change in the animal economy, from the time of conception to the birth of the child, as forming a ſingle proceſs, conſiſting of ſeveral parts, each perfect in itſelf, and at the ſame time a cauſe of ſome ſubſequent change, neceſſary for the completion of the whole; and, though there is no preciſe line to the different parts of this proceſs, they readily admit of diſtinctions, by which they are more eaſily comprehended, and more expeditiouſly and accurately deſcribed. Thus, previous to the act of parturition, many changes take place in the conſtitution, which indicate its approach; and theſe have been called the pre-diſpoſing ſigns of labour. The time of their appearance is different, being in ſome women ſeveral weeks, and in others only a few days, before the commencement of labour: but they univerſally take place, unleſs the labour be

precipitated

precipitated by ſome accidental influence: and the more perfectly theſe changes are made, and the longer the time of their preceding the labour, the more natural and kindly will the proceſs generally be.

There is, firſt, a gradual ſubſidence of the *fundus* of the *uterus*, and whole *abdomen*, ſo that women often appear, and really are, leſs in the ninth than in the eighth month of pregnancy. This is a good indication, becauſe it ſhews that the *fundus* and all the other parts of the *uterus* are diſpoſed to act; and on the equality of this diſpoſition the efficacy of its action will very much depend. When there is none, or but little, ſubſidence of the *abdomen*, and the patient complains, even in the time of labour, that the child is very high, it is always unfavourable; being a proof that the *fundus* of the *uterus* is in an inactive ſtate, or acting improperly.

There is, ſecondly, a diſcharge of *mucus* from the *vagina*, which in the beginning is of the kind often obſerved in the *fluor albus*; that is, a mere augmentation of the ſecretion from the glands of the *vagina* and neighbouring parts; but, by a gradual alteration in ſome inſtances it becomes extremely viſcid and tenacious. This is very remarkable in ſome animals whoſe bodies are expoſed to view, eſpecially in cows; and it is a ſign that the parts concerned in parturition are in a ſtate diſpoſed to dilate, which diſpoſition is farther improved by the diſcharge.

Thirdly, In early pregnancy the external parts of generation are in a natural ſtate, or at ſome periods rather more contracted than uſual: but when the time of labour approaches there is a gradual enlargement and relaxation of them, with ſome degree of protruſion. This change alſo is to be obſerved in animals only; but, from their complaints, and the repreſentation of their feelings towards the concluſion of pregnancy, there is every reaſon to believe, that a ſimilar change takes place in women.

Fourthly, It was obſerved that the breaſts very readily and generally ſympathize with the *uterus* in all its affections, and particularly

larly that they are enlarged immediately after conception. There is alſo a gradual change in them from that time to the approach of labour, when they are perfectly fitted for the ſecretion of milk; which, when ſecreted in a more mature ſtate, or in an increaſed quantity, may be eſteemed a ſign that the time of labour is drawing near. Some animals, the *pecora* for inſtance, though the quantity of milk has gradually declined, have continued to give ſuck during pregnancy, without any apparent alteration in the quality of their milk, till they approached the time of parturition, when it was found to be much changed in its conſiſtence, colour, and properties, a new mode of ſecretion being evidently eſtabliſhed.

Fifthly, By the inſertion and diſpoſition of the ſacro-ſciatic ligaments the principal firmneſs is given to the connexion of the bones of the *pelvis*. In animals not with young theſe ligaments are very ſtrong and rigid, and make a reſiſtance to any external preſſure almoſt as firmly as if they were oſſified. But when the time of parturition is at hand their ſtrength and rigidity gradually decline, and they feel ſcarcely more firm than a duplicature of the ſkin. In conſequence of this relaxation of the ligaments, animals change their manner of walking, by projecting the weight of the body on each ſide alternately, rather than by advancing the feet. There is ſuch an appearance as juſtifies the uſe of the popular expreſſion; for they literally ſeem *falling in pieces*. In women theſe changes cannot be ſo well obſerved; but there are many reaſons to be drawn from their manner of walking, and from their repreſentations, which would induce us to believe, that ſimilar ones take place in them as well as in animals*.

Sixthly, All animals, wild or domeſticated, aſſiduouſly endeavour

* Sacri et pectinis oſſium cum coxendice copula, quæ fit per ſynchondroſin, adeo emollitur et ſolvitur, ut dicta oſſa facile exeunti fœtui cedant, et hiantia regionem totam hypogaſtricam ampliorem reddant.—*Harv.* Exercitat. de Partu.

to

to provide a ſafe and comfortable habitation for their young, when the time of bringing them forth draws near*. The actions of mankind are always attributed to, and uſually proceed from, more dignified and commendable principles than thoſe of animals. But in many natural actions, which are too powerful to be controlled, or not without great difficulty, by inſtructions, manners, or cuſtoms, they may often be obſerved to act inſtinctively; and this is in no caſe more remarkable than in ſuch actions as relate to child-bearing and to children. From inſtinct, therefore, and not reaſon, it may be preſumed, the choſen and favourite employments of pregnant women are thoſe, which in ſome way or degree relate to the expected bleſſing; and an unuſual ſolicitude about the preparation of ſuch things as may be neceſſary or convenient to the child, in the advanced ſtate of pregnancy, may be conſidered as a ſign, that the time of labour is approaching.

SECTION V.

BEFORE we proceed to the hiſtory of labours, it is neceſſary that we ſhould ſpeak of the operation, if it deſerves the name, by which we are to acquire our information. This is deſcribed by the term examination, or examination *per vaginam*. When inſtituted at the time of labour, it is popularly called *taking a pain*, which explains the opinion entertained of it by women. Concerning this operation two things are to be obſerved; firſt, the manner in which patients are to be examined; and, ſecondly, the information to be gained by the examination.

The poſition in which women are placed, when it is thought

* Accedente pariendi tempeſtate ad ſolita loca revertantur: ut ſtabula vel nidos ſuos tuto extruant, ubi fœtus pariant, foveant, alantque.—*Harv.* Exercitat. de Partu.

neceſſary to examine them, varies in different countries. In ſome the examination is made when they ſit in a chair or ſtool contrived for the purpoſe; in others when they kneel by the ſide of a bed; and in others in a recumbent poſition. But in this country, at the preſent time, almoſt univerſally, women repoſe on a couch or bed, upon their left ſide, with their knees bent, and drawn towards the *abdomen*; and this is by far the moſt convenient, as well as decent. It is not requiſite, or poſſible, to enumerate every circumſtance, to which it is neceſſary to pay attention; but it muſt be an invariable rule, never to propoſe an examination *per vaginam* but as a matter of abſolute neceſſity, and in the preſence of ſome attending perſon. It is alſo to be performed with the utmoſt care and tenderneſs, and the ſtricteſt regard to decency; for, unimportant as the operation in itſelf really is, an opinion is formed by the manner of doing it, of the ſkill and humanity of the practitioner, and of the propriety of his conduct.

An examination *per vaginam* may be needful to diſcover and diſtinguiſh diſeaſes of the *uterus* and contiguous parts; to aſcertain whether a woman be pregnant, or how far ſhe is advanced in her pregnancy; to determine whether ſhe be in labour, or what progreſs that has made; if the preſentation of the child be natural; if the *pelvis* be well formed or diſtorted; and on many other occaſions.

The ſtate of the parts examined, under all the incidents before recited, is different from the natural; but of the deviations of every kind, and in every degree, it is impoſſible to form a judgment, unleſs we have previouſly obtained an accurate idea of their natural ſtate. This forms the true ſtandard by which we are to judge of every change, natural or morbid; and the faculty of diſcriminating the various diſeaſes or alterations can only be acquired by frequent practice, no abſtract rule being ſufficient for the purpoſe. It may indeed be ſaid, that, in ſome diſeaſes of the *uterus*, eſpecially thoſe diſpoſed to become cancerous, the *os uteri* is enlarged, or elongated,

indurated, thickened, fiſſured, ſpongy, and uncommonly tender when touched, or patulous, or with the *labia* ſomewhat reverted; lying too low in the *vagina*, or firmly attached to the adjoining parts. But in others, as the *polypus*, hydatids, inflammation, or a glandular enlargement of the *uterus*, the ſtate of the parts, (except the ſimple enlargement of the *uterus*) or the ſenſation they give, cannot be deſcribed by words, without an antecedent agreement what thoſe ſhall be called which we have before felt or ſeen. We are often able to diſtinguiſh the changes made in the body of the *uterus* by an examination *per anum* more perfectly than by any other method.

As it is extremely difficult, if not impoſſible, to determine, by an examination *per vaginam* in the early part of pregnancy, whether a woman be with child, it is then prudent to evade the operation; becauſe it is always expected, that we ſhould afterwards ſpeak with preciſion and confidence. For the *fundus* of the *uterus* being the part firſt diſtended in conſequence of conception; and the *cervix*, which is the only part we can feel, not beginning to ſhorten in any diſtinguiſhable way before the termination of the fourth month of pregnancy; not to mention the natural varieties in the ſtructure and ſize of the parts in different women, and the alterations which may be cauſed by the attachment of the *placenta* to different parts of the *uterus*, or by thoſe diſeaſes which reſemble pregnancy, we ſhall ſee ſufficient reaſon for putting off this kind of inquiry. A cautious practitioner will not therefore, on any account, examine before the proper time, becauſe he cannot gain information, to ſupply him with proper ground on which to form the opinion required of him, that will not be extremely ſubject to error. Perhaps this limitation may not be ſufficiently ſtrict, and it is better to ſay, in general terms, that the longer we defer the examination, the greater probability there will be that we ſhall not be deceived, or diſappointed of the information we want. In all caſes likewiſe of doubtful prog-

noſtic, it is proper to avail ourſelves of every advantage, which a knowledge of the collateral circumſtances can afford, before we give our opinion.

Nor is there leſs difficulty, when we are aſſured that a woman is with child, in deciding, by an examination *per vaginam*, how far ſhe is advanced in her pregnancy. An opinion of this muſt be formed on the eſtimation we make of that portion of the *cervix uteri*, which we ſuppoſe ſhould remain undiſtended at any individual period of pregnancy. But as the *cervix uteri* naturally varies in its length in different women, of courſe the portion which remains undiſtended at any preciſe time muſt vary; and all that can be juſtly ſaid upon the ſubject will only deſerve the name of conjecture. It is therefore more prudent, not to hazard an opinion ſingly upon the information gained by an examination *per vaginam*, when any determination of importance is to be made; but, as in the former ſtatement reſpecting the exiſtence of pregnancy, to act with caution, and to collect all the information we can get from other circumſtances, before we preſume to give a decided opinion.

When a woman is at or near the full period of utero-geſtation, it may be determined whether ſhe is in labour by the ſtate of the *os uteri*. By the dilatation of the *os uteri* during the continuance, and not by its relaxation in the abſence of a pain, we are to judge that the patient is in labour: for a conſiderable degree of relaxation of the *os uteri* is ſometimes found to take place ſeveral days, or even weeks, before the commencement of labour; though it is generally in a contracted ſtate, till it is diſtended in conſequence of the preſſure made by ſome part of the *ovum* urged upon it by the acting *uterus*. By the time which has been required to produce a certain degree of dilatation, we may gueſs with tolerable exactneſs the general duration of a labour, provided the action of the *uterus* ſhould continue with equal energy; becauſe on this, as well as on the ſtate of the parts, the progreſs

progreſs of a labour muſt depend. But ſo many unexpected circumſtances occur, which may accelerate or interrupt a labour in its progreſs, that it will uſually be a proof of wiſdom, to be ſilent upon this ſubject; at leaſt not to advance our opinions with confidence, but to offer them, when demanded, with heſitation and reſerve.

The manner in which the child preſents may generally be diſcovered by an examination in the beginning of labour; for, though we ſhould not be able to diſtinguiſh any part through the membranes, in the intervals between the pains (when only the attempt for this purpoſe ought to be made), if the head preſents it may be perceived through the anterior part of the *cervix uteri*, reſting upon the *oſſa pubis*, in ſome caſes ſo early as the fifth month of pregnancy. When any other part preſents, we can in general only diſcover through the membranes that it is not the head, by its ſmallneſs and the want of that reſiſtance which is made by the head; and if we can feel no part preſenting, though it does not certainly follow, it is not amiſs to conclude, that it is not the head; and then in our report to the friends we ſhall expreſs ourſelves with ſome doubt, and be prepared to give aſſiſtance at the time when the membranes break, if the preſentation ſhould be ſuch as to require it.

After an examination *per vaginam*, our opinion is conſtantly demanded as to the proſpect of an eaſy or difficult labour. If the preſentation of the child be natural, the *pelvis* well formed, the ſoft parts in a relaxed ſtate, and the patient free from diſeaſe, we may ſafely aſſure her friends that all the appearances are promiſing, and that the labour will be finiſhed, in all probability, with perfect ſafety both to the mother and child. But of the ſlowneſs or celerity of a labour great experience and attention can only give that maturity of judgment, which enables us to form an opinion with tolerable preciſion; yet the ſame experience having often ſhewn the uncertainty of

of any determination, will point out the propriety of leaning rather to the ſide of doubt than of confidence. It is not a little extraordinary, how often we may obſerve labours proceeding in regular circles of time, as four, ſix, twelve, or twenty-four hours, from the firſt alarm or token; or how frequently their progreſs is ſuſpended in the day time, particularly in very warm weather, as will be more particularly obſerved.

CHAPTER VIII.

SECTION I.

ON LABOUR.

HAVING given a deſcription of all the parts concerned in parturition, and ſhewn the peculiarities of the female conſtitution, having enumerated the principal alterations produced in the conſtitutions of women during pregnancy, and having farther taken notice of all the previous changes, we come in the next place to the conſideration of a *Labour*. This term is generally uſed to ſignify every act performed with difficulty or pain; but by long eſtabliſhed cuſtom it has been appropriated in this and many other countries to parturition, the circumſtances of which it is well ſuited to deſcribe.

Before we proceed to the hiſtory of labours, it is requiſite that we ſhould divide them into claſſes or kinds; and, though objections might be made to a very ſtrict arrangement, ſome appears to be both convenient and neceſſary, for the purpoſe of enabling us to convey our ſentiments with perſpicuity to others, and for real uſe in practice.

With theſe intentions, labours may be divided into the four following claſſes:

1. Natural.
2. Difficult.
3. Preternatural.
4. Anomalous.

Under one or other of theſe diſtinctions every kind of labour which can occur may be reduced.

SECTION II.

NATURAL labours, which have had their denomination from their frequency, or from the ſhortneſs of the time required for their completion; from the regularity of the manner in which they proceed, or from their being accompliſhed by the unaſſiſted efforts of the conſtitution, form a ſtandard by which we are to judge of every other claſs. It is therefore neceſſary, that we ſhould obtain as preciſe an idea of theſe as the ſubject will allow. We will then ſay, that every labour ſhall be called *natural,* if the head of the child preſents, if the labour be completed within twenty-four hours, and if no artificial aſſiſtance be required.

Should any of theſe three leading marks of the definition of a natural labour be wanting, it muſt come under ſome other denomination. Thus, if any other part except the head ſhould preſent, the labour would be *preternatural*; if it ſhould be prolonged beyond twenty-four hours it would be *difficult*; and if the circumſtances were ſuch as to require aſſiſtance, though the labour might be completed within one hour, it would be *anomalous,* or muſt be referred to ſome other claſs.

The preſentation of the head of the child conſtitutes an eſſential part of the definition of a natural labour; yet this may happen in various ways. The moſt common poſition of the head, and that in which it is expelled with the greateſt facility, is when the hind-head is diſpoſed to turn towards the *pubis* and the face towards the hollow of the *ſacrum*. But the face is ſometimes inclined towards the *oſſa pubis,* and the hind head towards the hollow of the *ſacrum*; or there may be an original preſentation of the face; or one or both arms may deſcend together with the head. Theſe differences in the poſition of the head do not conſtitute labours of another claſs; but they are to be conſidered

conſidered merely as varieties of natural labours, provided the other circumſtances correſpond; experience having fully proved, that, in any of theſe poſitions, the head may be expelled by the natural efforts with perfect ſafety to the mother and child, though not generally with ſuch eaſe and expedition as if the hind-head was turned towards the *pubis*. It muſt alſo be obſerved, though another part of the definition be taken from time, that it is poſſible for one woman to make greater efforts, and to undergo more pain, in two hours, than another may in twenty-four. Then the definition will be imperfect; as almoſt all general diſtinctions muſt be, when they come to be examined and tried by individual caſes.

A natural labour was the laſt thing well underſtood in the practice of midwifery, becauſe ſcientific men, not being formerly employed in the management of common labours, had no opportunity of making obſervations upon them. Practitioners were then engaged in qualifying themſelves for the manual exerciſe of their art, whenever they might be called in to give aſſiſtance, and not in making nice diſtinctions or inveſtigating the particular caſes, in which only it might be neceſſary to exerciſe it.

SECTION III.

We have before given an account of the changes which precede labours, and are now to give a detail of the ſymptoms which accompany them.

The firſt ſymptom which indicates a preſent labour is anxiety, or that diſtreſs which uſually ariſes from the apprehenſion of danger, or doubt of ſafety. This does not ſeem to be confined to the human ſpecies, but to be common to all creatures, as they univerſally ſhew ſigns of dejection and miſery at this time, though they ſuffer in ſilence; and even thoſe animals which are domeſticated ſtrive to

conceal themſelves, and refuſe all offers of aſſiſtance. This anxiety, which is probably occaſioned by the firſt changes made upon the *os uteri*, and by the conſent between the vital organs and that very irritable part, is often exceedingly increaſed by an original timidity of diſpoſition, eſpecially with firſt children; or by the diſcovery of untoward accidents happening to other women under the ſame circumſtances, with whom a ſimilarity of ſituation is the cauſe of a moſt intereſting ſympathy. From motives of humanity, as well as profeſſional propriety, it is therefore at theſe times neceſſary, by ſteady conduct, and by arguments ſuited to the patient's own notions, or the peculiar cauſe of her fears, to remove her apprehenſions; and, by ſoothing and encouraging language, and by attention to her complaints, though not indicatory of any danger, to afford her every conſolation in our power. This anxiety is greateſt in every woman in the beginning of labour, for the ſharp pains which attend its progreſs generally excite other ſentiments in her mind. But we are at all times to be on our guard, that her fears or ſupplications for relief do not prevail with us, to attempt to give aſſiſtance, when our interpoſition is not required, and when it muſt neceſſarily be productive of miſchief.

2. At the commencement of labour, and ſometimes on the return of every pain, women have frequently one or more *rigors*, with or without a ſenſe of actual cold in their inferior extremities, or of the whole body. Theſe are not to be conſidered as ſigns of the acceſſion of diſeaſe, but as the effects of an increaſed irritability ſpread through the whole frame; or perhaps as proofs, that all the powers of the conſtitution are ſummoned to contribute towards the important proceſs, which is carrying on. Theſe *rigors* are void of danger, and they are moſt apt to occur when the *os uteri* begins to dilate, and when it is upon the point of being fully dilated. But in the courſe of a labour, perhaps in all other reſpects natural, but more eſpecially in thoſe which are either difficult or very lingering,

lingering, when there is one ſtrong and diſtinct *rigor*, it is often followed by ſome diſeaſe, dangerous either to the mother or child.

3. When the head preſents, and ſcarcely in any other poſition of the child, women have generally ſome degree of ſtrangury in the latter part of pregnancy; and this ſymptom is increaſed on the approach of labour, by the preſſure of the deſcending head upon the *cervix* of the bladder. Should the preſſure be very great, or of long continuance, a ſuppreſſion of urine may be occaſioned before or in the time of labour. To prevent the inconveniencies, which might ariſe from a diſtention of the bladder, either to the part itſelf, or by obſtructing the paſſage of the head, it is neceſſary to urge the patient to void the urine frequently; and in caſe of a ſuppreſſion, to give relief by introducing the catheter. On the other hand, ſhould the preſſure by the head be made upon the *fundus* of the bladder, there will be an involuntary diſcharge of urine at the time of her enduring every pain; or, if there ſhould be any extraordinary agitation from a cough, or any ſimilar cauſe, before delivery, there will be the ſame conſequence, which is very diſagreeable and troubleſome, but not dangerous.

4. It is not unuſual for patients to have a *teneſmus*, or one or two, or more looſe ſtools in the beginning or courſe of a labour. Both theſe ſymptoms may be occaſioned by the conſent between the *os uteri* and the *ſphincter* of the *anus*, or by the preſſure made upon the *rectum*, as the head enters into or paſſeth through the *pelvis*. There is in the minds of all women a popular prejudice and unreaſonable dread of complaints in the bowels through every ſtage of pregnancy, parturition, and childbed; and of courſe there is never any objection, but, on the contrary, a willingneſs to uſe ſuch means as are adviſed to ſuppreſs them, or reſtrain any diſpoſition to a *diarrhœa*. The error has ariſen from their confounding the looſeneſs, which often accompanies the laſt ſtage of the puerperal fever, with

that which proceeds from any other cauſe. But the *diarrhœa* which attends the beginning or courſe of a labour is ſo far from occaſioning or from indicating any danger, that the patient is evidently relieved by it; a greater freedom being given to the action of the *uterus*, more room made for the paſſage of the child, and any feveriſh diſpoſition thereby removed or prevented. If, therefore, the patient ſhould not at that time have ſtools ſpontaneouſly, it is very ſound practice to direct one or more emollient clyſters for the beforementioned purpoſes. Nor are theſe the only good ends which are anſwered by clyſters; for they ſoothe and give a proper bent to the parts when too much or improperly irritated; and ſerve alſo as a fomentation, which, by its warmth and moiſture, may give or amend their diſpoſition to dilate. In very ſlow labours, when the head of the child has dwelt for a long time in one poſition, it is not unuſual for the patient to have one or more copious and looſe ſtools immediately before the advancement of the head, after which the labour is ſoon concluded.

5. The uncoloured mucous diſcharge from the *vagina*, which pretty generally occurs before labour, on its acceſſion is uſually tinged with blood, or a ſmall quantity of pure blood is diſcharged. This ſanguineous diſcharge, which varies in quantity and appearance in different women, is popularly called a *ſhew*, and it happens more particularly at two periods of a labour; when the *os uteri* begins to dilate, and when it is finally dilated. In the firſt inſtance it is probably occaſioned by the ſeparation of a few of thoſe veſſels, by which the membrane, which connects the *ovum* to the *uterus*, was originally bound; and in the ſecond by the effuſion of ſome blood before extravaſated in the ſubſtance of the *os uteri*; for this part in ſome caſes acquires an uncommon thickneſs from that cauſe, independent of any edematoſe or inflammatory tumefaction. In many caſes there is no coloured diſcharge in any period of a labour, and then the dilatation generally proceeds more ſlowly; for the diſcharge

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is not only a ſign, that the parts are in a ſtate diſpoſed to dilate, but it alſo improves that ſtate. It is not only in colour or quantity that there is found much difference, either in the ſanguineous or mucous diſcharge, but alſo in the conſiſtence and tenacity of the latter; it being in ſome caſes thin and watery, and in others thick and extremely viſcous.

6. But all theſe ſymptoms are not poſitive proofs of the exiſtence of labour; for we cannot conſider a woman as being in actual labour, unleſs ſhe has the uſual pains. Nor does all pain in the region of the *uterus* certainly prove that a woman is in labour, becauſe ſuch pain may be excited towards the concluſion of pregnancy by various cauſes beſides the action of the *uterus*. Theſe pains are therefore diſtinguiſhed into two kinds, *true* and *falſe*; but the ſeat, the manner, and the degree of theſe pains, often reſemble each other ſo nearly, that it is very difficult or impoſſible to diſtinguiſh them, unleſs by an examination *per vaginam*, or by waiting for the event.

The *true* pain of labour uſually begins in the loins, or lower part of the back, ſurrounds the *abdomen*, and terminates at the *pubes*, or upper part of the thighs; and it ſometimes obſerves a quite contrary direction. In ſome caſes the pain is confined to one particular ſpot, as the back, *abdomen*, thighs, or inferior extremities; in others the pain is ſeated in ſome part far diſtant from the *uterus*, as in the knees, heels, or feet. In ſome the ſtomach is affected; in others, though very rarely, the brain; and then convulſions, or ſome derangement of its functions, are brought on. In ſhort, the varieties of pain as well as its effects, are innumerable; and theſe have been explained by what we really do know, or fancy we know, of the influence of the nervous ſyſtem.

The pain attending a labour is periodical, with intervals of twenty, fifteen, ten, or five minutes, according to its progreſs, and as regular as the clock, but with a longer or ſhorter duration, according to the action of the *uterus*, on which it depends; and the more the pains

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are multiplied the better it is for the patient. For, if an effect of great importance to the conſtitution is to be produced, the more ſlowly it is made, provided the ſlowneſs of the progreſs does not depend on any morbid cauſe, the more gradual will be the change, and of courſe the danger, which ſudden violence might produce, will be avoided or leſſened; the diviſion of the pain being equal to the diminution, nearly in the ſame proportion as rapidity is an addition to force. It is an old obſervation, confirmed by daily experience, that, after the completion of ſlow or lingering labours, patients uſually recover better, than after thoſe which are quick; not to mention, that they are leſs liable to the untoward accidents which precipitation may immediately produce.

Thoſe who endure any kind of pain expreſs their ſuffering by ſome peculiarity of manner, or by ſome tone of voice, which to a nice obſerver will generally diſcover the part affected, together with the kind and degree of pain. Sharp pain is univerſally expreſſed by an interrupted and acute tone of voice; obtuſe pain by a continued and grave tone, unleſs the expreſſions are controlled by an acquired firmneſs of mind, which on particular occaſions may enable it to riſe above the infirmities of the body. The expreſſions of pain uttered by women in the act of parturition may be conſidered as complete indications of the ſtate of the proceſs, ſo that an experienced practitioner is often as fully maſter of the ſtate of his patient, if he hears her expreſſions, as by any mode of examination. He muſt however underſtand and make allowances for the peculiarities of different patients, or he will be deceived; becauſe in tender conſtitutions, the ſenſations being quick and the reſolution faint, the mode of expreſſion will be according to the ſenſe, and not in proportion to the degree of abſolute pain.

In the firſt ſtage of a labour the change conſiſts in the dilatation of the parts. Forcible or quick dilatation gives a ſenſation ſimilar to that produced by the infliction of a wound, and it is equally expreſſed

preſſed by an interrupted and acute tone of voice. Theſe are popularly called *cutting*, *grinding*, or *rending* pains. When the internal parts are dilated, and the child or contents of the *uterus* begin to deſcend, the patient is by her feelings obliged to make an involuntary effort to expel; and the expreſſions are then made with a continued and grave tone of voice, or ſhe is mute. Theſe are called *bearing* pains. But there is an intermediate period of a labour in which there is in the firſt inſtance ſome degree of dilatation, and afterwards an effort to expel; and then there will be the expreſſion which denotes ſharp pain, combined, or immediately ſucceeded by a graver tone of voice. When the child firſt begins to preſs upon and to dilate the external parts, the expreſſion becomes again acute and vehement; and, laſtly, the expulſion of the child is often accompanied with an outcry of ſuffering beyond what human nature appears able to bear; or the pain is endured with ſilence. The knowledge of theſe circumſtances, though apparently trifling and contingent, is really of ſome importance in practice, and permanent; as far, at leaſt, as the freedom or reſtraint of the breathing can operate. If, for example, on any principle the patient was induced, in the beginning of labour, to retain her breath, and to make ſtrong efforts to expel, the order of the labour would be inverted, as it would alſo be when the parts were dilated, and the expulſatory power wanted, if ſhe ſhould exclaim.

The pains of labour or childbirth, and the action of the *uterus*, are terms uſed ſynonymouſly; but they are not exactly the ſame thing. The action of the *uterus*, by which its contents are compreſſed into a leſs ſpace, and would be excluded if there was any opening for their paſſage, firſt takes place as a cauſe; and this does not ſeem to be attended with pain. When ſome part reſiſts the paſſage of the contents of the *uterus*, the excluſion of which is the effect to be produced, there will then be pain proportionate to the action, to the ſenſation of the reſiſting part, and the reſiſtance made. There

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is no way by which we can eſtimate the degree of force but by the reſiſtance; nor the reſiſtance but by the pain attending it; nor the pain but by the expreſſion. Judging by induction of the force exerted, by the expreſſion of the pain, we ſay in common language a weak pain, a ſtrong pain, or a woman is delivered by her pains; and the purpoſe of conveying our meaning is anſwered, though the expreſſions are not ſtrictly logical. We may ſuppoſe the parts, through which the child muſt paſs, ſo perfectly diſpoſed to dilate, that they would make little or no reſiſtance to the excluding force, and then a woman would be delivered with little or no pain. This obſervation will not only diſcover the reaſon of the great advantage obtained by a labour being ſlow and lingering; and why ſome women are delivered comparatively without pain; but, with this perfect diſpoſition to dilate, if the patient ſhould be aſleep when the action of the *uterus* came on, of the poſſibility of her being delivered before ſhe was quite awake.

In the converſation of thoſe who attend labours it is often ſurmiſed, that women have much unprofitable pain. This ſtatement is not only unfair as to the fact, but the language is very diſpiriting; and it is often aſſigned as a reaſon for an interpoſition altogether unneceſſary, and often injurious to the mother or child. No perſon in labour ever had a pain depending on her labour, which was in vain. It may not be equal to the accompliſhment of the effect we want, or at the time we wiſh, but every pain muſt have its uſe, as preparatory to, or abſolutely promoting, the effect; and, as we are not able to comprehend every poſſible cauſe of every ſtate, by endeavouring to remove what appears to be one ſlight ill, it often happens that we occaſion many, and thoſe of greater conſequence.

Though the pains of labour return periodically, the intervals between them are of different continuance. In the beginning the pains are uſually ſlight in their degree, and have long intervals; but as the labour advances they become more violent, and the intervals

are ſhorter. Sometimes the pains are alternately ſtrong and weak, or two feeble and one ſtrong; and there is reaſon to think, that every variety has its advantage, by being ſuited to the apparent or real internal ſtate of every individual patient. In every circumſtance, which relates to natural parturition, it is impoſſible not to ſee, and not to admire, the wiſdom and goodneſs of Providence, in ordaining the power, and fitting the exertion to the neceſſities of the ſituation, with a marked reſpect to the ſafety both of the mother and child. This perfect coincidence between the cauſe and effect ſhould afford a leſſon of patience to thoſe perſons, who when in labour become intractable, and, by loſing their ſelf-poſſeſſion, add to the unavoidable evils of their ſituation; and to thoſe practitioners, who, being led away by popular errors, aim to add to the ſtrength of the pains, or to quicken their returns, and act as if they thought there was no other evil but that of a ſlow labour; an opinion which in its conſequence has done more miſchief than the moſt ſkilful practice ever did good.

SECTION IV.

THOUGH it was ſaid, that pain was, properly ſpeaking, a conſtituent part of a labour, it was alſo obſerved, that all pain in the region of the *uterus*, though periodical in its returns, was not a poſitive proof of the exiſtence of a labour. For whatever diſturbance is raiſed in the conſtitution, eſpecially in thoſe parts connected or readily conſenting with the *uterus*, or with which the *uterus* may reciprocally conſent, towards the concluſion of pregnancy, it is very apt to induce the ſymptoms of labour, in a manner which makes it difficult to diſtinguiſh between *true* and *falſe* pain. Yet the good of the patient, as far as relates to the proper conduct of the enſuing labour, may depend upon the juſtneſs of the diſtinction; for if the

pain, which is *falſe*, be encouraged or permitted to continue, the action of the *uterus* would follow, and premature labour be occaſioned.

The cauſes of falſe pain are various; as fatigue of any kind, eſpecially too long ſtanding; ſudden and violent motions of the body; coſtiveneſs, or a *diarrhœa*; general feveriſh diſpoſition; agitation of the mind, and a ſpaſmodic action of the *abdominal* muſcles. Very frequently alſo the irregular and ſtrong movements of the child, in irritable conſtitutions, occaſion pains like thoſe ariſing from the action of the *uterus* at the time of labour. In ſome caſes there is ſuch a cloſe reſemblance between the *true* and *falſe* pains, that they cannot be diſtinguiſhed without an examination *per vaginam*. If, during the continuance of a pain, no preſſure upon, or dilatation of, the *os uteri* can be perceived, we may conclude that the pain is not the conſequence of the action of the *uterus*; and whatever likeneſs it may have, that it is not *true* pain. But if there ſhould be preſſure upon, or dilatation of, the *os uteri* during the continuance of the pain, we may conſider it as proceeding from the action of the *uterus*, and be perſuaded that the patient is really in labour. In a few caſes, I have known the action of the abdominal muſcles ſo regular and ſtrong, that the whole volume of the *uterus* has been heaved up and down alternately, in ſuch a manner, that it was ſcarcely poſſible to diſtinguiſh between this ſtrange ſuccuſſion and the proper action of the *uterus*.

The means to be uſed for the relief of *falſe* pain muſt be guided by the cauſe. When it is occaſioned by fatigue of any kind, immediate eaſe will often be gained by a ſhort confinement in an horizontal poſition. In plethoric habits, or with a feveriſh diſpoſition, it will be neceſſary to take away ſome blood; and, when the patient is coſtive, to procure ſtools by emollient clyſters or gently opening medicines. In every caſe, when means adapted to the apparent cauſe have been uſed, it will be proper to give an opiate

proportioned to the degree of pain, or to repeat it in ſmall quantities at proper intervals, till the patient ſhall be compoſed.

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SECTION V.

It has been thought equally incumbent upon the practitioner to promote the power and effect of *true* pain, as it was to quiet that which was *falſe*. This opinion is perhaps more univerſally popular than any other throughout medicine; and having infected the minds of practitioners, it has been as injurious as general. From this ſource may be traced the opinion of the neceſſity, and the abominable cuſtom of giving aſſiſtance as it is called, by dilating the internal and external parts artificially; of giving hot and cordial nouriſhment during labour, even in plethoric habits and feveriſh diſpoſitions, by which the nature of the principle which ſhould actuate the *uterus* is changed, the pains are rendered diſorderly and imperfect, and the foundation of future miſchief and difficulties, in one form or other, invariably laid. Hence alſo was derived the doctrine of the neceſſity of patients helping themſelves, as it is called, by urging with all the voluntary force they are able to exert beyond the dictates of nature; as if a labour was a trick to be learned, and not a regular proceſs of the conſtitution. Women ſhould be informed, that the beſt ſtate of mind they can be in at the time of labour is that of ſubmiſſion to the neceſſities of their ſituation; that thoſe who are moſt patient actually ſuffer the leaſt; that, if they are reſigned to their pains, it is impoſſible for them to do wrong; and that attention is far more frequently required to prevent hurry, than to forward a labour. In every thing which relates to the act of parturition, Nature, not diſturbed by diſeaſe, and unmoleſted by interruption, is fully competent to accompliſh her own purpoſe; ſhe may be truly ſaid to diſdain and to abhor aſſiſtance.

Inſtead, therefore, of deſpairing, and thinking they are abandoned in the hour of their diſtreſs, all women ſhould believe, and find comfort in the reflection, that they are at thoſe times under the peculiar care of Providence; and that their ſafety in childbirth is enſured by more numerous and powerful reſources, than under any other circumſtances, though to appearance leſs dangerous.

SECTION VI.

In order to give a full and diſtinct view of a natural labour, it is expedient to divide the proceſs into three periods or ſtages. In the firſt will be included all the circumſtances which occur, and all the changes made, from the commencement of the labour to the complete dilatation of the *os uteri*, the rupture of the membranes, and the diſcharge of the waters; in the ſecond, thoſe which occur between that time and the expulſion of the child; and in the third, all the circumſtances which relate to the ſeparation and excluſion of the *placenta*.

In the beginning of labour the *os uteri* is found in very different ſtates in different women. In ſome it is extremely thin, and in others of conſiderable thickneſs; in ſome it is rigid and cloſely contracted, but in others it is much relaxed, and ſomewhat opened for ſeveral days, or even weeks, previous to the acceſſion of labour. In ſome caſes the *os uteri* remains ſo high, that it can with difficulty be reached, in the centre of the ſuperior aperture of the *pelvis*, projected backwards or on either ſide; whilſt in others it is ſpread thin, and preſſed very low before it begins to dilate. There is, in ſhort, every variety of ſtate and poſition, which a part conſtructed and connected like the *os uteri* can be thought capable of undergoing.

The firſt part of the dilatation is generally made very ſlowly, the action of the *uterus*, on which it depends, being feeble in its power,

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and ſlow in its returns; but the more perfect the ſtate of relaxation is, with the greater facility the dilatation will of courſe be made. This is at firſt effected by the ſimple preſſure of the contents of the *uterus* upon the *os uteri*; but when the dilatation is made to a certain degree, the membranes containing the waters of the *ovum* are inſinuated within the circle of the opening *os uteri*, and form a ſoft pillow, which, at the time of every pain, acting upon the principle of a wedge, operates with increaſing force according to the ſize it acquires; in conſequence of which the latter part of the dilatation uſually proceeds with more expedition than the former, unleſs the membrane containing the waters be previouſly ruptured.

There is no poſſibility of prognoſticating how long a time may be required for the complete dilatation of the *os uteri* in any individual caſe; yet a tolerable conjecture, ſubject however to many deviations, may be formed by a perſon who has had much experience. If, for example, after the continuance of the pains for three hours the *os uteri* ſhould be dilated to the ſize of one inch; then two hours will be required for dilating it to two inches; and three hours more will be neceſſary for dilating it completely, provided the action of the *uterus* ſhould proceed with regularity and with equivalent ſtrength. But in ſome caſes the *os uteri* will abide in nearly the ſame ſtate for ſeveral hours; yet when the dilatation begins, it will ſoon be perfected. In others, after a certain degree of progreſs, the action of the *uterus* will be ſuſpended for many hours, and then return with great vigour; ſo that all which could be ſaid on this ſubject would in fact be conjecture.

With firſt children this ſtage often makes the moſt tedious and important part of a labour, both on account of the time requiſite for completing the dilatation of the *os uteri*, and becauſe the accompanying pain is more ſharp and harder to bear, than that which is attended with the effort to expel; which never fails to inſpire the patient with the hope of being ſoon freed from the miſery which

ſhe

ſhe endures. When the parts are to our apprehenſion in the ſame ſtate, there will be a wonderful difference in the manner of, and the time required for, their dilatation, in firſt and ſubſequent children. There might be much difficulty in exploring and aſcertaining the cauſe of this difference: but we may preſume, that a part which is accuſtomed to perform an office, or undergo a change, acquires a diſpoſition to the office or change, according to the number of times it has performed that office, or undergone that change. Something of the kind may be obſerved in new-born infants, in which there is often a tardineſs in executing what may be conſidered as the common functions of the body.

As a labour advances, the intervals between the pains become ſhorter, and their force is increaſed. At the time of each pain the patient is reſtleſs, and ſolicitous for the event; but when it ceaſes, by a happy oblivion, ſhe ſoon forgets it, and is unmindful of its return. In ſome conſtitutions the labour, inſtead of adding to the irritability of the habit, and exciting its powers to action, occaſions a degree of inſenſibility; or the patient falls into a ſound ſleep the moment the pain begins to abate, from which ſhe is awakened by its return. In others, the power exerted by the *uterus*, aided by that of the abdominal muſcles and diaphragm, being inſufficient for the purpoſe of dilating the *os uteri*, or that part becoming unuſually irritable by the frequent impreſſions made upon it; then by its conſent with the ſtomach, extreme ſickneſs or vomiting is brought on, ſometimes after every pain, by which the labour is very much forwarded; one fit of vomiting, according to popular obſervation, doing more ſervice than ſeveral pains, partly by the increaſed preſſure, and partly by the ſucceeding relaxation. But when the *os uteri* is dilated patients have very ſeldom an inclination to vomit from any natural cauſe. Vomiting very often attends the paſſage of a ſtone through the *ureters*, or the *gall-ducts*, from the ſame cauſe, and with the ſame effect.

By

By regular returns of pain, or with the varieties before mentioned, with many others which it is impoſſible to enumerate, the *os uteri* becomes at length wholly dilated. Whether a ſhort or a long time be required for this purpoſe, it is the duty of the practitioner to abſtain from interfering in this part of the proceſs. It may ſometimes be neceſſary to pretend to aſſiſt, with the intention of giving confidence to the patient, or compoſing her mind. But all artificial interpoſition contributes to retard the event ſo impatiently expected, by changing the nature of the irritation and the action thereon depending; or does miſchief by inflaming the parts, and rendering them leſs diſpoſed to dilate; in ſhort, by occaſioning either preſent diſorder or future diſeaſe. For theſe reaſons we muſt be firm, and reſolved to withſtand the entreaties which the diſtreſs of the patient may urge her to make, as we muſt alſo the dictates of vehemence and ignorance in the byſtanders. Others may be impatient, but we muſt poſſeſs ourſelves, and act upon principle. The event will juſtify our conduct; and, though there may be temporary diſlike and blame, if we do what is right, there will be permanent favour and reputation.

During the continuance of a pain the membranes containing the waters are turgid, preſſed upon, and within the circle of the *os uteri*, according to the ſtrength of each pain, by which the further dilatation is promoted; but in the abſence of a pain the membranes become flaccid, and ſeem to be empty. Theſe different ſtates of the membranes are readily explained by the obſervations before made, by our knowing that when the *uterus* is in action its cavity is leſſened, and of courſe its contents are compreſſed; but on the ceſſation of the action the cavity of the *uterus* is again enlarged, and the compreſſion removed. Hence it becomes neceſſary, when an examination *per vaginam* is made during the time of a pain, that we ſhould be cautious not to break the membranes; and if any accurate inveſtigation be needful, either of the ſtate of the parts or of the

poſition

poſition of the child, that it ought to be made in the interval between the pains, or protracted till the pain has ceaſed.

In a ſhort time after the *os uteri* is wholly dilated, the membranes are uſually ruptured by the force of the pains, and the waters of the *ovum* are diſcharged in one large guſh or ſtream. But in many caſes the membranes break ſpontaneouſly long before this period, without any material inconvenience. In ſome they are not ruptured when the dilatation of the *os uteri* is completed, but are protruded by each ſucceſſive pain lower down into the *vagina*, and then within the *os externum*, which they alſo dilate; and at length a ſmall bag of water is formed without the *os externum*, which can ſerve no farther purpoſe.

It is a commonly received opinion among the lower claſs of people, that the child ſhould be born ſpeedily after the rupture of the membranes and the diſcharge of the waters. This opinion is not founded on prejudice, but on ſound obſervation; and was probably firſt entertained by thoſe who were engaged in the care of breeding cattle, in which this is the order and uſual courſe of parturition: and I believe it would more frequently happen in the human ſpecies, if the progreſs of the labour were not by ſome means or other diſturbed or interrupted. But it has been a cuſtom, which at the preſent time is not unfrequent with practitioners, urged by the diſtreſs and ſuffering of thoſe whom they are attending, or by the concern of friends, or by a perſuaſion of its propriety and advantage, and ſometimes perhaps by their own impatience, to break the membranes before the *os uteri* is dilated. If theſe are ruptured ſpontaneouſly or artificially before the *os uteri* is dilated, the child cannot poſſibly follow immediately; and all that is gained is by bringing the head of the child, inſtead of the membranes containing the waters, into contact with the *os uteri*. This cannot be conſidered as any advantage, as it changes a very ſoft and accommodating medium, provided by Nature for the purpoſe of preventing

any undue violence upon a very tender part, for the hard and unaccommodating head of the child. Nor is this the only ill conſequence which follows: by ſuch proceeding we occaſion a general derangement of the order of the labour, which is never done with impunity, as it may afterwards become the cauſe of a laceration of the external parts, or even of an unfavourable ſeparation of the *placenta*. Moreover, by this premature rupture of the membranes, we often defeat our own purpoſe; and, by diſturbing, protract inſtead of haſten the labour. We will therefore agree in eſtabliſhing it as a general rule for our own conduct, that the membranes ſhall never be ruptured artificially, at leaſt before the *os uteri* is fully dilated, and be perſuaded that it is afterwards unneceſſary, unleſs there ſhould be ſome cauſe more important than the mere delay of a labour, or ſome reaſon of more weight than thoſe which have been commonly aſſigned.

SECTION VII.

In the ſecond period or ſtage of a labour will be included all the circumſtances attending the deſcent of the child; the dilatation of the external parts; and the final expulſion of the child.

Notwithſtanding the definition of a natural labour, which was before given, it is not to be conſidered as a proceſs going on in one unvarying line, nor is every aberration to be thought of ſufficient importance to conſtitute a labour of another claſs. In this reſpect the definition of a labour may be compared to that of health, which, however correct in general, would not correſpond in all points with the ſtate of any individual perſon, if ſubmitted to a critical examination. In like manner, though a labour cannot come under the denomination of *natural*, without the three diſtinguiſhing features, yet we may probably never meet with any two labours in

every reſpect exactly ſimilar. There are perhaps more frequent deviations in the firſt ſtage of a labour, than in any other, both with regard to the time and the manner in which the *os uteri* is dilated. Nor is the firſt ſtage concluded either by the dilatation of the *os uteri*, nor by the rupture of the membranes and the diſcharge of the waters, but by the concurrence of theſe circumſtances; and the farther the labour is advanced before the membranes break, the better it afterwards terminates. For, before that event, there is leſs violence done to the mother, and leſs ſtreſs upon the parts; becauſe, without much ſuffering, they every moment acquire a better diſpoſition to dilate; and, till that has happened, whatever may be its poſition, the child undergoing no compreſſion is free from all chance of injury.

When the membranes break, if the *os uteri* be fully dilated, the child, though reſting at the ſuperior aperture of the *pelvis*, either ſinks by its own gravity, if the patient be in an erect poſition, or is propelled by a continuance of the ſame pain by which they were broken; or, after a ſhort reſpite, the action of the *uterus* returns, and the head of the child is ſoon brought ſo low down as to preſs upon the external parts; properly ſpeaking, upon the internal ſurface of the *perinæum*. In its paſſage through the *pelvis*, the head of the child, which at the ſuperior aperture was placed with one ear to the *oſſa pubis* and the other to the *ſacrum*, or with different degrees of diagonal direction, undergoes various changes of poſition, by which it is adapted to the form of each part of the *pelvis*, with more or leſs readineſs, according to its ſize, the degree of its oſſification, and the force of the pains. With all theſe changes, whether produced eaſily or tediouſly, in one or in many hours, the practitioner ſhould on no account interfere, provided the labour be *natural*. If he attempts to correct and to regulate every ſlight deviation, or uſes any artificial means for haſtening the proceſs, the events of his practice will convince him, that he has exerciſed his art

on unneceſſary and improper occaſions. He will moreover be taught, though he may acquire momentary approbation by endeavouring to remove every little preſent inconvenience, that diſeaſes then far diſtant will be attributed to his miſconduct, and ſometimes not without reaſon. In this ſtate and kind of labour he may with confidence rely upon the powers and reſources of the conſtitution, which will produce their effect with leſs injury either to the mother or child, and with more propriety than can be done by the moſt dexterous human ſkill.

The external parts yield in a ſhorter or longer time, and with more or leſs eaſe, according to their natural rigidity, the degree of diſpoſition to dilate which they have aſſumed during the labour, the force and frequency of the pains, and the number of children which the patient has before had. But the prevention of any injury to the mother when the child is paſſing through the external parts being eſteemed a circumſtance wholly depending upon the care of the practitioner, this part of our ſubject deſerves a ſeparate and particular inquiry.

SECTION VIII.

When the head of the child firſt begins to preſs upon and dilate the external parts, every pain may be ſuffered to produce its full and natural effect, without the hazard of miſchief; but when a part of the head is inſinuated between them, and the anterior edge of the *perinæum* is upon the ſtretch, they are liable to be injured by the violence of the diſtention. Any of theſe parts may be injured; but the *perinæum* in particular is ſubject to a laceration, which may not only extend ſo far as to occaſion much preſent uneaſineſs, but ſometimes very deplorable conſequences for the remainder of the patient's life. It is therefore our duty to inquire into the merits of the different methods which have been recommended for the

prevention of this accident, more eſpecially as it admits of very imperfect relief when it has happened.

Yet it is very remarkable, that none of the ancient writers* either adviſe any method by which this accident may be prevented, or any means to be uſed for its relief, excepting ſuch as were generally recommended for inflamed, ulcerated, or fiſtulous parts. We may therefore preſume, that it is an accident which did not frequently occur in their practice, or that it was eſteemed of too little conſequence to engage their attention. With reſpect to the former opinion, it may be obſerved, that whatever event is the conſequence of any cauſe, it muſt at all times be produced under the ſame circumſtances, if that cauſe continues to exiſt and to act. But thoſe who perhaps had not perfection in view, and formed no very nice rule for their own conduct, might not be ſenſible of, or pay due attention to, the deviations or accidents which occurred, and would not adjudge diſagreeable conſequences to their own error or miſmanagement. They did not therefore adviſe any method of preventing this accident, becauſe they were ignorant of the cauſe, or they undervalued it.

It may be further obſerved, that the oldeſt writers in midwifery lived before the Chriſtian religion was eſtabliſhed, and in countries in which polygamy was allowed; when the death or infirmity of one wife was comparatively of little importance to him who had many, equally, or in ſome degree, dividing or partaking of his affection. But on the eſtabliſhment of the Chriſtian religion, by which the ſelfiſh and bad diſpoſitions of the human mind were intended to be reſtrained or corrected, and its better qualities exalted, one wife only being allowed to one man, and ſhe being

* In the works of *Eros*, who lived in the 15th century, and which were publiſhed by *Spachius*, this accident is firſt mentioned, and an awkward method of preventing it is recommended.

ſuppoſed

ſuppoſed to poſſeſs the entire affections of her huſband, every diſeaſe or infirmity, which might render her perſon leſs agreeable to him, became of infinite conſequence to their mutual happineſs. Thoſe only who in the preſent ſtate of ſociety have had an opportunity of ſeeing the many evils, which flow from this alienation of affection, the cauſe being perhaps unknown to the parties themſelves, can be ſufficiently aware of the importance of this and many other accidents and diſeaſes, to which women are ſubject; and which are often neglected and diſregarded, becauſe they are not attended with immediate danger.

Still the queſtion remains to be decided, whether women are by any peculiarity of conſtruction naturally or neceſſarily ſubject to a laceration of the *perinæum*; or whether this accident be the conſequence of erroneous opinions, and of alterations in the frame, occaſioned by the peculiar manners of ſociety; or of any adventitious circumſtance whatever, at the time of delivery. It was before obſerved *, that none of the claſſes of animals are liable to a laceration of the *perinæum*, except when extraordinary aſſiſtance is given in caſes of otherwiſe inſuperable difficulty; and it is well known, that the laceration in any degree does not univerſally, or perhaps generally, happen to thoſe women, who are delivered before proper aſſiſtance can be given. It is alſo to be remarked, that, as far as relates to the ſtate of all the internal parts, the changes which they undergo at the time of parturition are not only effectually, but moſt ſafely produced by the natural diſpoſition aſſumed by the parts, or the inſtinctive efforts of the parent. From a general ſurvey of the wiſdom, order, and benignity, ſo clearly apparent in all the deſigns of Providence, in every circumſtance particularly which relates to the propagation of the different ſpecies of animals, and the co-aptation as it were, of that wiſdom to the neceſſities of thoſe of every

* See *Chap.* II. *Sect.* VI.

kind,

kind, we might perhaps be juſtified in making this general concluſion, that women, in every circumſtance which relates to their ſafety and well-doing in natural parturition, are not left in a more deſtitute ſtate than animals: for though it were proved, that women are liable to greater natural evils and difficulties in parturition than animals, the proofs of theſe would equally ſatisfy our minds, that they are alſo provided by nature with many peculiar reſources, and with powers which are, in general, limited only by the degree of the difficulties which require their exertion.

Nevertheleſs, from the frequency of the laceration of the *perinæum*, when women are delivered without aſſiſtance, and from the difficulty with which it is ſometimes prevented, when the moſt judicious and ſkilful aſſiſtance is given, it is believed by many, that women muſt often be unavoidably ſubject to it, and that the prevention muſt ever remain an object of human ſkill. Now with reſpect to the firſt ſtatement, that of the laceration happening when women are delivered without aſſiſtance, it does not follow that it is inevitable; for even then it may be the production of error in the patient herſelf, or her friends. Becauſe, from the hurry and ſolicitude of their minds, and even by their fears, ſhe may have been encouraged to make great voluntary efforts, when the head of the child was on the point of coming into the world, merely becauſe ſhe was not aſſiſted; or, after the expulſion of the head, inſtead of waiting for the body to be expelled alſo, ſome officious perſon preſumed to extract it without regard to time, or the direction of the *vagina*. As to the difficulty or impoſſibility of preventing the laceration in ſome caſes, we are to conſider, that what may happen in a ſtate of ſociety, might not have happened in a ſtate of nature; that the foundation of the accident may have been laid by ſomething done in the preceding ſtage of the labour; and that it may be very much doubted, whether ſome of the methods practiſed for

for the prevention may not in fact have been the cauſe of the accident.

But the conduct of the practitioner is not to be guided by reflections on what his patients might do or bear, with conſtitutions healthy and firm, and with minds untainted with prejudices; but by due conſideration of what they are *now* capable of doing or bearing: and he muſt adapt his rules and his practice to the ſtate in which he actually finds them. From ſome natural or adventitious cauſe the laceration of the *perinæum* to a certain degree certainly does often unavoidably happen; but as ſo much of the future happineſs of a woman may depend upon its prevention, we will grant, what in many caſes ſeems true, that it is always to be prevented by our ſkill and care; as no harm can ariſe from the opinion, though erroneous, if the aſſiſtance we afford be judiciouſly given. In the beginning of a labour, eſpecially with firſt children, it is not unuſual to find the external parts cloſely contracted, and void of all diſpoſition to dilate: yet in the courſe of a few hours, even when they have undergone no kind of preſſure or diſtention, but merely by a diſpoſition aſſumed from their conſent with the internal parts, they become relaxed and ſoft. The longer the time therefore which paſſes between the commencement of a labour and the birth of the child, the leſs liable to a laceration will the *perinæum* be; for it is ſcarcely ever lacerated in a very ſlow labour, whatever may be the ſize of the child. But if it was poſſible to hurry a labour in ſuch a manner, that the head of the child ſhould be brought into contact with, and preſſed forcibly upon, the external parts, before they had acquired the diſpoſition to dilate, they would be univerſally torn, unleſs the accident were prevented by art: and the chance of the accident would be according to the degree of precipitation, and perhaps many hours after the act, by which the labour was hurried, was forgotten.

When the head of the child is inſinuated within the external parts,

parts, if theſe do not eaſily yield to the occaſion, it has been cuſtomary to dilate them artificially, under the idea of preparing them, to allow of the more ſpeedy paſſage of the head. During every pain, it is obvious that the parts undergo as much diſtention as they are capable of bearing without injury; and this preparation, as it is called, leſſening in fact the native diſpoſition to dilate, irritating, and cauſing alſo an additional ſtreſs upon them, nothing is more clear than that this method of proceeding contributes to their laceration. All artificial dilatation of the parts, all attempts to ſlide the *perinæum* over the head of the child ſpeedily, are therefore to be forborne and avoided as pernicious.

When the external parts are very rigid, we have been taught, that it is of great ſervice to anoint them frequently and unſparingly with ſome unctuous application, with the intention of giving or improving that diſpoſition to dilate, which is wanting. If the parts are clothed with their proper *mucus*, as by the uſe of any application in the manner adviſed, that would be abſterged, we ſhall afterwards find ointments of any kind a very poor ſubſtitute for that *mucus*, and that there is little profit from their uſe, under any circumſtances. But if the parts, from any cauſe, ſhould become heated and dry, after the application of flannels wrung out of warm water, ſome ſoft and ſimple ointment may be ſerviceable, by abating their heat, giving them a diſpoſition to ſecrete their proper *mucus*, and of courſe favouring their dilatation.

In ſome conſtitutions the different parts concerned are not equally inclined to dilate. Sometimes the internal parts dilate in the moſt kindly manner, when the external are in a contrary ſtate; and ſometimes the internal are very rigid, when the external parts have the greateſt aptitude to dilate, yielding to the firſt impulſe of the head. There is in all infinitely more difficulty with the firſt than with ſubſequent children, not from rigidity only, but, if we may be allowed the expreſſion, from ignorance how to dilate; and from a certain

degree

degree of re-action evidently perceived in the parts during the continuance of every pain. It is therefore often obſerved, that the head of the child advances more, and with greater ſafety, when the violence of a pain begins to abate, becauſe the re-action of the parts is not then ſo ſtrong, as while the pain continues in full force.

During a pain there is often reaſon to expect, that the head of the child would be excluded; but the moment the pain declines the head is retracted a conſiderable way into the *vagina*, and the external parts cloſe again. No other inconvenience ariſes from this cauſe than a little prolongation of the labour, which may be irkſome, but cannot be injurious. If the parts do not diſtend favourably, ſhould the head of the child abide within them in the abſence of a pain, it may be expedient to repel it in imitation of this natural occurrence, for the purpoſe of preventing the laceration.

When the head of the child is every moment expected to paſs through the external parts, we have been adviſed by ſome, to forward the emergence of the head from under the arch of the *pubes*. Others have on the contrary aſſured us, that it is more eligible to prevent, for a certain time, this emergence, by which means not only time is given for the parts to dilate, but the head of the child is brought to paſs through them in its ſmalleſt *axis*, and leſs diſtention is thereby occaſioned. Whoever has reflected upon this ſubject would heſitate as much to believe, that, in the general diſpenſation of Providence, it ſhould have been left to human ſkill, to guide the head of the child at the time of birth in a direction different from that in which it moſt commonly preſents, as that it could have been intended for the generality of children to have been brought into the world by inſtruments, or by any human invention. As far as my experience enables me to judge, neither of theſe methods ought to be followed, nor any other which requires a complication of artifice; for, after a trial of them all, perhaps not very juſtifiably, I am convinced, that the moſt effectual method of preventing a laceration, or any injury to the

parts, is to be founded on the ſingle principle of retarding, for a certain time, the paſſage of the head of the child through them. This retarding may depend on the compoſure of the patient, and the ſkill of the practitioner; and thoſe errors, of which the former might be guilty, the latter muſt endeavour to obviate and correct*.

When the head of the child is nearly born, the effort to expel is made inſtinctively, and it is uſually vehement, the breath being retained for the purpoſe of ſtrengthening that effort. The patient may alſo, from a perſuaſion of its being neceſſary and proper, or at the inſtance of her friends, ſtrive with much voluntary exertion to add to the force of the pain, for the purpoſe of expelling the child more ſpeedily. If we preſume, that the danger of injuring the parts depends chiefly upon the rapidity with which the head may be expelled, and that theſe are only able to bear without injury ſo much diſtention as is occaſioned by the inſtinctive efforts, then all the additional voluntary force is beyond what is either needful or ſafe †. It is therefore requiſite that we ſhould do away this voluntary force, by convincing the patient of its impropriety, and diſſuading her from exerting herſelf; or leſſen at leaſt the voluntary effort, by urging her to talk or cry out during the time of a pain, which will prevent her from retaining her breath; or, if her ſufferings are ſo great that ſhe cannot command her own actions, then the efforts ſhe makes muſt be reſiſted on our part by the application of ſome equivalent force, in the manner we ſhall ſoon conſider. When the patient has been outrageous, and the danger of a laceration very great, I have ſometimes gained a reſpite by telling her ſuddenly, in the height of a pain, that the child was already born.

* The greateſt degree of laceration, which ever occurred to me, was occaſioned by the patient ſuddenly withdrawing herſelf out of my reach, beyond the poſſibility of my giving any aſſiſtance, or ſupporting the part at the inſtant when the head of the child paſſed over the *perinæum*; an accident againſt which I ſhould have been guarded.

† See *Chap.* II. *Sec.* VI.

Every

Every thinking man will endeavour to carry the principles he has conſidered and approved in his remembrance, through the whole courſe of his practice; but the methods by which his principles are purſued muſt be carefully ſuited to the particular exigences of every individual caſe. Yet when principles are acquired, there muſt always be conſiderable difficulty in applying them to practice; for it is not unuſual to ſee them at variance in medicine as well as morality. In the ſubject of which we are now ſpeaking there is a number of little circumſtances, the knowledge of which can only be learned by experience, yet for theſe we ſhould be prepared by reflection, when they occur in practice. But it will generally be ſufficient for the operator to reſiſt the progreſs of the head of the child, during the time of a pain, by placing upon it the fingers and thumb of the right hand, ſo formed that they may bear upon many points; or, to apply the balls of one or both of the thumbs in ſuch a manner that they ſhall at the ſame time ſupport the *fourchette*, or thin edge of the *perinæum*. But in firſt children, when, from the vehemence of the patient, the ſtrength of the pains, and the rigid ſtate of the parts, there is great reaſon to apprehend a laceration of the *perinæum*, then, occaſionally calling in the other means to our aid, we ſhall be able to give the moſt powerful and effectual ſupport, by applying the palm of the left hand, covered with a ſoft cloth, over the whole temporary* and natural *perinæum*, and the right-hand employed as was before mentioned, with a force competent to reſiſt the exertions of the patient during the violence of the pain. In this way we are to proceed, till the parts are ſufficiently dilated, when the head may be permitted to ſlide through them in the ſloweſt and gentleſt manner; and we are never to quit our attention, till it is perfectly cleared of the *perinæum*. Should there be any delay or awkwardneſs when the *perinæum* ſlides over the face, the fore-finger of the right-hand muſt be paſſed under its la-

* See *Chap.* II. *Sec.* VI.

teral edge, by which it may be cleared of the mouth or chin, before the ſupport given by the left-hand is withdrawn. When the pains are exceedingly ſtrong, and the patient reſtleſs in her efforts, the head will ſometimes be expelled with wonderful velocity, in oppoſition to all the reſiſtance we are able to make; but by this calm and ſteady proceeding we may be aſſured that we ſhall, under all circumſtances, wholly prevent, or greatly leſſen, all the evils to which ſhe would have been liable, if our conduct had been different.

It is neceſſary to obſerve, that theſe attempts to prevent the laceration of the *perinæum* produce ſome effect upon the head of the child, and upon the parts of the mother. In the application, therefore, of the reſiſting force, we muſt not only be careful, that the poſition of the patient is proper, and ſuch as will allow us to act with advantage, but that we do not make any injurious or partial preſſure; becauſe, if a partial ſupport be given to the *perinæum*, the head of the child is projected againſt an unſupported part, and the danger of a laceration is increaſed. The ſupport muſt be equally applied, and uniformly exerted, during the time of every pain; and then there will be no greater prejudice done by the preſſure we make, than what might have been occaſioned by the mere rigidity of the parts.

When the head of the child is expelled, perhaps the conſequences of an inſtant tranſition from extreme miſery to total freedom from pain, and to poſitive joy, are in no caſe, to which human nature is ſubject, more conſpicuous and intereſting, though the delivery be not completed. It was formerly ſuppoſed neceſſary for the practitioner to extract the body of the child, immediately after the expulſion of the head, leſt it ſhould be deſtroyed by confinement in this untoward poſition. But experience has not only proved, that the child is not on that account in any particular danger, but that it is really ſafer and better, both for the mother and child, to wait for the return of the pains, by which it will ſoon be expelled; and a more favourable excluſion of the *placenta* will alſo by this means be obtained. In the

courſe

courſe of a few minutes after the expulſion of the head, the action of the *uterus* returning, the ſhoulders of the child advance, and the external parts of the mother being again brought upon the ſtretch, the practitioner muſt place the fingers of his right-hand on each ſide of the neck, and at the ſame time with the left ſupport the *perinæum* with as much circumſpection as when the head was expelled; he muſt then conduct the body ſlowly in the direction of the *vagina*, till it is wholly extricated, though two or three pains are ſometimes required for the expulſion of the ſhoulders of the child, after the head is born.

The child is to be placed in ſuch a ſituation, that the external air may have free acceſs to its mouth, its head being covered; care being then taken of the mother, we muſt proceed to tie the navel-ſtring in the manner recommended in the next ſection.

SECTION IX.

THE operation of tying and cutting the navel-ſtring when the child is born, though in itſelf of no great importance, was formerly thought to require ſo much ſkill and judgment, as to give a profeſſional name to thoſe, who are now called practitioners in midwifery. But every thing which relates to the treatment of the mother or child is of ſome conſequence; and even in trifling matters there is a propriety of manner, the want of which may leſſen the eſtimation of every perſon's character.

It ſeems to have been a practice with the ancients, to wait for a certain time after the birth of the child for the excluſion of the *placenta*, before the navel-ſtring was tied or divided; and if the child was born apparently dead, or in a very feeble ſtate, the *placenta*, when expelled, was laid upon its belly, as a reſtoring, or comforting application. When the child revived but ſlowly, or when the ſigns of life declined,

declined, it became a cuſtom to lay the *placenta* on hot embers *, or to immerſe it in hot wine; and the heat thereby conveyed was ſuppoſed to ſtimulate the weak or decaying powers of life to more vigorous action. It has ſince been the practice, to divide the *funis* immediately after the birth of the child; and the weaker this was, the more expedition it was thought neceſſary to uſe; for, the child being ſuppoſed to be in a ſtate ſimilar to that of an apoplectic patient, a certain portion of blood might by this means be diſcharged from the divided *funis*, and the imminent danger inſtantly removed. There is another method which I have ſeen practiſed, the very reverſe of the preceding; for in this, the loſs of any quantity of blood being conſidered as injurious, the navel-ſtring was not divided, but the blood contained in its veſſels was repeatedly ſtroked from the *placenta* towards the body of the child. In all theſe different methods, and many others founded on caprice, or on directly contrary principles, children have been treated in different times and countries, and yet they have generally done well; the operations of Nature being very ſtubborn, and happily admitting of conſiderable deviation and interruption, without the prevention of her ends.

There is yet in all things a perfectly right as well as a wrong method; and, though the advantage or diſadvantage of either may be overlooked, the propriety and advantage of the right method muſt be evidently proved by individual caſes, and of courſe by the general reſult of practice. In this, as well as in many other points, we have been too fond of interfering with art, and have conſigned too little to nature, as if the human race had been deſtined to wretchedneſs and diſaſter, from the moment of birth, beyond the allotment of other creatures.

Perhaps the changes which take place in the body of the child, immediately after its birth, at leaſt the manner in which they are pro-

* See *Peu* Pratique des Accouchments, Livre I. Chap. xii. 18.

duced, are not perfectly underſtood at this time *. But we know if the child is in a healthy ſtate, that it uſually cries luſtily and continually, when the air ruſhes into its lungs, which are thereby expanded. This cry, which does not ſeem to be occaſioned by pain but ſurpriſe, is in its conſequences extremely important, as it is the cauſe of an exertion of all the powers of the child, and enables it to acquire a new manner of living, inconſiſtent with, and very different from, that which it poſſeſſed before it was born. But the change from uterine life, as it may be called, to breathing life, is not inſtantaneous, but gradual; and the uterine life continues till the breathing life is perfected, as is proved by the continuance of the circulation between the child and *placenta* for ſome time after it has cried. As the breathing life becomes perfected, the uterine life gradually declines, and the manner of its declenſion may be proved by attending to the pulſation of the navel-ſtring, which firſt ceaſes at the part neareſt the *placenta*, and then, by ſlow degrees, nearer and nearer to the child, till at length it entirely ceaſes; ſo that the whole of the circulating blood ultimately reſides in the body of the child, and the navel-ſtring becomes quite flaccid. It ſeems reaſonable to believe, that the continuance of the uterine life after the birth of the child was deſigned for its preſervation from the accidents of its ſtate at that time, ſhould the acquiſition of its breathing life be by any cauſe retarded or hindered. If then the practice of tying or dividing the navel-ſtring the inſtant the child is born be followed, though it were before vigorous, it will in ſome caſes immediately decline, and, never acquiring its perfect breathing life, may in a ſhort time die: or, if the child were in a feeble or a dubious ſtate, poſſeſſing only that life which it had during its reſidence in the *uterus*, as by tying and dividing the navel-ſtring that life is deſtroyed before the breathing life is acquired,

* See *Peu* Pratique des Accouchments, Livre I. Chap. xii. 18. And an Eſſay on the Treatment of Women in Childbed; written by my very ingenious and indefatigable friend Mr. *Charles White*.

it

it muſt inevitably periſh. We may therefore ſafely conclude, that the navel-ſtring of a new-born infant ought never to be tied or divided, till the circulation in it has ceaſed ſpontaneouſly; nor would the child ſuffer, though the *funis* was never tied, if it was not divided.

With reſpect to the manner of tying the navel-ſtring there has alſo been much difference of opinion, whether there ſhould be one or two ligatures, and in what part theſe ſhould be fixed. Two ligatures were adviſed on the preſumption, that by the end of the *funis* next the *placenta* the maternal blood might be diſcharged, and the parent brought into great danger, as if there were two currents of blood circulating in the veſſels; and by ſome it was alſo ſuppoſed proper to uſe two ligatures, for the purpoſe of retaining the blood, preſuming that the *placenta* would be caſt off more commodiouſly, in the manner of a gorged leech. On the contrary, one ligature has been recommended, that we might have an opportunity of draining away as much blood as poſſible from the *placenta*, by the divided end of the *funis*, which was ſuppoſed to produce an advantage equal to the diminution of the bulk of the *placenta*, and to favour its expulſion. But, if the cuſtom of deferring to make the ligatures till the circulation in the *funis* ceaſes be eſtabliſhed, all this reaſoning in favour of one or two ligatures will fall to the ground. Yet, as there is a poſſibility in the caſe of twins, with a ſingle *placenta*, of the child yet unborn loſing its blood by the divided *funis* of that which is born, and from the habit of uſing them, on the whole, I prefer two ligatures, more eſpecially as no harm can ariſe from them, even if one ſhould be uſeleſs. As to the part where the ligature ought to be fixed, it is of no real conſequence; becauſe the future ſeparation of the *funis* will not be made at the ligature, wherever that is fixed, but at a line, evidently marked at the time of birth, and cloſe to the belly of the child; and as to the materials uſed, provided they are not ſo thick as to be cumberſome, or ſo thin as to cut the *funis*, it is all that is required.

In

In the courſe of ten or twenty minutes, and ſometimes longer, after the birth of the child, the circulation in the *funis* having ceaſed, and the *funis* itſelf become empty and flaccid, one ligature is to be fixed upon it about three inches from the belly of the child, and another at twice that diſtance, with ſo much force as to repreſs the circulation which may happen to return, and yet not ſo firmly as to divide it. The navel-ſtring may then be cut with a pair of ſciſſors between the two ligatures, and the child given to a careful aſſiſtant. It was formerly the cuſtom to divide the *funis* under the bedclothes; but, having once known a very deplorable accident happen from this cauſe, I make it a general rule decently to withdraw the child, that I may have an opportunity of ſeeing when I tie or divide the *funis*.

SECTION X.

Soon after the birth of the child it is proper to apply the hand upon the *abdomen* of the mother, to aſcertain whether there be another child; or whether the *uterus* be contracting in a manner favourable to the ſeparation and excluſion of the *placenta*. Both the doctrines and cuſtoms of practice, regarding the management of the *placenta*, have been exceedingly different, even in common caſes; and though one method of proceeding may be more generally preferred and followed than the reſt, there is, in the management of the *placenta*, much diverſity in the conduct of individual practitioners, who may be ſuſpected to act ſometimes in a manner contrary to their own judgment, in compliance with the prejudices of thoſe by whom they are employed. The minds of all women are full of ſolicitous fears till the *placenta* is brought away; and the ſooner this is done, after the child is born, the more they are gratified. But though the diſcovery of truth, and the fidelity of practice founded thereon, may not always be acceptable; yet in all practitioners, however deſirous of

obliging, there muſt be ſome firmneſs of mind, ſome determination to act upon principle, or they will be perpetually involved in error, and led to do what may be productive of immediate or diſtant miſchief, in order to avoid the evil of preſent cenſure.

In the hiſtory which has been given of the former ſtages of a natural labour it appears, that all the paſſive changes, which the parts undergo, and all the active powers exerted for producing theſe changes, are not only entirely independent of the will of the patient, but are fully equal to the end, which they were deſigned to accompliſh, without any aſſiſtance, which is no more wanted for the purpoſe of forwarding a natural labour than for any of the ordinary functions of the body. When we have ſeen a child ſafely expelled by a proceſs beautiful, and regulated by the greateſt wiſdom, there ſeems to be no reaſon, why we ſhould be apprehenſive of error or inability in thoſe powers, for the ſeparation or excluſion of the *placenta*, which is but an inferior and ſecondary part of the ſame proceſs; or why we ſhould not in this, as in all other caſes of medicine, be firſt convinced of the neceſſity of uſing art, before we attempt to give aſſiſtance. On the proper management of the *placenta* the life of the patient may depend; and it is therefore fitting and neceſſary, that our conduct ſhould be guided not by prejudice, but by the dictates of reaſon and experience.

After a natural labour, eſpecially with a firſt child, the pain which the patient has ſuffered, and the exertions by which the expulſion of the child was effected, will have occaſioned a proportionate degree of temporary fever, and ſhe will be in the ſame ſituation as if ſhe had undergone ſome exceſſive fatigue. By the birth of the child ſhe is freed from her ſuffering, and it muſt be our firſt employment to reſtore tranquillity to her mind, to calm the hurried circulation of the blood, to recover her from her fatigue, and to bring her as ſoon as we can into a natural ſtate; and this is to be done by keeping her perfectly quiet, affording her at the ſame time ſome refreſhment, ſuitable

to

to the circumſtances to which ſhe may be reduced. In the courſe of ten, and ſeldom more than twenty minutes, the action of the *uterus* is again excited for the purpoſe of expelling the *placenta*, which is indicated by pain, leſs in degree, but in other reſpects like that of which ſhe complained when the child was expelled. It ſeldom happens that the *placenta* is either wholly ſeparated or expelled by the firſt pain; but when that has ceaſed for a few minutes, it is again renewed; and, on examination, the *placenta* is often found deſcended, or deſcending, into the *vagina*, where it may with ſafety and propriety be ſuffered to abide, till it is wholly expelled by a repetition of the pains. But if the *placenta* ſhould deſcend very ſlowly, or the patient be much diſturbed, the practitioner may take hold of the *funis**, and by gently pulling in the time of a pain, and in a proper direction, by the moſt moderate action, favour its ſeparation and deſcent. But whether the *placenta* ſhould deſcend into the *vagina* ſpontaneouſly, or be brought down by the gentle aſſiſtance given, it ſhould be ſuffered to remain there till it is excluded by the pains; at leaſt it ſhould not be extracted before the hurry occaſioned by the labour is wholly compoſed, and the *uterus* has had ſufficient time to contract in ſuch a manner, as to prevent any undue, or alarming loſs of blood. The *placenta* ſeldom remains more than one hour in this ſituation; but, if it ſhould not be excluded at the end of that time, we may again take hold of the *funis*, and, aiding the force of a pain, in the gentleſt and ſloweſt manner, bring the *placenta* through the *os externum*. We muſt even then be cautious to bring down the membranes very ſlowly, and as

* When the young has been a ſhort time expelled, carnivorous animals, apparently feeling pain, lay hold of the navel-ſtring with their teeth, in order to extract the *placenta*. It is probable that a woman in a ſtate of nature would, with her own hands, give ſomething like the ſame aſſiſtance; and in the force I uſe to bring down the *placenta*, I always bear in mind this circumſtance.

perfectly as we can, that any *coagula* formed in the cavity of the *uterus* may be enveloped in them, and one principal cauſe of after-pain be removed. Then the patient, being put in a comfortable ſtate, and as little diſturbed as poſſible, may be left to her repoſe.

In this third ſtage of a labour many inconveniences and many impediments to the excluſion of the *placenta* may occur; the generality of which require a longer time to be given, and ſome the aſſiſtance of art, for the removal or prevention of danger. But of all theſe difficulties, and the means of giving relief, we ſhall ſpeak more fully when we come to the treatment of *Uterine Hemorrhages*.

CHAPTER IX.

CLASS SECOND.

SECTION I.

ON DIFFICULT LABOURS.

FROM the foregoing hiſtory of a natural labour, and from the tenour of what has been on different occaſions advanced in the preceding chapters, it appears, that parturition is a proceſs of the conſtitution, which, generally, does not require any aſſiſtance; and that when it is natural, it ſhould be ſuffered to have its own courſe without interruption, for the very ſame reaſons which render all interpoſition with other natural operations unneceſſary, improper, and frequently prejudicial. Whence then ariſes the neceſſity or expediency of eſtabliſhing midwifery as an art for the relief of the human ſpecies? or in what reſpects has ſociety profited by the eſtabliſhment? Certainly not on the preſumption that women are by nature deſtitute of thoſe powers, which at the time of parturition are in all other creatures generally equal to the exigencies of their ſituation; nor when thoſe powers are fairly exerted, every cauſe producing its effect, in the order and in the manner which the parts by their conſtruction were framed to perform and undergo; nor, when there exiſt no uncommon impediments, by which the effects to be produced by the natural cauſes are, or may be, obſtructed. But as the aid of medicine becomes neceſſary, when from ſome defective, or irregular exertion of the native powers of the conſtitution; or from

from ſome adventitious cauſe of obſtruction; or from ſome infirmity in the conſtituent parts of any of the organs of the body, the functions of any part are ſuppreſſed, impeded, or in ſome way rendered irregular or imperfect, to the detriment of that part, or of the conſtitution, or to the prevention of any effect neceſſary to be produced: for the ſame reaſons, and in like manner, the aſſiſtance of the art of midwifery, ſcientific or manual, may be required for the relief of ſuch irregularities or difficulties as occur in the act of parturition. *It muſt however be acknowledged, that all the errors of practice do not proceed from ignorance of the art. Some of them may juſtly be imputed to our entertaining too high an opinion of the art, to too much confidence in our own dexterity, or too little dependance on the natural efforts and reſources of the conſtitution.*

In all creatures in which there is a difference of ſtructure, there muſt be a difference in the conduct or manner in which every function of the conſtitution will be performed, which is at all connected with, or dependent upon, ſuch variety in ſtructure; and a difference in the proceſs of any function, eſpecially if this ſhould be rendered more complex, and of courſe more liable to aberration, may become the prediſpoſing cauſe of ſuch deviations from the natural courſe of that function, as may require the aſſiſtance of art: though the very ſame function, proceeding or being performed in a natural way, might be void of danger, and require no aſſiſtance whatever. The knowledge of the peculiarities in the ſtructure of the human ſpecies, or of the ſpecific circumſtances in which the conſtitutions of women differ from thoſe of all other female creatures, may therefore be conſidered as affording the only juſt and true baſis, on which both the theory and practice of midwifery ought to be founded. Before we proceed then to an inquiry into the particular caſes, which may demand the aſſiſtance of art, or determine upon the manner in which that art can be exerciſed with the greateſt propriety and advantage, a ſhort review of thoſe peculiarities will be neceſſary

neceſſary and uſeful, that we may be cautioned to avoid the abuſe of the art, or the exerciſe of it, except in thoſe caſes in which that aſſiſtance, which art can afford, is abſolutely required.

The firſt and moſt obvious circumſtance, in which women differ from all other female creatures, is the erect poſition of the body; of the conſequence of which, with regard to the *pelvis*, and ſome diſeaſes to which women are particularly liable, notice has been already taken*. In the original conſtruction of the *pelvis* in quadrupeds, with a view to parturition, there ſeems to be a neceſſity for regarding its capaciouſneſs alone; becauſe if even more than ſufficient ſpace were provided for the paſſage of their young, no attitude into which they put themſelves, or into which they can be compelled by any accident, during utero-geſtation, would ſubject them to difficulty or danger on this account. But from the erect poſition of the human body, if the cavity of the *pelvis* had borne the ſame relative ſituation and proportion to the ſize of the *fœtus* as in quadrupeds, women would have been liable to many andgreat inconveniences. For the weight of the *ovum* and enlarged *uterus* muſt, in advanced pregnancy, have been occaſionally ſuſtained by the ſoft parts, which becoming thinner and leſs equal to that office, according to the advancement, premature labour, as well as many other inconveniences, muſt often have been occaſioned. For this, and perhaps ſeveral other leſs obvious though probably equally important reaſons, all of which it would be difficult to inveſtigate, there undoubtedly is in human beings a greater difference between the dimenſions of the cavity of the *pelvis*, and the head of the *fœtus* at the time of birth, than in animals; and this difference, conſiſting chiefly in a greater proportionate ſize of the head, muſt eventually become the cauſe of more painful and difficult parturition.

As there is no effect throughout nature without ſome adequate

* See Chap. I. Sect. v. and Chap. IV. Sect. i.

cauſe, as well as ſome wiſe end, perhaps the moſt ſatisfactory proof of the exiſtence of this diſproportion may be drawn from the conſtruction of the head of the human *fœtus*, which being incompletely oſſified at the time of birth, is capable of having its form changed, and its ſize diminiſhed, without any injury, from the compreſſion. Theſe effects are produced in ſome degree in almoſt all labours, but very remarkably in thoſe which are completed with difficulty; for in ſuch, the ſutures not only accede, but the edges of the bones will ride over each other in a very extraordinary manner, yet without any apparent prejudice to the child. From this original and comparative relation between the cavity of the *pelvis*, and the head of the *fœtus*, women therefore ſeem to be naturally more liable to difficulties in parturition than animals; which difficulties may be eſteemed as an allay for the advantages obtained by the erect poſition; or becauſe their offspring were ſo framed as to be capable of greater excellencies than animals; which excellencies may depend upon this conſtruction and ſize of the head. Independent of this incomplete oſſification and its conſequences, great numbers of children muſt have been inevitably deſtroyed at the time of birth, or the parents muſt have died undelivered. Nor is this proviſion only ſufficient to anſwer the end of mitigating thoſe evils, to which women are by their ſtructure naturally and neceſſarily liable; but it is generally equal to the relief of thoſe, which are occaſioned by morbid alterations in the ſize of the cavity of the *pelvis*.

2. The intercourſe between the parent and *fœtus*, while it abides in the *uterus*, though generally alike in all viviparous animals, has ſome variation in each claſs. The *ovum* is in all conſtructed for a temporary uſe, but in a moſt beautiful and perfect manner for the purpoſes for which it was ordained. The variations may exiſt either in the *uterus* or *ovum*.

In the *uterus* of the different claſſes of animals, the moſt obvious variety is in the form. Animals might, perhaps, be nearly as

as well arranged, and the claſs to which they belong as well determined by the form of the *uterus*, as by any external or other internal mark. Such as are the form and ſtructure of the *uterus*, ſuch will be the properties; and of courſe in every animal in which there is a difference in form, ſtructure, or of properties thereon depending, there will be ſome correſponding difference in the circumſtances of parturition; ſo that if an inquiry was attentively made, it is probable we ſhould not find an exact likeneſs in the parturition of any animals, which vary either in *genus* or ſpecies.

The *uterus* in all animals may be conſidered as the bed or ſoil, in which the *fœtus* is conceived, nouriſhed, preſerved, and accommodated, till it arrives at a ſtate of perfection, and the part by which it is ultimately expelled. For the completion of theſe ends, there muſt be a perfect coincidence, at leaſt a correſpondence, between the nature of the *fœtus* to be thus conceived, nouriſhed, preſerved, and accommodated, and the form and properties of the *uterus*, by which thoſe offices are to be diſcharged, as is proved by hybrids; and if the caſe were otherwiſe, there would be no conception. The varieties in the form of the *uteri* in different animals are progreſſive, from thoſe of the loweſt tribe, which are horned or convoluted, to the human, which when unimpregnated is pyramidal, becoming more oviform according to the degree of its diſtention. On the form of the *uterus* not only the accommodation of the *fœtus* may depend, but the term of utero-geſtation alſo; or the power which every individual *uterus* has of bearing diſtention only for a ſpecific time. Yet if this were allowed, it would ſtill remain to be proved, why an *uterus* of one form became capable of bearing diſtention for a longer time than that of another.

Complicated with, or dependent on form, is the ſubſtance or thickneſs of the *uterus*; and on this again the power which the *uterus* is capable of exerting at the time of parturition. The *uterus* in women is of greater thickneſs, and of a firmer texture in the un-

impregnated ſtate, than in animals of an equal ſize; and in theſe it is ſaid to become ſomewhat thinner, in proportion to its diſtention; whereas in women it retains its thickneſs, if it does not become rather thicker during pregnancy. It appears that by this thickneſs is gained the medium of that power, which is exerted by the human *uterus* in the act of parturition, and without which women could not in many caſes have been delivered. But if there had been occaſion in animals for the exertion of an equal degree of power, they could not have been delivered; as there is not in them a medium, by which ſuch power could have been exerted, and the form of the *uterus* would alſo have been leſs favourable for its operation, had it exiſted.

This thickneſs of the *uterus,* notwithſtanding its diſtention, is chiefly preſerved by the gradual enlargement of the arteries, veins, and lymphatics; and their enlargement is moſt conſpicuous about that part to which the *placenta* adheres. The quantity of blood circulating in the human *uterus* and the adjacent parts, during pregnancy, is very great; and it probably undergoes in the *uterus* itſelf ſome preparatory change, before it is conveyed to the *placenta,* where it may probably be ſubject to farther alteration; ſo that it may be preſumed, that the *uterus* performs the office of a gland altering and preparing the blood, before any part of it, or any thing ſecreted from it, is abſorbed or taken up by the veſſels of the *placenta,* for the uſe of the *fœtus,* as well as that of the containing part of the *ovum.* On the quantity of blood circulating in the *uterus* may alſo depend its action at the time of labour; for if the *placenta* be looſened before the child is born, and the blood has a free diſcharge, there is ſeldom any efficacious action, though the *uterus* may be, in all other reſpects, in a ſtate of perfect health.

In our preſent inquiry, the principal part of the *ovum,* which deſerves attention, is the *placenta,* and of this there is an endleſs variety in the different kinds of animals, according to the nature and

properties of each parent and the offspring. In the *belluæ*, the office of the *placenta* is performed by the whole membrane of the *ovum* being thickened, and becoming proportionably vaſcular; in the *pecora* the *placenta* is divided into many lobules, compoſed of long and vaſcular fibres, called *cotyledons* or cups, affixed to as many temporary eminences of the internal ſurface of the *uterus*; in the *feræ* it ſurrounds the *uterus* like an internal belt; and ſo on, with great variety, in the different claſſes of animals. But in the human ſpecies, the *placenta*, as the word implies, is in one flattened maſs, of a circular form, becoming gradually thinner towards the edge, and adhering to the *uterus* with a broad ſurface. When any portion of this is ſeparated, the orifices of many of the large veſſels of the *uterus* are opened, and a conſiderable quantity of blood is immediately diſcharged, far beyond what could poſſibly be loſt in any animal, though of a much larger ſize; and if the *uterus* were to continue diſtended, the orifices remaining open, there would be a dangerous or a fatal hemorrhage. For not only the blood circulating in the *uterus* would be immediately poured out of its veſſels, but all that which is contained in the body might be drained, and the patient ſpeedily periſh, if ſhe was not relieved by art; and yet no animal ever was or could be deſtroyed, or brought into danger, by this circumſtance. From the ſame cauſe alſo, the uterine diſcharges continue a longer time, after delivery, in women than in animals; the irregularities and interruption of which may become the cauſes of diſeaſe, and are proofs that, independent of faſhion or cuſtom, there is a neceſſity that women ſhould, for their own ſafety, be ſeparated from ſociety for a certain time after delivery; or guarded againſt ſuch conduct or accidents, as might cauſe a ſuppreſſion of thoſe diſcharges. On account alſo of the form of the *uterus*, and the peculiarities of its action, of the bulk of the *placenta*, and the manner of its connexion, it is more likely to be retained or awk-

wardly expelled in women than in animals; and its retention may be followed by worſe conſequences.

3. In the conſideration of this ſubject, the paſſions of the mind are of too evident importance to eſcape attention. On a variety of occaſions, theſe, in human beings, to a certain degree, in a natural ſtate, and much more when heightened by all the refinements and perverſions of ſociety, are found to be capable of producing the moſt extraordinary effects; by ſuppreſſing or ſuſpending for a certain time the action of any, or of all the powers of the conſtitution; by occaſioning them to act with irregularity, and at improper times; and in ſome caſes alſo by exciting them to act with too great energy and force. But animals ſuffer neither from the recollection of the paſt, nor dread of the future; and acting according to their nature, the good or evil of the preſent moment probably to them appears to be the principal part of their exiſtence. In the paſſions we may then diſcover ſources of danger and diſturbance, in the pregnancy and parturition of women, from which animals are wholly exempt; and the obſervation is ſo general, that care is univerſally taken to prevent the communication of any intelligence to pregnant women, or to thoſe who are in, or about to be in labour, which can either diſtreſs, or much agitate them. To this principle or cauſe may alſo be referred the many nervous affections, to which women are ſubject in the ſtate of child-bed, and for ſome time after they are delivered, when the animal powers are reduced, and the ſenſations quickened. But it muſt be allowed, that the greater degrees of theſe evils are not to be attributed to phyſical infirmities, but to moral errors.

A conſideration of their unimpaired conſtitutions, and leſs exquiſite feelings, will likewiſe diſcover to us the reaſon, why the lower orders of women have more eaſy and favourable births, than thoſe who live in affluence; the frame of whoſe bodies, and the ſenſibility of whoſe minds are altered, and often depraved, by the indulgence of parents, when they are infants, and by their own luxury, when they

they are adult. The conſtitutions of thoſe who are hardy are better able to ſuſtain the common accidents of childbearing, and they ſuffer leſs becauſe they are ſtronger, and have leſs feeling and apprehenſion. When the *Egyptian* midwives were charged before *Pharaoh* with diſobedience to his orders, becauſe they preſerved the lives of the *Hebrew* children, they pleaded in their excuſe, that the *Hebrew* women were not like the *Egyptian*, "they were lively, and were delivered before they (the midwives) could come to them." Beſides other motives, the *Hebrew* women were ſlaves, accuſtomed to labour and hard living, yet they had more children and eaſier labours than the *Egyptian*, who, we may preſume, ſuffered all the evils ariſing from indolence and habits of indulgence *. The ſame obſervation will alſo explain the reaſon of many of thoſe evils, which women in the higher ranks of life ſuffer; particularly why fewer women die in child-bed in the country than in cities, where even thoſe of the lower claſs are often compelled to live in unwholeſome ſituations, and, too often plunging into groſs indulgences, therefore ſuffer the ſame or a worſe fate, than the delicately luxurious.

4. We are laſtly to conſider, that women are by conſtitution, and by habits of education and living, ſubject to diſeaſes, to which animals are not liable; which diſeaſes may create new cauſes of

* Among many wiſe obſervations and judicious inferences, made by *Adam Smith* in his *Wealth* of *Nations*, there is one taken from the ſtate of population in the northern parts of *Scotland*. He ſuppoſes, that women in the lower orders of ſociety breed the greateſt number of children; but that thoſe in the higher rear more of thoſe which are bred. The ſame obſervation has been made of the *Ruſſians*. It has been attributed to the ſcantineſs of proviſion; but I believe it is very much owing to the coldneſs of the climate, as, with equal difficulty of procuring the means of ſubſiſtence, in *Ireland* and many parts of *England*, for inſtance, children born in health ſeldom die. Mr. *Gildemeſter*, ſecretary to the embaſſy, aſſured me, that the children of the lower orders of the Portugueſe, who live very miſerably, which are born in winter, generally die, but ſuch as are born in ſummer are as commonly reared.

difficult

difficult parturition, by increaſing natural evils, or by weakening thoſe powers, by the operation of which difficulties ſhould be overcome. All theſe diſeaſes it is unneceſſary, and perhaps impoſſible, to enumerate; but that, which by affecting the bones in general, and thoſe of the *pelvis* in particular, has the greateſt influence on labours, is deſerving of eſpecial notice.

By the *Rachitis* is not only underſtood the diſeaſe of children properly ſo called, but the *oſteoſarcoſis*, or *mollities oſſium* alſo: this being the only difference between them; that, in the former, the bones, in the infantile ſtate, are prevented from acquiring ſuch a degree of firmneſs, as will enable them to ſuſtain the weight of the incumbent body, without yielding and becoming diſtorted; which diſtortion may remain to adult age, even though greater ſtrength may have been afterward acquired: but, in the latter, the bones having been properly formed and oſſified, become ſoft again, at any period of life, in conſequence of the abſorption of the oſſific matter, by which the moſt extreme degrees and frightful kinds of deformity have been ſometimes occaſioned; the progreſs of the diſeaſe being ſometimes indicated by the increaſing difficulties of ſucceſſive labours*. From diſtortion produced by either of theſe cauſes, the cavity of the *pelvis*, which, in a natural ſtate, ſhould meaſure upwards of four inches, in its narroweſt limits, may be reduced to two, or even to leſs than one inch; by which the reciprocal proportion between it and the head of the *fœtus* is perverted or deſtroyed, and it is abſolutely impoſſible for the latter to paſs through the *pelvis*. This ſoftneſs and conſequent diſtortion of the bones, being peculiar to, or infinitely more frequent in the human ſpecies, occaſions difficulties at the time of parturition, from which animals are almoſt univerſally free. Even if animals were liable to it, from their poſition, and the diminiſhed weight which the *pelvis* ſupports

* See Chap. I. Sect. x.

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in quadrupeds, it could not produce the ſame kind or degree of effect. From the frequency of the *rachitis* in cold and unwholeſome climates, in crowded cities, and wherever the employments and manners of the human race weaken the conſtitutions of the inhabitants; and from its rarity in warm and healthy ſituations, or with ruſtic employments and ſimple manners, we may conclude, though we retain and act upon the ſame principles, that the events reſulting from the practice of midwifery muſt be different in different places, and that the authority of the beſt writers muſt in ſome meaſure be local.

On account of the original ſmallneſs of the cavity of the *pelvis* relatively to the head of the child, of the ſtructure of the *uterus* and *placenta*, of the paſſions, and of the diſeaſes to which mankind are by nature, or by the cuſtoms of ſociety, rendered peculiarly liable, the cauſes of many difficulties and dangers, which attend parturition, will be evident; and of courſe, the neceſſity of eſtabliſhing midwifery as an art for the relief of women will be evinced.

But to render theſe obſervations, with others diffuſed through this work, of greater utility, I ſhall endeavour to reduce them into propoſitions in the following order: ſubmitting them at the ſame time with all deference to future conſideration.

1ſt. All viviparous animals bring forth their young with pain.

2d. The degree of pain, which they ſuffer, will depend upon the degree of their ſenſibility, natural or acquired, and upon the difficulty with which they bring forth their young.

3d. The difficulty with which they, in general, bring forth their young, depends upon their conſtruction.

4th. By their conſtruction, they are alſo endued with powers capable of overcoming all the difficulties, to which ſuch conſtruction generally renders them liable.

5th. The proceſs of parturition in animals is therefore to be eſteemed

eſteemed a natural proceſs, requiring no other aſſiſtance, than the exertion of thoſe powers, which depend upon their conſtruction.

And 6th. From the very nature of their conſtruction, and from their modes of living, they will not in general be liable to any material deviation from the ordinary proceſs of their parturition.

7th. The conſtruction of the females of the human ſpecies is different from that of the females of any order of animals.

8th. The conſtruction of the females of the human ſpecies is ſuch, as to render them unavoidably ſubject, in general, to greater pain and difficulty in parturition, than the females of any order of animals.

9th. But by the conſtruction of the females of the human ſpecies, and by the original formation of the head of the human *fœtus*, proviſion is made for overcoming all the difficulties, to which the peculiarities of their conſtruction may render them liable.

10th. With regard to the act of parturition, when natural, women are therefore to be eſteemed on a ſimilar footing with animals.

11th. But as women are by their conſtruction, and by the cuſtoms of ſociety, rendered ſubject to diſeaſes and accidents, which increaſe the natural difficulties, and produce new cauſes of danger attending their parturition, from which the females of every order of animals are free:

12th. It will follow, that the occaſions, which require aſſiſtance at the time of parturition, do, and muſt, of neceſſity, occur more frequently in women, than in the females of any order of animals.

From theſe premiſes, the expediency and neceſſity of eſtabliſhing midwifery as an art for the relief of the human ſpecies will appear, and the art be directed to its proper objects.

SECTION II.

MANY general circumſtances and appearances have been mentioned, and conſidered as preſumptive ſigns of difficult labours; and it will not be improper to enumerate theſe, though I apprehend, that much ſtreſs cannot be laid upon them with a view to practice, or even to prognoſtic. If they were certain and invariable, it would be incumbent upon us to underſtand the degree and extent of their influence, and to apply ourſelves to the diſcovery of ſome means, by which we might prevent or remedy the evils which were threatened.

1ſt. The kind of labour, which any particular woman will probably have, has been ſuppoſed to be indicated, in ſome degree, by her complexion. Women with very fair, or very dark complexions, have been ſuppoſed equally ſubject to difficulties or inconveniencies in parturition; whilſt thoſe of the intermediate ſhades were conſidered as having advantages in their favour. Now, as far as any particular complexion can indicate a general ſtate of health, this obſervation is reaſonable and true, with reſpect to labours; thoſe who have the beſt health, uſually paſſing through that proceſs in the beſt and ſafeſt manner. But as thoſe who are of complexions in either extreme may have perfect health, and eaſy labours, any inference drawn from this principle muſt be liable to many exceptions.

2d. By the general ſize of the body, it has been conjectured, that we might foreſee whether an enſuing labour would be eaſy or difficult. This obſervation will ſtand upon the ſame ground with the foregoing; that is, it may hold good, as far as any particular ſize may be found beſt ſuited for performing all the functions of the body, and for the general purpoſes of life. Thoſe who are very tall, are not often very active, or capable of bearing much fatigue; and thoſe who are very ſhort, may have been cramped or become

deformed in conſequence of ill health in the early part of their lives: thoſe, on the contrary, who are of a middle ſize, or rather below it, being preſumed to be more generally healthy, and beſt adapted to the common occaſions of life, may be expected to have the beſt labours, as they have ſufficient power, and a readier diſpoſition to act.

3d. The habits of life, and the diſpoſitions of patients, have been ſuppoſed to have ſome influence in forwarding or retarding labour. Thoſe women, who are indolent in their tempers and habits, perform all the functions of the conſtitution in a ſlow and indolent manner, and of courſe may be expected to have tedious labours. But thoſe who are of lively diſpoſitions and active habits, being in the conſtant exerciſe of their powers, have not only theſe powers ſtrengthened and improved, but greater energy alſo; and the activity of the parts concerned in parturition will partake of that of the body in general.

4th. The regularity, together with the eaſe or difficulty of a labour, may, in ſome meaſure, depend upon the ſtrength or weakneſs of the faculties of the mind. But this muſt be a very general obſervation, and can only hold good in that extenſive way, in which it is admitted in other occurrences of life, in which weakneſs of judgment may pervert regularity into diſorder, fancy evils that do not exiſt, or add to the weight of thoſe which are unavoidable.

5th. Labours are generally affected by the climate, in which women are born and reſide. In hot climates, all natural labours are ſaid to be more eaſy, than in thoſe that are cold; probably, becauſe the diſpoſition to relax and dilate is ſooner aſſumed, and more perfectly accompliſhed. But in cold climates, from the native or acquired rigidity and firmneſs of all the parts of the body, there will be occaſion for greater exertion, though there may be greater power; yet if the labours are ſlower, perhaps the feelings are leſs, ſo that they may terminate with equal ſafety, and probably, on the whole,

without greater ſuffering. In the ſame climate there will generally be ſome variations in labour at different ſeaſons; and I believe it is true, that in this country women have eaſier labours in ſummer than in winter, and that they are leſs liable to diſeaſes in the ſtate of child-bed.

Such obſervations might be extended to a greater length, and diſcuſſed with more nicety; but they can hardly eſcape the notice of an attentive man, and he that is prudent will not eſteem them of too much value.

SECTION III.

WITHOUT ſome ſettled form of diſtinction, it will not be poſſible for us to comprehend ſuch a knowledge of *Difficult Labours*, as will enable us to conduct women ſafely and properly through them; or to communicate our knowledge to another perſon. It is therefore neceſſary, in the firſt place, that we ſhould define what is meant by the term; and we will ſay, that every labour, in which the head of the child preſents, which is protracted beyond twenty-four hours, ſhall be called *Difficult**.

This definition, which is chiefly taken from time, is liable to ſome objections, as there may be more pain endured, and greater difficulties ſurmounted by one woman in ſix hours, than by another

* Fit partus difficilis et laborioſus, quod nec modo neque ordine debito res peragatur, aut pravis aliquibus ſymptomatibus impediatur. HARV. *Exercit. de Partu.*

Dicitur autem partus ille difficilis, qui cum fœtûs vel matris periculo accidit; vel quia cum graviſſimis fit ſymptomatibus, vel tardius procedit, ita ut longo tempore prematur. *Roderic. a Caſtro Luſitan.*

Partus difficilis appellatur, qui debitas atque ordinarias naturæ leges non ſervat, ſed longius tempus inſumit, et dolores ſubito vehementiores, aliaque ſymptomata graviora comitantia habit. *Riverii Prax. Medic. De Partu difficili.*

Fœtûs maturi enixus laborioſiſſimus. *Linnæi Noſologia.*

in twenty-four; but on the whole, it will be found to apply to practice in an advantageous, and often in an unexceptionable manner. It will, in particular, afford a remedy for impatience, and guard the practitioner, in ſome meaſure, from premature attempts to give aſſiſtance, without incurring the danger of thoſe evils, which might be apprehended from too long delay.

Of thoſe labours, which come under the denomination of *Difficult*, there is an almoſt endleſs variety in their cauſes or degrees. Some are occaſioned by one cauſe alone, but more frequently by a combination of various cauſes, though one may be more obvious and important than the reſt*. For the uſes and purpoſes of practice, it is not ſufficient to ſay, that all labours are rendered difficult, either from the greatneſs of the obſtruction, or by the inſufficiency or debility of the power, by which the obſtruction ſhould be overcome; or, that ſome depend upon the mother, and others upon the child. Such diſtinctions or references are too general. The particular cauſes of every individual difficult labour ſhould be pointed out, as well as the conduct which each ſpecific cauſe may require. Theſe are to be ſtated by every perſon who teaches the art, and received for the preſent by the ſtudent. But when ſtudents have gained experience, they will, of courſe, examine and judge the doctrines which they have learned. For there are advantages accruing to every man's own mind from experience, of which no doctrine or words can convey an adequate idea, and thoſe who are in poſſeſſion of it ſeldom bend to the rules or admonitions of others. Nor indeed is this to be expected, except in a very limited degree. It is there-

* As many cauſes concur in the production of compound effects, we are liable to miſtake the predominant cauſe, unleſs we can meaſure the quantity of the effects to be produced, compare them with and diſtinguiſh them from each other, and find out the adequate cauſe of each ſingle effect, and what muſt be the reſult of their joint action.

See Dr. DESAGULIERS's *Preface.*

fore

fore of the greateſt conſequence to thoſe, who have not yet attained experience, that they ſhould gain, and exerciſe themſelves in, the cuſtom of regiſtering and arranging the particular knowledge they may have an opportunity of acquiring, in regular and ſyſtematic order, or they will loſe the benefit of it; for it will otherwiſe either be forgotten, or recollected with difficulty, when they want to apply an obſervation made in one caſe to the exigencies of another; and it is very poſſible that rules may be too refined for general practice. To leſſen theſe defects, and to point out a better method of preſerving the advantages of experience, as well as to record, in the cleareſt manner, what my own has taught me, we will divide all *Difficult Labours* into four Orders or Kinds, and then enumerate the principal cauſes of each Order. As the knowledge of cauſes, and the management or removal of effects or difficulties, ſhould accompany or immediately follow each other, the methods to be uſed for the relief of theſe will at the ſame time be pointed out.

In the *Firſt* Order will be included all thoſe labours, which are rendered difficult from the inert or irregular action of the *uterus:*

In the *Second,* thoſe which are occaſioned by the rigidity of the parts to be dilated:

In the *Third,* thoſe which are occaſioned by diſproportion between the dimenſions of the cavity of the *pelvis* of the mother and the head of the child:

In the *Fourth,* thoſe which are rendered difficult by diſeaſes of the ſoft parts.

Under one or other of theſe Orders may be arranged every labour which can properly be called *Difficult.*

This kind of labour has by many writers been ſubdivided into lingering and difficult; but as by the former appellation a leſs degree of difficulty only is meant both with regard to cauſe and effect, the ſubdiviſion ſeems unneceſſary.

SECTION

SECTION IV.

ON THE FIRST ORDER,

OR

Thoſe Labours which are rendered difficult from the inert or irregular action of the uterus.

THE action of the *uterus*, by which every child muſt be expelled, is accompanied with pain proportionate to the force, and to the reſiſtance made. But as this action may become imperfect, irregular, or inſufficient for the purpoſe of expelling the child, it is needful that we ſhould be acquainted with the cauſes of ſuch imperfection, irregularity, or inſufficiency. Of theſe cauſes there is,

1. *The too great diſtention of the uterus.*

It was formerly believed, that the *uterus* was diſtended mechanically, by the increaſe of the *ovum* contained in it. With this opinion, it might be concluded, that either from the ſize of the child, or the quantity of water, the *uterus* might be brought into a ſtate ſimilar to that which takes place in the bladder, which, when diſtended beyond a certain degree, loſes all power of action. But later obſervations have proved, that the impregnated *uterus* is never completely diſtended, nor in any degree by its contents, but by the operation of a principle, which it acquires in conſequence of pregnancy; which principle ceaſes to act at the concluſion of the term of utero-geſtation, and is immediately ſucceeded by another directly contrary, that of expulſion*. But though the *uterus*, when in a healthy ſtate, cannot be diſtended beyond its power of action, occa-

* See Chap. v. Sect. xi.

ſion

ſion has been before taken to obſerve, that, from the ſlowneſs, and ſmallneſs of the effect of the firſt pains of labour, the power exerted by the *uterus* is generally ſuited to the ſtate of the parts, and the parts to that of the *uterus*, with a wonderful coincidence. Yet as every principle in nature may, in particular caſes, alter or fail, ſothat of the diſtention of the *uterus* may prevail to ſuch a degree, or may continue ſo long a time, that its poſſible expulſatory force ſhall be weakened, its energy leſſened, and, of courſe, the progreſs of the labour be for the preſent retarded. This ſeems to be proved, not only by the ſlackneſs and feebleneſs of the pains in the beginning of all labours, eſpecially in thoſe caſes in which there are two or more children, but by the increaſe of that action, when part of its contents are evacuated. It is however to be recollected, that the *uterus* cannot be diſtended beyond its power of action, though when greatly diſtended it is capable only of ſlow and feeble action, which is nevertheleſs then ſuited to the general ſtate of the parts, and preparatory to that which is ſtronger. This ſlow or feeble action, from diſtention, is not therefore an object of art; and it is perhaps beyond the influence of any earthly power, to give to the *uterus* its native or genuine diſpoſition to act, before it is diſpoſed to aſſume it, to add to its power, or in any material degree to increaſe its energy, though many applications and medicines have been recommended and tried for this purpoſe. Human art may put or preſerve the conſtitution in a ſtate beſt fitted for ſuch action, or it may remove any impediments to its effect; but the principle is wholly independent of the will of the patient, or the ſkill of the practitioner. When therefore the pains of labour are in the beginning feeble and ſlow, as no harm can ariſe from this cauſe, either to the mother or child, except that the former is under the neceſſity of bearing them for a longer time, though on the whole, perhaps, not in an increaſed degree; and as the methods adviſed, and uſually practiſed, for the purpoſe of accelerating labours rendered tedious from this cauſe, are either immediately

mediately injurious, or may lay the foundation of future miſchief to one or both, it becomes our duty, under ſuch circumſtances, to wait with patience, leaving the buſineſs entirely to its own courſe without any interpoſition. Even when a labour has made conſiderable progreſs, and there was reaſon to expect, that it would have been concluded in a ſhort time, there may be a ſuſpenſion of the action of the *uterus* for many hours, without any miſchief or hazard, as experience has often ſhewn, though the cauſe of ſuch ſuſpenſion may not be obvious to, or explicable by, us*.

Immediately on the acceſſion of labour, it has been the cuſtom to confine women to their beds, or to ſome particular poſition, on the preſumption that it would be thereby rendered more eaſy than in any other. By ſuch conduct, expectations of a ſpeedy delivery are often raiſed; and when theſe are baulked, the mind of the patient will be diſturbed, and the proceſs become irregular. But it will always be found more comfortable and uſeful, to leave the patient to her own choice in theſe matters, and her inclination will be the beſt guide. Time is the ſafeſt, and generally the only remedy, for lingering and tedious labours occaſioned by the too great diſtention of the *uterus*, as well as by many other cauſes; and the patient will often find relief, either by walking or ſtanding, purſuing ſome amuſement, or chooſing that poſition which ſhe herſelf prefers, becauſe ſhe will inſtinctively ſeek that which is proper. However, in many ſituations of this kind, the repeated exhibition of emollient clyſters will be of ſervice; and when the labour is far advanced, in

* With the ancients it was a cuſtom in theſe caſes, to introduce a ſtimulating peſſary into the *vagina*; and lately with a phyſician in *France*, to apply a mixture of the berries of the Bay tree and oil to the navel, in the time of labour, by which he was ſuppoſed to do ſome good, and certainly gained ſome credit. It would not however be unreaſonable, to try the effect of various applications to the *abdomen* for this purpoſe. A doſſil of lint, moiſtened with *tinct. opii*, applied to the navel, does certainly, in ſome caſes, appeaſe uterine pain.

ſome

ſome caſes in which the action of the *uterus* is very feeble and ſlow in its returns, as if it were unwilling to come on, a clyſter rendered ſtimulating by the addition of one ounce of culinary or cathartic ſalt, will often rouſe the dormant powers into action, and the labour will be much ſooner completed*.

2. *Partial action of the uterus.*

It was obſerved, that previous to labour the *uterus* commonly ſubſided lower into the *abdomen*, and that the more perfect this ſubſidence was, the more kindly would the labour probably be; becauſe the *uterus* would act with more advantage. But in ſome caſes, the *fundus* of the *uterus* does not ſubſide before or even in the time of labour, the patient herſelf being ſenſible of, and complaining that the child is then very high in the ſtomach. Sometimes ſhe will alſo complain of vehement and cramp-like pains in various parts of the *abdomen*, producing no good or adequate effect, which are afterwards proved to have been occaſioned by the irregular contraction of the *uterus*. This irregular and partial action, which is properly called ſpaſmodic, is capable of throwing the *uterus* into various forms; ſometimes the longitudinal, and at others the hour-glaſs, with all their varieties and degrees. Every change in the form of the cavity of the *uterus*, from the genuine, will be productive of inconvenience, according to the peculiarity and degree of alteration; and it is to be wiſhed, that we could diſcover the means of altering the form of the *uterus* when thus irregular, of ſuppreſſing its action when too vehement or diſorderly, and of ſtrengthening it when too feeble, according to the neceſſities of each caſe, as they may ariſe. But as theſe things are beyond our power, at leaſt any

* Clyſteres injic'antur, quorum irritatione expultrix uteri facultas excitatur, et depleta inteſtina ampliorem locum utero relinquant.

Riverii Prax. Medic. De Partu Difficili.

method of producing them, is at preſent unknown; all that we can generally do muſt depend, not on commanding what we chooſe, but on making the beſt of ſuch circumſtances as do really occur; and it is neceſſary to conſider, whether by any previous management it be poſſible to prevent this irregularity of action, or remedy its effects, when it is in ſuch a degree, as to be very painful or troubleſome before, or productive of inconvenience at the time of labour. When there is any unuſual kind of pain in the region of the *uterus*, greater than, or different from, that which may be conſidered as one of the common effects of pregnancy, there is generally an increaſe of that feveriſh diſpoſition, which in a certain degree is, perhaps, natural to all women with child; and it will then be neceſſary to take away ſmall quantities of blood, to give cooling medicines, to be very attentive that the regular courſe of the bowels be procured or preſerved, and I think I have ſeen much good done by gently rubbing the whole *abdomen* with warm oil. At the time of labour the ſame means may alſo be neceſſary and proper, on account of this irregular or inſufficient action of the *uterus* and the concomitant pains, which moſt frequently happen to thoſe who are naturally too irritable, or who lead inactive lives. To ſuch women ſhould be pointed out the neceſſity of acquiring a compoſure of mind, and of uſing exerciſe in the open air as far as their unwieldineſs will with propriety allow; even in the time of labour, if rendered tedious from this cauſe, in which the pains are very ſharp yet ineffectual, it is of uſe to bear them, when in an erect poſition, and to walk about as long and as often as they are able, in the intervals. The chief part of what can be further done is, to impreſs upon their minds the neceſſity of exerciſing that patience, which we on our parts ought never to want. In ſome caſes of this kind, when the patient has ſuffered much and for a long time, after bleeding, and the adminiſtration of a clyſter, I have directed twenty drops of *tinct. opii* to be given, with the intention of ſuppreſſing the

the preſent pain, which was irregular, and with the hope that, when it returned, it would be with regularity and efficacy. But in general I have great objections to opiates on ſlight occaſions for women in labour; being perſuaded that, by diſturbing the order of labour, they frequently produce very untoward ſymptoms, and make that which was in itſelf natural become difficult or dangerous to the mother or child, as evidently as any other kind of unſeaſonable interpoſition.

3. *Rigidity of the membranes.*

This has been mentioned by the generality of writers, as a cauſe of difficult labours; and I have obſerved, when a labour proceeds ſlowly, the membranes being unbroken, that their rigidity is uſually aſſigned as the cauſe of the difficulty or delay. This ſubject has already been conſidered in the hiſtory of natural labours; but we cannot too often inculcate, as the obſervation is of the greateſt importance, that neither the mother nor child is ever in any danger, on account of the labour, before the membranes are broken; and that there is infinitely more caution required, to avoid breaking them too early, than there is difficulty in breaking them when neceſſary. The true cauſe alſo, why the membranes do not break at the uſual or proper time, is not in truth from the rigidity of the membranes, ſo commonly as from the weak action of the *uterus*; becauſe the membranes are ſcarcely ever ſo rigid, as to withſtand the force of very ſtrong pains, and if they were, the whole *ovum* might be expelled at the ſame time, a circumſtance not unfrequent in premature births. More than one caſe has occurred in my own practice, to which particular attention has been paid, for the purpoſe of regiſtering the obſervation, in which the labour has commenced properly, and proceeded with much activity, till the *os uteri* was fully dilated, and then ceaſed altogether for ſeveral days: at the end of that time the membranes breaking, the action of the

uterus has inſtantly returned, and the labour been finiſhed ſpeedily, with perfect ſafety to the mother and child*.

The circumſtances of labours are however ſometimes, though very ſeldom, ſuch as make it not only juſtifiable, but eligible, or perhaps neceſſary, to break the membranes artificially. Yet before this is attempted, we ought firſt to be aſſured of the ſtate of the *os uteri*, becauſe this will ſometimes be ſpread over the head of the child, ſo thinly and uniformly, before it is in any degree dilated, as to reſemble the membranes. But when the *os uteri* is wholly dilated, and we have determined upon the propriety of breaking the membranes, no inſtrument is required for that purpoſe. If they be confined with the end of the fore-finger upon the head of the child, during the time of a pain, they generally give way; or if this be inſufficient, they may be rubbed with the end of the finger, on one particular ſpot, till they are worn through; or they may be ſcratched with the nail of the finger, cut and turned up for that purpoſe. I am perſuaded, that no perſon, who is capable of judging when the membranes ought to be broken, will ever meet with any difficulty in breaking them.

4. *Imperfect diſcharge or dribbling of the Waters.*

This circumſtance is a cauſe, or at leaſt a frequent attendant on Difficult Labours, eſpecially when the membranes have been broken deſignedly, or ſpontaneouſly, before the *os uteri* was dilated, though far more frequently in the former caſe. For if the membranes do not break, or be not broken, before the complete dilatation of the *os uteri*, the whole quantity of the water is generally diſcharged

* When the head of the child is born with the membranes unbroken, it is ſaid to be born with a cawl. To this cawl imaginary virtues have been attributed, and a fancied value has been ſet upon it. It was eſteemed the perquiſite of the midwife, and perhaps the whole was the contrivance of ſome intelligent man, to prevent her from interfering with any labour, which was going on in a natural way.

at once, and the head of the child is ſpeedily advanced by the ſucceeding pains. Sometimes indeed the head of the child is ſo placed, as to lock up a great portion of the water, which cannot eſcape, till the head is expelled. Should the water be imperfectly diſcharged, a further ſmall portion of it is uſually evacuated whenever there is a pain, and the pain is not immediately efficacious, or entirely ceaſes after the diſcharge. In this ſituation there are only two methods to be purſued; we muſt either wait till all the water is drained away by theſe repeated ſmall diſcharges, or we muſt contrive ſome method, by which their evacuation may be haſtened. If there be no particular reaſon againſt our waiting, it is better not to interfere, but to leave the buſineſs entirely to nature, explaining the ſtate of the caſe to the patient or her friends, taking care to prevent their apprehenſion of danger from the delay of the labour, and not by our ſolicitude to raiſe their expectations or their fears unneceſſarily. But when the water dribbles away in the advanced ſtate of a labour, or there is reaſon for our wiſhing a ſpeedy concluſion of it, either on account of the mother or child, it will be expedient to forward the diſcharge of the water, by raiſing the head of the child a little higher into the *pelvis*, by the introduction of the fingers and thumb of the right hand, which may be done without prejudice either to the mother or child, during the continuance of the pains; or by preſſing the head towards the hollow of the *ſacrum*, by which means, more room will be made for the water to eſcape. However, the dribbling of the water is not a circumſtance of much importance, when it is not combined with other cauſes of difficulty; and it may be again mentioned, that it is generally occaſioned by the artificial or premature rupture of the membranes.

5. *Shortneſs of the* funis umbilicalis.

The *funis umbilicalis* ſeems to admit of a greater variety, both in thickneſs and in length, than any other part of the *ovum* when at its full growth, being in one ſubject ſeveral times thicker than in another,

another, or perhaps three or four times as long in one as it is found in another. It may be naturally very ſhort, or it may be rendered ſo accidentally, by its circumvolution round the neck, body, or limbs of the child. Whichſoever of theſe is the caſe, the inconvenience produced at the time of labour is the ſame; that is, the labour may be retarded; or perhaps the *placenta* may be looſened prematurely; or the child may, in a tedious labour, be injured or in danger of being deſtroyed by the tightneſs of the ligature drawn round its neck; or by the mere ſtretching of it, as this muſt neceſſarily leſſen the diameter of the veſſels, if not perfectly cloſe their cavity. But the two latter conſequences very ſeldom follow.

The ſhortneſs of the *funis* is always to be ſuſpected, when the head of the child is retracted upon the declenſion of every pain; and it may ſometimes be diſcovered, that it is more than once twiſted round the neck of the child, long before it is born.

Various methods have formerly been recommended for preventing this retraction of the head, ſome of which are inſufficient, and others unſafe*; and the inconvenience is uſually overcome, by giving the patient more time. But if the child ſhould not be born, when we have waited as long as we believe to be proper or conſiſtent with its ſafety, or that of the parent, it will be requiſite to change her poſition, and inſtead of ſuffering her to remain in a recumbent one, to take her out of bed, and raiſe her upright, to permit her to bear her pains in that ſituation; or according to the ancient cuſtom of this country, to let her kneel before the bed, and lean forwards upon the edge of it; or, as is now practiſed in many places, to ſet her upon the lap of one of her aſſiſtants. By any of theſe methods the retraction of the head of the child is not only prevented by its own gravitation, but the weight of the child will be added to the power of the pain; and it will likewiſe be expelled upon an inclined

* Nocet obſtetricis digitus ano immiſſus, item nimia feſtinatio.—RUYSCH.

plane

plane inſtead of a level. In the courſe of practice, I can with infinite ſatisfaction recollect a great number of caſes, in which, by adverting to the benefits to be gained by an erect poſition, labours have not only been accelerated, but the uſe of inſtruments, which were before thought neceſſary, has been avoided.

When the head of the child is expelled, if the *funis* be twiſted round its neck, there is ſometimes a little delay and difficulty, before the body can be protruded or extracted. We are, in the firſt place, taught, that it is proper to bring this over the head forwards, leſt the *placenta* ſhould be ſeparated, or the body of the child be hindered from advancing till it ſuffers detriment, or is brought into abſolute danger. But it is in ſome caſes drawn ſo tight round the neck, that this cannot be done, without increaſing the hazard of the miſchief we wiſh to avoid. We have then been adviſed to ſlide the *funis* back over the ſhoulders, but this may be equally impracticable with the former method. If either of theſe intentions can be accompliſhed without violence, they are to be attempted, otherwiſe they muſt be omitted. The child will nevertheleſs be expelled, if we wait for the return of a few pains, which we may very ſafely do, and without any other inconvenience than ſome increaſed diſtention of the *perinæum*; the body making a ſhorter bend or doubling, on account of the confinement of the neck by the twiſting of the *funis*.

Inſtances have occurred, in which, though the head of the child was expelled, and the pains continued, the body has remained, and could not even be extracted with all the force which could be exerted, for a long time, perhaps for ſeveral hours. Two things are then to be conſidered, firſt, whether the child be living; ſecondly, whether it be hindered merely by the ſhortneſs of the *funis*. If a child in this poſition ſhould ſhew any ſigns of life, if the pulſation in the navel-ſtring ſhould be vigourous, or the child ſhould breathe, though imperfectly, we have no occaſion to be in a hurry, it being only

only requiſite, that we ſhould keep its mouth open, to allow of the free acceſs of the air, till it is expelled, or can be more readily extracted; for the internal organs will accommodate themſelves to that ſtate, and the child will poſſeſs a ſpecies of life half uterine, and half breathing. But when it has remained in that ſituation as long as we think conſiſtent with its ſafety, and it cannot without great violence be extracted; ſhould it then be hindered by the ſhortneſs of the *funis* only, we have been taught*, that it is adviſable to divide the *funis*, before the body is expelled. Previous to our doing this, it will however be expedient to tie the *funis* with two ligatures, and then to divide it between them, otherwiſe the child will be inſtantly deſtroyed by the ſudden guſh of blood; as happened in an unfortunate caſe under my own care, though it was living when I divided the *funis*, and was afterwards very ſoon expelled.

When the child is dead, and the total excluſion of it is prevented by the tumefaction of the body, by the ſize or awkward poſition of the ſhoulders, or any other cauſe; by paſſing a napkin or handkerchief round its neck, and taking both the ends in our hands, we ſhall be able conveniently to exert much force; and if we pull ſteadily and in a proper direction, we ſhall uſually ſucceed in extracting it. But if we be yet foiled in our attempts, by turning the head on one ſide, we muſt endeavour to bring down one or both arms, which being included in the handkerchief, will allow us to pull with yet more force, and facilitate the paſſage of the body, by leſſening its bulk. The greateſt difficulty of this kind I ever ſaw, was in conſequence of the inflation of the whole ſurface of the body from its putrefaction, and there was occaſion for all the force I could exert for ſeveral hours. But in other caſes I have ſucceeded better, by availing myſelf of the changes produced, by waiting and giving more time, rather than by the exertion of much force. The

* See *Chapman*—p. 63. and 85.

caſe

caſe of one woman, who abſolutely died under theſe circumſtances, was related to me; but I could not ſatisfy my mind, that her death was to be attributed merely to this ſituation and retention of the child.

6. *Weakneſs of the conſtitution.*

The health of women at the time of parturition is often impaired, either by ſome general indiſpoſition, which may have continued through pregnancy, though not altogether dependent upon it; or, by ſome diſeaſe with which they are attacked, when they are perhaps in daily expectation of falling into labour. The more perfect their health is, the better fitted they are for child-bearing, as the proceſs will not only go on with more regularity, but they will alſo recover more favourably, as is well known to thoſe who are engaged in the practice of midwifery. Becauſe, though it be allowed, that the ſtate of child-bearing is not a ſtate of diſeaſe, yet experience has ſhewn, that women are then more liable to be infected with contagious diſeaſes than at any other time; and that all diſeaſes, with which they are then affected, are not only apt to fall upon thoſe parts which are left in a more irritable ſtate, in conſequence of the changes they have ſo lately undergone, but the progreſs of diſeaſe is alſo then more violent, and the event far more dangerous*.

But the caſe of which we are now ſpeaking is, when the general health of women is reduced below its proper ſtandard, by ſome previous or accompanying diſeaſe, not abſolutely connected with a

* Hence at the time of any epidemic diſeaſe, women more frequently fail in child-bed, though they are managed with equal ſkill and care. In the hiſtory of the different plagues in London, there are ſometimes two or three hundred women who are put down as dying in child-birth in one month. *Procopius* has alſo told us in his account of the plague at Conſtantinople—*Tres ſaltem puerperæ convaluere*; that is, I preſume, of thoſe who actually had the plague. On this ſubject we ſhall ſpeak again in the chapter on the puerperal fever.

ſtate of pregnancy; of which a conſumption is a very fair example, as conſumptive perſons ſeem of all others to be in the moſt hopeleſs ſtate. Yet though ſuch are often in their own minds, and in the opinion of their friends, not able to go through the fatigue and other unavoidable conſequences of child-bearing, I do not recollect one inſtance of any woman, in that ſituation, being unequal to her delivery, or having her fate haſtened by it. If ſuch women have little ſtrength, they have little difficulty to overcome; the ſtate of the parts, which in a common way might require the exertion of much force to dilate, correſponding with the force which they are able to exert; and more time only is required. When a prognoſtic however is made of the probable event of ſuch labours, it is to be preſumed, that no particularly untoward circumſtance ſhall occur; for if there ſhould, it cannot be expected, that with extreme debility there ſhould be the ſame power or reſources, as in great ſtrength and good ſpirits.

In conſtitutions much reduced by a conſumption, or a diſeaſe of any part not immediately affected by child-bearing, there is uſually not only ſufficient ſtrength for perfecting the buſineſs of a common labour, but the patient appears to be relieved for a certain time after her delivery; and then, if the diſeaſes were not dependent on pregnancy, or were incurable, they return, and make their wonted progreſs.

The effect of diſeaſes ſeems alſo, in many caſes, to be ſuſpended during pregnancy. Of the diſtinctions to be made in the opinion we may be called upon to give of the event of acute diſeaſes, during which a patient may either be delivered at her full time, or ſuffer abortion, we ſhall ſpeak when we come to the ſubject of uterine hemorrhages.

7. *Fever or local inflammation.*

On the acceſſion of labours, there is uſually ſome increaſe of heat,

of the quickneſs of the pulſe, thirſt, fluſhed cheeks, and a general feveriſh diſpoſition; and commonly theſe continue in proportion to the exertions required or made for the completion of the labour, with reſpect to which they are, properly ſpeaking, merely ſymptomatic. But in ſome caſes the excitement is too great, and inſtead of helping the action of the parts concerned in parturition, it prevents their acting with regularity or energy. Whenever the pains of labour are feeble, it is a vulgar cuſtom, without regard to the cauſe, to give cordials very freely, with the view of accelerating their returns, or of ſtrengthening them; though, under many circumſtances, by ſuch proceeding* we evidently add to the evils we mean to remove. In ſome caſes alſo, from the acuteneſs and conſtancy of the pain which the patient endures, and from its ſituation alſo, it may be readily diſtinguiſhed from that which is occaſioned by the action of the *uterus*, giving us too much reaſon to ſuſpect, that ſome of the contents of the *abdomen* are already in a ſtate of inflammation, which may require immediate attention.

It does not ſeem neceſſary to bleed every patient on the acceſſion of labour, and for ſome it muſt be highly improper. But whenever the feveriſh ſymptoms become violent, it is I believe univerſally proper, the quantity of blood taken away being ſuited to the degree of fever, and to the conſtitution of the patient; and much ſervice will alſo be done by the frequent exhibition of emollient clyſters, or even a common purging draught, by keeping the room cool and well aired, by giving cooling drinks and medicines, and by keeping the patient in a quiet ſtate. When the fever is removed, the natural pains will come on, and perform their office with propriety and

* *Lord Bacon* ſeems to have had a clear idea of this, though, by the manner of expreſſion, his meaning is rendered ſomewhat obſcure: "To procure eaſy travails of women, the intention is to bring down the child, whereunto they ſay the loadſtone helpeth; but the beſt help is to ſtay the coming down too faſt." *Nat. Hiſt. cent.* x. 968.

ſucceſs. Independently of fever, when the exertions which the patient makes are vehement, if ſhe be plethoric, there is on that account ſometimes a neceſſity of taking away ſome blood; for during theſe vehement exertions, if the blood-veſſels be diſtended, ſome of them may give way, and the patient be brought into the moſt imminent danger, before the delivery, then at hand, is completed. Of one inſtance I have been informed by the medical attendant, in which a patient, thus circumſtanced, burſt a blood-veſſel in the lungs, and died immediately, in the exertions of the very pain by which the child was expelled.

8. *Want of Irritability in the Conſtitution.*

Under many circumſtances which occur in the practice of medicine, it has been obſerved, that when a cauſe of pain exiſts, it is found to produce an effect quite contrary to what might be expected: that is, inſtead of exciting the powers of any one part, or of the whole frame to action, it creates a partial or univerſal inſenſibility, and a diſproportionate action. In ſome caſes, on the acceſſion of labour, the cauſe, inſtead of raiſing a diſpoſition to act, or a power of acting with energy, in the parts concerned, ſeems to leſſen both the diſpoſition and power to act, and ſometimes even to deprive them, for a certain time, of all power, as effectually as if they were become paralytic. Inconveniencies of this kind are moſt frequently obſerved to take place in fat and inactive women; and ſuch, in ſpite of all the means which can be ſafely uſed, will neceſſarily often have very ſlow and lingering labours; and though they at length be delivered by their pains, feeble as they are, when there is no material cauſe of obſtruction, much time will be required for every part of the proceſs. I have often ſuſpected, that the foundation of this imperfect action, or total inaction in the advanced ſtate of labour, may have been laid by ſome error or accident in the beginning, perhaps by exciting the action prematurely, which will, of courſe, ceaſe when

when the artificial cauſe is removed*; but ſometimes theſe imperfections have evidently been occaſioned by ſome ſpecific affection or action of the conſtitution.

The circumſtances attending labours are generally alike, yet in many women they are marked with ſome peculiarity, moſt frequently in the time required for their completion. When there has been an opportunity of obſerving the progreſs of a labour in two or three inſtances, we ſhall be able to tell what will be the probable termination of any future labours in the ſame perſon, and at what time it will take place; but we can no more control the order of a labour in one woman, ſo as to make it correſpond with or exactly reſemble that of another, than we can judge of the quantity of food which one perſon may require by that which is ſufficient for another, or regulate any other function. One woman may require twelve hours for the production of the ſame effects in the time of labour, that another may finiſh in four hours, or even in leſs time; and it would be in vain to attempt to make an alteration by art, becauſe the reaſon exiſts in ſome eſſential property of the conſtitution, beyond the power of medicine, or of any method to alter.

9. *Paſſions of the Mind.*

As the infirmities and particular ſtate of the body have a powerful influence upon the mind, and as the affections of the mind have, on various occaſions, a reciprocal effect upon the body, it might be reaſonably expected, that the progreſs of a labour ſhould ſometimes be forwarded or hindered by the paſſions. It is conſtantly found, that the fear of a labour, or the ſame impreſſion from any other cauſe at the time of labour, often leſſens the energy of all the powers of the conſtitution, and diminiſhes, or wholly ſuppreſſes for a time, the action of the parts concerned in parturition. It is alſo

* See Chap. v. Sect xi.

obſerved,

obſerved, that a cheerful flow of the ſpirits, which ariſes from the hope of a happy event, inſpires women with an activity and reſolution, which are extremely uſeful and favourable in that ſituation. In the time of a labour proceeding very ſlowly or irregularly, doubts and fears in the mind of the patient have an evident and great influence upon the pains; and when theſe are removed, and her reſolution confirmed, ſhe will go on with courage, and effects will be produced, which would have been impoſſible, if ſhe had remained in a ſtate of depreſſion. The intelligent practitioner, who ſhould be the laſt perſon to deſpond, will avail himſelf of the knowledge of theſe things, and by his diſcretion he will inſpire his patient with ſentiments, which will enable her to go through difficulties, which to her feelings, and perhaps to his own judgment, appeared inſurmountable. He will alſo regulate the conduct of all her attendants and friends, and lead them ſtep by ſtep to co-operate in his views and intentions, which will at length terminate to the real advantage of his patient, the ſatisfaction of her friends, and the increaſe of his own reputation.

10. *General Deformity.*

Many women, who are gibbous or diſtorted in the courſe of the ſpine, have the *pelvis* well formed; and there are a few in general appearance perfectly ſtraight, who have yet ſome defect in the *pelvis*. Of the eaſe or difficulty of labours, depending ſimply upon the capacity or form of the *pelvis*, we are to ſpeak in another place. Thoſe who are gibbous, are not unfrequently aſthmatic, or have ſome infirmity which prevents their breathing freely, or retaining their breath; and ſuch muſt ſuffer ſome inconvenience at the time of labour, though the action of the *uterus* may be proper, and all the parts concerned in parturition in a natural ſtate. For as both the inſtinctive and voluntary force, eſpecially the latter, are affected by the manner of breathing, and duly exerted only when the breath

is

is retained, and this not being under ſuch circumſtances poſſible, of courſe the progreſs of the labour muſt be retarded. Should there be any reaſon to ſuſpect inflammation about the *thorax*, particular attention muſt be paid to it, otherwiſe we have only to give more time for the completion of the labour, and to wait for that effect from a repetition of feeble pains, which, without this inconvenience, would have been produced by a ſmaller number. I have known one inſtance of a patient labouring under a fit of ſpaſmodic aſthma, who was immediately freed from the aſthmatic ſymptoms on the acceſſion of the pains of labour.

SECTION V.

ON THE SECOND ORDER;

OR

Thoſe Labours which are rendered difficult by the Rigidity of the Parts to be dilated.

1. *Firſt Child.*

EVERY woman is expected to ſuffer greater pain, and to have a more tedious labour with her firſt, than with ſubſequent children, and the difference is not unuſually in proportion to the number which ſhe has had*. Thus if a woman were to be twenty-four hours in labour with her firſt child, ſhe might be ſix with her ſecond, and with the reſt four, or perhaps two; but from any general eſtimate of this kind there will be many deviations. It was before

* I have heard a voice as of a woman in *travail*, and the *anguiſh* as of her that bringeth forth her firſt child.

Jeremiah chap. iv. ver. 31.

obſerved,

obſerved, that when women have had ſeveral children, the practitioner is often able to form a tolerably preciſe opinion of the kind of labour, which they will in future be likely to have, and which may be as peculiar to their conſtitutions, in manner and time, as any other function of the body. It is no more in our power to change this conſtitutional labour, as it may be called, than it is to alter the frame of the body, or any of the functions thereon depending.

The difficulty, with which firſt labours are often completed, not only depends upon the greater rigidity of the parts, or upon their reaction, but on the imperfection or irregularity of the action alſo, by which they are to be dilated; for this is generally far leſs perfect and regular in the firſt inſtance, than when the ſame office has been frequently performed, as in many inſtances which might be adduced. But though there is a ſomewhat greater chance of women wanting aſſiſtance with firſt labours than in ſubſequent ones, there may be no ſpecific cauſe of difficulty, and they generally require only more time to be given for their completion. We are to remember, that even with a firſt child it would not be proper to denominate a labour *difficult*, till it had continued twenty-four hours, if the preſentation were natural, and no other adverſe circumſtance ſhould occur.

2. *Advanced in Age.*

If a woman be far advanced in age at the time of having her firſt child, the difficulty attending her labour may be expected to be greater. At a certain time of life, every woman arrives at maturity, or that period when ſhe may be conſidered as having acquired the greateſt degree of perfection, of which her frame is capable; when the inconveniencies of youth are paſſed, and thoſe of age are not arrived. This ſtate of perfection, the time of which will vary in different conſtitutions and climates, and which may be determined

determined as the beſt fitted for the act of parturition, may include ſeveral years. But if a woman ſhould firſt be with child before or after this time of perfection, ſhe will be liable to difficulties, as in the one caſe ſhe would be ſcarcely able to bear without injury the changes ſhe muſt undergo; and in the other, the firmneſs, which all the parts have acquired, might leſſen their diſpoſition or capability of dilating. Greater force will therefore be neceſſary, or the ſame degree of force muſt be continued for a longer time in the latter caſe; in other words, ſhe muſt have a ſharper, or a longer labour. In this country there has ſeldom been any reaſon to ſuſpect women to be pregnant, before they were able to bring forth children without any or much inconvenience on that account. For the prevention of ſuch difficulties, as may attend the firſt act of parturition in thoſe who are advanced in age, we have been adviſed to order frequent and ſmall bleedings towards the concluſion of pregnancy, that the patient ſhould take ſome emollient laxative medicine, and ſit over the ſteam of warm water every night at bed time, and afterwards anoint the external parts with ſome unctuous application. Perhaps there is not authority for ſaying, that no advantage can be derived from the uſe of theſe or ſuch like means; but certainly the impreſſion made upon the mind of the patient by the novelty and peculiarity of the method will, in patients of a timid diſpoſition, raiſe ſuch apprehenſions of danger and difficulty, as will over-balance the good which can poſſibly be derived from them. It is therefore better, to omit the uſe of any ſuch means on this account; at leaſt, not to recommend them in a formal way, for this ſpecific purpoſe, more eſpecially as it does not conſtantly happen, that the difficulty of labour is in proportion to the age of the patient when ſhe has her firſt child; this being in many caſes as eaſy at forty years of age or upwards, as if ſhe were only twenty-five. In the worſt labours ariſing from this cauſe, there is no peculiarity in the difficulties, but merely a general increaſe of

thoſe which are produced by the rigidity of the parts, and therefore a longer time only is commonly required for their completion.

3. *Too early Rupture of the Membranes.*

The premature rupture of the membranes, whether natural or artificial, has been often mentioned as the cauſe of much miſchief, and of many tedious or difficult labours. If it be allowed, that the membranes containing the waters were intended to be the medium by which the *os uteri*, and other tender parts, ought to be dilated, ſome inconvenience muſt ariſe when theſe are broken and the waters diſcharged, the head of the child being ſubſtituted for them; and this, being a firmer and leſs accommodating body, cannot, for a long time, be admitted within the circle of the *os uteri*, which will of neceſſity be dilated more untowardly and more painfully.

After the rupture of the membranes, many hours, or ſeveral days, ſometimes paſs before the acceſſion of labour, and the difficulties ariſing from this cauſe, even in firſt labours, will then be very much leſſened, if the patient have generally lain in a recumbent poſition, and we have deferred, as far as was in our power, the coming on of the action of the *uterus*, till the moſt perfect diſpoſition to dilate was previouſly aſſumed by the parts. More pain will be endured, and a longer time will certainly be required for completing labours attended with this circumſtance only, principally thoſe with firſt children; but they may in general be more properly called lingering or tedious, than really difficult, and they very ſeldom require the interpoſition of art.

4. *Oblique Poſition of the* Os Uteri.

The natural poſition of the *os uteri* at the commencement of labour, and that in which it is moſt conveniently diſtended, is at the centre of the ſuperior aperture of the *pelvis*; for when thus placed, the effect of the action of the *uterus* is moſt favourably produced.

duced. But the *os uteri* is ſeldom found exactly in this ſituation, being in ſome caſes projected on either ſide, and in others ſo far backwards, that it cannot even be felt for many hours after the labour has begun. This oblique poſition of the *os uteri*, to what direction ſoever it may tend, has been conſidered not only as a frequent, but as the moſt general cauſe of difficult labours; and this doctrine, which was firſt promulgated by *Deventer*, was, at one period of time, taught and received in all the ſchools of midwifery in *Europe*. In every inquiry after knowledge, in almoſt any ſcience, opinions may be advanced, which ſometimes lead to further improvement; but when experience has proved, opinions ſhould end; for if ſo much regard be paid to opinions, as to found any certain practice upon them, and they ſhould prove erroneous, they become the ſource of much miſchief, the practice remaining, when the doctrine on which it was founded may have been diſproved, become obſolete, or forgotten. The preſent caſe is a ſtriking example of the truth of this obſervation; for when it was preſumed, that every difficult labour was occaſioned by the oblique poſition of the *os uteri*, it was immediately ſuppoſed neceſſary to remedy the inconvenience thence ariſing by manual aſſiſtance, and to drag the *os uteri* from its oblique to a central poſition during the time of every pain, which muſt have been greatly prejudicial. The opinion of the oblique poſition of the *os uteri* being the chief cauſe of difficult labours was ſoon fully proved to be erroneous, yet the practice remained. Though it were oblique, ſuch poſition is not to be conſidered as a general cauſe of the difficulty, but as an accompaniment of ſome other primary cauſe. Thus when the *pelvis* is diſtorted, the *os uteri* is conſtantly found in an oblique ſituation, yet the difficulty of the labour, as well as the obliquity, is occaſioned by the diſtortion.

It muſt however be allowed, that ſome labours are procraſtinated by the mere oblique poſition of the *os uteri*, and that it is often combined with other cauſes of difficult labours, though, ſingly, it may

not be of ſufficient importance, to be the cauſe of truly difficult ones. But when it does retard a labour, or accompany a difficult one, it does not require any manual aſſiſtance, or that we ſhould retract it to a central poſition with reſpect to the cavity of the *pelvis*; both the thing itſelf, and the difficulty thence ariſing will be obviated, without detriment or much trouble, if the patient be confined to a proper poſition. If, for example, the *os uteri* be projected to the left ſide, ſhe ought to reſt as much as poſſible on the ſame ſide, and ſo of the right; if it be projected backwards, which is always the caſe when we cannot reach the *os uteri* in the beginning or early part of a labour, ſhe ought to lie upon her back. By this method the *fundus* of the *uterus*, conſtantly leaning or inclining to the ſide of the obliquity, will gradually but effectually project the *os uteri* more and more towards a central poſition.

Caſes have been recorded, in which it was ſaid, that the *os uteri* was perfectly cloſed, and in which it has not only been propoſed to make an artificial opening inſtead of the cloſed natural one, but the operation has actually been performed, the labour, it is ſaid, being thereby accelerated, the patient recovering without inconvenience. I do not know that I ſhould be juſtified in ſaying, that ſuch caſes have never occurred, becauſe they have not occurred in my practice; but I am perſuaded, that there has been an error in this account, and that what has been, in ſome caſes, called a perfect cloſure of the *os uteri* has not been ſuch, but that the practitioner has, at an early period of a labour, been unable to diſcover it by reaſon of its obliquity.

5. *Extreme Rigidity of the* Os Uteri.

Difficult, as well as tedious and very painful labours are frequently occaſioned by the unuſually rigid ſtate of the *os uteri*. The manner of, and the time required for, its dilatation, will depend upon two circumſtances; firſt, the degree of diſpoſition to dilate

which

which it may have previouſly acquired; and ſecondly, the degree or force of the action exerted by the *uterus*. The former of theſe is, in general, far leſs perfect with firſt than with ſubſequent children, as well as in premature labours, even preſuming that it was in its moſt natural ſtate; but when the *os uteri* aſſumes from any cauſe a ſtill greater indiſpoſition to dilate, of courſe the labour will be both more difficult and tedious. In a firſt labour it not unfrequently happens, that the *os uteri* may not be dilated in leſs than twenty-four or even forty hours, when the reſt of the labour may be completed in four, or perhaps a ſhorter time, yet the very ſame perſon may have the whole proceſs with her next child completed within ſix hours, or even a ſhorter time.

We have before taken notice of the advantages ariſing from the changes in the ſtate of the ſoft parts being perfected, before the acceſſion of labour. But when theſe are as favourable as can be wiſhed, by the very action of the *uterus* preſſing its contents upon the *os uteri*, and much more frequently by attempts to dilate it artificially, this part may become inflamed, and indiſpoſed to dilate according to the degree of inflammation. The inflamed ſtate of the part is often indicated by its heat and dryneſs; but whenever it is extremely rigid, and there has been a long continued action of the *uterus*, with little or no advantage, the impediment to the progreſs of the labour being clearly occaſioned by the reſiſtance made by the *os uteri*, I believe it is always right to conſider that part as inflamed. If this be allowed, inſtead of attempting to dilate it artificially, it is the proper object of art, to recover in the firſt place the natural diſpoſition to dilate, and then the pains of labour will be equal to the purpoſe. With this view it will be neceſſary to take away ſome blood, to give cooling medicines and drinks, to direct emollient clyſters to be frequently injected, and, inſtead of uſing any means with the intention of increaſing the force of the pains, to confine the patient to a recumbent poſture; to gain, if it

were

were in our power, a ſuſpenſion of the labour, till the inflammatory diſpoſition be removed, when the dilatation will proceed more ſpeedily, leſs painfully, and without danger of affecting the conſtitution.

When a labour comes on prematurely, or before the parts have acquired their dilatable ſtate, as it may be called, the poſition of the *os uteri* will at that time be very different. In ſome caſes it begins to dilate when it is high up in the *pelvis*, but in others, eſpecially when the *pelvis* is, in compariſon with the child, very large, the *os uteri* may be protruded very low down before there is any degree of dilatation, though it is ſpread ſo thin over the head of the child, or the membranes, as to give the feel of the membranes alone. If, under theſe circumſtances, the external parts ſhould be much relaxed, and the pains at the ſame time ſtrong, it is poſſible for the head of the child to be expelled, though enveloped in the *os uteri*, and much miſchief may be thereby occaſioned*. For the prevention of this accident, or any tendency to it, when there is reaſon to dread it, the patient ought to be confined to an horizontal poſition, and the practitioner to reſtrain the advancement of the head; or, if the caſe ſhould actually have happened before he was called, he muſt uſe all the means he ſafely can, to extricate the head, and to ſupport or replace the *os uteri*. When the *pelvis* is large, and the head of the child, being moved from its reſting place upon the *pubis*, drops by its own weight into the lower part of the cavity of the *pelvis*, bearing the *os uteri* before it, the accident often becomes a cauſe of a *procidentia* or *prolapſus* of the *uterus*, which cannot, as far as I know, be always prevented. All that art dictates to be done at the time of labour, is to render this as ſlow and gradual as poſſible, and after delivery to confine the patient longer to her bed, uſing at the ſame

* Os uteri aliquando prolabitur—Ruysch. Obſ. Anatom. XXV.

time

time ſuch applications as may ſtrengthen the tone of the parts, without interrupting the cuſtomary diſcharges.

6. *Uncommon Rigidity of the external Parts.*

The ſtate of the external, as well as of the internal parts is very different in different women, both in the beginning and in the progreſs of labours. Even in firſt labours they readily yield in ſome women, ſo as to allow the head of the child to paſs through them with great facility and ſafety, but in others they are extremely rigid and unyielding, and withſtand the action of the *uterus*, though ſtrong, for a very long time; and then do not dilate without great danger of laceration. A more difficult dilatation is always to be expected in firſt labours than in others, and more care is required to prevent a laceration. In the original ſtructure or formation of theſe parts there is alſo a conſiderable difference, as well as in their ſtate or diſpoſition, and theſe require ſome attention in every labour. There ought to be, and uſually is a correſpondence between the ſtate of the parts and the power of the pains; but in ſome caſes the external parts are rigid when the pains are feeble, whilſt in others, when the parts are indiſpoſed to dilate, the pains are exceedingly ſtrong, puſhing, with unabating force, the head of the child, ſo that the parts muſt either dilate or be lacerated. Of many of theſe circumſtances we have already ſpoken.

In firſt labours the external parts may require one, or ſeveral hours continuance of the pains, before they are ſufficiently dilated to allow the head of the child to paſs through them without danger of laceration; but the difficulty thence ariſing does not ſeem to require, or to be relieved by our interpoſition, farther than to prevent injury as far as that is in our power, from too ſpeedy an excluſion of the head of the child, in the manner before adviſed. The merit of our conduct under theſe circumſtances will be chiefly negative; for if we cannot give to the parts their diſpoſition to dilate, and ought not to dilate them artificially, there only remains

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for us to wait the due time in order to avoid miſchief; art being more frequently exerciſed on ſuch occaſions in remedying the evils, which the miſtaken exerciſe of the art has before produced, than in rectifying thoſe which are neceſſary or unavoidable. It is alſo to be obſerved, when the head of the child paſſes through the inferior aperture of the *pelvis* with difficulty, though the external parts are preſſed upon with conſiderable force, that the impediment to the delivery does not always ariſe from the reſiſtance made by theſe, but properly ſpeaking from the elongation or bending of the ſpinous proceſſes of the *iſchia*, and the labour ſhould then be referred to the next order

SECTION VI.

ON THE THIRD ORDER;

OR

Labours rendered Difficult by diſproportion between the dimenſions of the cavity of the Pelvis *and the Head of the Child.*

1. *Original Smallneſs of the* Pelvis.

THE cavity of the *pelvis* in women generally bears a certain proportion to the common ſize of the heads of children; yet as they both admit of conſiderable variation, independent of diſtortion or diſeaſe, it is poſſible, that a woman with a *pelvis* rather under the common dimenſions may have conceived a child far beyond the uſual ſize; and when this is the caſe, there muſt of courſe be an increaſed difficulty at the time of parturition. When therefore the ſmallneſs of the cavity of the *pelvis*, and the largeneſs of the head of the child are mentioned, they are to be conſidered as relative and not as poſitive terms; becauſe the *pelvis* of ſome individual woman may be

to large, as to ſuffer the largeſt head of a child, of which we have any example, to paſs eaſily through it; and the ſmalleſt head may be eſteemed large, if compared with a yet ſmaller *pelvis*.

Though a labour may, from either of theſe cauſes, ſeparate or combined, be rendered more tedious and painful than uſual, as in conſequence of the action of the *uterus* the head of a child rather larger than ordinary will be compreſſed into a much leſs compaſs, and moulded to the form as well as the dimenſions of the cavity of the *pelvis*, there is not uſually occaſion for the aſſiſtance of art, if the labour be in other reſpects natural. But we are to wait patiently for thoſe changes, which in due time may be reaſonably expected, and ſcarcely ever fail to take place.

2. *Diſtortion of the* Pelvis.

On the cauſes, kinds, and degrees of diſtortion of the *pelvis*, we have already ſpoken very fully*. The effects produced, or the impediments occaſioned by this diſtortion, at the time of parturition, will ſomewhat depend upon the part diſtorted, or upon the kind of diſtortion, but chiefly on the degree of change made in, or reduction of, the dimenſions of the cavity, by which the natural relation between it and the ſize of the head of the child is perverted or deſtroyed. Diſtortion of the *pelvis* at the ſuperior aperture creates an obſtruction to the paſſage of the head of the child, which will be overcome with more difficulty by the powers of the conſtitution, and which will be more inconveniently managed by art, than an equal degree of obſtruction in the lower part of the *pelvis*. The greatneſs of the difficulty will nevertheleſs chiefly depend upon the degree; and in the various degrees which are found to occur, every perſon muſt ſee an evident cauſe for all the kinds of difficulty which he may meet with in practice. A ſmall degree of diſtortion,

* See Chap. i. Sect. x.

like an originally ſmall *pelvis*, may occaſion a difficult labour of that kind which may not be an object proper for the exerciſe of his art, as it will at length be completed by the long continued action of the *uterus*, firſt moulding and reducing the form and ſize of the head till it is adapted to that of the *pelvis*, and then forcing it through the diminiſhed cavity. Or, the degree of diſtortion may be ſuch, that, notwithſtanding all the moulding and reduction of the head, which can be accompliſhed by time and the efforts of the conſtitution, there does not remain ſufficient room for the paſſage of the head through the *pelvis*, but it may nevertheleſs be at length brought into ſuch a ſituation, as to afford us the hope of ſafely delivering the patient by art, and of preſerving the life of the child. Or, the diſtortion may be ſo conſiderable, that it is impoſſible for the head of the child to be expelled without leſſening it, and the child, if living, muſt be ſacrificed to the ſafety of the parent. Or, laſtly, the diſtortion may be actually ſo great, that if the head of the child could be leſſened, there would not be a poſſibility of extracting it, and we muſt either ſubmit to loſe the lives both of the parent and child, or attempt to ſave that of the latter, by the *ceſarean* ſection, or by ſome other operation almoſt equally hazardous, ſuch as the diviſion of the *ſymphyſis* of the *oſſa pubis*.

In many of thoſe caſes in which there is a very great degree of diſtortion of the *pelvis*, the impoſſibility of the head of the child paſſing through it is ſelf-evident, and readily diſcovered on the firſt examination *per vaginam*. But in leſs degrees of diſtortion, no judgment can be formed *à priori* whether the head can paſs or not; and we ought to defer any determination upon the neceſſity or propriety of giving aſſiſtance, as well as the kind of aſſiſtance to be given, till we are convinced by conſequences, that the difficulty cannot be overcome by the powers of the conſtitution; and the conviction is in many caſes not ſatisfactory, till the efforts of the patient are diſcontinued, or ceaſe entirely. Degrees of difficulty to our apprehenſion

prehenſion inſurmountable are often overcome by the mere force of the pains, and ſo long as theſe continue vigorous, we are not to deſpair of a happy event; but encouraged by experience, and ſupported and juſtified by moral as well as ſcientific principles, we muſt rely upon the advantages, which time and proper conduct may afford.

The far greater part of thoſe labours, which are rendered difficult by the diſtortion of the *pelvis*, only require a longer time for their completion. Some however demand the aſſiſtance of art; and when this is the caſe, the kind of aſſiſtance muſt vary according to circumſtances. But theſe will be more particularly ſtated, when we come to ſpeak of the various operations in the practice of midwifery.

3. *Head of the Child uncommonly large; or too much oſſified.*

No arguments are required to prove, that a ſmall body will paſs through a ſmall ſpace with more facility than one that is large; the ſize of the body being ſuppoſed to bear any reaſonable compariſon to the dimenſions of the ſpace. Of courſe, it may be preſumed, that the larger the head of the child is at the time of birth, with the greater difficulty it will be expelled. Should the *pelvis* not be diſtorted, but of a common ſize, we may always expect that the woman will be ultimately delivered by her natural pains, if there be no other cauſe of difficulty than the largeneſs of the head, though a longer time may be required for the completion of the labour.

It is not merely from the ſize of the head of the child, that a labour may be rendered more tedious, more painful, or even truly difficult. The uſual connexion of the bones of which the head is conſtructed, is ſuch as to allow of conſiderable diminution and change of form in its paſſage through the *pelvis*. The extreme degree of diminution and change, which it is generally capable of

undergoing, is perhaps impoſſible to be determined; but it does not ſeem unreaſonable to conjecture, that it may be reduced to one third of its original ſize, without the deſtruction or even injury of the child from the compreſſion; the alteration being ſo gradually made. The advantages gained by this compreſſion of the head in all caſes of difficulty, occaſioned by the natural ſmallneſs of the *pelvis*, or in leſs degrees of diſtortion, are often greater than could have been hoped for, on almoſt any calculation, as was before obſerved. But as there is great difference in the degree of oſſification in the heads of different children at the time of birth, thoſe heads, which are moſt perfectly oſſified, muſt of courſe be capable of undergoing the leaſt change; and the degree of change, which they can undergo, muſt be produced with the greateſt difficulty, and purchaſed at the expenſe of more ſevere or longer continued pains. On this account a large head, with a very imperfect oſſification, is often found to paſs through a *pelvis*, which might be conſidered as relatively ſmall, with more eaſe than a ſmaller head in which the oſſification was more complete; and yet the cauſe of the delay may not be diſcovered before the birth of the child. In caſes of difficult labour proceeding from theſe and ſimilar cauſes, it not being in our choice to ſelect the circumſtances, all that we can do is, to manage ſuch as occur in the moſt prudent manner; and we have commonly to wait only for thoſe effects to be produced, which may be eſteemed as conſequences of the efforts of the conſtitution fairly exerted, and never to deſpair ſo long as theſe efforts are properly continued.

4. *Head of the Child enlarged by Diſeaſe.*

Two diſeaſes have been mentioned by writers as the cauſe of this enlargement, tumours growing on the heads of children, and the *hydrocephalus*; but either of theſe very rarely occurs. With reſpect to the firſt, it has been ſaid, that when the tumour, of whatever kind it may be, is of ſuch a ſize as to be an abſolute impediment to

the birth of the child, it ſhould, and may be opened or extirpated, and that the operation is not only perfectly conſiſtent with the ſafety of the mother, but frequently with that of the child alſo. Of the exiſtence of theſe tumours the inſtances recorded do not leave a doubt*; or of the poſſibility, when they are large, of their obſtructing the delivery of the patient: but of their extirpation with ſafety to the child I ſhould very much doubt, though no human being can circumſcribe poſſibility. As it is the duty, and muſt ever be the ſolicitous wiſh of every practitioner, to preſerve a life, when it is in his power, he may be induced to try the extent of his art, when there is little hope of ſucceſs. From long continued compreſſion the integuments of the head of the child may become ſo much tumefied, and altered from their natural form and ſtate, as ſometimes to give the feel of a diſtinct and adventitious tumour; and yet ſimply conſidered, ſuch are ſo far from requiring any ſurgical aſſiſtance, that it would be abſurd and flagitious to intermeddle with them. Yet when there really are any unnatural tumours or excreſcences, the point of practice would depend upon the degree of impediment to the paſſage of the head, which might be thereby occaſioned; or upon the nature of the tumour, whether it could be extirpated, or only admitted of an opening to be made into it for the purpoſe of leſſening its bulk; or if neither of theſe could be done with propriety, by acting as if no ſuch tumour exiſted, on the general principles by which we are to be guided in difficult labours.

With regard to the *hydrocephalus*, which, if of a certain ſize, would certainly be a great obſtacle to the delivery, this is not readily to be diſtinguiſhed in the early part of a labour, becauſe the membranes of the *ovum*, in ſome caſes, reſemble by their thickneſs the integuments of the head in others. But if we were aſſured, that

* Partus difficilis a tumoribus, è capitibus fœtuum dependentibus.—Ruysch. Obſ. Anatom. LII.

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an *hydrocephalus* did exiſt, there would not always be occaſion for us to act; as it is far more eligible even then to wait ſo long, as to give time for the expulſion of the head of the child by the natural efforts, if they be equal to that effect. Should the head be ſo much enlarged by the quantity of fluid contained in it, that it is too large to paſs, even in this caſe the integuments will generally burſt by the force of the pains. But when the fact is aſcertained, and the labour is rendered extremely tedious and lingering from this cauſe, or if any ſuſpicious ſymptoms ſhould ariſe, it would not be juſtifiable to allow the patient to undergo ſuch long continued pains, as when we have any hope of ſaving the life of the child, or of producing a child with a reaſonable chance of living. The delay recommended is not intended, therefore, to go farther than the prevention of miſtakes. But when we have determined upon the neceſſity or propriety of delivering the patient, all that generally is neceſſary to be done, is merely to perforate the integuments of the head, immediately after which the water flowing away, the head is ſpeedily expelled, and the birth ſoon and eaſily completed. In the extraction of the child by the feet there is not much more difficulty on this account, as the force with which we have the power of extracting is ſo great, as to burſt the integuments.

5. *Face inclined towards the* PUBES.

On a former occaſion we have mentioned, that there are four varieties in the poſition of the head of the child at the time of birth. The firſt when the *vertex* or hind head is turned towards the *pubes:* the ſecond when the face is turned towards the *pubes:* the third, when the head preſents with one or both arms: the fourth when the face preſents. The firſt of theſe may be conſidered as the ſtandard poſition, becauſe it is not only the moſt common, but the moſt eaſy alſo; the head of the child being ſo conſtructed as to admit, in this poſition, of the greateſt and moſt ready compreſſion and adaptation

adaptation to the *pelvis*, and of courſe the eaſieſt paſſage through it. Yet the other poſitions are not to be conſidered as conſtituting labours of any other claſs, but as varieties of the natural poſition: though they muſt of neceſſity occaſion conſiderable delay in all labours in which they happen; either becauſe a portion of that ſpace which ſhould be wholly devoted to the head of the child, is occupied by ſome other part unfavourably; or becauſe the bones of the *cranium*, in ſuch poſitions, more ſlowly and imperfectly conform to the ſize or ſhape of the *pelvis*. When the face of the child is inclined towards the *pubes*, the peculiarity of the poſition is not uſually diſcovered in the early part of the labour, or even when the firſt ſtage is completed, the practitioner being generally ſatisfied with knowing, that it is a preſentation of the head. But when there is any unuſual delay, perhaps without any very obvious cauſe, it then becomes a duty to inveſtigate and explore the cauſe, and it is not a very unfrequent thing to find the face turned towards the *pubes*. This poſition is moſt readily known by our being able to feel the greater fontanel in a common examination, though it is alſo proved by other circumſtances relating to various parts of the head, which may be readily diſcriminated. When this is found to be the poſition, it does not follow that any artificial aſſiſtance ought to be given, but knowing that theſe caſes are not in general dangerous, we are to wait a longer time for the effect of the natural pains; experience having proved, that the head in this poſition may be, and almoſt univerſally is, ultimately expelled without the aſſiſtance of art. Yet in ſome of theſe preſentations, that of the face towards the *pubes* in particular, it is ſaid, that by preſſure with the fingers the face may be gradually inclined to the *ſacrum*, and the head reduced without much difficulty to the firſt, or that which was ſtated as the moſt eligible poſition *. But when the pains ceaſe,

* See Tranſactions Medical and Chirurgical, Vol. ii. in which there is a paper on this ſubject by Dr. *J. Clarke*.

or when we are fully convinced that they are unequal to the exigencies of the caſe, ſuch aſſiſtance muſt be given, as the ſituation of the parent may require, and allow.

With this poſition of the head, beſides the greater length of time which may be required for moulding and expelling it, there will alſo be a greater diſtention of the external parts, becauſe the hind-head cannot properly be cleared of the *perinæum* before the chin has deſcended as low as the inferior edge of the *ſymphyſis* of the *oſſa pubis*; by which an inconvenience is produced equal to what an increaſed depth of the cavity of the *pelvis* would occaſion, or a deficiency in the arch of the *pubes*. There are alſo ſome peculiarities in the operation when we deliver with the *forceps* or *vectis*; but of theſe we ſhall ſpeak, when we come to the directions for the uſe of thoſe inſtruments.

6. *Preſentation of the Face.*

The preſentation of the face is diſcovered by the general inequalities of the preſenting part, or by the diſtinction of the particular parts, as the eyes, the noſe, mouth or chin, which is uſually turned towards the *pubes*. In this preſentation the child will generally be expelled by the natural efforts, but a much greater length of time will be required for the completion of the labour, eſpecially with firſt children, for the reaſons mentioned under the laſt cauſe, which are in this perhaps increaſed. But the child may be and generally is born without any injury, though the face will ſometimes be ſwelled in an aſtoniſhing manner, and the external parts of the mother being infinitely more diſtended than in a natural poſition, greater care is neceſſary to prevent their laceration.

If after a long continuance of the labour we ſhould be convinced, that extraordinary aſſiſtance is required, then the ſame obſervation may be made with regard to the uſe of the *forceps* or *vectis* as in the

the preceding article; but of the peculiar conduct, which it may be neceſſary to purſue, we ſhall ſpeak hereafter.

7. *Head preſenting with one or both Arms.*

Though the head ſhould preſent with one or both arms, experience hath fully proved, that a woman may be delivered by the natural efforts with ſafety to herſelf, and without prejudice to her child, if the *pelvis* be well formed. But as a part of the cavity, which ſhould be appropriated to the head, will be filled by the additional bulk of the arms, there will be an evil ſimilar to what would be produced by a ſmall, or by a ſomewhat diſtorted *pelvis*. Should the *pelvis* be barely of ſufficient dimenſions to allow the head of the child to paſs through it, then the additional bulk of the arms may render the paſſage of the head impoſſible; or the labour may be ſo much retarded, as to make it what is properly called difficult.

In the beginning or in the courſe of a labour of this kind, the practitioner will often be able to return and to detain the preſenting arm or arms beyond the head without any detriment; at all events, he muſt make the attempt, and be very careful not to ſolicit the deſcent of the arm before the head, leſt he ſhould change the whole ſituation of the child, and convert that which would have been only a variety of a natural, into a preternatural labour.

In ſome caſes we are enabled to feel the head, a foot, and an arm at the ſame time, and it will then be expedient to graſp and bring down the foot, and to deliver in that manner. But it behoveth us to diſtinguiſh very cautiouſly between a hand and a foot, becauſe the miſtake would lead us to the neceſſity of turning the child, an operation which would otherwiſe not have been required.

In preſentations of the head together with one or both arms, unleſs there ſhould be any particular reaſon for wiſhing to turn the child, the propriety of which muſt reſt upon the judgment of the practitioner, unleſs we have the power of returning the arm,

we are to be prepared to wait with patience for the expulſion of the child thus placed, by the natural efforts. When we are convinced by their failure or ceſſation, that theſe are not equal to the effect, ſuch aſſiſtance is to be given as the nature of the caſe may require; and whatever the inſtruments, which it may be neceſſary to uſe, are, their action muſt be nearly the ſame, as if the arms had not been in the *pelvis*.

Whether theſe caſes are completed by the natural efforts, or by the aſſiſtance of inſtruments, the arms of the child will be very much tumefied or bruiſed, and the child is for a certain time as unable to uſe them, as if they were paralytic. But by the help of fomentations and poultices, if needful, and by moderate motion and gentle friction, their natural appearance and uſe are recovered in the courſe of a few days; at leaſt I have not ſeen an inſtance of any permanent miſchief from this cauſe.

When the extremities preſent at the time of birth, there is often a doubt whether the child be living or not, unleſs it can be perceived to move. Now the fact may be aſcertained by the conſequences of any violence, as no part of a dead child can either tumefy or change its colour, however compreſſed it may be, and only ſhews one effect of violence, that of ſolution of continuity.

SECTION VII.

ON THE FOURTH ORDER,

OR

Labours rendered difficult by Diſeaſes of the ſoft Parts.

1. *Suppreſſion of Urine.*

THE various affections of the urinary bladder during pregnancy have been already mentioned. On the commencement of labour, it

it was ſaid, that an involuntary diſcharge of the urine might be occaſioned, but in its progreſs, there is more commonly a frequent inclination with a difficulty in voiding it, and ſometimes there is a total ſuppreſſion. The inconveniencies thence ariſing will be according to the quantity of urine retained, and to the length of time that the bladder may continue diſtended. The firſt may hinder the proper action of the *uterus*, and of courſe be an impediment to the paſſage of the head of the child, by occaſioning a leſs ſpace for it to paſs through, and projecting it alſo out of its proper direction. By the latter the bladder itſelf may be injured in conſequence of the continued preſſure, which ſome part of it may undergo from the repeated actions of the *uterus*, cauſing inflammation terminating in partial gangrene; and in ſome caſes in which relief was not given, the bladder has even been ruptured, the patient being thereby ſpeedily deſtroyed*.

In the beginning and courſe of labours, eſpecially of thoſe which are expected to be tedious or difficult, great attention is therefore to be paid to the ſtate of the bladder; the patient is to be frequently admoniſhed to void the urine, and in all caſes of doubt we are not to confide in any repreſentation made to us, but we are to be ſatisfied only with ſeeing the quantity of urine which has been diſcharged; error being often committed by confounding the water of the *ovum* with the urine. By the application of the hand to the *abdomen* of the patient, it is generally an eaſy matter to diſtinguiſh between the tumour of the *uterus*, and the flattened but circumſcribed tumour of the bladder, which lies below and before that formed by the *uterus*. The patient herſelf is ſometimes capable alſo of diſtinguiſhing that pain which is the conſequence of the action of the *uterus*, from that which is occaſioned by the preſſure upon the diſtended bladder.

To remove the obſtacle to the paſſage of the child, which may be

* See Chapman, page 143; ſee alſo Medical Obſervations and Inquiries, vol. iv.

produced by the diſtention of the bladder, and to prevent any injury to the bladder itſelf, it is neceſſary to draw off the urine with a catheter, whenever it is retained beyond a certain time or degree. In ſlighter caſes the common catheter will anſwer the purpoſe; but when the head has been long wedged in the *pelvis*, there is not ſufficient room for that to paſs, even though the head be elevated or preſſed towards the hollow of the *ſacrum*. But in ſuch caſes the flattened catheter, contrived by my very worthy and ingenious friend Dr. *Chriſtopher Kelly*, will often paſs with eaſe and convenience; though the elaſtic catheter, or that kind which is made of a ſoft and pliable metal, is often to be preferred even to this. But whatever catheter it may be found expedient to uſe, or however neceſſary it may be to draw off the urine, we are to take great care not to introduce the inſtrument with violence, becauſe we may do as much poſitive miſchief with the inſtrument, as we aim or wiſh to prevent. In ſome caſes, from want perhaps of timely care, though we are aſſured there is a great quantity of urine in the bladder, the head of the child is ſo immovably locked in the *pelvis*, that we cannot poſſibly introduce any catheter, and are therefore obliged to ſubmit to the inconveniencies, which may follow the diſtention of the bladder. But if care were taken in the beginning of labour, this does not often happen; nor is it always attended with the evils we might dread, the head of the child being at length preſſed ſo low as to allow the urine to eſcape, though very ſlowly. But in all ſuch caſes it will be prudent and neceſſary, to introduce the catheter before or ſoon after the expulſion of the *placenta*, that we may prevent the miſchief which might be expected to follow ſuch great diſtention of the bladder, if this were to remain many hours after delivery.

2. *Stone in the Bladder.*

If a woman ſhould have a ſtone in the bladder, this would be no cauſe to prevent her being with child, or proceeding through her pregnancy without moleſtation. Nor, if it were of a ſmall ſize, would it be any impediment to her delivery; though if it were large, the head of the child could not paſs through the *pelvis*, or not without much trouble and inconvenience. Of this caſe I have never met with an inſtance in practice, and may therefore be allowed to conſider it as very rare, though there does not appear to be any reaſon for judging it impoſſible. I have reflected upon the caſe, and upon the conduct which it might be neceſſary to purſue, if it had occurred to me; and though it behoves me to ſpeak with reſerve, and to be ſatisfied if little confidence be placed in what I advance, it is better on the whole to give my opinion, than to leave the matter without conſidering, or making mention of it.

In the beginning of labour, ſuppoſing there is a ſtone of a large ſize in the bladder, one of theſe conſequences muſt follow; the head of the child muſt advance before the ſtone, or the ſtone muſt be protruded before the head of the child. If the former ſhould be the caſe, we might preſume that the labour would proceed in a natural way, as if the ſtone did not exiſt; there would, at leaſt, be no demand for the aſſiſtance of art, and no juſtifiable reaſon for exerciſing it. But if the ſtone ſhould be protruded before the head of the child, our conduct muſt be regulated by the circumſtances. It ſeems reaſonable, that we ſhould firſt attempt to raiſe the head in ſuch a manner, and to ſuch a degree, as to allow us to return the ſtone beyond the head. Or if this ſhould be found impracticable, either becauſe the head of the child was too far advanced, or firmly locked in the *pelvis*, we muſt then weigh the evils to be apprehended, from the compreſſion of the ſoft parts, that is of the anterior part of the *vagina*, and the poſterior part of the bladder, between the head of the child, and the ſtone in the bladder; beſides the diſtraction of the

the parts which muſt be neceſſarily occaſioned. Whatever conduct we might purſue muſt be attended with ſome evils, and as it is only in our power to chooſe the leaſt of theſe, it ſeems better, even in the time of labour, to ſuffer the evils which might follow the performance of the operation for extracting the ſtone, than to ſuffer thoſe which may be occaſioned by the compreſſion and probable laceration of the parts. With regard to the operation, there is both leſs difficulty and danger in it to women than to men, though theſe will in ſome meaſure depend upon the ſize of the ſtone. In ſome caſes independent of pregnancy alſo, in which the ſtone is contained in a diſtinct cell of the bladder, and could not therefore be graſped or extracted by the *forceps* when introduced; it has been propoſed to make an inciſion through the anterior part of the *vagina*, directly upon the ſtone. This operation, which may in ſome caſes be eligible, has been performed twice, by two ſurgeons of great ability and eminence in the country, and, as I was informed, without occaſioning the effect to be apprehended; that of leaving a fiſtulous opening, by which the urine would have been voided for the remainder of the patient's life.

3. *Excreſcences of the* Os Uteri.

Excreſcences of the *os uteri* are uſually combined with ſome degree of ſcirrhous diſpoſition of that part. It was before obſerved that theſe excreſcences do not prevent conception, or diſturb pregnancy, at leaſt in the early period; but according to their ſize and ſituation, they muſt neceſſarily be obſtacles at the time of labour. The following caſe, which was curious in the circumſtances attending, as well as the nature of the complaint, I may be permitted to tranſcribe, as it was an example of an excreſcence of the largeſt ſize I have ever ſeen.

In June 1770, I was deſired to ſee a patient in the eighth month of her pregnancy, who in the preceding night had a profuſe hemorrhage.

morrhage. Her countenance ſhewed the effects of the great loſs of blood ſhe had ſuſtained; and from the repreſentation of the caſe given me by the gentleman who was firſt called in, I concluded that the *placenta* was fixed over the *os uteri*. On examination I felt a very large fleſhy tumour at the extremity of the *vagina*, repreſenting and nearly equalling in ſize the *placenta*, which I judged it to be. Had this been the caſe, there could not be a doubt of the propriety and neceſſity of delivering the patient ſpeedily; and with that intention I paſſed my finger round the tumour, to diſcover the ſtate of the *os uteri*. But this I could not find, and on a more accurate examination, I was convinced that this tumour was an excreſcence growing from the *os uteri*, with a very extended and broad baſis. I then concluded that the patient was not with child, notwithſtanding the diſtention of the *abdomen*, but that ſhe laboured under ſome diſeaſe which reſembled pregnancy, and that the hemorrhage was the conſequence of the diſeaſe. A motion which was very evidently perceived when I applied my hand to the *abdomen*, did not prevail with me to alter this opinion.

It was of all others a caſe in which a conſultation was deſirable, both to decide upon the diſeaſe, and the meaſures which it might be neceſſary to purſue; and ſeveral gentlemen of eminence were called in. That ſhe was actually pregnant, was afterwards proved to the ſatisfaction of every one; and it was then concluded, that ſuch means ſhould be uſed as might prevent or leſſen the hemorrhage, and that we ſhould wait and ſee what efforts might be naturally made for accompliſhing the delivery.

No very urgent ſymptom occurred till the latter end of July, when the hemorrhage returned in a very alarming way, and it was thought neceſſary that the patient ſhould be delivered. There was not a poſſibility of extirpating the tumour, and yet it was of ſuch a ſize, as to prevent the child from being born in any other way than by leſſening the head. This was performed; but after many attempts

attempts to extract the child, the patient was ſo exhauſted, that it became neceſſary to leave her to her repoſe, and very ſoon after our leaving her, ſhe expired.

We were permitted to examine the body. There was no appearance of diſeaſe in any of the abdominal *viſcera*, or on the external ſurface of the *uterus*, which was of its regular form; and when a large oval piece was taken out of the anterior part, the child, which had no marks of putrefaction, was found in a natural poſition. An inciſion was made on each ſide of the *cervix* to the *vagina*, and then a large cauliflower excreſcence was found growing to the whole anterior part of the *os uteri*. The *placenta* adhered with its whole ſurface; ſo that the blood which ſhe had loſt muſt have been wholly diſcharged from the tumour. This *uterus*, containing the child, is now in the *muſeum* of the late Dr. *Hunter*.

The propriety or advantage of a practice, by which the life of neither the parent nor child was preſerved, ought to be conſidered; but ſuch caſes occur ſo rarely, that there is always room for animadverſion, when they are concluded. Yet the general principle of its being ever our duty to preſerve both their lives, if poſſible; or to preſerve that of the parent; or, if ſhe cannot be preſerved, then to ſave the child, if it be in our power; would have been a better guide on this occaſion, than that which was followed.

Excreſcences of a ſmaller ſize are not unfrequently met with in practice; and as even theſe are uſually accompanied with ſome degree of ſcirrhous diſpoſition of the *os uteri*, more time is required for the completion of the labour. It is to be remarked, that in caſes of this kind, there is often a long continuance of the pains without any ſenſible effect; but all at once, the rigid *os uteri* yields and dilates ſpeedily and unexpectedly, or perhaps in ſome inſtances is lacerated. In ſome caſes alſo, the excreſcences are of ſo tender a ſtructure, that they are cruſhed by the paſſage of the head over them, and entirely deſtroyed. During labours of this kind, and after delivery alſo, the

great object is to guard againſt all cauſes of inflammation, at firſt perhaps local, but afterwards extending to other parts, connected or readily conſenting with the *uterus*, and more immediately neceſſary for the functions of life; but I have not known any caſe of this kind to prove fatal, except that above deſcribed.

4. *Cicatrices in the* Vagina.

From diſeaſes of the ſoft parts, eſpecially thoſe ariſing from violence ſuſtained in former hard labours, the *vagina* may have become ulcerated; and when care was not taken to prevent the ſurfaces from abiding in contact with each other, the oppoſite ſides might adhere in different degrees, according to the depth and extent of the ulceration. When the ulceration is ſlight, and the inflammation is not ſo great as to bring the tumefied parts into contact, after a certain time they heal; but circular cicatrices being formed in the *vagina*, the diameter of the paſſage is leſſened, and the part is left with a diſinclination to yield on any future occaſion. In ſome caſes a ſuperficial ſlough has been thrown off from the whole internal ſurface of the *vagina*, and cicatrices of an irregular kind were formed from the *os uteri* to the external orifice. In other caſes there has been a cicatrice only at one part, and if this ſhould happen near the external orifice, the contraction has been ſuch as to mimick an unruptured *hymen*.

Amidſt a great number and variety of caſes of cicatrices in the *vagina*, I have not met with one example in which they were able to withſtand the preſſure of the head of the child, if the pains were of the cuſtomary ſtrength. The labours have indeed been conſiderably retarded, but they have terminated favourably. But when the difficulty ariſing from this cauſe has been combined with other cauſes, it muſt of courſe have added to the trouble, which the patient would otherwiſe have undergone. Or, if the pains ſhould ceaſe before the labour is completed, then ſuch aſſiſtance muſt be

given as the caſe may require; being on our guard that we do not offer aſſiſtance before there are proofs of the neceſſity, and are aſſured that the difficulty cannot be overcome by the natural efforts.

5. *Adheſion of the* Vagina.

Adheſions of the *vagina* are occaſioned by an increaſed degree of the ſame cauſes as thoſe which occaſion cicatrices. There may be an adheſion from diſeaſe, in women who were never pregnant, or it may be the conſequence of a ſlough thrown off after a former labour, with or without the uſe of inſtruments *. Caſes of adheſions of this kind are commonly mentioned as of very eaſy management, nothing more being required, it is ſaid, than to ſeparate the united ſurfaces with a knife, and to prevent their re-union by the introduction of a tent or canula for this purpoſe. It is true, when an adheſion has taken place near the external orifice, that it may be in general managed without difficulty; but when there has been a deep ſlough, and the parts adhere high up in the *vagina*, perhaps through its whole extent, it is clear from the ſtructure and connexion that there is need of the greateſt circumſpection, leſt on the one hand we perforate the bladder, or, on the other, the *rectum*, all theſe parts being drawn cloſe together. This accident I have ſeen happen under the hands of a very dextrous ſurgeon, and it ſeemed unavoidable.

In ſome caſes then it appears, that the adheſion is of ſuch a kind, as not to admit or juſtify any attempt to ſeparate the parts with a knife; but even in theſe, by ſuffering the menſtruous diſcharge to be collected, after a certain time, the part, where an inciſion or puncture with a trocar may be ſafely made, will ſometimes be

* I have been informed of the caſe of a patient, who was in the hands of a very ſkilful practitioner, in whom, after her delivery, which was not attended with any circumſtances of peculiar difficulty, the whole internal ſurface of the *vagina*, and all the external parts, entirely ſloughed away.

pointed out, and this being gradually dilated, a cure may be effected.

It is poſſible for an adheſion to take place after a woman is become pregnant, and of this I have known one inſtance. Of courſe when labour comes on, the contents of the gravid *uterus* would be impelled againſt the adhering part, which would either ſeparate, or reſiſt the excluſion of the child. In the former caſe nothing would be required to be done by art; but in the latter, it would be neceſſary to divide the united parts by an inciſion made with great care, and to a certain degree, leaving the full ſeparation to be made by the membranes containing the waters, or by the head of the child, which will then effectually anſwer the purpoſe, in a better way than by any operation.

6. *Steatomatoſe Tumours.*

Of this cauſe of difficult labours I have never met with an inſtance in my own practice; but the following caſe was communicated to me by a gentleman, whoſe authority and accuracy are unexceptionable.

A lady, after the birth of her eighth child, fell into a ſtate of bad health, with many painful and troubleſome ſymptoms, but no marked diſeaſe. Theſe were by ſome phyſicians conſidered as nervous, by others as ſcorbutic, and by others as rheumatic, or of a gouty nature. Various medicines were given, and different means tried for her relief, but without any good effect. At the expiration of two years ſhe became again pregnant. All her former labours had been very eaſy and natural; but when Dr. *Hunter* was called at the commencement of this, he found an obſtruction at the ſuperior aperture of the *pelvis*, which he believed could only be occaſioned by the projection of the loweſt of the lumbar *vertebræ*, or the upper part of the *ſacrum*. It was then ſuppoſed, that ſhe had the *oſteoſarcoſis*, of which her complaints had been the ſymptoms. It was

impoſſible for her to be delivered in any other way than by leſſening the head of the child. She died on the fourth day after her delivery. Leave was given to open the body, and when the *pelvis* was examined, the tumour, which was imagined to be a projection of the bones, was found to be an excreſcence of a firm, fatty ſubſtance, ſpringing from one ſide of the upper part of the *ſacrum*, and paſſing acroſs ſo as to fill up a great part of the ſuperior aperture of the *pelvis*.

It is probable, that the preceding complaints of this lady were occaſioned by the preſſure of this tumour upon the *uterus*; and had the real ſtate of the caſe been known before the time of labour, or even during her labour, it does not appear to have been proper, or within the bounds of art, to have attempted or to have afforded her any other aſſiſtance.

7. *Enlargement of the* Ovaria.

Diſeaſes of the *ovaria*, both of the ſcirrhous and dropſical kind, eſpecially the latter, are known to be very frequent. Either of theſe muſt generally prevent conception; but as one of the *ovaria* may be very much diſeaſed, when the other is in a perfectly healthy ſtate, inſtances ſometimes occur of women becoming pregnant under ſuch circumſtances, and then the enlarged or diſeaſed *ovarium* may produce inconveniences during pregnancy, or become an obſtacle to the progreſs of labour.

With the hiſtory of two caſes of this kind I was many years ago favoured by Dr. *John Ford*, a gentleman of great ſkill and experience. In the former he was ſurpriſed to find a large and firm tumour lying between the *rectum* and *vagina*, filling up all the concavity of the *ſacrum*, and a conſiderable ſhare of the cavity of the *pelvis*. Being convinced of the impoſſibility of the child paſſing by this tumour, which did not yield or diminiſh by the force of the pains, it was determined, in conſultation, that the patient ought to be delivered by leſſening the head of the child. The operation was performed

performed with great care, but the patient died at the end of three weeks. When the body was opened, the tumour was found to be an encyſted dropſy of the *ovarium*, in which there was a conſiderable quantity of hair.

In the latter caſe, which in all its circumſtances reſembled the former, inſtead of leſſening the head of the child, a trocar was paſſed through the poſterior part of the *vagina*, directly into the tumour. A large quantity of water was immediately diſcharged, the tumour ſubſided, and a living child was born without any further aſſiſtance. This patient recovered from her lying-in, but ſome time after becoming hectic, ſhe died at the end of about ſix months, though from the ſymptoms it did not appear, that the fever was occaſioned either by the diſeaſe or the operation. This patient was not examined after her death.

Having related theſe two caſes, I have ſaid all I had to advance on the ſubject, except that I have met with more than one inſtance of a circumſcribed tumour on one ſide of the *pelvis*, which I at firſt ſuſpected to be a diſeaſed *ovarium*. But as theſe tumours have always given way to the preſſure of the head of the child, the paſſage of which they have only retarded for a ſhort time, I have concluded they were formed either by ſome ſoft fatty ſubſtance collected there, or were cyſts containing lymph caſually effuſed, and forming to itſelf a cyſt from the cellular membrane. But on taking an examination after delivery, the tumours were found to have again acquired their primitive form and ſize, and to have reſumed their former ſituation.

8. *Rupture of the* Uterus.

The human *uterus* is found to retain its original thickneſs during the time of pregnancy, notwithſtanding its diſtention; or to become ſomewhat thicker than it was in the unimpregnated ſtate. This thickneſs, we have therefore reaſon to think, is conſequent to

ſome

ſome principle acquired coeval with conception. But if the whole, or any part of the *uterus*, ſhould be deprived of this principle, or affected with any diſeaſe deſtructive of its operation, then the whole *uterus*, or the part ſo affected, would be mechanically diſtended, and become thinner in proportion to its diſtention; and at the time of labour, when the action exerted might become greater than the unthickened part was able to bear, the *uterus* would be of courſe ruptured. Or if the *uterus*, which had acquired its proper thickneſs, became affected with inflammation or any other diſeaſe, weakening its power, and ſpeedy in its progreſs, the texture of ſome part ſo affected might be deſtroyed, and the *uterus* ruptured by its own action in the time of labour. Or, independently of diſeaſe, the *uterus* may be worn through mechanically, in long and ſevere labours, by preſſure and attrition between the head of the child and the projecting bones in a diſtorted *pelvis*, eſpecially if they be drawn into points or a ſharp edge. Or, it has been ſuppoſed, a rupture may be occaſioned by a violent and ſpaſmodic action of the whole or ſome part of the *uterus*, independent of diſeaſe, or of any mechanical cauſe. Or the *uterus* may be ruptured by violent accidents happening to the mother in the advanced ſtate of pregnancy. If the *uterus* be ſtrongly contracted, it may be ruptured alſo by attempts to paſs the hand for the purpoſe of turning a child; but in this laſt caſe a rupture could only happen, when the force with which the hand was introduced was combined with the proper action of the *uterus*; for the ſtrongeſt perſon has not the power to force his hand through a healthy and unacting *uterus*. The part of the *uterus* which commonly gives way, whether poſterior, which is moſt common, or anterior, or lateral, is uſually near the union of the *cervix* with the *vagina*, in which ſuch a change is made at the time of labour, when the *os uteri* is completely dilated, that the diſtinction between them is loſt, the *vagina* and *uterus* forming together one cavity, though of unequal dimenſions.

Some

Some of the cauſes of the rupture of the *uterus* are unavoidable, for it is not within the ſphere of human abilities, to give to any part the principle by which it has the diſpoſition or power to perform any function; though art may ſometimes excite the power to action, if the principle be dormant, or repreſs it when too vehement. Nor is it often poſſible to diſcover or prevent the degree of preſſure or attrition, which ſome particular part may undergo in a difficult labour, before the effect is produced. But the two other cauſes, that which is preceded by inflammation, or that which may be occaſioned by attempts to turn the child, may be corrected or avoided, by abſtaining from the uſe of all ſuch means as are likely to act as cauſes or promoters of inflammation, or by proper treatment when it does exiſt; or from making ſuch attempts as may be neceſſary for the purpoſe of turning a child, when the action of the *uterus* is ſtrong.

The rupture of the *uterus* is accompanied with a ſenſe of ſomething giving way internally, always perceptible by the patient, with ſudden excruciating pain in ſome part of the *abdomen*, with an inſtant vomiting of the contents of the ſtomach, or of a brown fluid, and an abatement or a total ceſſation of the pain, together with ſome degree of hemorrhage from the *vagina*; as the *placenta* has uniformly been found to have been partly or wholly ſeparated in every caſe which has come within my knowledge. After theſe ſymptoms, by the application of the hand to the *abdomen*, the limbs of the child are ſo eaſily diſtinguiſhed through the integuments, as to leave no room to doubt of the accident; and if the head of the child be not locked in the *pelvis*, it immediately recedes or even goes out of the reach of a common examination, however low it might have deſcended. The death of the patient uſually follows ſoon, though not immediately after the accident; but I have ſeen one caſe in which there was reaſon to believe, that ſhe walked a conſiderable

conſiderable diſtance, and lived ſeveral days after a rupture of the *uterus*.

In general there is reaſon to think, that the children have died immediately or ſoon after this accident, and there is certainly little chance of any perſon ſurviving a rupture of the *uterus*. It therefore might be doubted, whether it would be more eligible to ſuffer the patient to die without giving her further trouble, or whether it were our duty, hopeleſs as the caſe muſt be, to paſs the hand into the *uterus* to turn and deliver the child by the feet; or with the *forceps*, or *vectis*, or in any way the caſe would allow. What might be the ſentiments of former practitioners, is not to us very material; for beſides ſeveral others of which I have been informed, or which are recorded, a caſe has occurred to my very worthy, able, and experienced friend Dr. *Andrew Douglas*, in which, though the *uterus* was ruptured, he turned the child, the patient recovered, and afterwards had children, at the birth of one of which I was preſent. If no other caſe had been recorded, this would be of ſufficient authority, to render it in future the duty of every practitioner, to attempt without delay to deliver the patient, and bad as her chance certainly would be, to be ſtrenuous in uſing all the means which art dictates, to extricate her, if poſſible, from her danger, and to preſerve the child. But for more particular information on this ſubject I muſt refer the reader to an eſſay on the rupture of the *uterus* by Dr. *Douglas*, and to ſeveral periodical papers of this time in which ſimilar caſes are related; but from the ſtatement of ſome of theſe, one cannot help doubting whether the *uterus* was actually ruptured.

SECTION VIII.

THESE cauſes of difficult labours I have enumerated in this order, with the hope of pointing out a more uſeful method of arranging the

the knowledge we poſſeſs, of increaſing our knowledge, and of removing ſome part of that obſcurity, in which the practice of midwifery has been involved, and by which its further improvement hath been hindered. Two things appear in the general reſult; firſt, that the evils attending parturition are more frequently adventitious, than unavoidable or of neceſſity; and ſecondly, that the native powers of the conſtitution, when not interrupted, are not only ſuperior to the common obſtructions of the proceſs, but in general, to the various kinds and degrees of deviation from the natural courſe of labours. Yet with every prudential regard to our own conduct, and the moſt judicious regulation of that of our patients, we ſhall in practice certainly meet with caſes, in which, either from the debility of thoſe powers which commonly exiſt, and which are generally exerted; or, from the greatneſs or ſtubborneſs of ſome obſtructing cauſe; or, from ſome cauſe actually produced by the labour itſelf, we ſhall be compelled by neceſſity to give artificial aſſiſtance, or the mother, or child, or both, will be loſt.

Before we proceed to the conſideration of the various means, which have been contrived for the relief of women in caſes of difficult parturition, it may be again obſerved, that the cauſes of difficulty are generally combined; and as there are very few inſtances of a diſeaſe, according to the ſimple definition of it in noſological writers, ſo there are few examples of difficult labours produced or attended by one ſingle cauſe. Together with the dribbling of the waters, there will often be a retraction of the head of the child from the ſhortneſs of the *funis*; and with great rigidity of the parts, or a ſmall *pelvis*, there may be a weak action of the *uterus*; and ſo on to an almoſt endleſs variety. One cauſe will however predominate, and of courſe become the principal object of our attention. But when by time, or art, this cauſe is removed, we muſt apply ourſelves to the removal of that which is important in the next degree; and ſometimes the ſame means may be properly

uſed for the removal of difficulties proceeding from ſeveral different cauſes.

But beſides the cauſes already mentioned, there is one much more frequent than the reſt, which is the derangement of the order of the labour by an officious interpoſition, or by improper management. Upon this ſubject it would be unpardonable to make an aſſertion, which is not ſupported by experience; but I am fully convinced, that the far greater number of really difficult labours, to which I have been called, and I muſt not conceal the truth on this occaſion, ſome of thoſe which have been originally under my own care, were not of that denomination from unavoidable neceſſity, but were rendered ſuch by improper management, in the commencement or courſe of the labour. Nor does the diſturbance of the order of a labour depend upon the practitioner alone; for the intractability of the patient herſelf*, or of her friends and attendants, which, though it may be founded in affection and compaſſion to her ſufferings, may alſo ariſe from many other motives, is too frequently productive of the ſame effect.

In the management of difficult labours there is required much previous knowledge and preſent judgment on the part of the practitioner, to diſtinguiſh in caſes of great difficulty, which of them may demand the aſſiſtance of art, and when this ought to be employed, and which may be reſigned to the efforts of nature; and no ſituation can be imagined, that requires greater addreſs to procure the confidence and co-operation of all the parties concerned; or more firmneſs in the purſuit of the negative conduct, which it is often abſolutely neceſſary, yet extremely difficult, to follow. Whatever may be the reſolution of particular women, and whatever may

* De la part de la mère c'eſt quelquefois ſa mauvaiſe humeur, ſon impatience, ſon indociltié, la violence et l'irrégularité des mouvements.

PEU la Pratique des Accouchements.—Livre II. Chap. 1.

be the general eſtimation of natural labours, every woman is impreſſed with the opinion, and the opinion is often well founded, that in difficult ones, her life is to be preſerved by the ſkill and judgment of the practitioner, under whoſe care ſhe is placed. If therefore her confidence be ſecured, the delay to give aſſiſtance will be conſtrued into a proof that none is required, and of freedom from danger.

The diſtreſs and pain, which women often endure while they are ſtruggling through a difficult labour, are beyond all deſcription, and ſeem to be more than human nature would be able to bear under any other circumſtances. The great principle of all their patience and reſolution is perhaps that deep-rooted affection of the parent to the offspring, implanted in the female mind. But the principle of ſelf-preſervation, though varying in its operation, will recur, and demand its ſhare of regard. In long continued labours it is therefore proper, by frequent alluſions to the child, to encourage and ſtrengthen the former principle, for its power is leſſened or overcome by the weight of their preſent diſtreſs; their love for their child is conquered; and the proſpect of diſtant pleaſure is not able to ſtand in competition with the evils of the preſent moment. With the firmeſt determination, to do what is right, they willingly perſuade themſelves, that the child is dead; that the object, for which they ſhould perſevere, no longer exiſts; and the practitioner, in oppoſition to his own feelings, and againſt the ſolicitations of thoſe who confide in him, is often the only advocate for the child. But his deciſion to act, in caſes in which the life of a child is concerned, muſt ſtand upon a better principle than conformity to the inclinations of others; for though he might avoid preſent cenſure, or even gain preſent credit by giving artificial aſſiſtance unneceſſarily, when the caſe comes to be reviewed, and it always is reviewed, the blame of acting precipitately, in caſes which do not terminate fortunately, will be caſt upon him, and the ſatisfaction

of others will be eſtabliſhed by the diſcovery of ſome cauſe of blame in his conduct. In the exerciſe of the moſt hazardous part of a profeſſion, perhaps in general more ſubject to cenſure than any other, it behoves us to be particularly circumſpect: and though events are often beyond the power of human control, we may always act with intelligence, with prudence, and firmneſs; and no man's character can long be ſupported, if he be not governed by the determination to do what is right, to the beſt of his own judgment and power, under every circumſtance.

The events of difficult labours, either with reſpect to the mother or child, very much depend upon the prudence and foreſight, with which women may be conducted through them; but however averſe the practitioner may be from the uſe of ſuch means as may prove hazardous to or even deſtructive of the child, caſes muſt occur, in which the aſſiſtance of art will be abſolutely needful, and the uſe of inſtruments juſtified. A time does certainly come when, if they be not delivered by art, in caſe of the inability of the powers of the conſtitution to effect the purpoſe, women would inevitably periſh. As correct a judgment muſt therefore be exerciſed, and equal care taken, that he does not delay that aſſiſtance which may be neceſſary, ſo long, that it cannot anſwer the end for which it was given; or while he is endeavouring to preſerve the life of the child, he may loſe that of the mother alſo, which is undoubtedly of more value.

The intentions in the uſe of inſtruments may be of three kinds. Firſt, to preſerve the life both of the parent and child; ſecondly, to preſerve the life of the parent; and thirdly, to preſerve the life of the child. The inſtruments which have been contrived to anſwer the firſt intention, are, the *fillet*, the *forceps*, and the *vectis*. Of each of theſe, together with all the collateral circumſtances which demand our regard, we ſhall ſpeak in their turn, and then proceed to the conſideration of other parts of our ſubject.

CHAPTER

CHAPTER XI.

SECTION I.

ON THE FILLET, FORCEPS, AND VECTIS.

When men, firſt collected into ſocieties, had provided for their ſubſiſtence, they would endeavour to amend their ſtate, by removing ſuch evils and inconveniencies as were moſt urgent, either from their importance or frequency. Next to thoſe arts by which the means of ſupport were acquired, that of medicine would be of principal conſideration, as from the nature of their employments, hunting, fiſhing, paſtoral, or agricultural, men muſt have been liable to diſeaſes and to injuries, which by accident or trial they would learn ſome method of relieving; and he that ſhould have gained the greateſt collection of knowledge, or the moſt dexterous method of applying it to uſeful purpoſes, would have become a phyſician. But the origin and progreſs of that branch of medicine of which we are treating would be ſomewhat different. When the cuſtoms and manners of life were ſimple, and not much diſpoſed to produce diſeaſes, difficulty or danger in the parturition of women would ſeldom occur; and, notwithſtanding the diſtreſs with which they might ſometimes be accompanied, the general termination of labours would be eaſy and ſafe. In the very few caſes which might require more than ordinary aſſiſtance, there were none to afford it; and thoſe women, who could not bring forth their children by their own efforts, were ſuffered to die without any attempts being made to relieve them, according to the relations which are given of the people of ſome countries, even at this day.

As

As mankind advanced in civilization, the evils attending parturition would probably increaſe, though ignorance or inability to give relief might long continue. But the ſupplications for aſſiſtance, and the affections of men, would not permit them to remain unconcerned or inactive ſpectators of the miſery of thoſe, to whom they were indebted for the chief part of their happineſs. They gave ſuch aid as their information or ingenuity enabled them to deviſe, and this, in the firſt inſtance, conſiſted of ceremonies, or of particular precatory exclamations*, of amulets, or of medicines, to which ſome myſterious properties were attributed, as the ſkins and ſome other parts of ſerpents, the eagle ſtone, the blood ſtone, the ſtony ſubſtance found in the head of a ſhark, with many others of the like kind; and ſuch things would, by their influence on the imagination, mightily ſuccour the minds of women, ſtrongly impreſſed with a ſenſe of their utility, in a ſtate of actual danger, overwhelmed at the ſame time with extreme pain and apprehenſion. In times more enlightened, for every kind of diſtreſs religion offered its conſolations, by ſoothing the mind, by teaching mankind, when oppreſſed with difficulties, to uſe their own endeavours, by inculcating the neceſſity of ſubmitting to evils which could not be prevented or avoided, and by encouraging with the hope of happy events. After the diſcovery of the mechanic arts, theſe were ap-

* It is extremely curious to ſee the many ancient cuſtoms preſerved by *Ovid*, in ſeveral parts of the Metamorphoſes.

——— Nec habent ſua verba dolores·
Nec Lucina poteſt parientis voce vocari.
Conſtitit ad ramos mitis Lucina dolentes;
Admovitquemanus; et *verba puerpera* dixit.
Reddit onus; vagitque puer, quem mollibus herbis
Naiades impoſitum, lachrymis unxîre parentis.

METAMORPHOS. Lib. x. Fab. x.

plied

plied to the exigencies of every occaſion; and when the ſufferings of women in child-birth could no longer be endured, attempts were made to relieve them by extracting, without regard to its ſafety, the head of a child which could not be expelled by the efforts of the mother; and for this purpoſe the firſt kind of *forceps* was invented and uſed. The ſame motives of compaſſion or affection, which led to the wiſh of relieving women, would readily extend to children; and, to combine the intereſts of both, fillets and the *forceps*, now in common uſe, were contrived. When the head of a child was found to be too large, to paſs through a very ſmall or a diſtorted *pelvis* with the help of ſuch contrivances, there was no relief to be obtained except the head of the child was leſſened, and for this purpoſe, perforators and hooks or crotchets of various kinds were invented. The intrepidity of ſome man ſeeing no other way of giving relief, or the deſperate reſolution of ſome woman frantic with her ſufferings, might lead to a more ſummary way of obtaining it*; and, with a determination to free herſelf from the cauſe of her miſery, or to put an end to her exiſtence, a child might have been extracted through a wound made into the part which contained it, and the manner of performing the Ceſarean operation would be ſhewn.

In ſome times and countries, in which the *forceps* and other inſtruments of that kind were not known, or their uſe not fully underſtood, and afterward, in ſome caſes not thought ſuitable for their uſe, it became a cuſtom in many difficult labours, by whatever cauſe produced, to return the preſenting head, to paſs the hand

* See London Medical Journal, Vol. VI. and VII. in which there is a curious hiſtory of a Negro woman, who, in the agony of her labour, performed this operation upon herſelf; given by Mr. E. Home. I was informed by Dr. J. Hunter, that the ſame woman, for ſhe recovered, was obliged to be watched in her ſubſequent labours, to prevent her from again performing the ſame operation.

into

into the *uterus*, to turn and deliver the child by the feet. But this operation of turning could only be performed under very limited circumſtances; for if the head of the child were very low in the *pelvis*, or the *uterus* ſtrongly contracted round its body, it could not be turned, or not without defeating the very purpoſe for which the operation was performed, producing at the ſame time great danger to the parent. This practice was in general very unfortunate in the event, yet caſes may occur, in which, by turning the child, the chance of ſaving its life is greater than can be gained by the uſe of any inſtrument, of which the following is an example.

Many years ago I attended a patient in two labours, in both of which there was a neceſſity of delivering with inſtruments, on account of the ſmallneſs and diſtortion of the *pelvis*, and neither of the children could be preſerved. In her next pregnancy I made a propoſal to bring on premature labour, to which ſhe and her friends would not conſent, and I was diſmiſſed from my attendance. In the courſe of twelve or fourteen years ſhe had five more children, not one of which was born living. In the forty-ſixth year of her age ſhe proved with child, and again applied to me. When her labour came on, the firſt ſtage was ſuffered to proceed without interruption, but when the membranes broke, I without delay paſſed my hand into the *uterus*, and eaſily brought down the feet and body of the child; but the head being ſtopped by the narrowneſs of the ſuperior aperture of the *pelvis*, I was obliged to exert, and to continue much force, before it could be extracted. The child was born with very little or no appearance of life; but by the ſtrenuous uſe of the common means recommended for this purpoſe it was recovered. On the left parietal bone there was a depreſſion of conſiderable extent, and to my apprehenſion of full one inch in depth, occaſioned by the projection of the *ſacrum*; but the depreſſed part gradually roſe, in the courſe of a few months the bone regained its natural form, and the child was for ſeveral years in good health, with its faculties

faculties perfect. The woman recovered without any untoward circumſtance.

But the ſucceſs of ſuch attempts to preſerve the life of a child is very precarious; and the operation of turning a child, under the circumſtances before ſtated, is rather to be conſidered among thoſe things, of which an experienced man may ſometimes avail himſelf in critical ſituations, than as ſubmitting to the ordinary rules of practice.

SECTION II.

ON FILLETS.

THE fillet uſed in the practice of midwifery is a ſingle band, intended to be fixed upon the head of a child detained in its paſſage through the *pelvis*, for the purpoſe of extracting the head.

It has been ſuppoſed, that fillets were uſed in the practice of midwifery as early as the time of *Hippocrates*; but whenever they were invented, they have ſince undergone a variety of changes, by which it was intended to gain ſome advantage, or to avoid ſome inconvenience. Fillets have been conſtructed of ſilk, cotton, linen, or leather of divers kinds, ſtrengthened, or rendered more commodious for application, by the addition of cane, whalebone, wire, or very thin and narrow plates of iron, variouſly braided and worked together according to the opinion or judgment of the contriver.

The manner of applying the fillet was, by conducting it with the finger, or an inſtrument contrived for the purpoſe, to ſome fixed point, as the chin, or round the circumference of the head of a child, as high up in the *pelvis* as could be reached; then, after wiſting the two ends together to acquire a firm hold, we were

taught to extract, in a proper direction, with all the force the fillet enabled us to uſe, or the neceſſity of the caſe might require.

The peculiar advantages expected to be derived from fillets were theſe. They were ſuppoſed to be applicable with great facility in every direction of the head, or when this was too high to allow of the uſe of any other inſtrument recommended with the ſame intention; to ſupply us with ſufficient power to extract the head when detained an unreaſonable time, by any cauſe, to the hazard of the mother or child; and to do leſs injury to either, on account of the ſoftneſs and pliability of the materials of which they were compoſed.

But experience has fully proved, that a fillet of any kind could not in many caſes be either ſafely or effectually applied without much difficulty and trouble; that when applied it was very apt to ſlip; that when it remained fixed, it was often inadequate to the purpoſe of extracting the head; that it created new difficulties, or added to thoſe which before exiſted, by changing the direction of the head diſadvantageouſly; and that the injury done to the mother or child was not in proportion to the hardneſs of the materials of which inſtruments were conſtructed, but according to the force or violence with which they were uſed.

For theſe reaſons fillets of every kind gradually declined in eſtimation, and they are now wholly neglected. They may be conſidered among the firſt attempts of art to give relief, which have been ſuperſeded by other contrivances, equally ſafe and more efficacious.

SECTION

SECTION III.

ON THE FORCEPS.

THE *forceps* uſed in the practice of midwifery is an inſtrument compoſed of two equal parts, each part conſiſting of a curved blade and a handle, ſo formed that, when applied ſeparately upon the head of a child obſtructed in its paſſage through the *pelvis*, they may be connected together, and uſed as two alternate or conjoined levers, for the purpoſe of extracting it.

Forceps have been occaſionally made of wood or ſilver, but thoſe now generally uſed are formed of iron properly tempered, with wooden handles, and when uſed, are covered with ſmooth and thin leather, which, without any ſignificant increaſe of bulk, renders their introduction more eaſy, and takes off, both in appearance and reality, the aſperity of the inſtrument. Each blade muſt be introduced ſeparately, but in ſuch directions, that when introduced they may be connected as antagoniſts to each other; and there have been different contrivances or locks at the part where the handles and blades unite, to keep them fixed together.

It would be difficult to determine the time when *forceps* were firſt uſed, but we have very early accounts of two kinds, with one of which it was intended to extract the child, without regard to the injury which might be done to it, and with the other to extract and preſerve its life. The firſt was armed with teeth or ſharp protuberances on the internal ſurface which graſped the head; but thoſe of the ſecond kind had no protuberances, and when uſed, were clothed with linen or ſome ſoft material, to prevent their doing any injury to the child. The firſt are never uſed at the preſent time, and would have been forgotten, except for the patterns which are

preſerved in the collections of thoſe who teach the art. Of the latter kind there is an endleſs variety, but every variety regards one or other of theſe conditions; their length, their ſtrength, or their different degrees, or kinds of curvature.

From the length of the *forceps* formerly made, we may conclude that it was uſual, at leaſt ſometimes the practice, to apply them before, or as ſoon as the head of the child had entered the ſuperior aperture of the *pelvis*; and from their ſtrength, that it was thought neceſſary to provide for the exertion of great force. The common curvature was varied according to the opinion entertained of the form and dimenſions of the head of a child at the time of birth; but the lateral curvature was given for the accommodation of the inſtrument to the form of the *pelvis*, or for leſſening the preſſure upon, and of courſe the danger of lacerating, the external parts, while the child was extracting. As the *forceps*, though well applied, ſometimes ſlipped from the head when brought into action, a groove, with a ſlight eminence on each ſide, was propoſed to be made on that part of the internal ſurface which embraced the head, to prevent that accident, and to allow of a change in the manner of acting, by admitting of ſome degree of rotation.

Forceps have alſo been contrived in ſuch a manner, that one blade received the other, and theſe were called male and female. They have alſo been made with hinges or joints between the handle and the blade of each, anſwering no other purpoſe than that of concealing them, that there might be an opportunity of performing the operation with them in a clandeſtine manner. But as the reaſons for uſing the *forceps* will juſtify the operation to the moſt ſevere examiner; and as theſe may be explained without adding to the terror or diſtreſs either of the patient or her friends, there never can be occaſion for concealment, which, in theſe caſes, ought to raiſe a ſuſpicion of the judgment or integrity of thoſe who ſhould attempt to practiſe it. There is, in truth, at the preſent time, more

frequently

frequently a neceſſity for reſiſting the ſolicitations both of patients and friends, urging us to the uſe of inſtruments, than of perſuading them to comply with our propoſals when we really think them needful.

Beſides the different kinds of *forceps* which conſiſt of two blades, others have been contrived with three, which, when ſeparately applied, were received and ſcrewed in a hollow handle, or fixed by ſome other contrivance. By thoſe who ſuppoſed labours to be chiefly obſtructed or rendered difficult by the inflection of the *os coccygis*, a third blade was added for the purpoſe of raiſing the head of the child over that part. But thoſe who ſuppoſed difficulties to be occaſioned by the *ſacrum* jetting, and of courſe projecting the head of the child over the *ſymphyſis* of the *oſſa pubis*, added a third blade, for the purpoſe of bringing back the head thus projected into a right line with the cavity of the *pelvis*, before any attempt was made to extract it with the other two blades. Whatever credit may be due to the authors of theſe contrivances for their ingenuity, the third blade has certainly been added on erroneous principles; and *forceps* thus conſtructed would not only be embarraſſing in practice, but in every caſe, as far as can be judged, uſeleſs, or extremely injurious *.

It is remarkable that *forceps* were made of an unneceſſary length, when we were forbidden to apply them before the head of a child had deſcended very low into the *pelvis*; and they were made very ſtrong, when it was well underſtood, that the force, which they enabled us to uſe, was far greater than could be exerted with propriety or ſafety to the mother. They were however by degrees made ſhorter and leſs cumberſome, and about the year 1748, Dr. *William Smellie*, who was eminent in practice, and as a teacher of midwifery in *London*, after many trials, altered them, and brought

* See *Chapman*.

into

into general uſage a kind of *forceps*, more convenient than any before contrived. Theſe before they are curved do not meaſure more than twelve inches from the end of the handle to the extremity of the blade; and, when properly curved, little more than eleven inches, of which the handle meaſures near five inches. The wideſt part of the blade meaſures about one inch and five eighths, and this gradually declines towards the handle, preſerving at the ſame time the flatneſs of the blade till it meets the handle. Being ſimple in their conſtruction, applicable without difficulty, and equal to the management of every caſe in which the *forceps* ought to be uſed, I have, with very little alteration, adapted the following rules to them. But if *forceps* of any other kind ſhould be preferred, though the principles will hold good, the rules muſt be varied, according to their ſize and form, at the diſcretion of the perſon who may perform the operation.

SECTION IV.

GENERAL OBSERVATIONS.

It has been long eſtabliſhed as a general rule in this country, that the uſe of inſtruments of any kind ought not to be allowed in the practice of midwifery from any motives of eligibility *. Whoever will give himſelf time to conſider the poſſible miſtakes and want of ſkill in younger practitioners, of which I fear many of us may

* Non niſi ſumma neceſſitate illud exigente atque tum demum educendis ex utero infantibus admovenda eſſe ferramenta, quum nihil omnino ſpei reliquum eſt fore, ut ſolarum manuum ſubſidio extrahere ipſos liceat.—*Heiſter*. Capt. Liij. ix. and many other writers.

have

have recollection, the inſtances of preſumption in thoſe who by experience have acquired dexterity, and the accidents, which, under certain circumſtances, ſeem ſcarcely to be avoided, will be ſtrongly impreſſed with a ſenſe of the propriety of this rule, as well as from the general reaſon of the thing. But when, from any cauſe, the parent becomes unequal to the expulſion of the child, the aſſiſtance of art, by whatever means it can be afforded, is juſtifiable by neceſſity; becauſe without ſuch aſſiſtance the parent would die undelivered, and with her life, that of the child would alſo be inevitably loſt. Yet it behoveth every perſon, who may uſe inſtruments in the practice of midwifery, to be well convinced of this neceſſity before they are uſed, and to be extremely careful in their uſe; that he may not create new evils, or aggravate thoſe which might be exiſting. But though it be our duty to avoid, if poſſible, the uſe even of thoſe inſtruments, which are intended to be employed without injury either to the mother or child, it would, on the other hand, be abſurd to defer their uſe till the child was dead, and the mother reduced to a ſtate, not of apprehended, but of real danger; or, which is worſe, that if ſhe ſhould ſurvive, her life would be rendered miſerable from the conſequences of miſchief done before the inſtruments were uſed.

When it is propoſed to deliver women with the *forceps*, the intention is, to ſupply, by their means, the total want, or deficiency, of the natural pains of labour; in other words, to extract the head of a child, which cannot be expelled by the efforts of the mother. But ſo long as theſe efforts continue with any degree of vigour, there is always reaſon to hope, that they will ultimately accompliſh the effect of expelling the child without any artificial aſſiſtance, in which caſe the uſe of the *forceps* is not required. We are moreover to recollect, that in labours of long continuance there will often be an abatement, or even a temporary ceſſation of the pains, for many hours, without any apparent reaſon or alarming ſymptoms; but

but that ceſſation of the pains, which is the conſequence of long continued, fruitleſs action, and of great debility, is to be conſidered as the only juſtification of the uſe of the *forceps*.

Before the completion of the firſt ſtage of a labour, that is, before the *os uteri* is perfectly dilated, and the membranes broken, the uſe of the *forceps* can never come under contemplation. Becauſe the difficulties before occurring may depend upon cauſes, which do not require their uſe; or, if required, they could not be applied with ſafety or propriety before thoſe changes were made.

There is infinitely greater difficulty in deciding upon the proper caſe and time when the *forceps* ought to be applied, than in applying or uſing them; but it is univerſally agreed, that the lower the head of the child has deſcended into the *pelvis*, the eaſier will their application be, and the operation with them more certain and ſucceſsful. With a view to this obſervation, a practical rule has been formed, that the head of a child ſhall have reſted for ſix hours, as low as the *perinæum*, that is, in a ſituation which would allow of their application, before the *forceps* are applied, though the pains ſhould have altogether ceaſed during that time. This, with other rules, was intended to prevent the raſh or unneceſſary uſe of the *forceps*, and certainly time, in theſe and many other caſes, is a very good corrector of practice. It is ſcarcely poſſible to ſay too much againſt a haſty recourſe to the *forceps*, even in caſes which may ultimately be relieved by uſing them.

The *forceps* ought to be applied over the ears of the child, becauſe when thus placed, there is the leaſt likelihood of doing injury to the child, or of their ſlipping, and they enable us to act with the greateſt advantage and ſafety to the mother. It muſt therefore be improper to attempt to apply them before an ear can be felt, either becauſe the head is too high to allow us to reach that part, or becauſe it is ſo cloſely locked in the *pelvis*, that there is not ſufficient room to paſs the finger for that purpoſe between the head of

the child and the *pelvis*. If an ear of the child can be felt, the caſe is always manageable with the *forceps*, ſhould their uſe be required. But when the queſtion, whether they ought to be applied, comes under conſideration, the ears are not turned to the ſides of the *pelvis*, but that ear which is to guide us will be found towards the *pubes*, or in a diagonal direction with regard to the *pelvis*. However we are always to remember, that the *forceps* are not to be applied becauſe we have the power of applying them, but becauſe the neceſſity of the caſe is ſuch as to require their uſe. Yet caſes ſometimes occur in practice, in which we may deſpair of the ability of the mother to expel the child; and which, though not ſuch as have been ſtated as perfectly ſuitable for the uſe of the *forceps*, become ſuitable, merely by waiting a certain number of hours, and a repetition of the ſlight efforts of the parent. In that deſponding ſtate, with which every tedious and difficult labour is accompanied, I have alſo found the patient very much comforted and encouraged, by having ſome diſtant time held up to her when ſhe ſhould be aſſiſted, if the labour were not before concluded: as this gives her new reſolution, by offering to her imagination a certain period to her ſuffering.

Every change in the poſition of the head, and every alteration in the conſtruction of the *forceps* from thoſe already ſtated, will require ſome difference in the manner of applying and uſing them. But the preference, which ought in reaſon to be given, of one kind of *forceps* to another, is merely becauſe one inſtrument may be more handy and convenient than another, for an intelligent and ſkilful man would be able to apply and uſe thoſe of any form or ſize, in ſuch a manner that they ſhould effectually anſwer his purpoſe; as an expert ſurgeon would be able to amputate a limb with a knife of any kind. No conſideration or advantage to be gained by inſtruments of any particular ſtructure ought to leſſen our attention and care when we uſe them; as the ſucceſs of every operation muſt

neceſſarily depend, not upon the excellence of the inſtrument, but upon the juſtneſs of the idea entertained of it in the mind of the perſon who may perform it, and the dexterity or ſkill with which the inſtrument may be guided by his hands.

When we have determined on uſing the *forceps* according to the preceding obſervations, corrected by our own judgment; and when we have repreſented our opinion, and explained the reaſons for it to the friends of the patient, as is cuſtomary in all other operations, we muſt prepare for this in the following manner. The patient is to be placed upon her left ſide, acroſs, and very near the edge of the bed on which ſhe is laid, with her knees drawn up to the *abdomen*, and a pillow placed between them, that we may be able to reach the patient with all convenience, and poſſeſs the free and uninterrupted uſe of our own hands. The inſtruments, being warmed in water, and ſmeared with ſome unctuous application, are to be ſo placed, that they can be readily taken hold of by ourſelves, or handed to us by an aſſiſtant.

SECTION V.

ON THE APPLICATION OF THE FORCEPS.

The firſt part of the operation conſiſts in paſſing the fore-finger of the right hand between the *oſſa pubis* and the head of the child to the ear. Then taking the part of the *forceps* to be firſt introduced, by the handle, in the left hand, the point of the blade is to be ſlowly conducted between the head of the child and the finger, till the inſtrument touches the ear.

There can be no difficulty or hazard in carrying the inſtrument thus far, becauſe it will be guided, and in ſome meaſure ſhielded, by the finger. But the farther introduction muſt be made with a very

very ſlow ſemi-rotatory motion, keeping the point of the blade, as it is advanced, not rigidly, yet cloſely to the head of the child, by raiſing the handle towards the *pubes*. In this manner the blade muſt be carried gently along the head, till the lock reaches the external parts near the anterior angle of the *pudendum*.

The point of the blade, while introducing, ſometimes hitches upon the ear of the child, and then it requires a little elevation, which is given by depreſſing the handle. But when it has paſſed the ear, and is beyond the guidance of the finger, ſhould there be any check to the introduction either of this or the other blade, it ſhould be withdrawn a little, to give us an opportunity of diſcovering the cauſe of the obſtacle, which we muſt never ſtrive to overcome with violence, though we muſt proceed with firmneſs. When the firſt blade is properly introduced, it muſt be held ſteadily in its place, by preſſing the handle towards the *pubes*, and it will be a guide in the introduction and application of the ſecond blade.

Let the ſecond blade be introduced in this manner. Keep the blade firſt introduced in its place, with the two leſſer fingers of the left hand, and carry the fore-finger of the ſame hand between the *perinæum* and head of the child, as high as you can reach. Then take the ſecond blade of the *forceps* by the handle, in the right hand, and, conveying the point between the finger placed within the *perinæum*, and the head of the child, conduct the inſtrument with the precautions before mentioned, ſo far that the lock ſhall touch the interior part of the *perinæum*, or even preſs it a little backwards. In order to fix the two blades thus introduced, that which was placed towards the *pubes* muſt be ſlowly withdrawn, and carried ſo far backwards, that it can be locked with the ſecond blade retained wholly, or nearly, in its firſt poſition: and care muſt be taken, that nothing be entangled in the lock, by paſſing the finger round it. When the *forceps* are locked it will be found convenient to tie the handles together, with ſufficient firmneſs to prevent them

from ſliding or changing their poſition, when they are not held in the hand, but not in ſuch a manner as to increaſe the compreſſion upon the head of the child.

Should the blades of the *forceps* be introduced ſo as not to be oppoſite to each other, they could not be locked; or if when applied the handles ſhould come cloſe together, or be at a great diſtance from each other, they would probably ſlip, or there would be a failure of ſome kind in the operation, as the bulk of the head would not be included, or they would be fixed on ſome improper part of the head; though allowance is to be made for the difference in the ſize of the heads of children. But if a caſe be proper for the *forceps*, if they be well applied, and we were to act ſlowly with them, there would not be much riſk of failure or diſappointment.

The difficulty of applying the *forceps* is moſt frequently occaſioned by attempting to apply them too ſoon; or by paſſing them in a wrong direction; or by entangling the ſoft parts of the mother between the inſtrument and the head of the child, againſt all which accidents we are to be on our guard.

SECTION VI.

ON THE ACTION WITH THE FORCEPS WHEN APPLIED.

It was before obſerved, that the *forceps*, when applied, and fixed upon the head of a child, might be conſidered as a compound inſtrument, which allowed of a ſeparate action, with either of the parts of which it was compoſed; or of a conjunct action, as if the two parts formed one inſtrument. The ſeparate action with either part will be on the principle of the lever; but that with both the blades will be ſimple traction. Yet in practice we ſhall find very few

few caſes, in which it will not be neceſſary to exerciſe or to combine both theſe kinds of action.

As it is the intention, when the *forceps* are uſed, to ſupply with them the total want or inſufficiency of the natural pains of labour, the whole power or force, which the inſtrument enables us to uſe, ought not to be exerted in the firſt inſtance, but ſuch a degree as any individual caſe may require; which can only be known by firſt trying a moderate degree of force, increaſing it ſlowly and deliberately, according to the exigence of each caſe. Becauſe the impediment may not be great, and the point of obſtruction may exiſt only at one part; and theſe being ſurmounted by one, or a few actions with the inſtrument, there would be no cauſe for acting any more. In ſome caſes alſo, though the pains had entirely ceaſed, they will return with force ſufficient to expel the child, from the irritation made by the mere application of the inſtrument. But when the *forceps* have been applied, they ſhould not be removed before the head is expelled, though their aſſiſtance be not required; leſt the pains ſhould ceaſe, and we ſhould be again obliged to apply them.

The effects of the *forceps*, or the conſequences which reſult from their action, are theſe; compreſſion of the head, deſcent of the head, inclination of the face to the hollow of the *ſacrum*, extraction of the head. As the deſcent of the head precedes the inclination of the face to the hollow of the *ſacrum*, it would be improper to attempt to change the poſition of the head before it has deſcended, and it is afterwards unneceſſary. Becauſe if the action with the *forceps* be ſlow, and, according to the direction of the handles, the poſition of the head becomes altered in proportion to its deſcent, without any aim on the part of the operator, and without his guidance.

When the *forceps* are firſt locked, they are placed far backwards, with the lock cloſe to, or juſt within the internal ſurface of the

perinæum;

perinæum; and they can have no ſupport backwards, except the little which is afforded by the ſoft parts. The firſt action with them ſhould therefore be made by bringing the handles, graſped firmly in one or both hands, to prevent the inſtrument from playing upon the head of the child, ſlowly, towards the *pubes*, till they come to a full reſt. Having waited a ſhort interval with them in that ſituation, the handles muſt be carried back in the ſame ſlow but ſteady manner to the *perinæum*, exerting, as they are carried in the different directions, a certain degree of extracting force; and after waiting another interval, they are again to be raiſed towards the *pubes*, according to the ſituation of the handles. Throughout the operation, eſpecially the firſt part, the action of that blade of the *forceps*, originally applied towards the *pubes*, muſt be ſtronger and more extenſive than the action with the other blade; this having no *fulcrum* to ſupport it, and chiefly anſwering the purpoſe of regulating the action with the other blade. If there were any labour pains when the operation was begun, or ſhould they come on in the courſe of it, the *forceps* ſhould only be acted with during the continuance of the pains; the intention being not only to ſupply the want or inſufficiency of the pains, but to follow them, and imitate alſo by the action with the *forceps* the manner in which they return.

By a few repetitions of this alternate action and reſt before deſcribed, we ſhall ſoon be ſenſible of the deſcent of the head; and it will be proper to examine very frequently, to know the progreſs made, that we may not uſe more force than needful, or go on with more haſte than may be expedient or ſafe. In every caſe, even thoſe which allow of the eaſieſt management, we ought to proceed ſlowly and circumſpectly, not forgetting that a ſmall degree of force, continued for a long time, will in general be equivalent to a greater force haſtily exerted, and with infinitely leſs detriment either to the mother or child. But after ſome time, ſhould we not perceive the

head to advance, the force hitherto uſed muſt be gradually increaſed, till it is ſufficient to overcome the obſtacles to the delivery of the patient.

It was before obſerved, as the head of the child deſcended, that the face would be accordingly turned towards the hollow of the *ſacrum*, without any aim or aſſiſtance on our part. Of courſe the poſition of the handles of the *forceps*, and the direction in which we ought to act with them, ſhould alter; for they becoming firſt more diagonal or oblique, with reſpect to the *pelvis*, and then more and more lateral, every change in their poſition will require a differently directed action, becauſe the handles ſhould ever remain, and be acted with, as antagoniſts to each other. In proportion alſo to the deſcent of the head, the handles of the *forceps* ſhould approach nearer to the *pubes*; ſo that in the beginning of the operation, though we acted in the direction of the cavity of the *pelvis*, towards the concluſion we ſhould act in that of the *vagina*, to prevent a laceration of the parts. When we feel that we have the command of the head by its being cleared of any obſtruction in the *pelvis*, and the external parts begin to be diſtended, we ought to act yet more ſlowly, eſpecially in the caſe of a firſt child, or there would be the greateſt danger of a laceration of the ſoft parts: and this can only be prevented by acting moſt deliberately, and in the direction of the *vagina*; by giving the parts time to diſtend; by duly ſupporting the *perinæum*, which is the part chiefly in danger, with the palm of the hand firmly applied; by ſoothing and moderating the hurry and efforts of the patient; and, in ſome caſes, by abſolutely reſiſting for a certain time the paſſage of the head through the external parts, as in a natural labour. When the head of the child is born, the *forceps* are to be removed, the delivery being completed as far as their aſſiſtance was required, and the remaining circumſtances are to be managed as if the labour had been natural.

On

On the whole it appears, that neceſſity alone, and not any ſenſe of eligibility or expediency, will juſtify the uſe of the *forceps*; that when ſuch neceſſity exiſts, their uſe is not only juſtifiable, but highly advantageous; that with care they may be ſafely applied; that ſlowneſs and ſteadineſs in our action with them will effectually ſecure both the parent and child againſt untoward accidents; but that no ſkill or knowledge can prevent diſappointment or miſchief, if they be improperly or prematurely applied, or if the operation with them be performed with hurry or violence. It is not poſſible to fix any limits to the time that may be required for the operation with the *forceps*, but I have frequently known more than an hour to paſs from the fixing of the inſtrument, before I could with ſafety extract the head of the child through the external parts.

SECTION VII.

ON THE APPLICATION OF THE FORCEPS, UNDER VARIOUS CIRCUMSTANCES.

We have before conſidered the manner of applying and uſing the *forceps*, when the head of the child preſented in the moſt natural way, that is, with the face inclining towards the *ſacrum*. But they may be equally neceſſary in other poſitions of the head, that eſpecially which is in the next place moſt frequent, when the face is inclined towards the *pubes*. This poſition is diſcoverable by the readineſs with which we can feel the greater fontanel in a common examination, by the direction of the ear, and often by feeling diſtinctly the features of the face tending toward the *ſymphyſis*.

It was before obſerved, that this poſition of the head only conſtituted a variety of natural labours, as far as poſition was concerned

in the definition. We are not therefore to be guided in our opinion of the propriety of uſing the *forceps* by any poſition of the head of the child, but, whatever the poſition may be, by the neceſſity of any caſe, proved by the abſolute inability of the mother to expel the child. Should ſuch neceſſity exiſt with this poſition of the head, the *forceps* are to be applied, in the manner before deſcribed, over the ears of the child. But when they are applied we muſt act with them with the greateſt caution; for, having a different and leſs perfect hold of the head, they are apt to ſlip, and, acting with leſs advantage, the operation, in this poſition of the head, muſt be more precarious. But if we ſucceed, when the head, thus ſituated, is brought ſo low as to diſtend the external parts, there will of courſe be greater danger of laceration, if we be ever ſo much upon our guard; becauſe, in extracting the head, the chin of the child, unleſs the head be unuſually ſmall, or admits of a change of poſition, ſhould be cleared of the *oſſa pubis*, before the hind head is ſuffered to ſlide over the *perinæum*, which will very much increaſe the diſtention, and produce the ſame effect as if the arch of the *oſſa pubis* was too ſmall to receive the head of the child.

The ſame obſervations are alſo generally true when the face of the child preſents; or when, together with the head, there are one or both arms. For though in ſuch caſes there might be a neceſſity for, and a propriety in, uſing the *forceps*, the operation with them would neither be ſo certain nor eaſy as in the poſition of the head firſt ſtated.

In labours attended with convulſions, or dangerous hemorrhage; or when from any other urgent cauſe it may be neceſſary to haſten the delivery of the patient, to free her from immediate danger, ſhould the *forceps* be uſed, the general rules will be ſufficient to guide us, varying and ſuiting our conduct to the exigence of any particular caſe.

Laſtly, when there are ſigns of imminent danger, however averſe

we may be to the uſe of inſtruments, we may be induced to try the *forceps*, though a caſe might not be altogether ſuch as may be eſteemed moſt eligible for their application; merely to take an indifferent chance of ſaving the life of a child, which muſt otherwiſe be inevitably loſt. In ſuch caſes we muſt advert to the general principle, and make our attempts in a manner conſiſtent with the ſafety of the parent; and, from motives of prudence, prepare the friends for that diſappointment, which it may not be in our power to prevent.

SECTION VIII.

ON THE VECTIS.

THE *vectis* uſed in the practice of midwifery is an inſtrument conſiſting of one blade, ſlightly curved, and a handle; ſomewhat larger, but ſimilar in form to one of the blades of the *forceps*.

The true origin of this inſtrument, or time when it was firſt diſcovered, is not known; but before any accounts of the *vectis* were publiſhed, ſome difficult caſes were recorded *, in which women had been delivered with one blade of the *forceps*, which might then be well conſidered as a *vectis*, though not called by that name. But when only one blade of the *forceps* had been uſed, the operation was mentioned as ſomething extraordinary, to ſhew perhaps the judgment, ſkill, or good fortune of the perſon who performed it, and not as leading to the uſe of a particular inſtrument, or to a rule of practice. It is probable, that the inſtrument uſed by the *Chamberlens* in the laſt century was the *vectis*; but this is conjecture, for, after much inquiry, though ſcarcely credible, no

* See *Chapman*.

ſecond

ſecond perſon has yet been able to diſcover, that any of them left either a pattern or deſcription of the inſtrument which they uſed. In the ſecond volume of *Heiſter's* Surgery there is a delineation of a true *vectis*, recommended to him in very ſtrong terms by *Palfyn*, a ſurgeon of eminence at *Ghent*; but neither this inſtrument nor its deſcription engaged much attention, nor was the *vectis* generally known in this country, before the year 1750. For though it had been uſed before that time by *Rhonhuyſen*, a ſurgeon at *Amſterdam*, after whoſe name it has been ſince called, it was reſerved by him with great ſecreſy, to his own credit and advantage; and, after his death, it became the property of his only daughter, from whom it was purchaſed by *De Bruyn*, an eminent ſurgeon of the ſame place. It appears that *De Bruyn* concealed the ſecret with as much caution as *Rhonhuyſen*; or that he inſtructed ſtudents in the uſe of the *vectis* at a conſiderable price, and with an obligation not to divulge to others what he taught them; which muſt have raiſed great ſuſpicion of impoſture on his part, and of credulity in thoſe whom he taught. The names of other gentlemen who changed or improved the inſtrument ſoon became known; and, annexed to a paper written on this ſubject by the celebrated profeſſor *Camper*, in the fifteenth volume of the Memoirs of the Royal Academy of Surgery, is a plate repreſenting the *vectes* uſed by *Rhonhuyſen*, *Boom*, and *Titſing*.

The advantages ariſing from the uſe of the *vectis* in the hands of *De Bruyn*, oſtentatiouſly urged, appearing to be very great, *Viſcher* and *Vander Pol*, two *phyſicians* at *Amſterdam*, from motives of pure benevolence, purchaſed the ſecret from *De Bruyn*, in the year 1753, and immediately publiſhed a deſcription of the inſtrument, with directions for uſing it; but none of the papers printed on this ſubject in the Dutch language have ever been tranſlated into our own. While the *vectis* remained a ſecret, the reports of the benefits obtained by it were probably much exaggerated, eſpecially thoſe of

we may be to the uſe of inſtruments, we may be induced to try the *forceps*, though a caſe might not be altogether ſuch as may be eſteemed moſt eligible for their application; merely to take an indifferent chance of ſaving the life of a child, which muſt otherwiſe be inevitably loſt. In ſuch caſes we muſt advert to the general principle, and make our attempts in a manner conſiſtent with the ſafety of the parent; and, from motives of prudence, prepare the friends for that diſappointment, which it may not be in our power to prevent.

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ON THE VECTIS.

THE *vectis* uſed in the practice of midwifery is an inſtrument conſiſting of one blade, ſlightly curved, and a handle; ſomewhat larger, but ſimilar in form to one of the blades of the *forceps*.

The true origin of this inſtrument, or time when it was firſt diſcovered, is not known; but before any accounts of the *vectis* were publiſhed, ſome difficult caſes were recorded *, in which women had been delivered with one blade of the *forceps*, which might then be well conſidered as a *vectis*, though not called by that name. But when only one blade of the *forceps* had been uſed, the operation was mentioned as ſomething extraordinary, to ſhew perhaps the judgment, ſkill, or good fortune of the perſon who performed it, and not as leading to the uſe of a particular inſtrument, or to a rule of practice. It is probable, that the inſtrument uſed by the *Chamberlens* in the laſt century was the *vectis*; but this is conjecture, for, after much inquiry, though ſcarcely credible, no

* See *Chapman*.

ſecond

ſecond perſon has yet been able to diſcover, that any of them left either a pattern or deſcription of the inſtrument which they uſed. In the ſecond volume of *Heiſter's* Surgery there is a delineation of a true *vectis*, recommended to him in very ſtrong terms by *Palfyn*, a ſurgeon of eminence at *Ghent*; but neither this inſtrument nor its deſcription engaged much attention, nor was the *vectis* generally known in this country, before the year 1750. For though it had been uſed before that time by *Rhonhuyſen*, a ſurgeon at *Amſterdam*, after whoſe name it has been ſince called, it was reſerved by him with great ſecreſy, to his own credit and advantage; and, after his death, it became the property of his only daughter, from whom it was purchaſed by *De Bruyn*, an eminent ſurgeon of the ſame place. It appears that *De Bruyn* concealed the ſecret with as much caution as *Rhonhuyſen*; or that he inſtructed ſtudents in the uſe of the *vectis* at a conſiderable price, and with an obligation not to divulge to others what he taught them; which muſt have raiſed great ſuſpicion of impoſture on his part, and of credulity in thoſe whom he taught. The names of other gentlemen who changed or improved the inſtrument ſoon became known; and, annexed to a paper written on this ſubject by the celebrated profeſſor *Camper*, in the fifteenth volume of the Memoirs of the Royal Academy of Surgery, is a plate repreſenting the *vectes* uſed by *Rhonhuyſen*, *Boom*, and *Titſing*.

The advantages ariſing from the uſe of the *vectis* in the hands of *De Bruyn*, oſtentatiouſly urged, appearing to be very great, *Viſcher* and *Vander Pol*, two *phyſicians* at *Amſterdam*, from motives of pure benevolence, purchaſed the ſecret from *De Bruyn*, in the year 1753, and immediately publiſhed a deſcription of the inſtrument, with directions for uſing it; but none of the papers printed on this ſubject in the Dutch language have ever been tranſlated into our own. While the *vectis* remained a ſecret, the reports of the benefits obtained by it were probably much exaggerated, eſpecially thoſe of

De Bruyn, though *Van Swieten* ſays he was an honeſt man; but, when it was divulged, and the poſitive and comparative merits of the *vectis* ſtrictly examined, it retained its credit and eſtimation, in the opinion of many competent judges, in different parts of Europe.

When the *vectis* was very much uſed, and highly eſteemed, at *Amſterdam*, as an invaluable improvement in the practice of midwifery, the *forceps* was the favourite inſtrument in this country, eſpecially as altered by *Smellie*, who was then the principal teacher of the art in *London*. But the chief practice in this city* was ſucceſſively in the hands of Drs. *Bamber*, *Griffith*, *Middleton*, *Neſbit*, and *Cole*, ſome, if not all of whom, except Dr. *Bamber*, whoſe *forceps* I have ſeen, preferred the *vectis* to the *forceps*. To thoſe gentlemen ſucceeded Dr. *John Wathen*, a man of great ingenuity, and moſt pleaſing manners, who altered the form and reduced the ſize of the *vectis*, and frequently uſed it with a dexterity that has aſtoniſhed me. In the year 1757, that moſt excellent charity for delivering poor women at their own habitations was eſtabliſhed; and Dr. *John Ford* was the firſt phyſician appointed to conduct it. On every occaſion which required inſtruments of this kind, Dr. *Ford* uſed the *vectis*; and his coadjutors and ſucceſſors, Drs. *Cooper*, *Cogan*, *Douglas*, *Sims*, *Denniſon*, *Squire*, and *Croft*, with many others, have followed his example. From the deſerved reputation of theſe gentlemen, who have at all times expreſſed their approbation of the *vectis* in preference to the *forceps*, many have been induced to try it, and the general opinion of its utility has increaſed. At the preſent time, all who are engaged in the practice of midwifery would conſider themſelves as deficient, if they were not

* Mr. *Malden* of *Putney*, very obligingly ſhewed me a letter of Dr. *Griffith's*, containing directions for the application and uſe of the *vectis*, but in that there was nothing particularly excellent. Dr. *Sims* has alſo a letter on the ſame ſubject, written to his father by Dr. *Cole*.

acquainted

acquainted with the ſtructure and manner of uſing the *vectis*; ſome who formerly preferred and uſed the *forceps*, have relinquiſhed the uſe of this inſtrument for the *vectis*; and others who, from education or habit, continue to uſe the *forceps*, are very willing to allow the equal, if not ſuperior utility of the *vectis*.

SECTION IX.

ON THE DIFFERENT KINDS OF VECTES.

THE firſt *vectis* of which we had any knowledge in this country, was ſimilar to that of *Palfyn*, before mentioned. The inſtrument purchaſed by *Viſcher* and *Vander Pol*, which was made public in a pamphlet written in the Dutch language, is different from that of *Palfyn*. In the account given by *Camper*, there appears to be ſome difference in the form, length, manner, and degree of curvature of the *vectes* uſed by *De Bruyn*, *Boom*, and *Titſing*. But if the powers of the inſtrument were preſerved, and the general principle of uſing it followed, it is probable that all thoſe who preferred the *vectis* thought themſelves at liberty to alter its form, or to vary its dimenſions, making the inſtrument, by ſuch alterations, ſuitable to their own ideas of the properties required.

When the *vectis* was firſt known in this country, that deſcribed by *Heiſter* was preferred to thoſe recommended by the ſurgeons at *Amſterdam*. The *vectis* uſed by Dr. *Cole* was like one blade of the *forceps*, ſomewhat lengthened and enlarged. That of Dr. *Griffith* was of the ſame kind, with a hinge between the handle and blade; and that of Dr. *Wathen* was not unlike *Palfyn's*, but with a flat handle, and a hook at the extremity of the handle, which prevented its ſlipping through the hand, and might be occaſionally uſed

uſed as a crotchet. Many other changes have been made in the conſtruction of the inſtrument, but the *vectis* now generally uſed is of the following dimenſions:

The whole length of the inſtrument, before it is curved, is twelve inches and a half.

The length of the blade, before it is curved, is ſeven inches and a half.

The length of the blade, when curved, is ſix inches and a half.

The wideſt part of the blade is one inch and three quarters.

The weight of the *vectis* is ſix ounces and a half.

The handle is fixed in wood.

From this deſcription, any perſon acquainted with the *forceps* could find no difficulty in forming a juſt idea of the *vectis*, or an artiſt in making it. It appears alſo that a ſingle blade of the *forceps* might, in many caſes, be uſed not inconveniently, inſtead of any other *vectis*, and would generally anſwer the purpoſe without the trouble of introducing the ſecond blade, as I have often experienced before I was acquainted with the *vectis*.

With reſpect to the part of the blade of the *vectis* which ought to be curved, and the degree of curvature, there has been ſome difference of opinion; but this muſt relate either to the eaſe of introducing, or the advantage of acting. With a ſmall degree of curvature, diffuſed through the blade, the inſtrument may be moſt eaſily introduced, and it is moſt ſuitable to the form of the head, nor can the degree of curvature required, on any principle, be very great. But if, together with the power of the lever, we aim at acquiring much extracting force, the curvature ſhould be ſomewhat increaſed towards the extremity; becauſe the two centres, on which the force uſed would reſt, would be at thoſe parts of the head on which the inſtrument might bear, and the part on which it would reſt, whether the ſides of the *pelvis* or the hand of the operator.

For rendering the introduction of the inſtrument more eaſy, and for preventing all the inconveniencies which might ariſe from the difference of curvature, Dr. *Aitkin* of *Edinburgh* contrived a *vectis*, which he has fancifully called the *living lever*. When this is at reſt it is quite ſtraight; but while it is introducing, by turning a ſcrew in the handle, the blade is jointed in ſuch a manner as to bend gradually forwards as the inſtrument is advanced, ſo that the extremity of the blade is always kept cloſe to the head of the child, of whatever dimenſions that may be. There is much ingenuity in the contrivance; but of the effect in practice I cannot ſpeak, having never tried this inſtrument, not wiſhing for one more perfect than that in ordinary uſe. But a gentleman informed me, that in a trial he made, the chain, on which the mechaniſm chiefly depends, broke, and he was obliged to finiſh the operation with a common *vectis*; ſo that in all probability the common *vectes* are actually preferable to any of the complex kinds.

To leſſen the preſſure made by the inſtrument, when in action, upon the parts of the mother, on which it might bear, ſome perſon contrived two holes on a part of the blade, near the handle, through which a ſtrong ribband or tape was to be paſſed, which being afterwards tied and pulled firmly, when the inſtrument was acted with, was ſuppoſed to confine it firmly to the head of the child, and prevent or leſſen the preſſure which might otherwiſe be made upon the parts of the mother; but it appears that the ſame end may be anſwered better by an intelligent and dextrous management of the inſtrument, than by this contrivance.

SECTION X.

ON THE COMPARISON OF THE VECTIS WITH THE FORCEPS.

THE general principle of practice, that the uſe of no inſtrument is to be allowed, except in caſes of abſolute neceſſity, ought not to be infringed, becauſe we entertain a high opinion of any inſtrument, or becauſe we may have acquired dexterity in uſing it, for ſuch reaſons would be indefenſible, and any conduct founded upon them would be highly culpable. That principle, founded in common ſenſe as well as medical knowledge, and confirmed by daily experience, muſt be held inviolable. The real value of any inſtrument will be ſhewn by its efficacy to anſwer the purpoſe for which it may be uſed, and by the ſafety and convenience with which it can be managed, when its uſe becomes abſolutely neceſſary.

There has been much verbal diſpute among thoſe who vindicated the ſuperiority of the *vectis* to the *forceps*, and thoſe who maintained the long eſtabliſhed credit of the *forceps* againſt the encroachments of the *vectis:* but the compariſon between the two inſtruments has never been brought fairly to an iſſue, which might have been done by a diſcuſſion of the two following queſtions.

Is it poſſible to deliver a woman ſafely with the *forceps*, in any caſe not manageable with the *vectis?*

Is it poſſible to deliver a woman ſafely with the *vectis*, in any caſe not manageable with the *forceps?*

We may take it for granted, and I believe it is true, that in far the greater number of caſes which occur in practice, either of theſe inſtruments may be uſed indiſcriminately, with equal ſafety, advantage, and eaſe, allowing for the dexterity which may have been acquired by the habit of uſing either inſtrument. It is but lately

lately that thoſe who prefer the *forceps* have aſſerted, that they could deliver a woman in any caſe of difficulty not manageable with the *vectis*; but, as far as my experience enables me to judge, ſuch a claim in favour of the *forceps* cannot be ſupported. The debate on this point of the queſtion ſeems to have turned formerly, not upon the ſuperior efficacy, but upon the greater ſafety and facility with which the *forceps* might be uſed; and upon the abuſe, rather than the proper uſe of the *vectis*. I have not heard of any well authenticated inſtance, in which after being foiled with the *vectis*, and without a change of circumſtances, any operator, who had acquired a commonly dextrous uſe of this inſtrument, was able to ſucceed with the *forceps*; though it is worthy of notice, that ſome who are accuſtomed to the uſe of the *forceps* only, think themſelves at liberty to depreciate the *vectis*, and others who do not uſe them, ſpeak of the *forceps* in terms of unjuſtifiable contempt.

It might be queſtioned, if we were to admit the objections made by the approvers of each inſtrument, whether they do not ultimately lead to the abandonment of both; and it is certain, that the greateſt improvement in the practice of midwifery at the preſent time is to be attributed to an eſtabliſhed averſion to the uſe of inſtruments of any kind, whenever they can poſſibly be avoided.

With reſpect to the ſecond queſtion, we will take the facts, and relinquiſh the arguments, uſed by thoſe who have preferred the *vectis* to the *forceps*; which I allow ſometimes to have been extravagant, as is not unuſual with thoſe who are the introducers of novelties to public notice, till experience has corrected partialities. If any confidence may be placed in medical reports, it appears that many caſes have occurred, in which, after the introduction of the firſt blade of the *forceps*, it has been very difficult, or ſcarcely poſſible, without the hazard of miſchief, to introduce the ſecond blade, and the operation has been performed with the ſingle blade, uſed as a *vectis*. Of this I have known and been informed of ſeveral in-

ſtances. It appears alſo, that before the head of the child has been ſo low down as was ſtated to be eligible for uſing the *forceps*, that the *vectis* has ſometimes been readily applied, and effectually uſed, with ſafety both to the mother and child, when the neceſſity of ſome particular caſe required the operation. When the head of a child has not only been high up, but locked alſo in the *pelvis*, when there was not ſpace ſufficient to admit the two blades, or more force perhaps was required than the *forceps* in that ſituation enabled us to exert, and we ſhould otherwiſe have been compelled to leſſen the head, it has been feaſible to apply the *vectis*, and the patient has been ſafely delivered, with a probable chance of preſerving the life of the child; but of this I have not myſelf known any inſtance. Moreover, in all the deviations from that poſition of the head, which is moſt natural, as when it is turned with the face towards the *pubes*, or when the face preſents, in which it is allowed that the *forceps* cannot be uſed with the utmoſt advantage or certainty; in all ſuch caſes, I know, the *vectis* may be applied and uſed both with ſafety and efficacy. From this ſtatement it may be preſumed, that the *vectis*, prudently uſed, is, in every caſe, an equally ſafe and efficacious inſtrument with the *forceps*, and a better adapted inſtrument in many caſes which occur in practice. It is with this perſuaſion, that ſeveral teachers in the art of midwifery in London, at the preſent time, never uſe the *forceps*, or ſpeak of them in their lectures; while others, to whoſe judgment I owe much reſpect, continue to uſe the *forceps*, and think I have advanced more than experience will juſtify in favour of the *vectis*. But theſe different opinions reſpecting the preference due to the *forceps* and *vectis* prove to my mind, that in the generality of caſes, either inſtrument may in expert hands be uſed with equal ſafety and advantage. I may alſo be permitted farther to obſerve, that I know ſeveral gentlemen of eminence, in the early part of their lives, accuſtomed to uſe the *forceps*, who diſcovering, by accident or trial,

that

that they were able to afford every aſſiſtance with a ſingle blade, have abandoned the *forceps*, afterwards never uſing more than a ſingle blade, or the *vectis*; but I never knew an example of any perſon, who, having been accuſtomed to the *vectis*, relinquiſhed its uſe and reſorted to the *forceps*. The reader will obſerve, that in giving my opinion of theſe inſtruments, I do not ſpeak of their abuſe, but of their uſe on really neceſſary occaſions; and may be aſſured that I generally conſider diſputes about the preference of inſtruments, among the frivolous and moſt unworthy occupations of men of underſtanding.

SECTION XI.

ON THE MANNER OF USING THE VECTIS.

By the firſt accounts it appears that the *vectis* was recommended, not only in ſuch caſes as were thought fit and ſuitable for the *forceps*, but to ſuperſede the neceſſity of leſſening the head of the child; it was, in ſhort, aſſerted, that no other aſſiſtance could, in any caſe, be required, beyond that which we were enabled to give with the *vectis*. But if thoſe accounts were allowed to be true, they would prove the miſerable ſtate of the principles and practice of midwifery at the time, and in the country in which they were written, in much ſtronger terms than they would deſcribe the excellence of the inſtrument; or that ſuch degrees of obſtruction did not exiſt, as are frequently met with in this country.

The general condition and circumſtances of labours before ſtated, as requiring the uſe of the *forceps*, will hold good, and with equal propriety, when the *vectis* is intended to be uſed; and the rules already given for the *forceps* will ſhorten what we have occaſion to

ſay reſpecting the manner of uſing the *vectis*. For though this inſtrument might be applied when the head of the child was high in the *pelvis*, or even when it was firmly locked in the *pelvis*, in caſes of great emergency, ſucceſs in the management of ſuch caſes depending upon much previous knowledge and experience with the inſtrument, I dare not attempt to form a preciſe rule for the extent of our conduct with the *vectis*, that is, how high we may venture to introduce it, or with what degree of force we may uſe it. But when, without regard to the facility with which the *vectis* may be introduced, or any other conſideration except the neceſſity of the caſe, under the circumſtances before ſtated, we have determined upon uſing this inſtrument, the patient being placed in the ſame ſituation, and every thing prepared as when the *forceps* are to be uſed, the operation is to be performed in the following manner:

Paſs two fingers, or the forefinger of the right hand, to the ear of the child, and introducing the *vectis* between the fingers and the head of the child, conduct it ſlowly forwards till the point of the *vectis* reaches the ear, wherever that may be. Then advancing the inſtrument as if it were a blade of the *forceps*, carry it on till, according to your judgment, the extremity of the blade may reach as far, or a very little beyond, the chin of the child, when the line of the head, on which the inſtrument reſts, will be in a ſtraight direction from the *vertex*, over the ear, to the chin of the child; and this is the moſt favourable poſition in which it can be placed. Then graſping the handle of the inſtrument firmly in the right hand, wait for the acceſſion of a pain, during the continuance of which, raiſe the handle of the inſtrument gently but firmly towards the *pubes*, at the ſame time exerting a ſmall degree of extracting force. When the pain ceaſes, let the inſtrument reſt; and when it returns, repeat the ſame kind of action; and every time of acting endeavour to leſſen the preſſure on the ſoft parts of the mother,

with

with the two fingers, or the inferior ſide of the palm of the left hand placed in ſuch a manner as to form, in ſome ſort, a cuſhion on which the inſtrument may play, or be ſupported. By a repetition of this action during the continuance of the pains, the head of the child will ſoon be perceived to deſcend, and the face to turn gradually towards the hollow of the *ſacrum*. But ſhould the very moderate force we have recommended be found inſufficient to bring down the head of the child, it muſt be gradually and cautiouſly increaſed, till it is ſufficient to anſwer the purpoſe; and this may be done conſiſtently with the ſafety both of the mother and child. When the *vertex* begins to fill and protrude the external parts, it is probable there may be no farther occaſion to act with the inſtrument; or, if further action be required, it muſt be extremely gentle, taking all poſſible care, by turning the handle towards the *iſchia* or ſide of the *pelvis*, by ſupporting the *perinæum*, and by ſlow proceeding, to guard againſt a laceration of the parts, as was before adviſed.

During the operation, the *vectis* being confined to that part of the head where it was originally placed, muſt, as the head deſcends, neceſſarily change its relative ſituation to the mother, and be gradually turned from the *pubes* to the ſide of the *pelvis*, as was remarked of the handles of the *forceps*.

It is alſo to be obſerved, though from the name of the *vectis*, it might be ſuppoſed we had the power of acting with it as a *lever* only, that it will be found to poſſeſs a conſiderable degree of extracting force, even when the curvature is but ſmall; and that we are able, at the time of uſing it, to direct with convenience, and in various ways, the head of the child as it deſcends.

In uſing the *vectis* ſome have recommended the application of it towards the hollow of the *ſacrum*, and ſpoken of the advantages of this mode of application. But I have perſuaded myſelf, that the opinion which could lead to this practice was erroneous, that the

inſtrument

inſtrument would then be worked with leſs efficacy, and there would be a greater hazard of doing miſchief to the mother and child.

It may laſtly be obſerved, that ſome gentlemen have, by frequent practice, acquired ſuch wonderful dexterity in the uſe of the *vectis*, as to finiſh the operation of extracting the head of a child with one ſingle action of the inſtrument. But being ever afraid of ſacrificing ſafety to dexterity, I only pretend to deſcribe a method of uſing this inſtrument ſecurely and efficaciouſly; and muſt therefore be excuſed from commenting farther on all that has been unadviſedly objected againſt, or advanced for, the uſe of the *vectis*, under various circumſtances *.

* See a full and accurate hiſtory of the *Vectis* in, Obſervations on Human and Comparative Parturition, by *R. Bland*, M. D. A. S. S.

CHAPTER XII.

SECTION I.

ON LESSENING THE HEAD OF THE CHILD.

HAVING finiſhed all the obſervations we had to make on the uſe of thoſe inſtruments, which have been contrived to anſwer the firſt intention in practice, that of preſerving the lives of both the mother and child, we come to conſider an operation yet more important, though the neceſſity of performing it far leſs frequently occurs. In this operation being convinced that, under certain circumſtances, it is impoſſible that both their lives ſhould be preſerved, we feel ourſelves juſtified in acting as if the child were already dead, as the only meaſure by which the life of the mother can be preſerved.

This operation has ever been eſteemed of the utmoſt conſequence with regard to its principle and practice. The right or equity of taking away one life for the preſervation of another being doubted, the queſtion was referred to divines, as the moſt competent judges of the caſe; and by them it was decided to be unlawful to take away one life, on any account, for the preſervation of another*. The reference of the queſtion may perhaps be conſidered as an inſtance of humanity and benevolence, and in ſome meaſure, as a proof that this operation had been performed too frequently; and the deciſion ſeemed actually to forbid it altogether. But, as far as the

* *Peu*, in his *Pratique des Accouchements*, has preſerved the forms of the ſtatements and deciſions upon this ſubject by the Doctors of the Sorbonne.

Non enim licet unum interficere alterius vitæ gratia. RODERICUS E CASTRO.

general determination could be ſuppoſed to relate to this operation, there appears to have been fallacy in the ſtatement of the queſtion, and ſophiſtry in the reply. For by the firſt it was preſumed that the child was always living when this fatal operation was to be performed, though that could not univerſally, nor indeed, very frequently have been the caſe; and by the latter it was allowed, that the authority of the deciſion did not apply, or might be ſuſpended, if there were reaſon to believe that the child was already dead. It was probably for theſe cauſes that all the ſymptoms of a dead child, certain and equivocal, were collected and diſtinguiſhed by authors with ſuch great aſſiduity and circumſpection, becauſe they were the authorities for, and the juſtifications of, a practice, which, without them, would have been very reprehenſible, if not puniſhable.

In caſes of dangerous parturition the prerogative of deciding upon the life or death of the mother or child, was ſuppoſed by ſome to be inherent in the huſband, to whoſe powers of judging, or of feeling, appeals were to be made. This erroneous opinion, though I have formerly heard it mentioned in practice, being alſo contrary to the rights and intereſts of ſociety, never could have ſatisfied the mind, or juſtified the conduct of any perſon, who ſhould have ſubmitted to be governed by it. Nor do theſe caſes admit of ſuch election; for if the huſband had preferred the child, his wiſh of preſerving it at the expenſe of the life of the mother could ſeldom have been gratified; he at leaſt could be no competent judge of the neceſſity of the caſe, and certainly could claim no peculiar dominion over the life of either of them. Nor do I think it reaſonable and juſt, that the head of a child ſhould ever be leſſened on the teſtimony and judgment of any ſingle perſon, however well he may be informed and experienced.

True religion, and the common ſenſe of mankind, appear to have nothing contradictory. The doctrine they teach of its being our duty to do all the good in our power, and to avoid all the

miſchief

miſchief we can, is applicable to the exigencies of every ſtate, and we may be eaſily reconciled to it on the preſent occaſion. In ſome caſes of difficult parturition it is not poſſible that the lives both of the mother and child ſhould be preſerved. Of the life or death of the mother, we can, under all circumſtances, be aſſured; but of the life or death of the child there is often reaſon to doubt, when we are called upon to decide and to act. The deſtruction of the mother, or, which has by many been conſidered as ſynonymous, the ceſarean operation, would not, in the generality of caſes, which may bring the operation of which we are ſpeaking under contemplation, contribute to the preſervation of the child, that being already dead; but the treatment of the child as if it were actually dead, with as much certainty of ſucceſs as is found in other operations, ſecures the life of the parent. It then becomes our duty, and is agreeable to our reaſon, to purſue that conduct, which will give us the moſt probable chance of doing good; that is, of ſaving one life, when two lives cannot probably or poſſibly be ſaved.

I forbear to inquire into the comparative value of the lives of an adult and a child unborn, becauſe that does not ſeem to me to be the preſent queſtion; and the ſubject has been in that view well conſidered*. Nor does it ſeem neceſſary to our purpoſe to diſcuſs another queſtion, which has been lately agitated, whether a child unborn has any feeling, becauſe the fact of their having feeling, of ſome kind, or in ſome degree, may be clearly proved by any one who will obſerve the effect of irritating the ſoles of the feet of a living child when theſe preſent, or the palm of the hand when that preſents, the body and head being yet retained in the *uterus*. But there is an argument to be drawn from the circumſtances which ſometimes occur in caſes of laborious parturition, which applies with greater force towards juſtifying this operation, in pre-

* See Dr. *Oſborn's* Eſſay on Laborious Parturition.

ference to any other which might prove more hazardous to the mother, than any abſtract reaſoning. In all difficult labours, properly ſo called; eſpecially ſuch as are occaſioned by diſproportion between the head of the child and a ſmall or diſtorted *pelvis*, one of the firſt effects of long-continued and ſtrong pains is the death of the child. The head of a dead child collapſing and admitting of preſſure into a form more ſuitable to the dimenſions of the *pelvis*, than a living one, will frequently be expelled through a ſpace too ſmall to allow that of a living child of the ſame ſize to paſs. But after this change, which follows the death of the child, ſhould the head remain too large, putrefaction advancing, the integuments of the head begin to decay, and the bones to looſen from each other. By the continuance of the action of the *uterus* upon the child the integuments of the head at length burſt, and the bones being ſeparated, the brain of the child may be evacuated through the opening. The bulk of the head thus leſſened may be excluded by the force of the pains, and the body, impaired by an equal degree of putrefaction, may readily follow, and the labour terminate without the aſſiſtance of art. All theſe changes may be, and ſometimes, to my own knowledge, have been gone through with perfect ſafety to the mother, without the interpoſition of art, ſo that the artificial opening of the head of a child is, in fact, no more than an imitation in one caſe of what happens ſpontaneouſly in another; and ſuch imitation is the true ground, on which the whole practice of ſurgery has been founded. It may alſo be obſerved, that the reſources of nature, in every thing which relates to parturition, are infinite, and conſtantly exerted for the preſervation of both the parent and child; yet when the two objects are incompatible, the life of the child is almoſt uniformly yielded to that of the parent.

From the number of ſigns of a dead child given by authors, and by the context of their writings, it appears to have been the practice, whenever the death of a child was aſcertained, to uſe the means

means of extracting it; or to have given medicines to excite and aid the conſtitution for expelling it, without any reaſon drawn from the preſent ſtate of the mother, but to prevent remote and ſuſpected danger. This practice correſponded with the theory of the ancients, that a living child was born by its own efforts, but a dead child, being deſtitute of all power, muſt be excluded or extracted by art. But no fact is more clearly proved than that of a dead child remaining in the *uterus*, inoffenſively, for ſeveral weeks before the acceſſion of labour, and being then expelled in a manner perfectly natural. No injurious abſorption takes place, nor does the *uterus* ſuffer by being in contact with it. The certainty of the death of the child would not therefore, immediately, indicate the neceſſity of the operation we are conſidering *; but the reaſons for, and juſtification of it, muſt be deduced from the ſtate of the mother; and that ſtate muſt be ſuch as to prove her abſolute inability to expel the child; and the impoſſibility of extracting it by any of thoſe means, which have been contrived for the purpoſe of delivering women, giving at the ſame time a chance for preſerving the lives of children; together with the uſeleſſneſs and danger of delay. But as the ſigns of a dead child, if deciſive, would, on many occaſions, have their influence on practice, and might at leaſt induce the moſt cautious and prudent man to haſten the time of performing this operation, which he might otherwiſe defer; and as the knowledge of theſe ſigns will lead to a more full inveſtigation of the ſubject, it is proper to enumerate them, and to inquire at the ſame time how far each of them may be allowed to determine the fact which they are adduced to prove.

* Si ſub ipſis partûs doloribus ac laboribus infans emoritur, nec tamen minus decenter, ſed naturaliter compoſitus eſſe deprehenditur, non ſtatim, quamdiu ſcilicet de morte non ſatis certi ſumus, unci vel alia admovenda ſunt inſtrumenta. HEISTER. Cap. CLIII.

SECTION II.

ON THE SIGNS OF A DEAD CHILD.

1. *Receſſion of the Milk, and Flaccidity of the Breaſts.*

SHOULD the child die when a woman is far advanced in her pregnancy, and before the commencemennt of labour, theſe ſigns are ſeldom wanting. But if they were to be offered as proofs of the death of a child deſtroyed by the ſeverity of a labour, it would have been needful to have compared the ſtate of the breaſts at two ſpecific times; firſt, on the acceſſion of labour, when the child was living and they might be turgid; and, ſecondly, in the advanced ſtate of labour, when the child was dead, and they might have become flaccid. But as it is not cuſtomary to inquire into the ſtate of the breaſts before ſome ſuſpicion is entertained of the death of the child, and as thoſe of no two women, under any circumſtances, exactly reſemble each other, and as the milk is often ſecreted irrregularly at different periods of pregnancy, all indications taken from the ſtate of the breaſts, or the ſecretion and quantity of milk, muſt be uncertain, and any judgment founded upon ſuch indications, extremely liable to error; granting, however, that in ſome ſituations, they do become common, or collateral proofs of the queſtion we may wiſh to determine.

2. *Coldneſs of the Abdomen.*

When children die towards the concluſion of pregnancy, women not unfrequently complain of coldneſs of the *abdomen*, and, at the inſtant of their death, there is uſually one violent ſhivering. But when women in labour ſpeak of this coldneſs, there is not actually external

external coldneſs, but a ſenſe of it felt by the patient. A ſuppoſition that a dead child is colder than a living one, is the principle which gives to this ſign its chief importance. But whether a child has been dead for a ſhort or a long time, it is generally found to be of the ſame degree of heat with the *uterus* in which it was contained, and it is even hotter than the *uterus* while it is in the act of putrefying. The principle being fallacious, the inferences muſt often miſlead, and a child is, not unfrequently, born living, though the mother, before her delivery, complained of this coldneſs; which may be produced by ſome contingent circumſtance, as the great heat of the room when ſhe is in a profuſe perſpiration, or the ſudden admiſſion of cold air under the bedclothes in winter. Little ſtreſs is to be placed on this ſign alone, but, when accompanied with others, particularly a conſiderable diminution of ſize, it muſt increaſe our ſuſpicions of the perilous ſtate of the child.

3. *Mechanical weight of the Uterus.*

If a woman in labour, or in the latter end of pregnancy, ſhould feel the *uterus* fall with a ſenſe of increaſed or unreſiſted weight, when ſhe turns from one ſide to the other, or changes her poſition, it is often ſurmiſed that the child is dead; the bulk of the child being diminiſhed, and all that reſilition obſerved to exiſt in every living body being loſt. But this ſenſe or effect may often be explained in a more ſatisfactory manner from other cauſes, eſpecially when a woman is in labour. Should the waters of the *ovum* be ſuddenly diſcharged, the *uterus* will contract till it comes into contact with the body of the child; but the integuments of the *abdomen*, not contracting with equal celerity, and the *uterus* wanting that ſupport which they afforded when it was fully diſtended, muſt of courſe fall to whichever ſide the woman may turn. Should the waters be diſcharged ſlowly, or ſhould the integuments

teguments of the *abdomen* contract ſpeedily, or ſhould the head of the child drop into the *pelvis* immediately after their diſcharge, there would not be this ſenſe of unſupported weight, whether the child were living or dead; becauſe in one caſe the *uterus* would be held firm by the general contraction, and in the other, the child would be prevented from that kind of motion by its confined poſition.

When a child dies in the latter part of pregnancy, the flaccidity and ſubſidence of the *abdomen* are conſiderable; but it is from a very great degree of theſe we are led to ſuſpect either the death or waſting of the child, ſome ſubſidence being one of the natural changes which precede labours. From the appearance of infants born alive, it is often evident, that they are leſs than they were ſome weeks before they were born; and the manner in which theſe changes are made, frequently ſhews, whether they died ſuddenly, or declined gradually.

4. *Want of Motion of the Child.*

The kind and degree of motion which may be cauſed by the child varies in different women, and at different periods of pregnancy. By ſome the child is ſcarcely ever perceived, and with others it is ſcarcely ever at reſt, but it is often quiet a few days before, and in the time of labour. By the motion of the child its living ſtate is aſcertained; but the want of motion does not prove that it is dead, nor would it, for that reaſon, be juſtifiable to perform any operation, which might be injurious to it, if living.

Some pregnant women, even among thoſe who have before had ſeveral children, have ſcarcely ever been able to perceive the motion of the child through the whole time of pregnancy, and then the regular increaſe of ſize is our beſt proof of its well doing. Others have aſſerted that they have felt the motion of the child, though the event has proved that they were not pregnant. Others have

not doubted of the life of the child, though, after its birth, there were certain marks of its having been long dead. In long and very ſevere labours natural affection may be overcome by preſent ſuffering and diſtreſs, and women might conceal their knowledge of the motion of the child from the hope of a more ſpeedy delivery, if they concluded, that the judgment of the attendant was guided by this circumſtance. Every allowance muſt be made, and every conſideration had for human nature, humbled by infirmities and miſery. The fears and affection of friends will alſo warp their judgment; but our greateſt tenderneſs and the propriety of our conduct will be ſhewn, not by a compliance with requeſts and ſolicitations, but by following the dictates of our own reaſon and judgment, for we are not to be governed or alarmed by unfounded apprehenſions of danger, but by its actual exiſtence.

5. *Fœtor in the Apartment of the Patient.*

The putrefaction of the child would be an indubitable mark of its death, and might create a very offenſive ſmell in the apartment in which the patient was confined; but every putrid child does not yield an offenſive ſmell, and ſuch ſmell may be occaſioned by ſeveral other circumſtances. If a child ſhould die in the *uterus* from external injury, or any internal cauſe, and become putrid before the membranes of the *ovum* were broken, it would have a peculiarity of ſmell, but not that *fœtor* which every animal ſubſtance emits, while it is in the act of putrefying under the influence of the open air. The *fœtor* to which we now allude, can only appertain to a child which was living in the beginning of labour, and died in the courſe of it, after the diſcharge of the waters; and in ſuch caſes, when putrefaction does begin, it is commonly very rapid in its progreſs. The general ſmell of putridity in the apartment of a perſon in labour, is to be admitted with very great caution as a ſign of a dead child; for if the room be ſmall, or crowded with company,

company, or long kept hot and uncleanly, or the common offices of life are performed in it, as is uſually the caſe among people of the lower claſs, a ſimilar effect would be produced as when the child is dead and become putrid.

6. *Fœtor and ill Appearance of the Diſcharges.*

The *fœtor* here meant is alſo ſuppoſed to ariſe from the putrefaction of the child, and the ill appearance to proceed from a mixture of *meconium*, ſanious, or other matter which might be ſuppoſed to flow from a putrefying child, with the common uterine diſcharges. But the appearance of theſe diſcharges naturally varies in different women, according to their conſtitution, and to the qualities of the waters of the *ovum*, in the appearance of which there is a very great difference. They become altered likewiſe by contingent circumſtances, as the caſual retention of the diſcharge, the mixture of a ſmall quantity of blood, or ſlight inflammation of the parts, which in ſome caſes give a ſtrong ſcent to them, hardly to be diſtinguiſhed from putrid *fœtor*. With every appearance of the uterine diſcharges, children have been born living and healthy; and when they have been long dead, thoſe have in many inſtances been ſo little changed, as not to raiſe ſuſpicion of any harm having befallen the child, in the minds of very experienced men. The propoſal of any operation which would be injurious to the child, if living, would not therefore be juſtifiable, merely on account of the ſmell or appearance of the diſcharges, without other collateral proofs of its death, or a conviction from other circumſtances of the operation being abſolutely neceſſary.

7. *Evacuation of the Meconium when the Head of the Child preſents.*

Should a child preſent with the breech or inferior extremities, the evacuation of the *meconium*, which is an abſurd name given to the

the excrements firſt evacuated by the child after its birth, is one of the proofs of ſuch preſentation. But when the head preſents, if the labour be very ſevere or tedious, the waters will be tinged of a greeniſh colour, or pure *meconium* may be forced away, and, with ſuch appearances, the child is often ſuppoſed to be dead; from a preſumption, that if it were living, the *ſphincter* of the *anus* would act with power ſufficient to prevent any diſcharge. But by experience it is fully and frequently proved, that a child may be born living, though the *meconium* ſhould come away when the head preſents; its evacuation proving no more than the weakneſs of the child, or the degree of compreſſion it has undergone. The diſcharge of the *meconium* may alſo depend upon the quantity contained in the bowels, or ſome caſual preſſure upon the *abdomen* of the child. We may however, in general, conclude, when the *meconium* does come away in a natural preſentation, that the ſtate of the child is not void of danger; and for many years I never ſaw a child, preſenting with the head, born living, when the *meconium* had come away more than ſeven hours before its birth. But at length, I met with a caſe, in which the *meconium* was diſcharged for more than thirty hours, at the end of which time, though the woman was delivered with the *forceps*, the child was born healthy and ſtrong; and ſince that time I have had many equally convincing proofs, that the coming away of the *meconium* is a very doubtful ſign of the death or dangerous ſtate of the infant, whatever may be the preſentation.

8. *Edematoſe, emphyſematoſe, or other peculiar Feel of the Head of the Child.*

In many caſes in ſurgery, information may be gained, and the judgment aſſiſted by what is called the *tactus eruditus*, or that faculty which enables us to perceive and diſcriminate by the touch, with greater accuracy than by any evident or deſcribable marks. It has

alſo been ſaid, that we may decide in many doubtful caſes, by the feel of the head, whether a child be living or dead. But as we know that in ſurgery, the moſt diſcerning and expert in this faculty are often miſtaken, when they deſert common evidences, ſo, opinions formed on ſuch ground, would not authorize an operation to which they might be ſuppoſed to lead, in the queſtion on which we are now ſpeaking. For the integuments of the head of a child often become edematoſe to a conſiderable degree, from preſſure in its paſſage through the *pelvis*; and ſometimes emphyſematoſe from a continuance or increaſe of the ſame preſſure, when the child may, in all other reſpects, be perfectly well. If the integuments be ſqueezed into a ſmooth, round form, this is ſaid to be unfavourable; but when they are corrugated, the tumefaction, though equally great, is thought to be of leſs conſequence; the former being ſuppoſed to prove the abſolute ſeparation of them from the *cranium*, and the latter, that their attachment remains; but this difference is in many caſes accidental. The original connexion of the bones of the head is ſuch, as to allow of their being preſſed cloſe to, or over, each other with ſafety to the child; yet when this has been long dead, and their natural connexion deſtroyed, they may ſometimes be perceived to be looſe and diſtinct. The looſe ſtate of the bones of the *cranium* is frequently ſuch as to leave no doubt of the death of the child, as well as the abraſion of the cuticle or the falling off of the hair; but proofs of things ſelf-evident are not wanted in practice, but ſuch as will guide us in doubtful caſes. In very difficult labours, I have more than once ſeen a portion of the integuments of the head of the child ſlough away, and the bone laid bare, without deſtroying the child. Probably I may have before obſerved, that whenever children die in the *uterus*, the greater the degree of putrefaction in which they are expelled, according to the time during which they have been dead, the more favourable is the indication to the mother; ſhewing, I ſuppoſe, that the health

and

and vigour of her conſtitution in general, and of the *uterus* in particular, are not impaired. But if a child ſhould remain dead in the *uterus*, for any length of time, without becoming putrid, this circumſtance might be conſidered as a proof that the powers of action in the mother were reduced to a ſtate of dangerous weakneſs; as food remaining unchanged in the ſtomach would be a proof of the debility of that part.

Many ſigns of a dead child have been mentioned by authors, under the denomination of equivocal, as the extreme languor, or livid paleneſs of the countenance of the mother, the offenſive ſmell of her breath, and ſeveral others. But if it appears that thoſe ſigns, which have been called certain, are in fact doubtful, it will follow, that very little reliance ought to be placed in thoſe, which are acknowledged to be equivocal. If, however, the propriety of performing this operation ought not to be decided even by the certain knowledge of the death of the child, but by the circumſtances of the mother abſolutely requiring it for her preſervation; then, the conſideration of the life or death of the child becomes of leſs importance. Becauſe if the operation, when really neceſſary for her ſafety, were not to be performed, the life of the child would not be preſerved, and that of the parent would be inevitably loſt.

SECTION III.

ON THE CAUSES OF THE DEATH OF THE CHILD.

THE proportion of children ſtill-born to the number of births has not been accurately determined, nor is it eaſy to decide the queſtion; as it may probably vary in different countries and ſituations, and in different years. But it ſeems to be generally greater than from a tranſient view would be apprehended, and perhaps it is

far greater in human beings than in animals. The death of a child in the *uterus* may be occaſioned by various cauſes independent of the mother, as by local inflammation or other diſeaſe of ſome part of its own body, eſſentially neceſſary to life; by ſome original imperfection in its ſtructure, which may prevent its acquiring more than a certain ſize, or exiſting beyond a certain time; by the ſmallneſs or morbid ſtate of the *placenta*, hindering the proper communication between the child and the *uterus*; by a partial or total ſeparation of the *placenta*, or, by the rupture of ſome of the large veſſels which run upon its ſurface: by the veſſels of the *funis umbilicalis* becoming impervious; by the circulation through them being obſtructed by the caſual tying of a knot; by untoward preſſure of the body of the child upon the *funis*; or by this becoming dropſical or otherwiſe diſeaſed, and probably various other cauſes.

The child may alſo be deſtroyed by affections or diſeaſes of the mother, as by the ſudden and violent impreſſion of fear, joy, or other tumultuous paſſion; by the irregularity of the parent's life; by fever; by improper or unwholeſome diet; by any cauſe capable of depriving the child of a proper quantity of nutriment, or depraving the quality of that with which it may be ſupplied; or by accidents which produce ſome poſitive injury upon the body of the child, through the integuments and parts with which it is inveſted and naturally defended. Some of theſe are beyond the power of art to prevent or remedy, though others might by proper care and management be obviated or relieved; but at preſent we want only to diſcover thoſe cauſes of the death of a child, which may occur in the time of labour.

To the inconveniencies and danger, which may ariſe in the courſe of a labour from the diſproportion between the ſize of the head of a child and the dimenſions of the *pelvis*, we muſt ſubmit; as no judgment or ſkill can do more than teach us to wait patiently for the effect to be derived from the efforts of the mother, and the accommodating

accommodating conſtruction of the head of the child. Though the degree of compreſſion, which this may undergo in a very tedious or difficult labour, might be judged inconſiſtent with the ſafety of children, they will often, under ſuch conditions, be born healthy and vigorous, and the parents recover more ſpeedily and perfectly, after ſuch labours, than after thoſe which were natural and ſhort. The ſame obſervation will alſo hold good of the reſiſtance made by the ſoft parts to the paſſage of the child through the *pelvis*, unleſs their rigidity ſhould proceed from local inflammation. But ſhould the natural efforts be interrupted or ſubdued by fever, debility, or any other adventitious cauſe, or ſhould there be local diſeaſe, the ſtate of the patient would require the aſſiſtance of medicine or of art, according to the circumſtances which might ſupervene. Yet it is in common obſervation, that far the greater number of thoſe labours which have been conſidered as difficult, and which really were ſuch towards the concluſion, were not in fact occaſioned by the abſolute ſtate of the patient, but by interpoſition, and the deſire of accelerating labours, which in their nature required a certain time for their completion. This interpoſition has chiefly conſiſted of two points of practice, both extremely reprehenſible; the artificial dilatation of the *os uteri*, and the premature rupture of the membranes. By ſuch practice the order of the labour becomes diſarranged, and there often follow occaſions to exerciſe art, for the relief of thoſe evils which were originally cauſed by the improper uſe of art, to the great hazard of the parent or child. So long therefore as labours proceed naturally, they may be proper objects of our obſervation, reaſon, and judgment, but cannot be conſidered as the objects of art. Yet when they are proved to be beyond the efforts of nature to accompliſh, the aſſiſtance of art becomes juſtifiable becauſe it is neceſſary, and we may be reconciled to the fate of the child, if the life of the mother cannot poſſibly be

be preſerved by any means conſiſtent with its ſafety; but we are to be convinced of this neceſſity by the moſt ſubſtantial proofs, before we preſume to decide upon an action ſo important both in a moral and ſcientific view.

SECTION IV.

ON THE INSTRUMENTS USED IN THIS OPERATION.

THE inſtruments with which this operation was anciently performed, do not appear to have been well calculated to anſwer the intention of the operator, effectually or ſafely. They conſiſted chiefly of hooks, ſingle or double, blunt or ſharp pointed, differing in form and length, which were fixed upon any part of the head with the view of extracting it forcibly. It being ſometimes found impracticable to fix a hook firmly upon the head, other inſtruments were invented and uſed to make an opening in which a hook might be fixed, but without any intention of leſſening the bulk of the head. All theſe inſtruments it would be uſeleſs and tireſome even to enumerate; but it is remarkable that *Mauriceau*, a man of great experience and real ability in his profeſſion, ſhould have complained of difficulties in this operation which he could not ſurmount, from the want of proper inſtruments.

Perhaps there is no operation in ſurgery, which admits of a more preciſe deſcription or diſtinction, than this of leſſening the head. It conſiſts of three parts; perforating the cranium; evacuating the brain and *cerebellum*; extracting the head; and three inſtruments have been commonly uſed for theſe purpoſes. The firſt was the ſciſſars originally uſed by *La Motte*, altered and improved by *Smellie*; the ſecond was in the form of a large ſpoon with

ſerrated edges; the third was a hook or crotchet, ſtraight or curved, to be uſed ſingly, or in pairs like the *forceps*.

Many years ago, *Savigny* the inſtrument maker, at my requeſt, prepared two inſtruments, which I ſuppoſed to be fully ſufficient for this operation, the evacuation of the brain not requiring a ſeparate inſtrument. The firſt was a *perforator* in the form of *Smellie's* ſciſſars, the blade being ſlightly curved in the manner of the ſciſſars uſed for extirpating the tonſils, but without any cutting edge, which is ſomewhat dangerous and altogether uſeleſs; the ſecond was a crotchet with a little degree of curvature and a very ſmall hook, if compared with thoſe before uſed. The *perforator* meaſures about nine inches in length, and has a ſtop on each blade one inch and a quarter from the point. The crotchet, which has a wooden handle and a flat ſtem, ſhould, when properly curved, be of an equal length with the *perforator*. Theſe inſtruments, which are now almoſt in general uſe, are found to be very convenient, and fully adequate to every purpoſe in the performance of this operation; and as the intention is well underſtood, and the inſtruments ſimplified, both the difficulty and danger of the operation are infinitely leſſened.

SECTION V.

ON THE MANNER OF PERFORMING THE OPERATION.

Much conſideration is required before we determine to perform this operation, and, according to my judgment, it ought never to be performed on the opinion of any ſingle perſon, if that of two can be procured. But when we have decided upon the neceſſity of its being done, beſides great circumſpection in the manner of doing it, there is occaſion for our being reſolute and perſevering in our attempts

attempts to accompliſh it; even when the difficulties to be ſurmounted appear to be too great for any degree of ſkill, or any force we have the power of uſing. One common error formerly prevailed in this and many other operations, founded on an opinion, that it was needful to perform it ſpeedily; but it is now proved by experience, and generally acknowledged, that the more calmly and ſlowly we proceed, the leſs chance there will be of failing, or doing miſchief. As the ſole aim of this operation is to preſerve the life of the mother, without regard to the child, whatever its ſtate might be, it will be our duty to be extremely careful to guard againſt every accident which might prove injurious or hazardous to the mother. But, as by following the diſtinctions ſpecified in the laſt ſection we ſhall be able to mark and explain all the circumſtances of the operation as they occur, we will abide by thoſe diſtinctions in deſcribing the manner of performing it.

SECTION VI.

ON THE PERFORATION OF THE HEAD.

THE eaſe or difficulty attending this and every other part of the operation, will depend upon the diſtance the head may be from us; whether, for inſtance, it be deſcended and locked in the *pelvis*, or be lying at the ſuperior aperture; and upon the degree of diſtortion of the *pelvis*, which may be only ſo much as juſt to prevent the paſſage of the head, or ſo great as to render the uſe of the inſtruments both troubleſome and dangerous. Some inconvenience may alſo be produced by the *os uteri*, ſhould it not be completely dilated; but this may rather be eſteemed a reaſon for extraordinary care than as a cauſe of difficulty.

Without regard to the part of the head which we mean to perforate,

forate, but deciding upon that which is moſt obvious and eaſy of acceſs, as the moſt proper, the left hand flattened is to be introduced into the *vagina*, and the fore finger of the ſame hand is to be directed upon that part of the head where we intend to fix the point of the inſtrument. The *perforator*, held in the right hand, is to be conducted with the convex part towards the palm of the left hand, and with the point kept cloſe to the fore finger, till it reaches the part where we have determined to perforate. The fore finger of the left hand is then to be paſſed round the point of the inſtrument, that we may be aſſured we have fixed it in the right place, and that none of the ſoft parts of the mother are in the way of being hurt. With the inſtrument held firmly in the right hand, we muſt then preſs through the integuments of the head; and, the point being fixed upon the bones of the *cranium*, begin to perforate, by turning with a ſemirotatory motion the handle of the inſtrument. This motion of the inſtrument, care being taken to confine the point to the place where it was originally fixed, is to be continued till we judge the bone to be actually perforated; and we are to try occaſionally, by advancing the inſtrument, whether the bone be perforated or not. When the bone is perforated, the inſtrument being preſſed forwards will penetrate the head, and go on till it reaches the ſtops formed upon the blades. Then, fixing the finger and thumb of the right hand in the bows of the handle, or preſſing the thick part of the hand between the ſtems, or calling for the help of an aſſiſtant, we ſhould ſeparate the handles of the inſtrument to ſuch a diſtance as to make a ſlit or opening of ſufficient length in the *cranium*; judging of, and in ſome meaſure guiding, the effect produced upon the blades by the ſeparation of the handles, and by the finger of the left hand retained in its primitive poſition. The handles being then cloſed, the inſtrument muſt be turned in a tranſverſe direction, and they are again to be

ſeparated in the ſame cautious manner, by which means a crucial opening of a proper ſize will be made in the *cranium*. This being completed, the *perforator* is to be cloſed, and withdrawn in the ſame cautious manner in which it was introduced.

In this part of the operation the principal things which demand our attention are, firſt, that the inſtrument be carefully introduced; ſecondly, that we be not alarmed at the diſcharge which follows the perforation of the integuments of the head, as that is to be expected; thirdly, that the point of the inſtrument does not ſlip while we are perforating; and fourthly, that the crucial opening in the *cranium* be ſufficiently large, to allow of the excluſion of its contents.

SECTION VII.

ON THE EVACUATION OF THE CONTENTS OF THE HEAD.

A VERY large opening of the *cranium* has been generally conſidered as neceſſary for the well performing of this operation; but this is not abſolutely required in any point of view, nor can it always be made with ſafety. It muſt, however, be ſufficient for the purpoſe of ſuffering the contents of the head to paſs through it; and for the evacuation of theſe, it was before mentioned, that various inſtruments had been contrived. But theſe inſtruments, eſpecially the ſerrated ſpoon, appear to be both unneceſſary and dangerous; unneceſſary, becauſe the texture of the brain and *cerebellum* being broken down, their evacuation will follow of courſe, as the head is propelled or extracted; dangerous, becauſe an inſtrument with many ſharp points could not be frequently introduced and withdrawn without the hazard of being hitched on the ſoft parts of the mother.

mother. Any ſmooth inſtrument of a proper ſize and length, ſuch as the handle of a ſilver ſpoon, or a blade of the *forceps*, will anſwer the purpoſe of breaking down and evacuating the contents of the head ſafely and effectually. But I have generally introduced the crotchet into the opening in the *cranium*; and, turning it round frequently, in various directions, eſpecially near the baſis of the ſkull, have completed this part of the operation without difficulty. With all the care which can be taken, it is not always poſſible to do this on the firſt attempt; but, if in the courſe of the operation it ſhould be found that the head does not readily collapſe, becauſe ſome part of its contents had eſcaped the action of the inſtrument, the ſame method may at any time be repeated, without delaying the operation.

SECTION VIII.

ON THE EXTRACTION OF THE HEAD.

It was formerly a rule of practice, whenever the head of the child was opened, that the efforts to extract it ſhould immediately commence, and be continued till the purpoſe was accompliſhed. With all the cautions which have been given for aſcertaining the neceſſity of the operation before it was performed, it was ſtrongly inculcated, that we ſhould be on our guard not to defer it till the ſtrength of the patient was too much exhauſted; leſt by ſuch delay we ſhould altogether loſe the advantage that would reſult from the natural efforts, which might otherwiſe be made for the excluſion of the leſſened head; and when the child was extracted, leſt the patient ſhould be reduced to a ſtate of the greateſt danger from mere debility; more eſpecially if there ſhould be a loſs of much blood, before, or after the excluſion of the *placenta*. Our conduct,

with regard to the extraction of the head, muſt then depend upon the ſtate of the patient; whether that ſtate will permit us to wait for the advantages to be derived from the putrefaction and compreſſion of the head from the natural pains, or whether the head ſhould be ſpeedily extracted by art. If, from the great diſtortion of the *pelvis*, we ſhould have been convinced of the neceſſity of performing this operation in the beginning, or early part of a labour, the head when leſſened may be left for many hours to undergo thoſe changes which putrefaction occaſions, to the diminution of its bulk by compreſſion, to its gradual deſcent into the *pelvis*, when it may be readily extracted, or to the chance of its final expulſion without aſſiſtance, as the reaſon and nature of the caſe may indicate or require. Under ſuch circumſtances the late Dr. *Chriſtopher Kelly** informed me, and I believe the practice originated with him, that he had left the head of a child, after the evacuation of its contents, for more than twenty-four hours, without making any artificial attempts to extract it; and that the operation was, by this delay,

* The papers of my worthy friend Dr. *Kelly* are in the hands of my ſon-in-law Mr. *Croft*, who found among them the following account of the individual caſe, probably, of which the doctor had informed me, which I tranſcribe in his own preciſe words.

" March 11, 1763. —— has a *pelvis* extremely narrow, and, by the meaſure I took, do firmly believe the diſtance between the *os pubis* and projection of the *ſacrum* is not more than two inches, therefore I knew it was in vain to hope to bring the child alive by any means whatever: therefore, for her ſafety, I opened the head freely, and emptied the *cranium*, in about ſixteen hours after being firſt called to her, and then left it to ſettle into the *pelvis* twenty-four hours (as in the caſe of Mr. *Ford's* patient) before I delivered her, which I did with tolerable eaſe, by means of the blunt hook only. She recovered as well as poſſible. This was her firſt child. She was ſo rickety when a child, as not to be able to walk till nine years of age, and is now very ſhort. Her name is ————."

The *pelvis* of this woman came at length into my hands, and in ſome parts of the ſuperior aperture does not meaſure more than one inch and a quarter, though on one ſide the ſpace is equal to two inches. D.

rendered

rendered more ſafe, and infinitely more eaſy. The late Dr. *Mackenzie* alſo informed me, and many other perſons, that he had in the latter part of his life followed this practice with ſucceſs. But the matter has been more fully diſcuſſed, with great ingenuity, and as much preciſion as the queſtion admits, by a late very ſenſible and judicious writer*, who in a caſe of which I was a witneſs, left the head of a child more than thirty-ſix hours after it had been leſſened, and then extracted it; the woman recovering without any untoward ſymptom. Of the *pelvis* of this woman, who, I am informed, is now dead, we were never able to get the exact dimenſions, as ſhe removed from her uſual habitation, and could not afterwards be traced.

When the head of the child has been leſſened, the length of time during which the patient may therefore be truſted in expectation of favourable changes, muſt be left to the judgment that may be formed of every individual caſe which may be the immediate object of practice. In ſome caſes, from the precarious ſtate of the mother, there will exiſt a neceſſity of extracting the head as ſpeedily as we can with ſafety; yet the general principle to be eſtabliſhed is, that the longer we have waited in any caſe, the more eaſily will the head be afterwards extracted. But the patient is to be carefully watched that we do not wait too long, leſt unfavourable ſymptoms ſhould come on, and the end for which the operation was performed be ultimately defeated.

Sooner or later then, according to the ſtate of the mother, it will be neceſſary that we ſhould begin to make our efforts to extract the head of the child; and taking care, in the firſt place, to remove cautiouſly any looſened or ſharp pieces of bone, I have been accuſtomed to avoid uſing the crotchet, or any kind of inſtrument, till I have tried what advantage was to be gained with my fingers.

* *Eſſay on Laborious Parturition, by W. Oſborn, M. D.*

With

With this view, introducing the fore finger of either hand, armed with my glove, or ſome ſuch contrivance, into the opening in the head, and then bending it in the ſhape of a hook, I have pulled with all the force it enabled me to exert, repeating my attempts at intervals when the natural efforts of the mother returned.

Should the head of the child be ſo high in, or above, the ſuperior aperture of the *pelvis,* or this be ſo much diſtorted as not to admit of my giving this kind of aſſiſtance, or ſhould it be unequal to the purpoſe, I carefully introduce the crotchet, guided by my left hand into the opening in the head; and, fixing the point of the hook as far from the edge of the bone as its curvature will allow, I begin to pull moderately by the handle held in my right hand, guiding at the ſame time the hook of the crotchet with the fingers of the left, if it ſhould happen to tear away the bone, or ſlip.

If on trial the crotchet be found firmly fixed, but the head be too much impacted in the *pelvis* to be brought down with the force firſt uſed; that is, ſuppoſing the force required to extract the head be equal to 10, and the force which can be exerted by the crotchet not to exceed 5; no other purpoſe can be anſwered by ſtriving too earneſtly with the force which can not be made to exceed 5, except tearing away the piece of bone in which the crotchet may be fixed, which does not facilitate the operation. We are to be ſatisfied with the ſteady exertion of the force 5, which, being continued, will at length be found ſufficient for our purpoſe, the reſiſtance gradually diminiſhing, and the force 5 remaining. In the repetition of our attempts to extract the head, which muſt be made at intervals, ſhould the bone in which the inſtrument was fixed, be looſened and come away, wholly or in part, the crotchet muſt be again introduced and fixed in another place, and the ſame method of proceeding followed; remembering alſo when we extract, to pull with ſome variation in the direction, but always in the line of the

the cavity of the *pelvis*. In almoſt every caſe of difficulty the principal obſtacle or cauſe of the difficulty is at one particular part of the *pelvis*, and when the head has paſſed that part there is no farther occaſion for uſing much force; and we are afterwards to proceed very circumſpectly, that there may be no laceration of, or injury done to the parts of the mother, internal or external. The principle I wiſh to impreſs on the minds of thoſe who may be embarraſſed with difficulties of this kind is, that time is equivalent to force, and that no advantage will be obtained by pulling away ſmall pieces of bone, except ſuch as were looſe and likely in their paſſage to injure the ſoft parts of the mother, or by acting haſtily or violently. On the contrary, when the inſtrument is once firmly fixed in a part of a bone which affords a good hold, I have been cautious not to tear it away by pulling raſhly, conſidering that as ſomething like breaking the inſtrument with which I was performing the operation. Where the reſiſtance has been very great, after making my firſt efforts with all the force and ſkill I could ſafely exert without ſucceſs, leaving the crotchet fixed, I have deſiſted for an hour or longer, and then renewed my attempts.

In a caſe of very great difficulty it is however poſſible, that all the bones of the *cranium* might be brought away ſucceſſively, and nothing of the head remain but the baſis of the ſcull, with the integuments. In ſuch a caſe it has happened, quite unexpectedly, that I have ſucceeded in bringing down the remainder of the head, merely by graſping the integuments firmly in a maſs, or even in diſtinct parts, and pulling by them in a proper direction. But, if theſe ſhould be found inſufficient, the crotchet is to be introduced again, and fixed upon the baſis of the ſcull on any part where we can get a firm hold, and this aſſuming a more convenient direction will be readily brought down. I have not found, in caſes of this kind, that I have acted from a preference for fixing the inſtrument in this or that part, or in this or that manner; but, giving myſelf

time to reflect, the exigence of the caſe has dictated what I ought to do, ſo that I am not ſolicitous about any particular method. Some have thought that it was of great importance to fix the crotchet on the outſide of the head, and others have inſiſted on the propriety and ſuperior advantage of fixing it on the inſide; but I am perſuaded that ſuch things are of little conſequence, and that in the courſe of a difficult operation it may be found neceſſary and uſeful to fix it in either way.

If the diſproportion between the cavity of the *pelvis* and the head of the child be very great, we may allow it to be poſſible, that all the bones of the *cranium*, together with the baſis of the ſcull, may be brought away, yet the body of the child may remain above the ſuperior aperture of the *pelvis*, with abſolute inaction of the *uterus*. This circumſtance may require different methods of treatment. If the ſpace between the projecting bones of the *pelvis* would permit the flattened hand to be paſſed into the *uterus*, it might be moſt expedient to turn the child and deliver by the feet, which, thus ſituate, I have more than once done. But, if the diſtortion of the *pelvis* will not allow the hand to paſs into the *uterus*, or if there be reaſon to apprehend miſchief to the *uterus*, from the jagged or looſened pieces of bone, the crotchet muſt be again introduced, and fixed upon the cheſt of the child, where it may probably meet with ſome part that will bear a ſufficient degree of force for extracting it. Should this not be the caſe, the crotchet muſt be repeatedly tried, by which the contents of the *thorax* and *abdomen* may be evacuated, and the general bulk of the child's body very much leſſened. Then, trying to fix the hook of the inſtrument on ſome part of the ſpine, or bringing down the arms, we ſhall at length ſucceed and extract the body of the child, whole or in parts, though we may have been frequently baffled. In an operation difficult as this now deſcribed, diſagreeable as it may appear, and really is, having only occaſion to attend to the extraction

extraction of the child, in any manner, without doing miſchief to the mother, the mind of the operator may be at eaſe, and he will then avail himſelf of every advantage which may offer towards anſwering his purpoſe. On the whole, I have never known a caſe attended with ſo much difficulty, that it could not be ſurmounted by ſteady and ſlow proceeding; and the operator, after all his difficulties, if he have acted cautiouſly, may be repaid by ſeeing his patient recover, as well, or better, than after the moſt eaſy labour.

SECTION IX.

ON THE SUBSEQUENT TREATMENT.

When a child has been extracted in the manner before deſcribed, the *placenta* will commonly be expelled in a natural way; but ſhould any difficulty ariſe, this muſt be managed according to the rules which will be given in the chapter on Hemorrhages.

Women in general recover well after this operation, provided it was not delayed till ſome irreparable injury was already done to the parts of the mother, and was performed with care. Beſides the treatment which may be proper for all women in childbed, it will be incumbent upon us to be particularly careful in theſe caſes that the urine be voided; and, if the patient ſhould not be able to do it by her own efforts, that it be drawn off with the catheter, within a ſhort time after her delivery. The uſe of the catheter is alſo to be continued, twice in the courſe of twenty-four-hours, till ſhe may become able to expel the urine; leſt there ſhould be inflammation on any part of the bladder or *meatus urinarius*, and a ſlough be caſt off, which, unleſs it were merely a ſmall portion of the *meatus*, might be followed by an involuntary diſcharge of urine ever

commendable (that of making an attempt to preſerve the life of a child which muſt otherwiſe be loſt), and nothing being done in the operation which can be injurious to the mother, but, on the contrary, a probability of leſſening her ſufferings; I apprehend, if there be a reaſonable proſpect of ſucceſs, no argument can be adduced againſt it, which will not apply with equal force againſt inoculation, againſt medicine in general, and, in fact, againſt the interpoſition of human reaſon and faculties in all the affairs of life. Such an argument would lead us back to the abſurd doctrine of predeſtination, if, with juſtifiable intentions, and without producing any comparative preſent evil, we may not uſe our endeavours to extricate our fellow-creatures from evils which threaten them, or under which they may be actually oppreſſed.

If the morality be juſtified, we are next to conſider the ſafety and utility of the practice.

As to its ſafety, having reaſoned upon the ſtructure of the parts concerned in the operation, and having carefully attended to all the circumſtances which have occurred when it had been performed in more than twelve caſes, in which I have either performed it, or it has been done by my advice and perſuaſion, I have not known one untoward or hazardous accident that could be imputed to it; and in the greater number of theſe caſes the children have been born living. Many inſtances of this operation being performed ſucceſsfully, have, ſince my firſt propoſal of it, been recorded by others. I therefore feel authorized to ſay, as far as my reaſon or experience enables me to judge, that the operation of bringing on premature labour, in the caſes to which this diſcourſe has any reference, is perfectly ſafe to the perſon on whom it may be performed.

But reſpecting the utility of the operation, the ſtatement firſt made of the intention or purpoſe with which it ought to be done, that is, to try whether the head of a ſmall child will not paſs

through a *pelvis* too much narrowed in its dimenſions to allow one of a common ſize to paſs, will ſhew, that the objects of the operation are circumſcribed within certain limits. Should the cavity of the *pelvis* be of its natural ſize, this operation is out of the queſtion, and never can be required on that account. If the cavity of the *pelvis*, though reduced in its dimenſions, be ſuch as to permit the head of a full grown child to be ſqueezed through it by the force of ſtrong and long continued pains, this operation is not required, and ought not to be performed. If the *pelvis* be ſo far reduced in its dimenſions as not to allow the head of a child of ſuch a ſize as to give hope of its living, to paſs through it, the operation cannot be attended with ſucceſs. It is in thoſe caſes only in which there is a reduction of the dimenſions of the *pelvis* to a certain degree, and not beyond that degree, that this operation ought to be propoſed, or can ſucceed.

It would be highly ſatisfactory, if I were able, to ſtate with preciſion the exact dimenſions of the cavity of the *pelvis* of the perſon, on whom it might be needful to perform this operation, and on whom it might be performed with ſucceſs. But, as all the inſtruments, contrived for meaſuring the *pelvis* in the living woman, too imperfectly anſwer this purpoſe, to enable us by them to form a guide of practice; and as the head of a child before it is born can never be accurately meaſured, and of courſe the relation between them muſt be unknown; the determination muſt be left to opinion, or to former proofs: and thoſe who are experienced will not commit any great miſtake in their conjectures, even if they have no other than this probable evidence. Under circumſtances and in ſituations juſt preventing the ſucceſsful uſe of the *vectis* or *forceps*, and juſt compelling us to the fatal meaſure of leſſening the head of the child, it may become a duty to propoſe, on a future occaſion, the bringing on premature labour; at ſeven months, or any later time, according to our ſenſe of the diſproportion exiſting between the

head

head of a child and the cavity of any particular *pelvis*. It can hardly be doubted, but that the caſual events of practice firſt inſpired the notion of this method in the mind of ſome perſon, who, adverting to the fortunate termination of premature labours coming on ſpontaneouſly, or of very ſmall children, in caſes of diſtortion of the *pelvis*, endeavoured to imitate by art what not unfrequently happens naturally. It is alſo to be conſidered, that in a child born prematurely, the bulk of the head is not only much leſs than at the full time, but the component parts of the head are more looſely connected and far more pliable, and of courſe its volume is more readily adapted to the ſpace through which it is to paſs.

I cannot deny myſelf the pleaſure of relating the following caſe, which occurred very lately.

A lady of rank, who had been married many years, was ſoon after her marriage delivered of a living child, in the beginning of the eighth month of her pregnancy. She had afterwards four children at the full time, all of which were, after very difficult labours, born dead. She applied, in her next pregnancy, to Dr. Savage, whom I met in conſultation. By ſome accounts ſhe had received, ſhe was prepared for this operation, to which ſhe ſubmitted with great reſolution. The membranes were accordingly ruptured, and the waters diſcharged, early in the eighth month of her pregnancy. On the following day ſhe had a rigor ſucceeded by heat and other ſymptoms of fever, which very much alarmed us for the event. On the third day, however, the pains of labour came on, and ſhe was after a ſhort time delivered, to the great comfort and ſatisfaction of herſelf and friends, of a ſmall but healthy child, which is at this time nearly of the ſame ſize it would have been, had it been born at the full period of utero-geſtation. In a ſubſequent pregnancy, the ſame method was purſued, but whether the child was of a larger ſize than before, whether there was any miſtake in the reckoning, or whether the child fell into any untoward poſition,

tion, I could not diſcover, but it was ſtill-born, though the labour did not continue longer than ſix hours.

There is another ſituation in which I have propoſed, and tried with ſucceſs, the method of bringing on premature labour. Some women, who readily conceive, proceed regularly in their pregnancy till they approach the full period, when, without any apparently adequate cauſe, they have been repeatedly ſeized with rigor, and the child has inſtantly died, though it may not have been expelled for ſome weeks afterwards. In two caſes of this kind I have propoſed to bring on premature labour, when I was certain the child was living, and have ſucceeded in preſerving the children without hazard to the mothers. There is always ſomething of doubt in theſe caſes, whether the child might not have been preſerved without the operation; but, as ſuch caſes often come under conſideration, and as I am diſcloſing all that my experience has taught me, it ſeemed neceſſary to mention this circumſtance.

I may be allowed to conclude this ſubject, without entering into a detail of the manner, in which premature labour may be brought on; becauſe no perſon qualified to decide on the propriety of this operation can be ignorant of the manner of performing it. I muſt however take notice, that when the membranes of the *ovum* are punctured or ruptured, ſome caution is required to avoid injuring the head of the child, which may lie cloſe to them, and, after the diſcharge of the waters, it is neceſſary to obſerve, that the time when the action of the *uterus* may come on will be very different; this happening in ſome inſtances in twelve hours, and in others not for twelve or fifteen days. During this interval we have only to wait patiently for the event, and when the pains come on, the labour, if natural, is to be ſuffered to proceed without interruption; or, if irregular, ſuch aſſiſtance is to be given, as the peculiarity of the caſe may require. It is ſcarcely neceſſary to mention, that when we are conſidering the propriety of this operation, it ought not to be

be performed when the patient labours under any hazardous diſeaſe; and that if complaints ſhould afterwards ariſe, our endeavours muſt be exerted to remove them before the acceſſion of labour.

SECTION XI.

ON THE SECTION OF THE SYMPHYSIS OF THE OSSA PUBIS.

It was before obſerved, that an opinion of the gradual and ſpontaneous ſeparation of the *ſymphyſis* of the *oſſa pubis* previouſly to the commencement of labour had generally prevailed*; though ſome had denied both the fact itſelf, and the advantages that were ſuppoſed to accrue from the ſeparation, if it were actually made. With a ſtrong perſuaſion or conviction however of thoſe advantages at the time of parturition, ſome rude and evidently dangerous attempts were formerly made with very awkward but powerful inſtruments, to promote or increaſe the ſeparation beyond its common degree; but the practice, probably never frequent, had for very many years fallen into total diſuſe, and was almoſt forgotten. Latterly this idea has been reſumed, and among others, *Camper*, a celebrated anatomiſt and profeſſor at *Groningen*, in order to try the effect of the ſeparation, and diſcover its conſequences, had, in living animals, divided the *ſymphyſis*, without much apparent injury, either at the time of its being divided, or at any future time. But in the year 1777 M. *Sigault*, a ſurgeon at *Paris*, firſt performed this operation on the human ſubject, in the time of labour, the patient recovering, and the life of the child being preſerved; but it is not clear from the context, that the operation was, in that caſe, abſolutely neceſſary. Some credit might have been due to M. *Sigault* for the

* See Chap. i. Sect. 3.

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ſpirit of enterprize which ſuggeſted the operation, and for his reſolution in performing it; but the applauſe given to him by many of the faculty at *Paris* (though, if I miſtake not, the Royal Academy refuſed to give any teſtimony of their approbation) and by the nation at large, was beyond all meaſure extravagant; a medal was ſtruck to perpetuate the fact, and there could ſcarcely have been greater exultation and triumph, had he invented a method by which the whole human race ſhould in future have been univerſally freed from the pains and dangers of parturition. The influence of vanity was at leaſt as ſtrongly marked in theſe proceedings as the dictates of humanity, and far more than the encouragement of ſcience; ſo that the ſteps taken to aggrandize the merits of the operation, then ſupported only by a ſingle fact, and the reputation of the ſurgeon who performed it, were too haſty and too enthuſiaſtic, not to raiſe a ſuſpicion of error or deceit in the eſtimate of the operation, or in the account given of it. But the conduct of the French extended its influence on the Continent, where the operation was ſeveral times performed with various ſucceſs.

Immediately after the accounts of the operation were brought into this country, wiſhing, as a matter of duty, to underſtand the ground of the ſubject, I had a conference with the late Mr. *John Hunter*, in which we conſidered its firſt principle, its ſafety; and after the moſt ſerious conſideration it was agreed, that if the utility could be proved, there appeared from the ſtructure of the parts, or from the injury they were likely to ſuſtain by the mere ſection of the *ſymphyſis*, no ſufficient objection againſt performing it. Of its real utility it was however impoſſible to decide, before many experiments had been made on the dead body, to aſcertain the degree of enlargement of the capacity of the *pelvis*, well formed or diſtorted, which could be thereby obtained. Such experiments were ſoon made, and their reſult publiſhed by the late Dr. *William Hunter*, and theſe proved on the whole, that in extreme degrees

of diſtortion of the *pelvis,* the advantage to be gained was wholly inſufficient to allow the head of a child to paſs without leſſening its bulk, and in ſmall degrees of diſtortion, that the operation was unneceſſary, ſuch caſes admitting of relief by leſs deſperate methods. They proved moreover, that irreparable injury would be done by attempts to increaſe the common advantages gained by the ſection of the *ſymphyſis,* by ſtraining or tearing aſunder the ligaments which connect the *oſſa innominata* to the *ſacrum,* and to the ſoft parts contained in the *pelvis,* particularly to the bladder. For the reaſons advanced by Dr. *Hunter,* the operation was never (excepting in one unhappy caſe) performed in this country, and ſo perfectly were the minds of men ſatisfied of its impropriety and inſufficiency, that I do not believe the ſection of the *ſymphyſis* ever came into contemplation in any one caſe of difficult parturition, with any of the gentlemen who practiſe midwifery in this city. But as accounts of the operation were frequently brought from the Continent, and as active meaſures were purſued for ſupporting the celebrity with which it had been firſt brought into notice, Dr. *William Oſborn* examined all the caſes then publiſhed, ſtated with preciſion the little advantages gained, the injuries occaſioned, and the general reſult of the operation, and proved both by facts and arguments the cruelty and futility of it, in a very ſenſible eſſay firſt written profeſſedly on the ſubject.

Here the matter might for ever have reſted, but in writing on the practice of midwifery, as well as any other art, it ſeems neceſſary to record not only what has been propoſed and done with ſucceſs, but the trials that have been made of things propoſed, though unſucceſsful, and on what circumſtances the want of ſucceſs depended; otherwiſe there might be at different times a repetition of the ſame trials and of the ſame misfortunes. Perfectly convinced though I am of the impropriety of this operation, and hoping that no attempts will ever be again made to bring it into practice,

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it ſeemed neceſſary to give this ſhort account of it, and I cannot refrain from making the following obſervations.

It is proved in the firſt place, that ſome enlargement of the capacity of the *pelvis* is actually obtained by dividing the *ſymphyſis* of the *oſſa pubis*.

Secondly, That the evils, which have followed this operation, have been very much occaſioned by its being performed unſkilfully, or by injudicious endeavours to increaſe that enlargement of the capacity of the *pelvis* beyond the degree, which naturally follows the diviſion of the *ſymphyſis*.

Thirdly, That many women who have undergone this operation have recovered; though of thoſe who recovered, many ſuffered very ſerious complaints for a long time, or for the remainder of their lives.

Fourthly, That ſome children were born living when this operation was performed.

We may therefore preſume to ſay, that if a caſe could be ſo preciſely marked, that there ſhould only be a deficiency of juſt ſo much ſpace as would be ſupplied by the ſimple diviſion of the *ſymphyſis*, the operation might in that particular caſe be conſidered.

We may alſo ſay, that this operation is not ſo certainly fatal to thoſe women on whom it may be performed, as the Ceſarian operation; nor ſo certainly deſtructive of children as that of leſſening the head.

We may then be allowed to ſuppoſe a caſe, and ſuch a one is more than poſſible, in which a perſon of very high rank, the life of whoſe child might be of the greateſt public importance, could not be delivered, without the deſtruction of the child, or her child be preſerved but by the Ceſarian operation at the expenſe or great hazard of her life; and that ſhe through human frailty might refuſe to ſubmit to the Ceſarian operation, yet the great intereſts and policy of the nation might forbid the deſtruction of the child. Of

courſe both the mother and child would be inevitably loſt. Should ſuch a caſe occur, which, as I ſaid before, is more than poſſible, then the ſection of the *ſymphyſis* of the *oſſa pubis* might be propoſed and performed, as it would in ſome meaſure meet both their intereſts; being leſs horrid to the woman than the Ceſarian operation, and inſtead of adding to the danger, give ſome chance of preſerving the life of the child.

But, from the ſtatement of this caſe, or any thing before advanced, I hope it will not be concluded, that I mean to inſinuate a wiſh, or to advance an argument, in favour of this operation, in the caſes for which it was originally propoſed, or any other which can be imagined.

CHAPTER XIII.

SECTION I.

ON THE CESARIAN OPERATION.

THIS operation is to be performed by making an inciſion firſt through the integuments of the *abdomen*, and then into the *uterus*, for the purpoſe of extracting a child therein contained. In caſes of extra-uterine children, an inciſion, for the purpoſe of extracting a child contained in the cavity of the *abdomen*, under various circumſtances, has been called the *Ceſarian* operation; but in the importance and conſequence of theſe two operations there is an evident and very great difference.

It has been ſuppoſed by ſome writers, that a name was given to this operation from a circumſtance common to it and every other in ſurgery in which a knife was uſed *(a cæſo matris utero)*; by others, that it had its name from the extraordinary courage of the perſon on whom, or by whom, it was performed; but it was more generally explained by the imagined qualities and rank of the perſons, whoſe lives are ſaid to have been preſerved by it. Theſe, and their deſcendants, according to *Pliny*, were called *Cæſars*, as thoſe born with the feet foremoſt were called *Agrippæ*; or when there were twins, and only one was born living, *Vopiſci*, and when they were left-handed *Scævolæ*. It ſeems not to have been thought reſpectful, that men, who in the courſe of their lives proved extraordinary, ſhould have been preſumed even to come into the world in a common

common way*. But it is well known, that the name of *Cæſar* was not conferred on that great man, or the family who bore it, from the manner of his birth, but was derived from quite another ſource†. Nor do any of the very ancient writers in medicine take notice of this operation, and we cannot ſuſpect they were ſo negligent as to have omitted the deſcription of it, or ſo ignorant as to be unacquainted with it, when, in all probability, had it been performed, they would have been the very perſons conſulted and employed to perform it.

Pliny‡, who lived in the time of *Veſpaſian*, is the firſt author, as far as I know, who mentions this operation; but he ſpeaks of it with reference to thoſe who lived before his time, and his account does not give much ſatisfaction. *Rouſſet*§, who was a ſtrong advocate for the operation, wrote profeſſedly on the ſubject in the year 1581. But the records of this operation have been imperfectly preſerved even in modern times. For, from the context of the caſes recorded, it appears that ſome have been miſrepreſented; that ſome are fictitious, and were alleged to anſwer other purpoſes, as

* *Auſpicatiùs, enecta parente, gignuntur, ſicut Scipio Africanus prior natus, primuſque Cæſarum a cæſo matris utero dictus.* PLIN. *Hiſtor. Nat. Lib.* vii. *cap.* ix.

† The mother of *Cæſar*, according to *Suetonius*, was living at the time of her ſon's expedition into *Britain*, ſo that ſhe muſt have ſurvived the operation, had it been performed upon her.

‡ *Plin. loco citato.*

§ *Bauhin*, in the appendix to *Rouſſet*, dated 1588, gives the following caſe: *Eliz. Aleſpachen* had this operation performed upon her by her huſband, who was a gelder of cattle at *Siergenhauſen* in *Germany*, in the beginning of the ſixteenth century. She had ſeveral children born afterwards in the natural way.

Parè and *Guillemeau* wrote againſt the operation.

M. Simon wrote two papers on the ſubject in the firſt volume of the memoirs of the *Royal Academy*.

Heiſter and many others have written on the ſubject; but *Weideman* of *Duſſendorp*, in his *Theſis*, has given an account of all the caſes of this operation, which had been recorded before his time, and the reſult of them.

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was the ſuppoſed one of lady *Jane Seymour*, to ſtamp a character of greater cruelty, than even he deſerved, on *Henry* the *Eighth*†; and that others are related with a change of circumſtances, ſo as to appear different, though they were in fact the ſame. From a deteſtation of the apparent cruelty of this operation, from a doubt of its neceſſity, or of the advantages to be derived from it, from the deſtructive event which was to be expected, or from ſome other cauſe, it was never performed, or even propoſed, or hardly ſpoken of, in this country, till within theſe few years. But at preſent we have well authenticated accounts of more than ten caſes in which the operation has been performed, under the direction of, and by, men of unexceptionable abilities; and theſe may be eſteemed ſufficient to enable us to form a judgment of the benefits to be derived from the operation, as well as of the manner in which it ought to be performed, and of its conſtant or probable conſequences.

SECTION II.

By the firſt writers on this ſubject many circumſtances are recited, which were ſuppoſed to render this operation neceſſary, ſome reſpecting the parent, others the child. Of the firſt kind were extreme ſmallneſs or diſtortion of the *pelvis*; the ſtraitneſs or cloſure of the natural paſſages, from *cicatrices*, adheſion, or any other cauſe; the rigidity of the parts from old age, or their imperfection from youth; almoſt every cauſe of a difficult labour, when extreme in its degree, has been mentioned as a poſſible reaſon for propoſing or performing this operation. Thoſe which reſpected the child, not

† It appears from the beſt authority, that the queen died on the twelfth day after her delivery, no ſuch operation having been performed upon her. See *Rapin*, vol. i. p. 817, note 6.

only related to its comparative ſize, but to its poſition alſo; and on this occaſion twins, and even monſters, which there was no wiſh to preſerve, have been mentioned. But whatever was the exiſting cauſe, it appears that there muſt have been a full conviction on the mind of the perſon who propoſed this operation, of the impoſſibility of delivering the patient by any other means. Some writers have indeed ſpoken of this operation, not with a view to its abſolute neceſſity, but its eligibility, or as deſerving preference to other methods of delivery which might be practicable. Such writers have not met with general approbation, but their influence has been too great; for in the hiſtories of the caſes recorded, we find in ſeveral of them ſome circumſtance, which proves that the operation was not neceſſary, or that the grounds on which it ought to be performed were not well underſtood. The ideal glory of the operation has perhaps had its influence in *France*, where it has certainly been often propoſed, and ſometimes performed unneceſſarily, and ſome other parts of the *Continent*. No other principle but that of neceſſity can certainly be admitted as a juſtification of this operation; that is, whenever it is propoſed, there ſhall be no other way or method, by which the life, either of the mother or child, can poſſibly be preſerved; and the impoſſibility ſhall be confirmed, not by the opinion of one, but as many competent judges as can be procured. If ſuch ſatisfaction could be given, I ſhould then conſider this operation juſtified by every principle of religion and the laws of civil ſociety, upon as good and deciſive evidence as any other operation, which we never heſitate to perform, becauſe it ſubmits to the general principle of practice; by giving us a chance of preſerving a life, which muſt otherwiſe be inevitably loſt.

THREE general ſituations have been ſtated in which it has been ſuppoſed that the Ceſarean operation might be neceſſary *.

1. When the parent was dead, and the child living.

2. When the child was dead, and the parent living.

3. When both the parent and child were living.

With reſpect to the firſt ſituation, when the parent is dead, and the child living, there cannot be any debate; becauſe, without giving pain, or incurring any one inconvenience, an attempt is made by this operation to preſerve the life of a child, which, if it be not performed, muſt ſoon and inevitably periſh.

With reſpect to the ſecond ſituation, as in almoſt every caſe in which the operation has been performed in this country, the parent has died, but the lives of many of the children have been preſerved, the operation holds forth, as its principal advantage, which is a very important one, the hope of preſerving the life of the child; the chance of preſerving the parent being much leſſened, at leaſt not improved, by an operation ſo full of danger. It will therefore, I think, be generally acknowledged, that the operation ought ſcarcely ever to be performed upon a living mother, when there is proof, or good reaſon for believing, that the child is dead.

The third is the ſtatement attended with any difficulty, and being the only caſe which, ſtrictly ſpeaking, comprehends, in its true ſenſe, the Ceſarian operation, it might lead to a comparative eſtimation between the life of the child and that of the parent. But the common ſenſe of mankind, being agreed in the general principles adopted and purſued throughout this work, of its ever being our duty, in the firſt place, to preſerve the lives of both the parent and child; in the ſecond, to preſerve the life of the parent; and in the third, that of the child, which have been on various occaſions inculcated and applied, will point out the general line of conduct we

* See *Bonet. Sepulchr. Anatomic.*

ought to follow, according to the exigence of every caſe which may occur in practice.

Without regard to the ſtate of the child, this operation has alſo been propoſed for our conſideration under circumſtances which relate to the mother alone.

1. When ſhe was living.
2. When ſhe was dead.

Some have been of opinion, that this operation ought never to be performed on the living ſubject. Impreſſed, perhaps, with the dread of the operation, they did not diſtinguiſh between neceſſity and eligibility, and therefore wiſhed to aboliſh it altogether. But if it were to be performed only when the patient was dead, more particularly if we were to wait for her death, as the only proper time of performing it, it would always be fruitleſs. For I do not find any inſtance of a living child extracted by this operation after the death of the mother, unleſs the child eſcaped by the ſame ſtroke as that which proved fatal to the mother, of which the accounts ſeem to be almoſt fabulous, or merely accidental. But as, in caſes of women dying in convulſions, hemorrhages, rupture of the *uterus*, or other rapid diſeaſes, at different periods of pregnancy, or of a labour, it is poſſible for a living child to be extracted after the death of the mother, by ſpeedily performing this operation; and as no harm can poſſibly reſult from the operation, ſuppoſing ourſelves diſappointed, no reaſonable objections can be made to our performing it under ſuch circumſtances. In ſome countries the laws forbid any woman who may have died during pregnancy, to be interred before the child ſhall have been taken away. A prohibition to bury the living with the dead is the ſpirit of ſuch laws.

SECTION IV.

If it be admitted, that neceſſity alone can juſtify the Ceſarian operation, we are next to inquire into the cauſes and proofs of ſuch neceſſity.

Many of the cauſes which have been ſpecified by writers, as producing a neceſſity of performing this operation, are certainly unequal to ſo great an effect. The ſize of a child, however large, unleſs the *pelvis* be at the ſame time very much diſtorted; nor any untoward poſition of the child; nor twins; nor monſters; nor the cloſing or ſtraitneſs of the ſoft parts, can ever compel us to the neceſſity of performing this operation; becauſe we know from reaſon and experience, that difficulties ariſing from ſuch cauſes muſt admit of relief by leſs deſperate means. It may be aſſerted in general terms, that there is only one cauſe which can juſtify our propoſing or performing this operation on the living ſubject, and that is, ſuch an extreme degree of diſtortion of the *pelvis* as renders the extraction of the child, in its preſent ſtate, when diminiſhed in its bulk, or even reduced into pieces, abſolutely impracticable; in other words, when the ſituation is ſuch, that the woman would in all probability die, if this operation were not performed. But it is alſo true, if any other cauſe could be proved to exiſt, which produced the ſame impracticability, then the operation would be equally requiſite and juſtifiable*.

To make a preciſe ſtatement of that degree of diſtortion or conſequent diminution of the cavity of the *pelvis*, which might require this operation, is not perhaps poſſible in the living ſubject. The natural ſpace of the cavity of a well formed *pelvis*, from the *oſſa*

* See the Fourth Order of Difficult Labours, Sect. iii.

pubis to the *ſacrum*, is about four inches and a half, and in ſome ſubjects rather more; and the heads of children at the time of birth bear a general relative proportion to this ſpace. But living children of the full ſize have been born, frequently, by the natural efforts, when the ſpace was preſumed to be leſs than four inches; and if the children were ſmall, when it did not exceed three inches: and we may judge that the head of a child is capable of being reduced by compreſſion one third of its natural bulk, without deſtruction of its parts, or any permanent injury. But ſhould the capacity of the *pelvis* be reduced under three inches, we have not much reaſon to expect a living child, of its full growth, to paſs through it, either naturally, or by the aſſiſtance of art; though the head of one that is dead, eſpecially if it be putrefied, or one much below the common ſize, may be preſſed through a *pelvis* of about thoſe dimenſions, even without artificial aſſiſtance. Should the capacity of a *pelvis* not exceed, according to our judgment, two inches and a half, then the head of a child, unleſs the contents be evacuated, cannot paſs or be extracted through it. But if the cavity be ſo far cloſed, that it ſhould in any part very little exceed one inch, of which examples have ſometimes occurred, we might then preſume that the head of a child, though it could be reduced to the leaſt poſſible ſize, could not be extracted through it; and then the neceſſity and propriety of performing the Ceſarian operation would be allowed, whatever averſion we might have to it, eſpecially if we had reaſon to think that the child was living.

Theſe general poſitions every perſon engaged in practice will bear in his mind, in caſes of difficulty ariſing from diſtortion of the *pelvis*. But he muſt alſo recollect, that the remaining ſpace of the cavity of the *pelvis*, in caſes of diſtortion, will be differently eſtimated by different perſons, and cannot be aſcertained with preciſion by any one, during the life of the patient. He will alſo remember, that the kinds of diſtortion are as various as the degrees, and that the cavity,

cavity, though much diminiſhed in one part, may be far leſs altered in another; and that even one ſide of the *pelvis* may meaſure two inches, when the other is ſcarcely equal to one, which conſideration may make a change in our judgment of the kind of operation required, widely different, as well as in the operation itſelf. It ſhould alſo be remembered, that the ſize of children at the time of birth, and the firmneſs of the bones, together with the compactneſs of their union with each other, are very different, and might add to, or leſſen, the difficulty of a birth, whether natural or artificial. After a mature conſideration of the whole matter, I am however of opinion, that no rule of ſufficient authority to guide us in any particular caſe can be formed from ſuch calculations only, and that our conduct is not to be governed wholly by them; but by the reflections of common ſenſe working in a reaſonable mind, ſtored with the knowledge of ſuch calculations, and of many other collateral circumſtances relating to the mother or child, which it is impoſſible to enumerate or deſcribe, ſo as to render them applicable in any particular caſe. Beſides the poſitive diſtortion of the *pelvis*, there is in ſome crooked people ſuch a twiſt or projection of the laſt lumbar *vertebra* over the ſuperior aperture, as to increaſe, or conſtitute an obſtacle to the paſſage of the head, as inſurmountable as any degree of diſtortion exiſting in the bones of the *pelvis*. Of this the caſe of the woman on whom the operation was lately performed at *Mancheſter* is an example, which fully juſtified the operation.

I cannot however relinquiſh the ſubject without mentioning another ſtatement of this queſtion, which has often employed my mind, eſpecially when the ſubject has been actually paſſing before me. Suppoſe, for inſtance, a woman married, who was ſo unfortunately framed, that ſhe could not poſſibly bear a living child. The firſt time of her being in labour, no reaſonable perſon could heſitate to afford relief at the expenſe of her child; even a ſecond and a third trial might be juſtifiable to aſcertain the fact of the impoſſibility.

But

But it might be doubted in morals, whether children ſhould be begotten under ſuch circumſtances, or whether, after a ſolemn determination that ſhe cannot bear a living child, a woman be entitled to have a number of children deſtroyed for the purpoſe of ſaving her life; or whether, after many trials, ſhe ought not to ſubmit to the Ceſarian operation, as the means of preſerving the child at the riſk of her own life. This thing ought to be conſidered. Moreover, when it has been aſcertained, that women could not poſſibly bear living children, naturally, or by any aſſiſtance which art can afford, and one great end of marriage has been fruſtrated, ſome have determined on a voluntary ſeparation from their huſbands, from a ſenſe of the moral turpitude of conceiving children without the chance of bringing them living into the world. But the law of the land has afforded no remedy for the caſe, though, as this fact ſometimes admits of unqueſtionable proof, it would not be difficult to adjuſt terms of ſeparation between a huſband and wife thus circumſtanced, ſo cautiouſly that they ſhould not be abuſed, yet without the imputation of criminality to either party; and many evils might be thereby prevented.

I take this opportunity of making another obſervation on this ſubject, which affords but gloomy reflections. Formerly the caſes in which the Ceſarian operation could come to be conſidered, were almoſt univerſally confined to cities, or very large towns, where the cuſtoms and manners of life readily occaſioned, with every other kind of decrepitude, diſtortions of the *pelvis* and all its conſequences. But within theſe few years, from the general diſſemination of manufactures, eſpecially that of cotton, over many parts of the country, theſe evils have become much more frequent; and as the children employed in them are obliged to ſtand, or are confined to one poſture for many hours together, before their bones have acquired ſufficient ſtability to ſupport them, many have become deformed. To boys it may be a great evil and mortification to have

bandy

bandy legs, yet this does not prevent their becoming fathers; but girls under the ſame circumſtances muſt often be precluded from being mothers; nor can they go through the proceſs of parturition without infinite ſuffering and danger. It therefore deſerves conſideration, both as it is of great political importance, and as a moſt intereſting caſe of humanity, whether ſome means cannot be contrived, by which ſuch misfortunes may be prevented.

SECTION V.

In almoſt every caſe in which the Ceſarian operation has been performed in this country, the patients have died. It may be of uſe to inquire, whether their death were occaſioned by any diſeaſe, with which they were afflicted before the time of labour; or were the conſequence of the ſtate to which they were reduced from the occurrences of labour, before the operation was performed; or it were the inevitable conſequence of the operation. In caſes of death occaſioned by wounds, the following order in which the danger is produced may be obſerved: firſt, from convulſions, or immediate loſs of blood; ſecondly, from inflammation; thirdly, from gangrene; fourthly, from exceſſive or long continued ſuppuration, under which the patient becomes hectic. Though almoſt all the patients, on whom this operation has been performed, died, their death happened at different periods; but not one died, either while the operation was performing, or immediately after it. No convulſions were brought on by the inciſions; nor does it appear, that any of them ſunk through the loſs of blood accompanying or ſucceeding the operation. Some died within twelve, others at the end of twenty-four hours, and a few died on the third day after the operation. If we may judge of the cauſe of the patient's death by the time of her

dying,

dying, it might be ſaid, that the death of thoſe who failed within twenty-four hours, was probably owing, not to the operation alone, but to the violence of this, combined with that of previous diſeaſe; but when they ſurvived twenty-four or forty-eight hours, then their death might be attributed to the ſucceeding inflammation, in a body prediſpoſed to diſeaſe. If we had the liberty of ſelecting a patient on whom to try the merits of this operation, we certainly ſhould not chooſe one who was either very much diſtorted, or who had the *mollities oſſium*, or who was evidently under the influence of ſome dangerous diſeaſe, or who had even been ſeveral days in labour; becauſe the event muſt very much depend upon her ſtate at the time when the operation was performed.

It is not my intention by this kind of inveſtigation, to leſſen the general averſion to this operation when it can be avoided; but I believe we cannot fall into error by conforming to ſuch concluſions as theſe. Every woman, for whom the Ceſarian operation can be propoſed to be performed, will probably die, and ſhould any one ſurvive, her recovery might rather be conſidered as an eſcape, than as a recovery to be expected, though there is always a probable chance of ſaving the life of a child. But as ſuch an eſcape may happen in any caſe, in which the operation might be performed, we may and ought to eſteem every caſe which can come before us, as the individual caſe in which a happy event is to be expected. Theſe concluſions will lead us to the principle of neceſſity as the ſole juſtification of this operation, and urge us, when we do perform it, and as far as it may be in our power, to ſelect the moſt eligible time; and from every motive to exert all our judgment and ſkill for the ſervice of the patient, as if we were certain ſhe would ſurvive. This operation can ſeldom be required, and will, of courſe, never be performed on the opinion or judgment of any one perſon, unleſs in ſome caſe of great and urgent neceſſity; and a concurrence of opinions will afford the beſt ſecurity againſt its being performed

unneceſſarily; and if it were to be preſumed, by a ſubſequent meaſurement of the *pelvis*, and a new conſideration of all the circumſtances, that it ever had been performed without ſuch neceſſity, that would prove only that the operation had been abuſed, and not ſerve as a valid argument againſt its uſe when ſuch neceſſity really exiſted.

SECTION VI.

HAVING never performed the Ceſarian operation, nor ſeen it performed, I offer the deſcription of the caſe related in the fourth volume of the *Medical Obſervations* and *Inquiries*, as the beſt example which has been recorded. The operation was performed by Mr. *Thomſon*, one of the ſurgeons of the *London Hoſpital**.

" A table being prepared, the patient was placed upon it, lying on her back, her head being ſupported by pillows, and her legs hanging down. The belly appeared prominent chiefly on the right ſide, the protuberance of the *uterus* extending but about two or three fingers breadth on the left of the *linea alba*. There was no difficulty therefore to determine where the inciſion was to be made.

" Accordingly, about a hand's breadth from the navel on the right ſide, I began the inciſion in a longitudinal direction, and continued it about ſix inches in length, the middle of which was nearly oppoſite to the navel; the ſkin and adipoſe membrane being cut through on the outer edge of the *rectus* muſcle. I carefully made

* It is remarkable, that the oldeſt phyſician or ſurgeon in *London* could not recollect a caſe of this operation, or had heard it ſpoken of by their predeceſſors; yet that two caſes, in the ſame ſtreet, ſhould have occurred to one gentleman, within a very ſhort ſpace of time.

For a more full and accurate account of all the circumſtances relative to this operation, ſee a work lately publiſhed by Dr. *Hull*, an eminent phyſician at *Manchester*.

an inciſion through the tendinous expanſion of the abdominal muſcles and the *peritonæum*, ſufficient to introduce the forefinger of my left hand, when with a curved knife conducted on my finger, an opening was made into the cavity of the *abdomen*, and the *uterus* expoſed.

" The *uterus* appearing very ſolid to the touch, it was apprehended by ſome gentlemen, that the *placenta* might perhaps adhere to that part of the *uterus* which lay bare, and which might conſiderably obſtruct the removal of the child, or endanger an hemorrhage. With precaution, therefore, an aperture was made in the centre of the *uterus* ſufficient to admit my finger, with which conducting the curved knife, I dilated the wound in the *uterus*, upwards and downwards, to the full extent of the outward wound.

" The *placenta*, which actually adhered to this part of the *uterus*, eaſily gave way, and receded as my finger advanced in making the opening.

" The *placenta* and membranes immediately began to protrude. Dr. *Ford* at this juncture ſlipping his hand into the *uterus*, while the ſides were kept aſunder, brought forth the child by the feet, and immediately afterwards the *placenta* and membranes were extracted with the greateſt eaſe. Dr. *Ford* took upon himſelf the management of the child and ſeparation of the umbilical chord, and in a few minutes the child cried ſtrongly.

" The *uterus* being diſburthened of its contents, and contracting amazingly faſt, the *omentum* and bowels began to protrude; Mr. *John Hunter* was ſo obliging as to aſſiſt me in retaining them within the belly, whilſt I cleanſed away the grumous blood (which was ſmall in quantity) and made the *gaſtroraphy* or ſuture of the belly.

" I made four ſutures at nearly equal diſtances from each other, and about one inch and half from the edge of the lips of the wound.

" The ligatures being double, pieces of linen ſpread with common plaſter,

plaſter, and rolled up in the form of bolſters, or compreſſes, were applied between them, after the manner of the quilled ſuture, and the wound was thereby brought into and retained in cloſe contact; and lint and a common pledget being applied, finiſhed the operation." This woman died about five hours after the operation.

CHAPTER XIV.

CLASS THIRD.

PRETERNATURAL LABOURS.

TWO ORDERS.

ORDER FIRST.

Preſentation of the Breech, or Inferior Extremities.

ORDER SECOND.

Preſentation of the Shoulder, or Superior Extremities.

SECTION I.

THE technical terms which are uſed to ſpecify all the other claſſes of labours, relate to ſome circumſtance in which the mother is wholly or partly concerned. But the term *preternatural* applies merely to the poſition of the child; and this kind of labour may occur in a woman in perfect health, when all the changes incidental to the ſtate of parturition are made in the moſt favourable manner, and in whom there is the beſt poſſible formation. In ſhort, there may be no deviation or irregularity of any kind, excepting only that the head of the child does not preſent. Should the preſentation of another part be combined with a hemorrhage, or any other circumſtance of dangerous importance, either to the mother or child,

child, the title of *preternatural* would be generally loſt, and the labour referred to ſome other claſs.

The preſentation of children at the time of birth may be of three kinds: firſt, with the head; ſecondly, with the breech, or inferior extremities; thirdly, with the ſhoulder, or ſuperior extremities. With the firſt of theſe the labour, as far as relates to the poſition of the child, is called natural; but with the two latter, preternatural. Preternatural labours have been ſubdivided, by ſyſtematic writers, into a much greater number and variety; but as all diſtinctions are to be made and regarded according to their utility in practice, and as no poſſible advantage can be derived from their multiplication, but on the contrary much confuſion, it will be found expedient to abide by theſe diſtinctions only. For though there may be a difference in one reſpect or other in every labour of this kind, and of courſe a neceſſity for ſome change in our conduct, yet notice cannot poſſibly be taken of every alteration, and theſe diſtinctions will be found ſufficient for all the general purpoſes of practice.

Great pains have been taken to diſcover the cauſes of the preternatural preſentation of children, and with the beſt intention; that of pointing out the errors and irregularities by which they were ſuppoſed to be produced, in order to prevent them. On this part of our ſubject, though there have been many different opinions, I think it has been generally preſumed, that preternatural preſentations happen more frequently to women in the lower ranks of life, than to thoſe in a more affluent condition: the accidents and exertions, to which the former are chiefly liable, being conſidered as the cauſes. Before we conſent to this inference, it would however be neceſſary to examine into the truth of the aſſertion. I believe it has never been ſatisfactorily proved, that preternatural preſentations are really more common in the lower than in the higher ranks of life; the number of the former being, almoſt beyond any compariſon,

greater than thoſe of the latter. No ſtation of life is exempt from theſe preſentations, though they rarely occur in any, eſpecially thoſe of the ſecond order; and it is wonderful, that thoſe women who have had ſuch accidents, at different periods of utero-geſtation, as would be deemed moſt likely to produce them, have eſcaped them. But though preternatural preſentations ſeldom occur, when they are dreaded and expected, it is remarkable that ſome women are peculiarly ſubject to them; not once only, which might be conſidered as the effect of ſome accident, but exactly to the ſame preſentation, whether of the ſuperior or inferior extremities, in ſeveral ſucceſſive or alternate labours. It ſeems doubtful therefore whether we ought not to exclude accidents as the common cauſes of theſe preſentations, and ſearch for the real cauſe and ſome more intricate circumſtance; ſuch as the manner after which the *ovum* may paſs out of the *ovarium* into the *uterus*; ſome peculiarity in the form of the cavity of the *uterus*, or *abdomen*; in the quantity of the waters of the *ovum* at ſome certain time of pregnancy; in the circumvolution of the *funis* round the haunches or lower part of the back of the child; or perhaps in the inſertion of the *funis* into the *abdomen* of the child, which is not in all caſes confined to one preciſe part, but admits of conſiderable variety.

SECTION II.

ON THE SIGNS OF PRETERNATURAL PRESENTATIONS.

SEVERAL preſumptive ſigns of the preternatural preſentation of children have been mentioned; ſuch as an unequal diſtention of the *abdomen* during pregnancy; ſome peculiarity in the motion of the child; the ſudden riſing of the child, when the woman is in a recumbent poſition, ſo as to affect her ſtomach, or to incommode her breathing;

breathing; the ſlow progreſs of the firſt ſtage of a labour; the early rupture of the membranes; or the elongated form which the membranes containing the waters aſſume, while the *os uteri* is dilating. But theſe ſymptoms and appearances will be found very uncertain; nor can we confide in any mark or indication, until we are able to feel and diſtinguiſh the part which really preſents. It will often be in our power, before the membranes are broken, to diſcover that the preſentation of the child is preternatural; and ſometimes, though not conſtantly, to ſay what the preſenting part is. But when the membranes are broken, a ſmall ſhare of ſkill and circumſpection will enable us to determine what that part is; eſpecially if we have accuſtomed ourſelves to handle the limbs of new-born children. By its roundneſs and firmneſs, the head may be diſtinguiſhed from any other part; the breech may be known by the cleft between the buttocks, by the parts of generation, and by the diſcharge of the *meconium*; though the laſt circumſtance does not always happen even when the breech preſents, till the labour is far advanced, and ſometimes occurs likewiſe in preſentations of the head. The foot may be known by the heel and the want of a thumb; and the hand by its flatneſs, by the thumb and the length of the fingers. In ſome caſes I have found the hands and the feet lying together; but this cannot create much embarraſſment to an intelligent practitioner; though there is reaſon to believe that an error or miſtake in judging a ſuperior to be an inferior extremity, has ſometimes been productive of miſchief. I do not mention the marks by which the back, belly, or ſides might be diſtinguiſhed, becauſe theſe, properly ſpeaking, never conſtitute the preſenting part; that is, though they may ſometimes be felt, they never advance foremoſt into the *pelvis* in the commencement, at leaſt, of a labour.

SECTION III.

ON THE MANAGEMENT OF THE FIRST ORDER OF PRETERNATURAL LABOURS.

In the firſt order of preternatural labours may be included, the preſentation of the breech, of a hip, of the knees, and of one or both legs.

When a labour is ſo far advanced that the *os uteri* is fully dilated, if no part of the child can be felt, it will be prudent to watch carefully when the membranes break, as there is a chance that the preſentation may be of ſuch a kind as may require the child to be immediately turned. But if no part of the child can be felt, by a common examination, after the membranes are broken, it will be juſtifiable to aſcertain the preſentation by the introduction of the hand. Should the head, or inferior extremities, be found to preſent, the hand may be withdrawn, and we may ſuffer the labour to proceed without any further interpoſition; but if it ſhould be that kind of preſentation which requires the child to be turned, we ſhall have an opportunity of performing the operation, before there is any contraction of the *uterus*, ſufficient to obſtruct the delivery.

In the firſt order of preternatural labours, two very different methods of practice have been recommended. By the favourers of the firſt method, we have been directed, as ſoon as the preſentation was diſcovered, whatever might be the ſtate of the labour, to dilate the parts, then to paſs the hand into the *uterus*, and to bring down the feet of the child. Or if theſe were originally in the *vagina*, to graſp them and extract the child with all poſſible expedition, making the labour wholly artificial, without waiting for the natural expanſion of the parts, or for the efforts of the conſtitution. Would

it

it not argue a want of humanity, ſay they, to leave the woman for many hours, perhaps a whole day, or even a longer time, in pain and anxiety, when we have the power of extracting the child in a very ſhort ſpace of time, by which the violence of the pain would be leſſened, or its duration, at leaſt, very much ſhortened? Others, on the contrary, have conſidered this practice as founded on a vulgar and pernicious error, which makes no diſtinction between the ſlowneſs and danger of a labour. Theſe have conſidered the preſentation of the breech and inferior extremities as generally ſafe; and have taught us, that ſuch caſes ought to be, and with ſecurity may be, left to the efforts of the conſtitution, no kind of aſſiſtance being required, in the firſt ſtage of the labour; the mother, at leaſt, certainly not ſuffering more than in a preſentation of the head, and the chance of preſerving the life of the child, being, by this proceeding, much better. Of the ſuperior advantage of theſe two methods, it is only poſſible to judge by the general event of caſes of this kind. If this ſhould prove, which I believe is ſcarcely to be doubted, that leſs injury is done to the mother, and that there is a better chance of ſaving the life of the child, by ſuffering it to be expelled, than by artificial delivery, there can be no heſitation to which of the methods preference ſhould be given; for the charge of want of humanity cannot be properly laid againſt a proceeding, which moſt frequently terminates happily for both.

From the manner of expreſſing the directions for the introduction of the hand, for the purpoſe of bringing down the feet, in preſentations of the breech, or inferior extremities, we might conclude that it was always to be done with much eaſe. But on trial it is often found impoſſible, without the exertion of very great force; and when this is done, or if the feet were originally in the *vagina*, though the firſt part of the extraction might be eaſy, we ſhould in the progreſs find an increaſing difficulty, which would bring the life of the child into great hazard. The thighs would advance more ſlowly

than the legs, and the breech than the thighs; there would be ſome delay with the body, then with the ſhoulders, and laſtly, when the arms were brought down, with the head. Theſe little difficulties and embarraſſments, ſeparately conſidered, may not be of much conſequence, but collectively they occaſion a compreſſion of the *funis*, continuing long enough to bring the life of the child into great danger, if not to deſtroy it; and this can only be prevented by a hurry in the extraction of the child, which may lacerate or do much injury to the parts of the mother. If, on the contrary, we ſuffer the breech, eſpecially with the legs turned upwards, to be expelled by the natural pains, the diſtention of the parts thereby occaſioned is ſo ample, that the body and head follow immediately, or are readily extracted. In caſes of the preſentation of the breech or inferior extremities, it is therefore now eſtabliſhed as a general rule with men of the firſt abilities and reputation, to ſuffer the breech to be expelled by the pains, and then to give ſuch aſſiſtance as the exigencies of the caſe may require.

In every labour, in the progreſs of which we cannot feel the head of the child preſenting, or do feel any other part, the membranes being unbroken, we muſt be particularly careful on no account to break them prematurely, that is, before the *os uteri* is fully dilated; becauſe, whatever the preſentation may be, the child is in no danger, till the waters are diſcharged; and a natural opening or expanſion of the parts is always preferable to an artificial dilatation, however carefully made. But when the membranes break ſpontaneouſly before the *os uteri* is dilated, and we can diſcover the preſentation of the breech or inferior extremities, it is proper to leave the dilatation to be completed by the natural efforts, though it will be effected ſlowly and more awkwardly, than if it was done by the volume of the membranes containing the waters, or by the head of the child. The preſentation of the breech is ſometimes ſo untoward that the *ſcrotum* and *penis* of the child intervene, and are the parts

which

which are preſſed upon the *os uteri* during its dilatation. In conſequence of this preſſure, which is in ſome caſes unavoidable, thoſe parts become prodigiouſly tumefied, and when the child is born, appear in a gangrenous ſtate. In a few inſtances I have known a portion of the ſkin of the *ſcrotum* or *prepuce* ſlough away, but by the aſſiduous uſe of fomentations and cataplaſms, farther miſchief has always been prevented.

Though it may be proper, and is perfectly agreeable to the moſt reſpectable modern practice, to leave the child to be expelled by the pains, when the breech or inferior extremities preſent, unleſs the circumſtances of the mother ſhould require more ſpeedy aſſiſtance: yet this reſignation of the labour is only to be underſtood as proper, till the breech is expelled through the external parts, giving time for their dilatation, and guarding them with as much care as when the head preſents. For after that time, as there is great danger of the child being deſtroyed by the compreſſion of the *funis*, though perhaps of no long continuance, the labour muſt be accelerated by the practitioner, but with ſkill and judgment. That compreſſion is alſo to be leſſened, or any other injury prevented, by drawing the *funis* ſomewhat lower down, in ſuch a manner that it may never be on the full ſtretch. In ſome caſes, however, after the expulſion of the breech, the continuance of the pulſation in the *funis* very ſatisfactorily proves, that no compreſſion of importance has taken place; the child of courſe being in no danger, there is no occaſion to haſten the delivery.

When the breech or inferior extremities have paſſed through the external parts, great attention is to be given alſo to the poſition which the child bears with regard to the mother. Whatever that might be, the child would be extracted with equal eaſe till we came to the head; but if the face were turned towards the *pubes* of the mother, the head could not then be brought away, or its poſition conveniently changed, without much additional difficulty. As ſoon

therefore as the breech is expelled, if the back of the child be not turned towards the *abdomen* of the mother, it will be neceſſary, that the practitioner, while he is extracting, ſhould give ſuch an *inclination* to the body, that when it is wholly extracted, the hind part of the head of the child may be turned toward the *pubes*, though not with a ſudden motion or violence, leſt the child ſhould be thereby injured or deſtroyed. The directions given on this occaſion are, that we ſhould make the turn beyond the mere reduction of the back of the child to the *pubes*, and then revert it to a certain degree, by what may be ſuppoſed equivalent to a quarter turn. But ſuch rules being very complex, are more apt to create confuſion than to be of uſe, and are not founded on practical obſervation, but on an erroneous opinion that the head of the child could be extracted only, or moſt commodiouſly, when the face of the child was turned toward the *os ſacrum* of the mother. Whereas it is now well known, that the head of the child will paſs through the *pelvis*, with one ear to the *pubes* and the other to the *ſacrum*, or in different degrees of diagonal direction regarding the cavity, and that it is not found to proceed exactly alike in any two labours.

When the child is brought down as low as the ſhoulders, it has been eſteemed by ſome as a very injudicious practice, to bring down the arms of the child; theſe being turned along the head, preventing, in their opinion, that contraction of the *os uteri*, round the neck of the child, which would be an impediment to its complete deliverance. Others have conſidered this ſtep as abſolutely neceſſary in all caſes, the arms, according to them, occupying a portion of that ſpace, which ſhould be filled up by the head only. If the extraction of the head with the arms turned up, be on trial found tolerably eaſy, there is clearly no occaſion to bring them down; but if the head ſhould remain fixed in ſuch a manner as to reſiſt the force which we think can be ſafely or prudently exerted, then the arms ought to be brought down; but very circumſpectly, leſt they ſhould be fractured

or

or diſlocated, or come along with a flirt, or ſo ſudden a motion as to endanger the laceration of the *perinæum*. Nor is there afterwards found to have been any reaſon for apprehending inconvenience from the ſpaſmodic contraction of the *cervix* or *os uteri* round the neck of the child; at leaſt it is not produced by this cauſe ſo commonly as by hurrying the firſt part of the delivery.

When the arms are brought down, ſhould there be much difficulty in the extraction of the head, it will be of great uſe to paſs the forefinger of the left hand into the mouth of the child, and to preſs down the jaw towards the breaſt, (but not to pull by it) in order to change the poſition of the head, which may be eaſily done, and the extraction be thereby much facilitated. But of this difficulty we ſhall ſpeak more fully when we conſider the inconveniencies produced in this kind of labour, by the diſtortion of the *pelvis*.

In the extraction of the child, the body is converted into a lever or inſtrument for that purpoſe, and this will act in different caſes, or different periods of the ſame caſe, with greater advantage, by changing the direction in which it is uſed. Accordingly in ſome caſes, greater progreſs is made by acting alternately from ſide to ſide, and in others from the *pubes* to the *ſacrum*, or in the oppoſite direction; and that way is to be purſued, in which we obtain the greateſt advantage with the leaſt violence. When the head is paſſing through the external parts, theſe may be ſupported with the fingers or palm of the left hand ſpread over the *perinæum*, while we are extracting with the right. As the head advances, the body muſt be turned more and more towards the *pubes*, and we muſt finiſh the operation very deliberately, or the parts will be lacerated; an evil rendered ſometimes by precipitation and imprudent management, of almoſt as much importance as the loſs of the child or mother, occaſioning, at leaſt, great miſery and diſtreſs through the future part of the patient's life.

Though children preſenting with the breech are commonly ex-

pelled by the efforts of the parent, it muſt ſometimes happen that theſe fail to produce their proper effect, and the aſſiſtance of art is required. But aſſiſtance is not to be given till, by the failure of the efforts, it is proved to be abſolutely neceſſary; that is, when having given full ſcope and due time to the efforts, they are proved to be unequal to the expulſion of the child. Whenever artificial aſſiſtance is given in theſe caſes, it ought to be perfectly conſiſtent with the ſafety of the mother, and if poſſible, with that of the child, which muſt be conſidered and treated as if we were certain it was, and would be born, living. When therefore we are ſatisfied and convinced that the mother is unable to expel her child preſenting with the breech, if the inferior extremities cannot be readily brought down, it will be proper, by hooking one or more fingers in the groin, to try whether we cannot give ſuch an addition to the force of the pains, as may be ſufficient to extract without injuring it; that is, either by hurting the neck, or joint of the thigh bone, or by ſeparating the bones of which the *pelvis* is then compoſed. Should this force, though continued for ſome time, be proved unequal to the purpoſe, it will be found expedient to paſs a garter, a piece of tape or ribband, over one or both thighs, one of which is uſually preſſed before the other, as the caſe will allow; and then taking both the ends of the ligature in the ſame hand, we ſhall have the opportunity of exerting great power, ſhould it be required, with leſs detriment to the mother or child than by any other means, with much convenience at the ſame time to ourſelves, and generally with ſucceſs. But if the breech ſhould be ſo high, that the feet cannot be brought down, nor the ligature paſſed, or its power be inſufficient, of which I do not recollect an inſtance, and the neceſſity of delivering the mother ſhould be urgent, then a blunt hook or the crotchet muſt be fixed over the thigh or in the groin of the child, and we muſt manage as in other caſes of extreme difficulty and danger; as the circum-

circumſtances will allow, but perhaps without following any general rule, and without regard to the child.

It has been ſaid, that children preſenting with the breech are generally born alive, and ſome writers have even conſidered the preſentation of the inferior extremities as natural, and preferable to that of the head; becauſe aſſiſtance could be more readily given when it was required. It is true that the children will uſually be born alive, if they be ſmall, or of a common ſize, and the true dimenſions of the *pelvis* be unimpaired; or if the preſentation occur to thoſe, who have before had children, the parts yielding kindly and with facility according to the progreſs of the labour, and this be not by any cauſe retarded or interrupted. But if it ſhould be a firſt labour, and the children large, or ſomewhat beyond the common ſize, and the labour tardy, or require much aſſiſtance from art, they will be more frequently born dead, in conſequence of ſome caſual but deſtructive preſſure of the *funis*, before the breech is expelled, or afterward; and with regard to preſentation, that which is moſt common is certainly, for that reaſon, to be eſteemed natural.

In all caſes, in which the child is expelled or extracted by the breech, or inferior extremities, the *placenta* is uſually managed without difficulty or danger, and it is generally, though not always, excluded more eaſily, and in a ſhorter time than after a natural birth.

SECTION IV.

ON THE DISTINCTIONS OF THE SECOND ORDER OF PRETERNATURAL LABOURS.

In the ſecond order of preternatural labours, the preſentation of the ſhoulder, or one or both arms, may be included; and whichſoever of

of theſe is the preſenting part, there is a neceſſity of turning the child, and delivering by the feet. In the management of preſentations of this kind, there is always leſs difficulty if both arms preſent, than if there ſhould be but one arm; it will therefore be neceſſary, to ſpeak only of the preſentation of a ſingle arm.

In ancient times it was the cuſtom, in every kind of labour, except thoſe in which the head originally preſented, to endeavour to return the part preſenting, and to bring down the head; and if this were found impracticable, directions were given to bring the child away by the feet, or in any manner its ſituation would allow, or the exigencies of the caſe might require. But we learn from *Ætius*, who lived probably, about the fifth century, that *Philomenes*, whoſe writings, except thoſe preſerved by *Ætius*, are now loſt, diſcovered a method of turning and delivering children by the feet, in all unnatural preſentations; and this method, with ſome alterations and improvements in the operation, has been practiſed ever ſince his time, and conſidered as the only one, by which the child preſenting preternaturally could be extracted, and the life of the mother preſerved. But many years ago it was my good fortune to diſcover, that in ſome of the worſt kinds of preternatural labours, thoſe in which the aſſiſtance of art is ſometimes found to be inſufficient and often unſafe, the powers of the conſtitution, if not impeded in their operation, are capable of expelling the child, with perfect ſafety to the mother, and without any additional danger to the child. Of the manner in which this delivery is accompliſhed by the natural pains, we ſhall ſpeak in its proper place.

Though the neceſſity for turning children and delivering by the feet, in this ſecond order of preternatural labours, be univerſally acknowledged, yet the circumſtances of the women ſuffering them are exceedingly different. With the view of preventing or leſſening the embarraſſment of the practitioner, it is requiſite, therefore,

to

to make ſeveral diſtinctions, and we will ſay, that it may be neceſſary to turn the child,

Firſt, When the the *os uteri* being fully dilated, and the membranes unbroken, a ſuperior extremity is felt through them; or immediately upon the rupture of the membranes and the diſcharge of the waters, before there is any return of the pains, or any contraction of the *uterus* round the body of the child.

Secondly, When the membranes break in the beginning of labour, the *os uteri* being very little dilated, perhaps ſcarcely in a ſufficient degree to allow a hand or an arm of the child to paſs through it, and but juſt enough to diſcover the kind of preſentation.

Thirdly, When the *os uteri* is fully dilated, the membranes having been long broken, and the *uterus* ſtrongly contracted round the body of the child, which is cloſely fixed at the ſuperior aperture of the *pelvis*.

Fourthly, When, under any of theſe circumſtances, there is a great diſproportion between the ſize of the child and the dimenſions of the *pelvis*.

Under each of theſe diſtinctions, a variety of other objects may require the attention of the practitioner, but of every one of theſe it is impoſſible to take notice in the deſcription of any ſtated caſe, as no two labours ever were in all points exactly ſimilar.

In the *practice* of every art, ſome advantages muſt remain beyond the power of any doctrine to teach or deſcribe, all rules applying to general, and practice to particular caſes. Theſe advantages can only be obtained by the cultivation of our own minds, by experience, and by the acquiſition of that dexterity, which frequent exerciſe muſt give to our hands.

SECTION V.

It is proper, in the firſt place, to ſpeak of the method of turning children in thoſe caſes, which come under the firſt diſtinction, the management of them being more eaſy and ſimple, as there is only one object which demands our care, that is, to change the poſition of the child.

Whenever there is a neceſſity of turning the child, the patient is to be placed in the ſame ſituation as in a natural birth, upon her left ſide, with her knees drawn up, acroſs the bed, and as near to the edge of it as poſſible. There have been many different directions and opinions reſpecting the advantages of particular ſituations, eſpecially that of turning the patient upon her knees. But as our aim, in the choice or preference of theſe, is merely to obtain the free and moſt convenient uſe of our own hands, the poſition of the child remaining the ſame, however the woman may be placed, the common ſituation will generally be found moſt convenient. Yet as that ſituation which ſuits one practitioner may be awkward to another, and as in the courſe of the operation changes may be expedient, every practitioner muſt make them, when they appear neceſſary to himſelf. To many it is more convenient to turn with the left hand, than with the right; and from the common poſition of the child, the former is often more commodious; but every perſon will, of courſe, uſe that with which he can act with moſt dexterity and advantage.

Though in the caſe we are now ſuppoſing the *os uteri* may be fully dilated, it is poſſible, that the *os externum* may be in a rigid and contracted ſtate. For the purpoſe of dilating this, it will then be neceſſary with the fingers of the right hand, reduced into a conical form, to act with a ſemirotatory motion, and with ſome

degree of preſſure upon the ſides, and towards the *perinæum*. The artificial dilatation of all parts ſhould be ſlowly made, and in imitation of the manner in which they are naturally dilated; and we are not to be ſatisfied with ſuch a degree of dilatation, as will barely admit the hand into the *vagina*, becauſe the contraction round the wriſt would, in ſome caſes, be a hinderance in the ſubſequent parts of the operation.

When the hand is paſſed through the *os externum*, it muſt be conducted ſlowly to the *os uteri*, which we preſume to be fully or ſufficiently dilated.

If the membranes be unbroken, the hand may then be conducted into the *uterus*, and they will be eaſily ruptured by graſping them firmly, or by perforating them with a finger. The hand muſt then be carried very deliberately along the ſides, thighs, and legs of the child, till we come to the feet. If both the feet ſhould be lying together, we muſt graſp them in our hand; but if they be at a diſtance from each other, we may commonly deliver with one foot without much additional difficulty; though as in ſome particular poſitions we cannot always turn the child, if it be large, by one foot, it is better to make it a general rule to bring down both feet together, when they are in our power.

Before we begin to extract, we muſt examine the limbs we hold, and be aſſured we do not miſtake a hand for a foot. The feet, being held firmly in the hand, muſt then be brought with a waving motion ſlowly into the *pelvis*. While we are withdrawing the hand, the waters of the *ovum* flow away, and the *uterus* being emptied by the evacuation of the waters, and the extraction of the inferior extremities, we muſt wait till it has contracted, and on the acceſſion of a pain the feet muſt be brought lower, till they are at length cleared through the *os externum*. The operation may then, in one ſenſe, be ſaid to be completed, that is, what was originally a preſentation of the arm, is now become that of the feet, which

conſidered as primary, might have been left to the efforts of the conſtitution in the manner before deſcribed. But as no perſon who had undergone the operation of turning a child, with the expectation of a ſpeedy delivery, would have patience to wait for the expulſion of the child by the natural pains, it is incumbent upon us to finiſh the delivery, though there is no occaſion for hurry; and violence would be equally unneceſſary and improper.

In the firſt place then, obſerving the direction of the feet, and knowing if the toes of the child be towards the *abdomen* of the mother, that this poſition would be unfavourable when the head was to be extracted, we muſt gradually turn the body of the child during its extraction, in ſuch a manner that the back of the child may be placed towards the *abdomen* of the mother, before the head is brought into the *pelvis*. It was before obſerved, that this turn of the child has been deſcribed with uſeleſs intricacy, and in a manner which can only ſerve to confuſe the practitioner, who will reap all the advantage to be gained by any kind of turn, if he remember in general, that if the back of the child be toward the *abdomen* of the mother, the head will paſs more commodiouſly than in any other direction. The opinion of the neceſſity of changing the poſition of the child at this time has been ſo ſtrongly inculcated, and ſo eagerly purſued, that I have more than once ſeen it attempted with ſuch a degree of force, as muſt have deſtroyed, or done very great injury to the child, had it been living; the operation being evidently more dangerous, than the evil it was intended to remove. Nor is this the only caſe in midwifery, in which the means, recommended for the purpoſe of preſerving the life of the child, are utterly inconſiſtent with its ſafety.

When the heels or back part of the child are turned toward the *pubes*, the feet wrapped up in a cloth are to be held firmly about the ancles, and when the pains come on, we muſt extract in a ſtraight direction, or from ſide to ſide, or from the *pubes* to the *ſacrum*; taking

taking care that we do not by violence, or by too large a ſweep, run the riſque of hurting the child, or of lacerating the external parts of the mother. In the interval between the pains we muſt reſt, and in this manner proceed, aſſiſting the efforts of the mother only at the time of her making them, and not rendering the delivery wholly artificial. When the breech of the child is arrived at and begins to diſtend the external parts, we muſt proceed yet more ſlowly, giving time for their dilatation, ſupporting and favouring any part which may be immoderately diſtended, and guiding the child in a proper direction, by turning it towards the *pubes* as it advances. The breech being expelled, the *funis* ſoon appears, and a ſmall portion of it muſt be drawn forth to prevent its being upon the ſtretch. Then wrapping a cloth over the body of the child, which muſt be held as cloſe to the mother as it conveniently can, and calling for her voluntary exertions, the child is to be ſpeedily extracted in the manner already deſcribed*.

When both the arms are brought down, if that be neceſſary, it will be of ſervice to ſuffer the body of the child to reſt upon the left arm of the operator, his hand being ſpread under the breaſt, with a finger turned back over each ſhoulder. His right hand is to be laid in a ſimilar manner over the ſhoulders of the child, and theſe poſitions will give him great advantage in the extraction. But if the head ſhould not deſcend, the operator with his thumbs conducted into the *vagina* may preſs the head from the *pubes* to the *ſacrum*; or paſs the fore-finger of his left hand into the mouth of the child, and extract as was before adviſed, being ſtill careful of the external parts, when the head is paſſing through them.

Proper attention muſt be immediately paid to the child, and of the management of the *placenta* we are to ſpeak hereafter.

* When the life of a child was endangered in this ſituation, Dr. *Pugh* adviſed the introduction of an air pipe into its mouth, but this I have never uſed.

SECTION

SECTION VI.

In the ſecond diſtinction it was ſuppoſed, that together with the preſentation of a ſuperior extremity, there was at the time of the rupture of the membranes, very little dilatation of the *os uteri*, and ſome degree of contraction of the *uterus* round the body of the child.

The directions generally given on theſe occaſions are, that as ſoon as the preſentation is aſcertained, the operator ſhould ſit down and dilate the *os uteri* ſufficiently to allow the introduction of the hand, which ſhould then be paſſed with care and expedition into the *uterus*, and the child turned. But ſome practitioners have judged it more proper to wait till the *os uteri* was dilated naturally, before any attempt is made to introduce the hand, and turn the child. As in every caſe of the preſentation of the ſuperior extremities, there is a neceſſity of turning the child, the ſooner the hand can be paſſed for that purpoſe, the more ſafe and eaſy in general will the operation be, as there muſt of courſe be leſs contraction of the *uterus* round the body of the child. But as there is ſome hazard of doing miſchief by every artificial dilatation of the *os uteri*, I believe it is better to wait for the natural dilatation; at leaſt every attempt to dilate by art ſhould be made with great caution, and only during the interval between the pains. Yet we ought not to wait in theſe caſes, till there is a complete and abſolute dilatation of the *os uteri*; but always to conſider it as ſufficiently dilated, when we preſume it will readily admit the hand, and then the child ſhould be turned without delay.

If the external parts be rigid and contracted, they muſt be dilated, but without violence, in the manner before directed; and the hand, being paſſed into the *vagina*, muſt then be conducted into the *uterus*,

on

on that ſide of the *pelvis* where it can be done with moſt convenience; becauſe that will lead moſt readily to the feet of the child. It is generally better to conduct the hand between the body of the child and the *pubes*, than between it and the *ſacrum*, becauſe in theſe preſentations the feet lie moſt commonly towards the *abdomen* of the mother. In every caſe which comes under the preſent diſtinction, there is ſome degree of contraction of the *uterus* round the body of the child, though trifling when compared with what occurs in the caſes to be deſcribed under the next ſection. If therefore we underſtand and are able to perform the operation of turning the child, in the eaſieſt and moſt difficult caſes, we ſhall certainly be competent to the management of all the intermediate ones; there being in theſe no new rules, which we are required to follow, but merely an accommodation of rules already known to the exigencies of any individual caſe.

SECTION VII.

UNDER the third diſtinction, we are to preſume, that, together with the preſentation of a ſuperior extremity, there is the worſt poſſible ſituation of the child in all other reſpects; that is, an exceedingly cloſe contraction of the *uterus* round the body of the child, the membranes having been long broken, and the waters diſcharged; to which may perhaps be added very ſtrong pains.

In this caſe, ſuppoſing the difficulty of turning the child as great as it poſſibly can be, it will follow, that there is no occaſion for hurry or violence, as we can loſe nothing by taking time to deliberate. Before we proceed to the operation of turning, it will be therefore proper to repeat our examination, when we have conſidered the caſe, in order to prevent any errour in the firſt deciſion we have made upon the ſubject, and to aſcertain the preciſe poſition of the child;

child; and to reflect alſo, whether by ſome previous management it may not be in our power, to leſſen the impediments to the operation, and the general evils of the patient's ſtate. In either of theſe views there are only two objects, which can engage our attention; the wrong poſition of the child, and the ſtrong contraction of the *uterus* round its body. The firſt of theſe, in the account given of the caſes which came under the firſt diſtinction, was ſtated to be of little conſequence; that is, to be manageable without difficulty, and to be commonly void of danger either to the mother or child. The principal inconvenience will then be produced by the contraction of the *uterus*, which it muſt be our duty to remove or leſſen, before we attempt to perform the operation of turning the child.

The contraction of the *uterus*, under theſe circumſtances, may be of three kinds. There is, firſt, the continued or permanent contraction, in conſequence of the waters having been long drained off, and which to a certain degree takes place in all caſes, when there has been but little or no pain. This may in fact be conſidered as the exerciſe of that inherent diſpoſition in the *uterus*, by which its efforts are made to recover its primitive ſize and ſituation, when any cauſe of diſtention is removed. There is, ſecondly, the occaſional or extraordinary contraction of the *uterus*, by which whatever is contained in its cavity is ultimately to be expelled, which returns at intervals, and is ſo conſtantly attended with pain, that the terms pain and action are uſed ſynonymouſly. Thirdly, there is an irregular action of the whole or ſome part of the *uterus*, which is ſometimes unfavourable to the expulſion of its contents, which produces effects according to its peculiarity, and this is called ſpaſmodic; a general term, not wreſted from its common meaning, but appropriated to every kind of morbid, irregular, or exceſſive action. Now the difficulty and the danger, which attend the operation of turning a child, proceed either from the extraordinary or irregular action of the *uterus*; and in order to avoid theſe, as much as poſſible, it will be proper

to

to eſtabliſh it as a general rule, never to attempt the operation of turning the child, while the patient has very ſtrong pains.

The conſternation of friends, and the ſufferings of the patient, muſt neceſſarily raiſe a ſuſpicion in her mind, that there is ſomething unuſual and dreadful in her caſe, and the ſolicitude thence ariſing will increaſe the unavoidable inconveniencies of her ſituation. The prudent and ſteady conduct of the practitioner will, on ſuch occaſions, very much contribute to remove the fears of her attendants, and to give a compoſure to the mind of the patient, which will be productive of the moſt happy effects. If ſhe ſhould be much heated, it will be alſo proper to take away ſome blood, and to direct an emollient clyſter, for the purpoſe of emptying the *rectum*, and of ſoftening and ſoothing the parts, which are in a very irritable ſtate. Even the time employed in theſe matters will give an opportunity for quieting the violent agitation of the patient's mind.

We are not at preſent in the poſſeſſion or knowledge of any ſpecific medicine, upon which we can depend, for ſuppreſſing or moderating the action of the *uterus*, when exerted unfavourably, or at any improper time. Almoſt the only medicine we ever think of having recourſe to on ſuch occaſions, is *opium*; and this, given in two or three times the uſual quantity, will in many caſes of this kind anſwer our expectations; though ſometimes, when given in a common doſe, it has a contrary effect, and excites the *uterus* to ſtronger action. If the opiate ſhould fail to quiet the pains, and to compoſe the patient, we muſt wait till the *uterus* is wearied, or ceaſes to act of its own accord. But if the opiate ſhould produce the effect for which it was given, it will be in about twenty minutes after its exhibition, when we are to conſider the calm or diſpoſition to ſleep, as affording us the moſt favourable opportunity for turning the child.

Throughout the operation, it is neceſſary to bear in our minds the diſtinctions made between the different kinds of action of the *uterus*. The hand muſt be introduced with ſufficient force to overcome the

continued or permanent contraction of the *uterus*, or the operation could never be performed; and the ſame may be obſerved of the irregular or ſpaſmodic action, but with perſeverance rather than violence. But if we * were to attempt to overcome the extraordinary action, either the hand would be cramped, and we ſhould be unable to finiſh the operation; or if we had power ſufficient to overcome the contraction of the *uterus*, there would be the greateſt hazard of its being ruptured: the deduction is therefore plain, that we ought not to attempt to introduce the hand, while the *uterus* is in extraordinary action.

By the examination of the child's hand which preſents, we ſhall be able to diſtinguiſh whether it be the right or the left; and, which is of more conſequence, by its poſition, to which part of the *uterus* the feet of the child are directed. For unleſs the arm or body be unnaturally twiſted, the palm of the hand is always turned towards the inferior extremities or fore parts of the child.

It is in no caſe neceſſary, or in any wiſe ſerviceable, to ſeparate the arm of the child, previous to the introduction of the hand of the operator. In ſome caſes to which I have been called, in which the arm had been ſeparated at the ſhoulder, I have found a great inconvenience, there being much difficulty in diſtinguiſhing between the lacerated ſkin of the child, and the parts appertaining to the mother. The preſenting arm is never an impediment of any conſequence in the operation, and therefore ought not to be regarded, or on any account removed.

It ſometimes happens, that the introduction of our hand is abſolutely prevented by the ſhoulder of the child, jammed at the ſuperior aperture of the *pelvis*. It will then be neceſſary, to paſs the

* Qui enim urgentibus doloribus, manus intus dare, vel fœtum dirigere, vel aliquod membrum replicare audent, iis evenire poteſt, ut uterus rumpatur, mulierque ſubita morte rapiatur, cujus partus poſt obitum in ventre reperiri ſolet.

Platneri Inſtitutiones Chirurgicæ, Pag. 1040.

forefinger

forefinger and thumb of the right hand in the form of a crutch, into the armpit of the child, puſhing the ſhoulder towards the head and towards the *fundus* of the *uterus*, at the ſame time firmly and ſteadily maintaining the advantage we gain as we proceed, till we have raiſed the body ſufficiently, to allow the admiſſion of the hand into the *uterus*.

When we begin to make our attempts to introduce the hand into the *uterus*, though the patient might be in a compoſed ſtate, the irritation thereby occaſioned will diſturb her, and the extraordinary action of the *uterus* be brought on, which will be indicated by the conſequent pain. During the continuance of this action and pain, we muſt not proceed in our attempt, but wait till they ceaſe, laying our hand flattened in ſuch a manner, that no injury may be done by our efforts, or by the action of the *uterus* itſelf, upon any inequalities of the knuckles. When the action of the *uterus* ceaſes, our attempts to introduce our hand muſt be renewed, and ſteadily continued, till that action returns, when we muſt again reſt. Thus proceeding, that is, alternately reſting and acting, we ſhall, by repeated and ſometimes long continued efforts, at length ſafely accompliſh the purpoſe of conducting the hand ſo far into the *uterus*, that we ſhall be able to lay hold of the feet of the child. In ſome caſes our attempts to introduce the hand are very diſcouraging, as we are ſenſible of little or no progreſs; but the hurry or violence are never to be increaſed on account of the greatneſs of the difficulty. We muſt perſevere, and be perſuaded, that prudent attempts will not be fruitleſs, though they immediately fail to anſwer our expectations; as each apparently unprofitable attempt contributes at leaſt to the efficacy of a ſucceeding one.

The ſtrongeſt contraction of the *uterus* is ſometimes at the *cervix*, and when this is paſſed, ample room is afforded for the diſcovery of the feet towards the *fundus*, without much trouble. But the contraction is very irregular, being in ſome caſes in the centre, or uniform

throughout; whilſt in others, the *uterus* is drawn into lines, as if a cord had been paſſed round it externally with great ſtrength, ſo as even to be painful to the hand. In ſome caſes the *uterus* is alſo contracted into a globular, and in others into a longitudinal form. Theſe different contractions render ſome difference in our conduct neceſſary, but if we have a true general idea of the various kinds of contractions, as before deſcribed, the little increaſe or peculiarity of difficulty will be readily managed. In a globular contraction of the *uterus*, when our hand has paſſed beyond the *cervix*, there will be no trouble in coming at the feet, and the child will be turned very eaſily; but in the longitudinal contraction, the feet being at a great diſtance, there is more difficulty, though it is not always neceſſary to go up to the *fundus*, for when we come to the knees, theſe being cautiouſly bent, the legs and feet will be brought down together.

In whatever way we lay hold of the feet, we muſt examine them before we begin to extract; for though one arm be in the *vagina*, the other may be high up in the *uterus*, and miſtaken for a leg. We muſt alſo remember, that it is neceſſary to extract ſlowly; for if we ſhould attempt to hurry the operation, the feet may ſlip out of our hand, and immediately recede to the *fundus* of the *uterus*, or to the part from which they were brought, and lay us under the neceſſity of returning with the hand, to bring them down again. When we have laid hold of the feet, if we proceed ſlowly, the child commonly turns without much difficulty. But when the feet are brought into the *pelvis*, if the turning of the child be not perfected, it will be of great uſe to fix the nooſe of a garter or ribband round one or both ancles, which may be conveniently done by forming it upon our wriſt, and then ſliding it with the fingers of the left hand, over the right hand containing the foot or feet, without quitting our hold of them; and dexterity in forming and fixing this nooſe may be of great uſe in the ſubſequent parts of the operation.

operation. When the nooſe is fixed and drawn tight round one or both the ancles, we may pull by both the ends of it with either of our hands, at the ſame time graſping the feet and extracting with the other hand, till they are brought through the external orifice. Should there be much difficulty in the operation, after the feet are brought low into the *vagina*, we may conclude, that it is occaſioned by the body of the child being fixed acroſs the ſuperior aperture of the *pelvis*. To remove this impediment, it will be neceſſary to take the two ends of the nooſe into our right hand, and paſſing the finger and thumb of the left in the form of a crutch, in the armpit of the child, as before deſcribed, we muſt extract with our right hand, and at the ſame time raiſe the body of the child with the left, till the child is diſengaged, and there is ſufficient room for the entrance of the hips into the *pelvis*. There will then be no further difficulty, and we muſt deliver as was directed under the Firſt Order of Preternatural Labours.

SECTION VIII.

In preſentations of the ſuperior extremities, when the waters have been long diſcharged, and the ſhoulder of the child is jammed at the ſuperior aperture of the *pelvis*, it was ſaid to be expedient and neceſſary, to paſs the finger and thumb in the form of a crutch, into the armpit of the child, in order to raiſe the body towards its head, and towards the *fundus* of the *uterus*; till it was ſufficiently moved out of our way, to allow of the introduction of the hand into the *uterus*. But in ſome caſes, when we are firſt called, the ſhoulder is ſo far advanced into the *pelvis*, and the action of the *uterus* is at the ſame time ſo ſtrong, that it is impoſſible to raiſe or move the child, which is ſo ſtrongly impelled by the pains, as to overcome all the

the force we are able to exert. This impoſſibility of turning the child has, to the apprehenſion of all writers and practitioners, left the woman without any hope of relief. But in a caſe of this kind, which occurred to me about twelve years ago, I was ſo fortunate as to obſerve, though it was not in my power to paſs my hand into the *uterus* to turn the child, that by the mere effect of the action of the *uterus*, an evolution took place, and the child was expelled by the breech.

Of the firſt teſtimonies * that prove the poſſibility of this evolution, which I have called ſpontaneous †, the public has long been in poſſeſſion. The caſes in which it has happened are now become ſo numerous, and ſupported not only by many examples in my own practice, but eſtabliſhed by ſuch unexceptionable authority, in the practice of others, that there is no longer any room to doubt of the poſſibility of its happening, more than there is of the moſt acknowledged fact in midwifery. As to the manner in which this evolution takes place, I preſume, that after the long continued action of the *uterus*, the body of the child is brought into ſuch a compacted ſtate, as to receive the full force of every returning action. The body in its doubled ſtate, being too large to paſs through the *pelvis*, and the *uterus* preſſing upon its inferior extremities, which are the only parts capable of being moved, they are forced gradually lower, making room as they are preſſed down for the reception of ſome other part

* See the London Medical Journal, Vol. V. for 1785; and the Journal de Médecine de Paris, pour Avril et Septembre, 1785, and many caſes publiſhed ſince that time.

† I uſed the word *ſpontaneous*, though to ſome it appeared objectionable, but I could not fix upon one better ſuited to explain my meaning. I only intended by it to ſay, that the ſeries of effects terminating in an evolution of the child were wholly independent of the practitioner; but not that this was procured from any impulſe or exertion in the body moved. In the ſenſe in which I uſe the term *ſpontaneous*, it ſeems to be proper according to its common uſe in *medical*, though perhaps not ſtrictly in *mechanical* language.

into

into the cavity of the *uterus* which they have evacuated, till the body turning as it were upon its own axis, the breech of the child is expelled, as in an original preſentation of that part. Nor has there been any thing uncommon in the ſize or form of the *pelvis* of thoſe women, to whom this caſe has happened, nor have the children been ſmall, or ſoftened by putrefaction, becauſe one or more children have been in this way born alive *. I believe, on the contrary, that a child of a common ſize, living, or but lately dead, in ſuch a ſtate as to poſſeſs ſome degree of reſilition, is the beſt calculated for expulſion in this manner. Premature or very ſmall children have often been expelled in a doubled ſtate, whatever might be the original preſentation, when the *pelvis* was well formed, or rather more capacious than ordinary.

Yet the knowledge of this fact, however unqueſtionably proved, does not free us from the neceſſity and propriety of turning children preſenting with the ſuperior extremities, in every caſe in which that operation can be performed with ſafety to the mother, or give us a better chance of ſaving the child. Under ſuch circumſtances the inſtructions given by former writers, and the obſervations we have before made, muſt ſtill be conſidered as proper to guide our conduct. But when we are called to a patient with a preternatural labour, in which there is no room to hope for the preſervation of the child, or in which we are aſſured of its death, or when the operation of turning cannot be performed without violence and ſome danger to the mother; then the knowledge of the probability of a ſpontaneous evolution will ſet our minds at eaſe, and diſengage us from the conſideration of making any haſty attempts to perform a hazardous operation, from which no poſſible good can be derived, except that

* Dr. *Garthſhore*, Conſulting Phyſician of the Britiſh Lying-in-Hoſpital, informed me of a caſe of this kind, in which the child was born living; and Mr. *Martineau*, an eminent ſurgeon at *Norwich*, informed me of another.

of extracting a dead child, and which at all events might be effected by a method far more ſafe to the mother.

The time required for the ſpontaneous evolution of the child, and the facility with which it may be made, will depend upon a variety of circumſtances, but chiefly upon the ſize of the child, the aptitude of its poſition, the dimenſions of the *pelvis*, and the power exerted by the *uterus*. If the child be very large, or much below the common ſize, the ſlower I believe will be the evolution, nor can it be made at all without a ſtrong action of the *uterus*. It is poſſible therefore, when we have conducted ourſelves on the ground of expectation that the evolution would be made, that the pains may fall off, or be unequal to the effect, and we may be diſappointed. It might then be apprehended, that the difficulty of extracting the child would be infinitely increaſed. But though the evolution was not perfected, I have not found this conſequence; for the child, though not expelled, has been brought into ſuch a ſtate, that I could afterwards paſs my hand with eaſe, and bring down its feet, though in an attempt to do this in the beginning of the labour I had been foiled. In one caſe, in which the evolution did not take place, I could not bring down the inferior extremities, but I had no difficulty in fixing an inſtrument upon the curved part of the body of the child, or in bringing it away with entire ſafety to the mother. It was before preſumed, that the child was dead; and the ſole object was, to free the mother from her danger, and with her ſafety, no appearances of the child, however diſagreeable, are to be put in competition. In caſes of this kind another mode of practice has been recommended, that of ſeparating the head from the body, with a blunt hook, or other convenient ſafe inſtrument; but as I have never practiſed this method, I give the deſcription of it in a note *.

In

* Hoorneus ſæpe laudatus adhuc peculiarem novum, eumq; breviorem modum, fœtum mortuum cum brachio arctiſſimi in vagina uteri hærente, invenit atque deſcripſit: qui

in

In the courſe of my converſation and correſpondence with medical friends, I have been informed of ſeveral inſtances of women, who have died undelivered, their children preſenting with the arm, becauſe the practitioners were not able, by art or by force, to paſs the hand into the *uterus*, to turn the child, and deliver by the feet, and it was not ſpontaneouſly turned. Theſe caſes have been mentioned to me as objections to the idea of a ſpontaneous evolution, but, I apprehend, without reaſon. The evolution is ſuppoſed to be the conſequence of the ſtrong and long-continued action of the *uterus*, uninterrupted. Now the firſt part of the operation of turning a child by art, conſiſts almoſt wholly in reſiſting this evolution; and if the attempts were perſevered in, would be an abſolute bar to its taking place. To give a full explanation of my opinion, I ſhould ſay, that a woman in a ſtate of nature, with her child preſenting in any manner, would not die undelivered, if no aſſiſtance were afforded to her. But if an equally healthful woman lived in a country ſomewhat civilized, in which the art of midwifery was in an imperfect ſtate, much would be thought requiſite to be done, and violence ſupplying the place of knowledge and ſkill, ſhe might periſh from the ungainly and rude exerciſe of art, rather than from the neceſſity of her caſe; for by the attempt of art the natural efforts would, in theſe caſes, be defeated. In the moſt perfect ſtate of ſociety, all juſt and true knowledge being founded upon obſervation of the proceedings of Nature, and all ſound practice upon the imitation, the practitioner would return to the primitive ſtate; that

in eo conſiſtit, ut quando ad pedes pervenire nequit, collum, utpote quod in fœtibus valde adhuc tenerum eſt, vel ſcalpello a reliquo trunco reſecet, vel unco idoneo quam cautiſſimè auferat: hoc enim facto vel ſponte mox prorumpit ex utero fœtus, vel tamen, dum brachium propendens attrahitur, quod medico tunc loco habenæ inſervit, quam facillimè excutitur: caput vero deinde ſeorſim mox vel manu, vel aliis propoſitis artificiis, ſi manus parum eſſet, ejiciendum.

Heiſter. Cap. cliij. *ſect.* ix.

is, he would do nothing, unleſs it was abſolutely neceſſary for him to act, and then he would act in imitation of Nature. From a retroſpective view of the practice of midwifery in all former times, and in all countries, every intelligent perſon ſees, and is ready to acknowledge, that there has been too officious an interpoſition, and too great a readineſs to give aſſiſtance in various ways, for the relief of many difficulties attending parturition, which are not only fully proved to require no aſſiſtance, but which are alſo now allowed to be ſurmounted in a ſafer and more effectual way by the reſources of the conſtitution. This ſhould certainly put us upon our guard againſt haſty determinations, upon what is poſſible or otherwiſe, in any caſe; or upon the uſe of any means, which may be deſtructive to the child, or injurious to the mother*.

Now I am ſpeaking of the ſpontaneous evolution in preſentations of the arm, it will not be amiſs to obſerve, that ſeveral other changes of the poſition of the child take place, at the time of birth, particularly the following, of which I have ſeen more than one inſtance. Having been called to women in the beginning of labour, and finding by an examination, that the head of the child preſented,

* In *America* and *Africa* the native women, whom we may preſume to be healthy, very ſeldom die in labour, or in conſequence of it. Properly ſpeaking, they have no midwives. The ſame may be obſerved of the women in *Lapland*, and other northern countries. Yet the *African* women, when tranſplanted to the *Weſt-India* colonies, not unfrequently die. They are attended by ignorant midwives. In the *Eaſt-Indies*, the midwives of the country are ignorant and daring, interfering perpetually, and often in the moſt outrageous manner, with the women in labour, many of whom die, or ſuffer grievous complaints for the remainder of their lives. In *England* the practice of midwifery is extremely reaſonable, and it is a rare thing for women to die in labour, or in conſequence of it, unleſs when there is ſome dangerous epidemic diſeaſe. In *France*, the practice of midwifery is more artificial, and there is, both in that and other countries on the continent, a very reprehenſible fondneſs for inſtruments and operations; we may therefore conclude, that the abuſe of art produces more and greater evils, than are occaſioned by all the imperfections of nature.

I have

I have left them for ſeveral hours, till the firſt changes were naturally made. When I have examined them on my return, I have found the arm of the child preſenting, the head being departed out of my reach. I do not know, that any practical advantage is to be obtained by the knowledge of theſe caſes; but it is remarkable, that the accident has always happened to women, who were deformed. Such caſes however ſhould be recorded, and it is poſſible, that, ſome time or other, the knowledge of them may be of uſe. It may lead to an explanation of one cauſe at leaſt of preternatural labours.

SECTION IX.

To the preternatural preſentation of the child, and the circumſtances before mentioned, there may be added a diſtortion of the *pelvis*. As there is no occaſion to repeat the management, which the other circumſtances may require, we may confine our attention to the peculiar difficulties produced by the diſtortion. Some diſadvantage may ariſe from this cauſe in the extraction of any part of the child, but it will be trifling, if compared with that which attends the extraction of the head; we may therefore be allowed to ſuppoſe, that the whole of the child is born, except the head, which cannot be brought away in the uſual manner, or by the means before adviſed. The force, with which we endeavour to bring down the head of the child, muſt then be gradually increaſed, till we are convinced, that a greater degree is inconſiſtent with the ſafety of the child.

The wiſh to extract the head of the child ſpeedily, is founded on the apprehenſion, juſtly entertained, that in this poſition the life of the child is in the moſt imminent danger, from the compreſſion of the *funis*. A vigorous pulſation in the *funis* proves, even at this time, that the child is not in any danger, and of courſe gives

us an opportunity of acting with deliberation. But ſhould the pulſation, which was at firſt lively and ſtrong, gradually decline, and then altogether ceaſe, the head muſt be ſpeedily extracted, or the child will be inevitably loſt, there being no other way of removing the compreſſion, or of preſerving its life.

The extraction of the head may then be attempted with two views, either to ſave the life of the child, or merely to free the mother from any danger, which might ariſe from its detention. When the firſt is our aim, the force with which we extract muſt be moderate, and conſiſtent with the ſafety of the child; it muſt be exerted in a proper direction with regard to the *pelvis*; it muſt be uniform and commanded; and if there be any pains, it muſt accompany them. Should the head deſcend in ever ſo ſmall a degree, we muſt not act precipitately, and increaſe the force in order to finiſh the delivery ſuddenly; but we muſt proceed with circumſpection, or we ſhall add to the danger which the child is already in, and run the riſque of doing injury to the mother; though when the head begins to advance, there is ſeldom much difficulty, the cauſe uſually exiſting at one particular part of the *pelvis*. It has been ſaid, that children have been ſometimes born alive, when the ſtrongeſt efforts, and thoſe continued for many hours, have been made to extract the head detained in this poſition. But I have not been ſo fortunate as to meet with any ſuch inſtances, a ſhort ſpace of time having generally been ſufficient to fruſtrate my hopes, and convince me that the child was dead. Though when the head has been detained a conſiderable time, a few caſes have terminated more favourably than I could have expected, and I have been agreeably ſurpriſed with the diſcovery of ſome faint ſigns of life, which, by the aſſiduous and careful uſe of the common means, have been improved, and the life of the child at length perfectly recovered.

But when we have abandoned all hope of preſerving the child, and have no other view but ſimply that of extracting the head,

we muſt be particularly cautious, that through our conduct the mother does not ſuffer either any immediate injury, or that any foundation of miſchief be laid, which may ſhew itſelf at ſome future time. When we have in vain exerted all the force which we think reaſonable and proper, and which, in ſome caſes, muſt be more than any circumſtance would be thought to require, it will be expedient to reſt, for the purpoſe of gaining all the advantage to be obtained by the compreſſion of the head. On this account, the mother will actually ſuffer no more inconvenience, than would have been produced if the head had originally preſented, and been locked in the *pelvis*. After waiting ſome time, we muſt renew our attempts to extract, and thus proceed, alternately reſting, and acting with efficacy and reſolution, and if the hold we may have of the body or extremities of the child does not ſuit, a ſilk handkerchief or other band may be paſſed round its neck, and this will be found a very handy and convenient inſtrument.

The great impediment to the extraction of the head of the child exiſts in the diſproportion between it and the *pelvis*. Another of no little conſequence may be produced by the diſlocation of the neck, or the laceration of the ſkin, either of which would lead to the ſeparation of the body from the head; an accident one would wiſh to avoid, as it would lay us under the neceſſity of uſing ſome awkward inſtrument, inſtead of the body of the child. Either of theſe inconveniencies is readily occaſioned by the impatience or deſpair of the practitioner, who is apt to twiſt the neck while he is extracting, or to pull with a ſudden motion, inſtead of the uniform one before recommended.

In theſe caſes of extreme difficulty, it will always be of ſervice, and often ſucceed when other means fail, if we can conduct our thumbs between the head of the child and the *pubes*, and preſs the head forcibly towards the hollow of the *ſacrum*. It would alſo be of ſervice if we were able to paſs the finger into the mouth of the child,

child, to change the poſition of the head; but in the worſt caſes this is impracticable, the head being obſtructed ſo high, that the mouth of the child is beyond our reach. When theſe means are not in our power, or fail to anſwer our purpoſe, it will be neceſſary to leave the head a yet longer time, that it may undergo a greater degree of compreſſion and accommodation to the *pelvis*, and then to renew our attempts to extract it.

It muſt be a very great diſproportion between the head of the child and the *pelvis*, which is able to withſtand this method of proceeding, if we perſevere in it with prudence and ſteadineſs; becauſe the integuments of the head will burſt, or the bones be bent inwards in an extraordinary degree, or even broken. Sometimes, however, a hemorrhage comes on, or the ſituation of the mother will not allow us to take ſo much time, or proceed ſo ſlowly, as is generally propoſed, and we are compelled to the uſe of ſuch means, as promiſe a more ſpeedy completion of the delivery. Different kinds of *forceps* have been adviſed for this purpoſe, but no inſtrument of the ſort ought to be uſed on ſuch occaſions, becauſe the child is dead; and it would be impoſſible but that the mother muſt by their uſe undergo the chance of miſchief, without any equivalent advantage. It then only remains that we ſhould leſſen the head of the child, and the operation may be as eaſily performed in this, as in the natural preſentation of the head. In the deſcription of this operation it was ſaid, that it clearly divided itſelf into three parts: 1. perforation; 2. evacuation of the brain; and 3. extraction of the head. It will not be poſſible to make the perforation in the uſual place, but we muſt take that which offers itſelf moſt conveniently. We may recollect that there is a ſmall fontanell behind each ear in the head of a *fœtus*, which is a convenient place for the purpoſe; or it may be done at the baſis of the *cranium* through the mouth; or, in ſhort, in any part where we can fix and command the uſe of the perforator, except perhaps the

the occipital bone, where we may cut the ligaments which join the neck to the head, and when we expected to extract, we ſhould leave the head behind. When the perforation is made according to the rules before mentioned, and the brain evacuated, the head may be readily extracted, either by pulling by the body of the child, or by inſerting a crotchet in the opening made by the operator as in other caſes. But it will be ſcarcely believed, how ſeldom this operation is neceſſary under theſe circumſtances, if we have not been in a hurry, but have acted with prudence. Nor have I ever known any ill conſequences follow the compreſſion which the ſoft parts undergo, between the head of the child, and the ſides of the *pelvis*, if proper attention were afterwards paid to the ſtate of the bladder and *rectum*.

SECTION X.

THOUGH with cautious management the head of the child is ſeldom ſeparated from the neck, and though with indiſcretion it could not often be produced, yet the poſſibility of the accident, when there is great diſproportion between the dimenſions of the head and of thoſe of the *pelvis*, eſpecially in the caſe of a child ſome time dead, makes it neceſſary for us to be prepared for managing the caſe if it ſhould occur. It has moreover been ſurmiſed, that under peculiar circumſtances it might be eligible to ſeparate the head from the body, with the expectation of afterwards extracting it with more caſe*; but this, however juſt in theory, will not, I believe, give us any advantage in practice, eſpecially in caſes of diſtortion of the *pelvis*; at leaſt ſo the accident ſeems to have proved, when it has unavoidably happened.

When the head of the child has been left behind, the caſe has

* See note, page 448.

been

been conſidered as frightful, and, which is true, exceedingly troubleſome to manage, becauſe the *pelvis* might be expected to be very ſmall in proportion to the ſize of the head, except in the caſe of a putrid child; and becauſe it could not without great difficulty be fixed in ſuch a manner, as to be conveniently ſubjected to the action of the inſtruments, which it may be neceſſary to uſe. Of theſe there has certainly been contrived a ſufficient number for the purpoſe of almoſt every caſe. It is nevertheleſs evident to every practical man, that the greater part of them were the conceits of ingenious men in their cloſets, and either could not be applied, or if applied, could not be of any ſervice in a caſe of real perplexity.

The chief obſtacle to the extraction of the head, muſt ariſe from the diſproportion between it and the cavity of the *pelvis*; and this diſproportion can only be removed by leſſening the bulk of the head. If this were fixed firmly in the *pelvis*, there would be no more difficulty in making the perforation, or in any part of the operation, than in a caſe in which the head originally preſented; but ſhould the head be diſengaged, and lying looſe at the ſuperior aperture of the *pelvis*, it would not make due reſiſtance to the point of the perforator, which would be apt to ſlide, we ſhould be foiled in our attempt, and incur the hazard of injuring the mother. To avoid theſe inconveniencies and miſchief, external preſſure muſt be made either by the hands of an aſſiſtant, or with a napkin paſſed round the *abdomen* with ſufficient firmneſs to keep the head ſteadily fixed, and this being done, the operation of perforating and leſſening the bulk of the head may be performed without any chance of failure or miſchief. In the very few caſes of this kind to which I have been called, the difficulty has not, except in one inſtance, by any means been equal to what I expected from the repreſentation of different writers. It is a caſe to be prevented or avoided, if poſſible; but when it does occur, there is neither that danger in the caſe, nor that difficulty in the operation, which ought to terrify a practitioner who

who has common reſolution, and who gives himſelf time for a little reflection. It is however ſaid, that in ſome inſtances every attempt to extract the head has been in vain, and the patients have been reſigned to their fate; of which there is one inſtance in *Mauriceau*, another in *Chapman*, and ſome in other writers. Yet even in ſome of theſe caſes, though the patients have moſt frequently died, after a certain time, the action of the *uterus* has come on, and at length expelled the head; in one caſe, if I be not miſtaken, ſo late as the twentieth day after the accident had happened. The degree of diſtention of the *uterus*, occaſioned by the mere head of a child, would not indeed be ſo great, as to make us apprehend any fatal conſequences on that account; and if the *uterus* be in a healthy ſtate, a ſubſtance of that bulk and kind might be managed, either by common putrefaction, reducing its ſize and dividing it into portions, or it might by repeated efforts be expelled, eſpecially if the *pelvis* were of any reaſonable ſize. Should the head of the child be retained, it is probable, that the *placenta* would alſo remain, and the two circumſtances combined would add to the danger of each, ſo that the head never ought to be left, if it can poſſibly be extracted by any means not abſolutely injurious to the patient.

CHAPTER XV.

CLASS FOURTH.

ANOMALOUS, OR COMPLEX LABOURS.

FOUR ORDERS.

ORDER FIRST.

Labours attended with Hemorrhage.

ORDER SECOND.

Labours attended with Convulsions.

ORDER THIRD.

Labours with two or more Children.

ORDER FOURTH.

Labours in which there is a descent of the Funis Umbilicalis *before any part of the child.*

SECTION I.

ORDER FIRST.

Labours attended with Hemorrhage.

It is necessary to premise, that no practical advantage can be derived from the arrangement of these labours into one class. This is merely of use for the convenience of doctrine, and to prevent the multiplication

multiplication of claſſes; for there is not the leaſt reſemblance between the different orders of anomalous or complex labours, which do not therefore admit of any general definition or character.

Uterine hemorrhages, from different cauſes, very frequently occur in practice, and always require great attention; but thoſe, which we are about to conſider in this place, are ſuch as depend upon the ſtates of pregnancy and parturition. Theſe have ever been eſteemed as conſtituting a very important part of the practice of midwifery, on account of the immediate and great danger with which they are often attended; and becauſe the ſafety of the patient, in theſe caſes, more frequently depends upon the judgment and ſkill of thoſe under whoſe care ſhe is placed, than in almoſt any other circumſtances. The ſubject therefore demands to be treated with the utmoſt circumſpection; and though much induſtry hath been employed upon it, there is reaſon to believe, that the knowledge of many things, of which we are at preſent ignorant, is wanting for the perfection of the rules of practice. The knowledge however, which we do poſſeſs, it is incumbent upon us to place in the moſt advantageous point of view, that it may be converted to uſe; that we may be enabled to do what reaſon and experience dictate to be neceſſary and proper; that we may determine upon the time moſt ſuitable for acting; and be warned moreover againſt relying on ſuch things as are uſeleſs, or doing what is hurtful.

The word hemorrhage does not apply with propriety to all diſcharges of blood from the *uterus*, ſome of theſe being natural or ſalutary. The menſtruous diſcharge is natural, but if it ſhould be exceſſive in quantity, too frequent or irregular in its returns, or prolonged beyond its uſual time, it might be called hemorrhage. Every diſcharge of blood which occurs during pregnancy, however ſmall, may be called a hemorrhage, becauſe it is not natural at that time. The ſame obſervation may be made of thoſe diſcharges, which happen between the birth of the child, and the expulſion of

the *placenta*; and theſe are often profuſe, and not unfrequently dangerous. But the diſcharges, which happen after the expulſion of the *placenta*, cannot be called hemorrhages, unleſs they are exceſſive in their degree; becauſe ſome loſs of blood is at that time neceſſary and natural. We may then ſay, that all effuſions of blood, which are inordinate in quantity, or irregular in the time of their appearance, may be denominated hemorrhages; and theſe, which are the objects of our preſent conſideration, may be divided into four kinds.

1. Thoſe which occur in early pregnancy, or in abortions.

2. Thoſe which occur in advanced pregnancy, or at the full period of utero-geſtation.

3. Thoſe which happen between the birth of the child and the expulſion of the *placenta*.

4. Thoſe which follow the expulſion of the *placenta*.

Under one or other of theſe diſtinctions will be included every kind of hemorrhage, which depends upon pregnancy or parturition; and this arrangement will not only convey a clear idea of the ſubject, but be of uſe alſo in practice. Yet it is neceſſary to obſerve, that there may be a combination of the three laſt kinds, or any two of them in the ſame patient; but whether they be ſeparate or combined, the modes of treatment may be accommodated to each caſe with equal propriety and advantage, as far as it may be reducible to the general denomination.

Greater accuracy is nevertheleſs required in the deſcription of what is meant by early or advanced pregnancy, or we may entertain different notions of, and uſe different terms for, the ſame thing. Perhaps no preciſe line can be drawn for this purpoſe, as contingent circumſtances may cauſe a variation in different women; yet the beſt, which the nature of the ſubject admits, is probably to be taken from time. We will then ſay that all expulſions of the *fœtus*, before the termination of the ſixth month of pregnancy, may

may be called abortions*; but all expulſions in the laſt three months ſhall be conſidered as labours, premature or regular. There is a practical reaſon for this diſtinction. Before the termination of the ſixth month, theſe caſes, generally ſpeaking, neither require nor allow of manual aſſiſtance, but in the laſt three months, they admit of manual aſſiſtance, if it be required, though not with equal eaſe; for the longer the time which is wanting to complete the period of uterogeſtation, the greater the difficulty will be which attends any operation, that it may be neceſſary to perform. It is alſo to be obſerved, that expulſions of the *fœtus* ſometimes happen ſo critically, as to render it an extremely difficult thing to decide, to which of the diſtinctions they ought to be referred; and in theſe, if we knew any method of treatment between that enjoined for abortions, and at the full period, ſuch for inſtance as puncturing or breaking the membranes containing the waters of the *ovum*, that would be moſt eligible. But on this, as well as many other occaſions, there is room to obſerve, that when every doctrinal diſtinction has been made, no abſolute rule can be formed for the conduct of the practitioner, in every individual caſe which may occur, or in every poſſible ſituation in which a patient may be placed; but he knowing in general what ought to be done, and what ought to be avoided, muſt ever be at liberty to exerciſe his own judgment in the application.

* Fœtûs præmatura ejectio.—*Linnæus.*

Sanguinis ex utero gravido profluvium, cum fœtu immaturo vel mola ſubſequenti.—*Vogel.*

Partus morboſus et ſymptomaticus. Fœtus ejicitur potius quam paritur.—*Harv.*

SECTION

SECTION II.

It would be curious, and might be of ſome utility in practice, to aſcertain whether women, on account of their menſtruation, or their erect poſition, or the ſtructure of the *ovum*, or the proceſs by which this is connected to the *uterus*, or from any other cauſe, are naturally more liable to abortions than animals; or whether frequent abortion in women may not be conſidered as an attributive, either of habits ſuperinduced by modes of education or of living, or of accidents which might be avoided. There is great room to lament their frequent occurrence in the more civiliſed, perhaps luxurious ſcenes of life, and in thoſe conſtitutions that are extremely delicate, and which are indeed hardly found equal to the continuance of the human race. Yet in thoſe ſituations which might be preſumed to be moſt unfavourable to the ſex, among the loweſt ranks of life, abortions, except from violent external accidents, very rarely happen; ſo that there is good reaſon for believing, that women in a ſtate of nature would not be more liable to abortion than other creatures. According to the opinions nevertheleſs of many ſyſtematic writers on this ſubject, every action in common life has been aſſigned as the cauſe of abortion: yet this is rarely the caſe; and in general that, about which the patient was employed, when the firſt ſymptom appeared, is fixed upon as the particular cauſe, though probably ſhe was before in ſuch a ſtate, that abortion was inevitable. But if this opinion were juſt, then the event ought rather to be imputed to ſome previous indiſpoſition, or to the exceſs of ſome actions, forgotten perhaps when abortion actually takes place, than to the exerciſe of the body on common occaſions. Yet greater practical benefit will be obtained, if we ſeek for the cauſes of abortion in the

general infirmity of the conſtitution, or in ſome particular ſtate of the *uterus*, or its appendages, than by imputing it to theſe accidents. As far as the conſtitution may be altered, by the reduction of the general ſtrength, by exceſſive irritability, by plethora or febrile diſpoſition, ſo as to be unable to perform its functions, or to perform them with eaſe, propriety, and regularity, we may eſteem every cauſe capable of producing ſuch a ſtate, as a primary cauſe of abortion. It does not, however, often happen, that ſimple weakneſs is a cauſe of abortion; for women who prove with child, in very weak and reduced ſtates of the body, particularly in conſumptions, in which there is a great aptitude to conceive, have, of all women, the leaſt diſpoſition to miſcarry; yet a ſtate more feeble and more irritable could with difficulty be pointed out. But the weakneſs and irritability then are of a particular kind, not ariſing from, connected with, or influencing the *uterus*, which proceeds in the performance of its functions, as regularly as if the whole conſtitution was in a ſtate of perfect health. We may hence conclude, that either weakneſs or irritability in general is ſeldom a cauſe of abortion; but ſome weakneſs or imperfection originating in, or affecting the *uterus* or its appendages; or a peculiar kind of irritability, thence proceeding, diſtinguiſhable enough in the female character, by a careful obſerver, which creates impatience of mind and reſtleſſneſs of body; in which every occurrence is the parent of ungrounded fear and ſolicitude, and every office is performed with hurry and vexation. As an abundance of acrimonious, or ſome other humour, or ſome quality of the body, may transfer this ſtate to the mind, ſo the mind often reverberates this ſtate to the body, the continuance of which will often prevent, or impede the regular performance of any proceſs. It is therefore often found of as much importance, to give compoſure and ſteadineſs to the mind of a patient, by leading her to hope and cheerful expectation, by ſoothing and comfortable converſation, as it is to adminiſter medicines to the body.

With

With reſpect to the ſtate of the *uterus*, the opinion originally entertained and ſtill purſued, as far as can be collected from the medicines uſually preſcribed, was, that it failed to perform its office on account of its exceſſive lubricity, as if the *ovum*, before looſely attached, ſlipped out of the *uterus*; but this idea will not bear examination, being ſupported neither by the reaſon of the thing, nor by the occurrences of practice. It is remarkable, that women, who are in the habit of miſcarrying, go on in a very promiſing way to a certain time, and then miſcarry, not once, but for a number of times, in ſpite of all the methods which can be contrived, and all the medicines which can be given; ſo that, beſides the force of habit, there is ſometimes reaſon to ſuſpect, that the *uterus* is incapable of diſtending beyond ſuch a ſize, before it aſſumes its diſpoſition to act, and that it cannot be quieted till it has excluded the *ovum*. What I am about to ſay will not, I hope, be conſtrued as giving a licence to an irregularity of conduct, which may often be juſtly aſſigned as the immediate cauſe of abortion; or lead to the negligent uſe of thoſe means which are likely to prevent it. But from the examination of many *ova*, after their expulſion, it has appeared, that their longer retention could not have produced any advantage, the *fœtus* being decayed, or having ceaſed to grow long before it was expelled. Or the *ovum* has been in ſuch a ſtate, as to have become wholly unfit for the purpoſe which it was deſigned to anſwer; ſo that if we could believe there was a general intelligence exiſting in every part of the body, we ſhould ſay, it was concluded in council, this *ovum* can never come to perfection, and the ſooner it is expelled the better. Nevertheleſs, in ſome caſes, the *ovum*, though extinguiſhed, if the expreſſion may be allowed, will remain inoffenſive in the *uterus* to the period of legitimate pregnancy.

Conception probably depends upon the perfect ſtate of one or both *ovaria*, and will therefore ſometimes take place, when the *uterus* is conſiderably diſeaſed. But the progreſs depends upon the ſtate of the

the *uterus*, and chiefly upon that of the *fundus*; for I have known ſeveral inſtances of women, who had both excreſcences and induration about the *os uteri*, who have conceived and gone on to their full time without any material inconvenience.

The imperfections obſervable in *ova* are of different kinds, and found occaſionally in every part, and there is uſually a conſent between the *fœtus* and the ſhell of the *ovum*, as the placental part and the membranes may be called, but not always. For examples have occurred, in which the *fœtus* has died before the termination of the third month, yet the ſhell being healthy has increaſed to a certain ſize, has remained till the expiration of the ninth month, and then been expelled, according to the genius and conſtitution of the *uterus*, though frequently it has been found to have undergone great changes, as, for inſtance, in many caſes of hydatids. But if the ſhell becomes diſeaſed, then the *fœtus* being deprived of its nouriſhment is of courſe deſtroyed, and both are expelled, as any other extraneous body would be, though not immediately on the acceſſion of the miſchief. There is reaſon to believe, that the part of the *ovum* moſt commonly diſeaſed is not that which paſſes from the *ovarium*, but that production of the *uterus*, which is prepared for the reception of the *ovum* after its paſſage from the *ovarium*, and which may be called the connecting membrane of the *ovum*. When that proceſs, by which the two membranes are cemented, goes on without interruption, I believe the connexion is completed between the ſixth and the tenth week from the time of conception. But when an abortion is about to happen, there is uſually between this and the outer membrane of the *ovum* an effuſion of blood, which inſinuates itſelf through the cellular membrane of the *placenta*, and between the membranes, giving externally to the whole *ovum* a tumid and unequal appearance, often not unlike a lump of coagulated blood, for which it has been frequently miſtaken. It is probable, that either the connecting membrane is imperfectly formed, or

there is ſome difficulty, and a failure in the completion of the union between it and the *ovum*; and according to this opinion the cauſes of abortions are generally to be ſought for in the female only, contrary to what I formerly ſuſpected.

SECTION III.

All the means which can be adviſed with any proſpect of ſucceſs, in the treatment of abortions, whether the cauſe conſiſt in the conſtitution or in the *uterus*, may be conſidered as preventative or curative. In either of theſe views we muſt chiefly recur to the conſtitution; as in the firſt caſe, it is the great object of our attention; and in the ſecond, as the principal chance of producing any ſalutary change in the *uterus* is through the medium of the conſtitution, on the improvement of which our ſucceſs muſt ultimately depend. Should a ſeparation of the huſband from his wife's bed be thought neceſſary, it muſt be chiefly ſo about the period above mentioned, unleſs when there have been frequent miſcarriages at any other preciſe time, as that would always require particular attention.

As women with different conſtitutions and different ſtates of health are ſubject to abortion, every mode of treatment muſt be accommodated to the conſtitution of each patient, and to the diſeaſe of which there may be any indication. In plethoric and febrile habits it may be proper, to take away a ſmall quantity of blood, ſoon after the ſuppreſſion of the menſtruous diſcharge, and occaſionally afterwards; to enjoin a ſpare, or even a vegetable diet, and to give cooling medicines; in ſome habits, in which the *uterus* may be ſuppoſed unwilling to diſtend beyond a certain degree, or where the degree of irritability is extreme, to preſcribe opiates in ſmall

ſmall quantities often repeated; and ſometimes tepid bathing. In debilitated and languid conſtitutions, a ſtrengthening diet muſt be allowed, and wine, eſpecially claret, in a larger quantity than ordinary, at ſuch times as the patient may be more ſenſible of depreſſion, or the want of ſupport. Every kind of medicine, which promiſes to give vigour and energy, will alſo be proper, as the cortex cinchonæ in any convenient form, and preparations of iron in the officinal or extemporaneous forms, or mineral waters in ſmall quantities. The ſhower bath, daſhing cold water upon the loins, the cold bath, ſea-bathing eſpecially, are pretty conſtantly recommended for the general purpoſe of improving the health, not only in thoſe who have a diſpoſition to abortion, but in thoſe alſo who are accuſtomed to bring forth dead children, or who are prone to hemorrhages at the time of delivery; and experience has ſhewn, that they may, in many caſes, be continued through the whole time of pregnancy with ſafety and advantage. For the great purpoſe of eſtabliſhing permanent ſtrength in thoſe, who have had long continued ill health, or who are in a habit of meeting with theſe untoward accidents, nothing ſeems better calculated, or is found to be more uſeful, than travelling; not taking a haſty journey, but wandering about by eaſy ſtages, for many months, by which the evils, that appertain to the too refined ſcenes of civiliſed life, are done away, the mind becomes ſoothed and compoſed, and the corporal advantages of a natural ſtate are in ſome meaſure, acquired.

When the health cannot be confirmed, ſo as to enable the conſtitution to bear the common exigencies of life, it has been thought adviſable to remove patients from them, by confining them occaſionally to their houſe, to a floor, or a ſingle room; or even to a horizontal poſition, throughout pregnancy; at leaſt till the period when they were accuſtomed to miſcarry is paſt, and the injunctions in this reſpect muſt accord with the debilitated or irritable ſtate of the patient. Some inſtances of advantage from this method I have

known, particularly in the early part of pregnancy. But if we were to conſider abortions as originally proceeding from weakneſs, or too great a degree of irritability, confinement to a room, or any treatment by which both thoſe evils are likely to be increaſed, ſeems a ſtrange method of preventing miſchief; and from what I have ſeen of the general iſſue of ſuch ſtrict practice, much cannot be ſaid in its favour, the event being uſually deferred, but not hindered. In the management of ſome caſes of this kind, I have thought myſelf entitled to credit, but I muſt alſo acknowledge, that I have been frequently diſappointed; yet from ſome general improvement of the health, or for ſome reaſon, not obvious or eaſy to diſcover, the patient, wearied with the fruitleſs attempts of art, and deſerting all rules, has another time eſcaped the abortion, which I had before in vain attempted to prevent.

With reſpect to that ſtate of the *uterus* itſelf, which may be conſidered as the cauſe of abortion, ſhould there have been any indication from the diſcharges being irregular or profuſe, if they be of the ſanguineous kind; from their quality or degree, if of that kind which paſſes under the general name of weakneſs; it is firſt to be determined, whether they be ſymptoms indicating a certain ſtate of general health, or any morbid diſpoſition of the *uterus*. Should they even be of the latter kind, it is in general only by application to, and improvement of, the conſtitution at large, that we have the power of making any material alteration in the ſtate of the *uterus*. Something may however be done by local applications of various kinds, eſpecially by injections, but their activity muſt not be ſuch as to make too quick an alteration, by ſuppreſſing ſuddenly any kind of diſcharge, to which the part itſelf, or the conſtitution, may have been long accuſtomed. For it muſt be obſerved, that diſagreeable as theſe diſcharges are, their ſudden ſuppreſſion by the uſe of powerful aſtringents, often occaſions very ſerious or dangerous diſeaſes; and ſuch diſcharges ſeem to be really of ſecondary uſe. That is,

if we ſuppoſe a certain ſtate of the *uterus*, the diſcharge may be abſolutely neceſſary for its relief, while it remains in ſuch a ſtate, and the ſtate is to be changed previous to the ſuppreſſion of the diſcharge; elſe, inſtead of removing, we ſhall add to the exiſting diſeaſe, or produce one of a different and worſe kind. In ſuch ſtates of the *uterus* as diſpoſe to abortion, I have ſeldom dared to adviſe any more active application than the Bath or Buxton Waters, which may be injected into the *vagina*, in the interval between the two periods of menſtruation, or even for a longer time. I ſay into the *vagina*, becauſe I do not approve of daily or frequent attempts to introduce any inſtrument within the *os uteri*, on this account, or for the relief of any diſeaſe. It muſt however be mentioned, that ſome have aſſured me, they have adviſed the uſe of aſtringent injections, even thoſe compoſed of *zincum vitriolatum*, and other medicines of that claſs, not only for the cure of weakening diſcharges, but with much advantage alſo in pregnancy, when there was a propenſity to abortion.

SECTION IV.

THE circumſtances attending abortions, and the ſymptoms by which they are threatened or accompanied, are very unlike in different patients, as are indeed all the effects ariſing from uterine diſturbance. But there is generally pain in the back, *abdomen*, and inferior extremities, with a ſenſe of weight and weakneſs in the region of the *uterus*, frequent micturition, and a teneſmus; but the moſt certain ſign of an abortion is a diſcharge of blood, which proves that ſome part of the *ovum* is already looſened from the *uterus*.

When ſuch diſcharge happens during pregnancy, eſpecially at an early

early period, it has been a received opinion, that abortion was inevitable, becauſe it was preſumed, that the ſeparation which it proved could not be repaired. It muſt be allowed, that under ſuch circumſtances there is always too much reaſon, to apprehend an abortion; yet experience has fully ſhewn, that women, who have had not one, but repeated diſcharges, and ſometimes to a profuſe degree, with conſiderable and regular pains, have gone to their full time, without any imperfection in the child, or any detriment to the mother; the pain ceaſing, and the looſened part, by ſome operation beyond human ſkill, having been cemented and re-united to the *uterus*, which I preſume may take place in ten or twelve days after the ceſſation of the diſcharge. There ſeems to be juſt ſo much chance of preventing an abortion, when there has been a diſcharge of blood, as to make it worth while to uſe the common means for that purpoſe, and to keep the patient cool and compoſed, which muſt in ſuch caſes be the general aim, by means ſuited to her conſtitution and any peculiarity in her ſituation.

There is an almoſt endleſs variety in the manner, in which abortion happens. Some women abort with ſharp and long continued pains; others, with little or no pain, the *ovum* gliding out of the *uterus* almoſt imperceptibly; ſome with a profuſe and alarming hemorrhage, others with very little diſcharge. In ſome, the *ovum* has been ſoon and perfectly expelled; in others, after a long time, firſt the child, then the *placenta*, whole, or in ſmall portions, or part of it diſſolved. But whatever other pain or trouble may attend, the hemorrhage is the only immediately alarming ſymptom; I ſay immediately, becauſe every practitioner muſt be convinced, that either abortions occaſion local diſeaſes, or the time of abortion is an era, from which we may date the commencement of ſome dangerous diſeaſes of the *uterus*, or its appendages. It has alſo been imagined, that the ſafety of the patient very much depended upon the complete and ſpeedy expulſion of the *placenta*; and when it was retained,

retained, very active deobſtruent medicines, as they were called, were ſuppoſed to be neceſſary, and ſtrenuouſly given for the purpoſe of expelling it, leſt it ſhould become putrid, and ſome of the putrefied parts be abſorbed into the conſtitution. I believe the whole of this ſuppoſition is groundleſs, having ſeen many inſtances of its being expelled in a very putrid ſtate at different periods of pregnancy, when the patient was in perfect health; and when the patient had a diſeaſe, the putridity of the *placenta* clearly ſeemed the conſequence, not the cauſe, of the diſeaſe. At all events, much leſs miſchief may be expected from the retention of a putrid *placenta*, than from attempts to force it away by the medicines uſually given, or by manual aſſiſtance.

The degree of hemorrhage in abortions is not always in proportion to the period of pregnancy, but it depends upon the difficulty with which the *ovum* may be expelled; ſometimes upon the cauſe, and often upon ſome peculiarity in the conſtitution, as happens in the menſtruous diſcharge.

A notion of there being ſomething myſterious in uterine hemorrhages, different from thoſe from any other part of the body, has been entertained, and ſuppoſed to occaſion the neceſſity of a peculiar treatment. But it is now agreed, that the general principles, which guide us in the treatment of hemorrhages from any other part of the body, are with equal propriety applicable to thoſe from the *uterus*. We muſt however recollect, that in uterine hemorrhages, depending on pregnancy, there is an additional circumſtance, which we are ever to bear in mind; that they are ultimately to be ſuppreſſed by the action of the *uterus*, contracting its cavity into a leſs compaſs, of courſe leſſening the dimenſions of the veſſels, and expelling whatever may be contained in its cavity; and in this view, uterine hemorrhages do certainly differ from thoſe of any other part of the body.

Hemorrhages of all kinds are moderated, or wholly ſtayed, by the formation

formation of *coagula* at the orifices of the open veſſels; or by the contraction of the coats of the veſſels themſelves, by which their orifices are leſſened or cloſed. The latter of theſe effects being ſtronger and more active in arteries than in veins, may be a reaſon for the common obſervation, that hemorrhages from arteries, though in an equal degree, are leſs dangerous than thoſe from veins, in which the power of contraction is wanting. It has been proved by phyſiologiſts, that both theſe effects, that is, the formation of *coagula*, and the contraction of the veſſels, are favoured when the blood circulates moſt ſlowly, as in fainting; not to mention, that the quantity of blood loſt in a given time will depend upon the rapidity or ſlowneſs of the circulation, as well as upon the ſize of the veſſel opened. But in a ſtate of faintneſs, which ſpeedily follows all profuſe hemorrhages, the three effects are produced at the ſame time, the blood circulates more ſlowly, *coagula* are ſooner formed, and the veſſels contract more efficaciouſly. During faintneſs, the advantage ariſing from the contraction of the *uterus* is likewiſe obtained; for this acts, or makes its efforts to act, in ſleep, during faintneſs, and ſometimes even after death. Fainting may then be conſidered as a remedy provided by nature for averting the immediate danger of all hemorrhages, and to prevent their return. Cordials or ſtimulants ſhould not therefore be given to thoſe who are faint from hemorrhages, till by the duration of the faintneſs we conclude there has been ſufficient time to produce thoſe effects, which would prevent a renewal of the hemorrhage, or leſſen its danger, if it ſhould return; and then they are to be given liberally, and repeated as often as the circumſtances may require.

The *materia medica* abounds with articles under the claſs of aſtringents, many of which are given indiſcriminately in hemorrhages and profuſe diſcharges of every kind; nor does much diſtinction ſeem to have been made between thoſe, which were found uſeful in hemorrhages as applications, and thoſe which were given

given internally. It has rather been concluded, that what was found uſeful as an external application, would of courſe be profitable if given internally. It is however clear, that aſtringent medicines, properly ſo called, can have no immediate power of ſtopping hemorrhages from the *uterus*, or any other part of the body, excepting the inteſtinal canal; but that every medicine, which ſlackens the circulation of the blood, becomes eventually an aſtringent. If the patient therefore be plethoric or heated, it may be proper to bleed in an incipient abortion accompanied with an hemorrhage; though if ſhe be reduced to a ſtate of great weakneſs, that operation would be uſeleſs and improper. The ſaline draughts with nitre, or nitre alone; or acids mineral or vegetable, may be given as frequently and in as large a quantity as the ſtomach can bear. Even the nauſea, which theſe and other medicines ſometimes produce, has, by no forced conſtruction, been conſidered as an artificial imitation of faintneſs, and found ſerviceable, and medicines have been given expreſsly for this purpoſe; the ſafeſt perhaps, and not leaſt effectual, of which is *ipecacuanha*, in ſmall quantities, often repeated, ſo as to keep up a perpetual nauſea. Oil of *turpentine* and the *ceruſſa acetata* in proper doſes have been recommended, and certainly are very powerful medicines in hemorrhages, but they ſeem better ſuited to thoſe which are habitual or of long continuance, than to thoſe which are inſtantly profuſe and dangerous. When the diſcharge is profuſe, cloths wet in cold vinegar may be applied to the *abdomen* and loins, and changed when they grow warm. In *Italy* and other hot countries, and ſometimes in this, it is a cuſtom to ſprinkle ice cruſhed into ſmall pieces over the body of the patient, who muſt alſo be expoſed to and ſuffered to breathe the cold air. On the ſame principle clyſters of cold water have been adviſed. In ſhort, every application and medicine, actually or potentially cold, the coldeſt water, even ice itſelf, if it can be procured, may be given

and repeated with probable advantage, when the exigency of theſe caſes requires very powerful aſſiſtance.

Injections of cold or aſtringent fluids into the *vagina* have been recommended, as being of great ſervice for the ſuppreſſion of uterine hemorrhages. If we attempt to throw up the injections when the blood is flowing in a full torrent, they will be immediately rejected; and if they be uſed with the view of preventing a return of the hemorrhage, which has already ceaſed, it is rather to be expected, by waſhing away the *coagula* formed and applied to the orifices of the veſſels, that they would occaſion it. The principal good, that can be derived from them, probably is by their action upon the internal parts as a cold application, and in this view ice has been introduced into the *vagina*. Leſs objection may perhaps be made, and equal or rather greater advantage will attend the introduction of lint, or any ſoft ſubſtance, moiſtened with ſpirit of wine or any aſtringent liquor into the *vagina*, which may ſerve the purpoſe of forming *coagula*, and applying them to the orifices of the opened veſſels. But I have generally been ſatisfied with the application of a cloth wet with cold vinegar to the external parts, with ſo firm a preſſure, that the ſtream of blood ſhould be inſtantly retarded or ſtopped. This might have been originally done inſtinctively, to remove the immediate dread of the hemorrhage, and to give me a little time to reflect and determine how I ſhould proceed; but being perſuaded that this is of real utility, it is a cuſtom with me to do it, in the firſt inſtance, in every alarming or dangerous hemorrhage.

Opiates have been generally recommended as of principal efficacy for the prevention of abortions, and in all caſes of uterine hemorrhage; but I ſeldom uſe them in the latter ſituation, unleſs with a view of moderating any unuſual degree of pain, or of quieting ſome tumult which preceded, attended, or followed the accident, and then in moderate doſes repeated according to the urgency of the caſe; having

having reaſoned myſelf into an opinion that they do not, in theſe caſes, deſerve the high commendation which has been given them. Some pain is unavoidable and neceſſary, for the excluſion of the *ovum* out of the cavity of the *uterus*, whenever we have given up the hope of preventing abortion. The degree of pain proves the degree of action raiſed for the purpoſe, and we ſhould conſider how far by leſſening the pain we may leſſen the action, and by leſſening that action, by which the *ovum* would be expelled, whether we contribute to the ſuppreſſion or continuance of the hemorrhage, or to the more regular conduct of the abortion.

It was ſaid, that no manual aſſiſtance was required in the management of abortions, and no rule can be more generally true; yet there are ſome exceptions. When, for inſtance, a woman who is miſcarrying, with a conſiderable, or an apparently dangerous hemorrhage, is ſo far advanced in her pregnancy, that it may be difficult to decide whether we ſhould deem it an abortion or a premature labour; it may not be ſafe to rely upon the uſe of thoſe means which were adviſed for hemorrhages in general, and yet the operation of delivering would be extremely difficult and hazardous. We may then determine upon an intermediate method, which is to break the membranes. By the diſcharge of the waters of the *ovum*, which neceſſarily follows, the diſtention of the *uterus* is leſſened, of courſe the ſize of the open blood veſſels, by which the diſcharge had been made, is diminiſhed, and the hemorrhage is abated or ſuppreſſed. In conſequence alſo of the diſcharge of the waters, the *uterus* acquires a diſpoſition to act, and an ability to act with more energy, and the whole buſineſs is ſooner completed. At a more early period of pregnancy, when the hemorrhage is profuſe, liable to return, or of long continuance, on examination *per vaginam*, not otherwiſe thought neceſſary, the *ovum* will ſometimes be found hanging in the *os uteri*, half or more of it voided out of the cavity of the *uterus*, yet enough remaining to keep up the hemorrhage.

Then, by a little motion or ſlight impulſe in different directions, it will ſometimes be cleared of the *os uteri*, and drop into the *vagina*. But great caution is to be uſed in this operation, for if it be done with violence, it may occaſion an increaſe of the hemorrhage, or be a cauſe of future miſchief.

In abortions, dreadful and alarming as they ſometimes are, it is a great comfort to know, that they are almoſt univerſally void of danger, either from the hemorrhage, or on any other account. It is perhaps impoſſible to explain it, but the fact is undoubtedly true, that an equal loſs of blood, and with apparently equal effects, ſhould, in abortions, if properly managed, and the patient be in good health when they take place, not occaſion any danger; and yet at the full period of uterogeſtation be ſo dangerous, that one conſiders the patient who recovers as having a lucky eſcape. It is wonderful alſo to obſerve, how ſome women recover from the debility occaſioned by hemorrhages in abortions; and how long a time is often required for their recovery after the ſame circumſtance in advanced pregnancy. But though I reckon there is little or no danger from mere abortion, yet when the accident is in conſequence of acute diſeaſes, there is often extreme danger; for women abort becauſe they are already in great danger, and this is aggravated by the abortion. Without a more accurate diſtinction we may ſtill form an erroneous prognoſtic. It has been ſaid, for example, that women who miſcarry, or are delivered at the time of their having the ſmall-pox, univerſally die. Now if a pregnant woman ſhould, at any period of pregnancy, expel her child in the commencement of that diſeaſe, perhaps from the violence of the eruptive fever, ſhe may not only eſcape the danger, but go through the diſeaſe with as much regularity, as if ſhe had not miſcarried. But if that period of the diſeaſe be paſſed without abortion, and the patient ſhould go on to the time of the criſis, and then miſcarry, the general prognoſtic will be too true; at leaſt the death of the patient has followed in

every caſe of this kind which I have ſeen. But ſince the firſt publication of theſe obſervations I have been informed of two caſes of early abortion, which have proved fatal. In the firſt, the patient became paralytic immediately after the hemorrhage; but the death of the ſecond, though ſhe was only in the ſeventh week of her pregnancy, ſeemed to be occaſioned merely by the hemorrhage, or more probably by a convulſion.

SECTION V.

UNDER this head will be included all the hemorrhages which occur in the three laſt months of pregnancy, becauſe, from the danger with which they are attended, they require, and from the ſituation of the patient, they allow of a ſimilar treatment when required, though not with equal facility. Theſe hemorrhages are occaſioned, 1ſt. by the attachment of the *placenta* over the *os uteri*; and this is diſcovered by our being able to feel in a common examination only a fleſhy ſubſtance, without any part of the membranes: 2d. by a ſeparation of a part, or of the whole *placenta*, which had been attached to any other part of the *uterus*, and this is known by our being able to diſtinguiſh the membranes without any fleſhy ſubſtance. This ſeparation may be cauſed either by the approach of labour, dilating the *os uteri*, and of courſe ſeparating, in proportion to the degree of dilatation, the *placenta*; or by accidental violence, or by ſome morbid affection of the *uterus* or *placenta*, and it ſometimes happens without our being able to aſſign any cauſe, equal to the ſuddenneſs and violence of the effect produced.

Hemorrhages ariſing from the firſt cauſe have been conſidered, and generally are more dangerous than thoſe from the ſecond; but theſe have nevertheleſs ſometimes proved fatal. Hence in the eſtimate

eſtimate of the danger of uterine hemorrhages at the time of labour, it is neceſſary not only to diſcover the cauſe, and to regard the quantity of blood loſt, but, above all other conſiderations, to attend to the effect produced, which is infinitely greater in one conſtitution than in another, and varies in all. If any individual patient therefore be brought into a ſtate of danger by the loſs of blood, great or ſmall, it ſeems incumbent upon us to put in practice all the means in our power for the removal of the danger. For any judgment formed upon the quantity of blood really or apparently diſcharged, will be liable to great errors, as concealment or accident may deceive us; not to mention that caſes ſometimes occur, in which there may be a greater quantity of blood loſt, than can be known, either by its being locked up in the *uterus* beyond the child, when the membranes are broken, or by being effuſed into the *ovum*, when that has an appearance of being whole. This obſervation, of the neceſſity of judging principally by the effect of the loſs of blood, deſerves the moſt ſerious reflection, becauſe, the *time when* we are to execute what reaſon dictates, or experience authorizes us to do, will chiefly depend upon it. It is alſo of great importance to recollect, that thoſe hemorrhages are far more dangerous, in which an equal quantity of blood is loſt ſuddenly, or in a ſhort ſpace of time, than if it flows away ſlowly. The immediate injury to the conſtitution is greater in the former caſe, the veſſels requiring ſome time to enable them to be accommodated to the quantity of blood remaining in them, in order to carry on the circulation. A great and ſudden loſs of blood alſo creates a ſuſpicion that the return of the hemorrhage is to be much dreaded, becauſe if it ſhould be equally profuſe with that which has already happened, it may occaſion the death of the patient, before we have time to put in practice, or reap the advantage, of what we ſuppoſe to be the only method of removing the danger.

In hemorrhages the danger is indicated by the weakneſs and quickneſs

quickneſs of the pulſe, or by its becoming and continuing imperceptible; by a general paleneſs and coldneſs of the body, and by a ghaſtly countenance; by inquietude, or by continual faintings; by a high and laborious reſpiration, and by convulſions. The two laſt are uſually mortal ſymptoms; yet when patients are reduced to a certain ſtate of weakneſs, they are liable to hyſteric affections reſembling convulſions, that are equally alarming, but by no means ſo dangerous.

When patients have ſuffered much from loſs of blood, they will often have a ſudden and violent fit of vomiting; and ſometimes under circumſtances of ſuch extreme debility, that I have ſhrunk with apprehenſion, leſt they ſhould have been deſtroyed by a return or increaſe of the hemorrhage, which I concluded was inevitable after ſo violent an effort. But there is no reaſon for this apprehenſion; for though the vomiting may be conſidered as a proof of the injury which the conſtitution has ſuffered by the hemorrhage, yet the action of vomiting contributes to its ſuppreſſion, and to the immediate relief of the patient; perhaps by ſome revulſion, and certainly by exciting a more vigorous action of the remaining powers of the conſtitution, as is proved by the amendment of the pulſe, and of all other appearances immediately after the vomiting.

A tolerably juſt opinion may be formed of the danger of uterine hemorrhages, in advanced pregnancy, by the pain with which they are attended. An equal hemorrhage without pain, is always more dangerous than if the pain be regular and acute, and the danger is leſſened as the pain increaſes. In the moſt dangerous hemorrhages, there is no pain whatever, or none of conſequence, and patients have often died, or been brought into the moſt imminent danger, that is, into ſituations from which it was ſcarcely poſſible for them to recover, whilſt the practitioner was waiting for the acceſſion of the pains of labour. The reaſon was before mentioned. The pain proves the degree of the action of the *uterus*, and the

action

action of the *uterus* proves that the powers of the conſtitution are not exhauſted. In very bad caſes there is before delivery an effort in the *uterus* to act, juſt ſufficient to cauſe a renewal of the hemorrhage; but immediately upon the diſcharge of a guſh of blood, the effort, together with the little pain attending, ceaſes; and in this manner patients would ſometimes proceed to the moment of their death, unleſs they were relieved by art.

SECTION VI.

Those hemorrhages, which are occaſioned by the attachment of the *placenta* over the *os uteri*, are firſt to be conſidered, becauſe they are attended with the greateſt danger, and becauſe ſome part of their treatment will apply in the other caſes to be deſcribed.

Though the *placenta* be attached over the *os uteri*, the woman uſually goes through the early part of her pregnancy without any inconvenience, or any ſymptom, at leaſt, which denotes that circumſtance. But when the *cervix* of the *uterus* is diſtended to a certain degree, or when the changes previous to labour come on, there muſt be a hemorrhage, becauſe ſuch diſtention, or change, will neceſſarily ſeparate a part of the *placenta*. This hemorrhage is often, but not always, in proportion to the ſpace of the *placenta* attached over the *os uteri*, or to the quantity ſeparated, for women have ſometimes been in as great danger when the mere edge of the *placenta* was fixed upon the *os uteri*, as if the middle had been placed over it.

When hemorrhages from this cauſe once come on, though all women without proper aſſiſtance would not die, they are never free from poſſible danger, till they are delivered. As there is a very doubtful chance of the accompliſhment of the delivery by the pains

pains of labour, and as experience has fully proved the inſufficiency of all other methods, intended to ſuppreſs the hemorrhage, and how little reliance ought to be placed on them, though they are always to be tried; it is a practice, eſtabliſhed by high and multiplied authority, and ſanctioned by ſucceſs, to deliver women by art, in all caſes of dangerous hemorrhage, without confiding in the reſources of the conſtitution *. This practice is no longer a matter of partial opinion, on the propriety of which we may think ourſelves at liberty to debate; it has for near two centuries met the conſent and approbation of every practitioner of judgment and reputation, in this and many other countries.

There is much comfort in knowing and poſſeſſing a remedy, to which we can recur, with a more than equal chance of ſucceſs, in any caſe of great and imminent danger. But though it ſhould be allowed, that the artificial delivery of the patient, in every caſe of dangerous hemorrhage, in advanced pregnancy, is expedient and neceſſary for the preſervation of the life of the patient; and though the practitioner, who ſhould neglect it, would be very reprehenſible; yet that neceſſity, preſuming it to ariſe ſolely from the loſs of blood, or that expediency, which conſtitutes the authority for the operation, and which is now clear and diſtinct to another, may not appear to me. Beſides, ſhould the neceſſity be acknowledged, and the practice approved, there may be much diſpute and difference of opinion about the *time when* the operation ought to be performed.

It would be of great advantage in practice, if ſome mark were diſcovered, or ſome ſymptom obſerved, which would indicate the preciſe time when women with hemorrhages of this kind ought to be delivered. But though we do not at preſent know any ſuch mark or ſymptom, and the determination of the time is to be made by

* See *Mauriceau*, and almoſt every ſucceeding writer.

the judgment of each individual practitioner, we may be permitted to ſtate what we do know in the moſt convincing point of view.

Admitting then, in the firſt place, that women having uterine hemorrhages from this cauſe, in advanced pregnancy, are not in ſafety till they are delivered; that the natural efforts are generally unequal to the expulſion of the child; that the hemorrhage can only be ſtayed by the evacuation of the contents of the *uterus*, giving an opportunity to the veſſels to contract and to cloſe; that theſe ſalutary effects may be produced as certainly by an artificial extraction, as by a natural expulſion of the child; and if it be moreover true, that the operation, though performed before it is abſolutely neceſſary, is not attended with danger, if it be performed in a proper manner, and with due care; but that if the operation be delayed beyond the proper time, it will not anſwer the purpoſe for which it is recommended; we may from theſe premiſes conclude, that a woman under the circumſtance of dangerous hemorrhage ought to be delivered by art, if the natural efforts be unequal to the expulſion of the child; that it is better to deliver too ſoon, than to delay the delivery a moment too long; and that in every caſe of doubt, it is a proof of wiſdom to decide, and determine upon ſpeedy delivery.

If however we were certain that the *placenta* was attached over the *os uteri*, it would ſeldom be neceſſary to deliver women on the firſt appearance of the hemorrhage; yet that will be ſufficient to awaken our apprehenſions, and ſet us upon our guard. Nor does it often happen that a ſecond or even a third diſcharge obliges us to proceed to deliver immediately: becauſe each return may not be in ſuch a quantity, as by its violence or continuance to endanger the life of the patient, or very much to reduce her ſtrength; and ſuch an interval may paſs between the returns, as to give time and opportunity for repairing the miſchief done by one loſs of blood, before the return of another. Nor is delivery by art neceſſary, or uſually

proper,

proper, when the hemorrhage is abating. There are caſes however, in which the quantity of blood loſt, the ſuddenneſs of the diſcharge, and the effect produced, are ſuch with one hemorrhage, as to make it evidently unſafe to truſt a return; and whenever the countenance, and other appearances, indicate, that the conſtitution is much impaired, by repeated, though not profuſe diſcharges, the ſtrength is undermined, and danger creeps on certainly, though inſidiouſly. For we may preſume, that every conſtitution is capable of bearing the loſs of a certain quantity of blood, without the inſtantaneous hazard of life, and this will depend upon the general ſtate of the body. Now the body may be reduced to ſuch a ſtate, that there is barely a ſufficient quantity of blood, or of powers, to carry on the buſineſs of life, upon a very nice balance; and of courſe the additional loſs of a ſmall quantity may altogether deſtroy the power of living, and the patient die of the hemorrhage, though the quantity of blood which ſhall immediately precede her death may be ſmall; but unfortunately ſhe was able to bear the loſs of none. We ſhould therefore, though careful not to act raſhly and unadviſedly, not only be on our guard againſt the effect of rapid and profuſe diſcharges, but againſt thoſe which are productive of as much danger, on account of their returns, though leſs in degree at any one time; we ſhould ever call to mind the poſſible evil of delay, and recollect that there is little danger in a premature delivery, if the operation be performed with prudence.

Thoſe who are young in practice, or of timid and anxious diſpoſitions, often ſuffer much ſolicitude from the apprehenſion of danger, when it does not exiſt in theſe caſes, which, for many reaſons, I conſider as highly proper for a conſultation, when it can be procured.

In ſome caſes, in which it has been preſumed to be neceſſary to deliver the patient on account of the hemorrhage, the parts have been in ſuch a ſtate, that the operation could not, it was thought,

be performed with ſafety. Whenever the caſe demands the operation, on account of the danger of the hemorrhage, the ſtate of the parts will always allow it to be performed with ſafety, though not with equal facility; and though it may often be neceſſary to determine ſpeedily upon the propriety of the operation, this ſhould never be performed raſhly, but always with the utmoſt deliberation and ſlowneſs, even though it might admit of haſte. For in hemorrhages a woman may periſh from two errors in practice; from delaying the operation too long, and from the rude, violent, or improper manner, in which it may be performed.

Sufficient notice hath been taken of the danger of precipitating, as well as that of delaying the delivery, in caſes of hemorrhage. With reſpect to the operation, the firſt part, that is, as far as relates to the poſition of the patient, the introduction of the hand, and the dilatation of the *os uteri*, has been already deſcribed under preternatural preſentations. When the *os uteri* is with great caution ſufficiently dilated, to allow of the ready admiſſion of the hand, and we come to the *placenta* attached over it, it is of no conſequence whether we begin to ſeparate this till we come to an edge, and go up on the outſide of the membranes, which may be ruptured at pleaſure; or whether we perforate the ſubſtance of the *placenta*, and conduct the hand directly into the *ovum*, though by the latter method there is rather more danger of loſing the child. In either caſe, without regard to the poſition of the child, we muſt proceed to and lay hold of its feet, carefully diſtinguiſhing that they are the feet, before we begin to extract them. Immediately on our beginning to withdraw the hand, which ſhould be done with a ſlow waving motion, the waters of the *ovum* flow away; and while they are flowing, we muſt withdraw the hand, graſping the feet of the child, till by ſlow degrees theſe are brought into the *vagina*. We are afterwards to wait till the *uterus* contracts, and then gently bring the feet through the external parts. It is not improbable but we

may then have the power of finiſhing the operation very ſpeedily; but though the child were extracted, if the *uterus* did not act, and, as it were, follow the child, as there would be a chance of the hemorrhage returning, the child ſhould be withdrawn according to the degree of the contraction of the *uterus*, which will be known either by the application of the hand to the *abdomen*, or by the pain. Nor is there any occaſion at this time for hurrying the delivery, as the hemorrhage uſually ceaſes as ſoon as the child is turned, in conſequence of the compreſſion made upon the orifices of the veſſels, by the inferior parts of the child, as well as by the contraction of the *uterus*. If the labour-pains be at all efficient at this time, it would be proper to leave the breech of the child to be expelled by them; but if they be not ſufficiently ſtrong for this purpoſe, aſſiſtance muſt be given, gently extracting by the feet only during the continuance of a pain, not with force ſufficient to bring it away, but with the view of aiding the feeble power exerted by the pains, imitating alſo the pains in the manner of extracting. When the breech of the child has paſſed through the external parts, the delivery muſt be haſtened, as there is then danger of the child being deſtroyed by the preſſure upon the *funis*. Yet under ſuch circumſtances there is often a better chance of preſerving the child, by leaving it to be wholly, or in a great meaſure expelled, than by extracting it with violence, as hath been before obſerved.

When the child is born, if the operation were ſlowly performed, there is not uſually any continuance or return of the hemorrhage, unleſs from the blood previouſly diſcharged, and locked up behind the body of the child; but if the hemorrhage ſhould return, the caſe muſt be managed, as will be recommended, when we ſpeak of a hemorrhage with a retained *placenta*. If there be no hemorrhage, and the *placenta* be retained, we muſt be particularly cautious not to hurry it away; but in theſe caſes it is commonly expelled with great eaſe, and we have leſs occaſion to be ſolicitous, becauſe from the

the part where it was originally attached, it more readily admits of aſſiſtance if required.

Should nothing uncommon happen in the delivery, children will often be born alive, in caſes of hemorrhage, which were extremely dangerous to the mother; and there have been many inſtances in which the delivery being too long delayed, a living child has been extracted, after her death. In all caſes of danger, theſe in particular, the ſafety of the parent, and the preſervation of the child, are events which give inexpreſſible ſatisfaction, and adorn the reputation of the practitioner.

SECTION VII.

It was before obſerved, that thoſe hemorrhages which are occaſioned by the ſeparation of a portion or of the whole *placenta*, originally attached to any part of the *uterus*, except the *os uteri*, were not generally ſo dangerous as thoſe laſt deſcribed. But if the ſeparation be extenſive and ſudden, they will be equally alarming, the real danger may be as great, and the ſame method of proceeding, that is, ſpeedy delivery by art, may, though not ſo generally, be required. The ſeparation may be occaſioned by great violence from external accidents in the latter part of pregnancy; or in ſome intenſe fit of fainting or of laughter; and ſometimes the whole or a very large part of the *placenta* will be ſeparated ſuddenly, without any accident or ſymptom which could give warning or apprehenſion, that ſuch an event was to be dreaded. The ſeparation of the *placenta* may then happen previouſly to the commencement, and it is not ſurpriſing that it ſhould ſometimes occur during any period, or ſtage, of labour.

When ſudden and violent diſcharges of blood happen to women with

with child, in advanced pregnancy, from external accidents, if the patient be kept in a cool and compoſed ſtate, the diſcharge may ceaſe, and without any return, the patient may go on to her full time, and be delivered by her natural pains, as if no ſuch accident had happened; though the child will often be ſtillborn. Sometimes however the hemorrhage will return, or it may commence in any ſtage of a labour, and our conduct muſt be regulated by the degree and probable conſequences of it, and by the ſtate of the labour when it is firſt diſcovered.

If any conſiderable hemorrhage ſhould come on in the beginning of a labour, or previous to it, and if the treatment muſt in any meaſure depend upon the cauſe, it is neceſſary in the firſt place that we ſhould decide whether the *placenta* be attached over the *os uteri*, or be caſually ſeparated. Before there is ſome degree of dilatation of the *os uteri*, be the diſcharge ever ſo profuſe, and it may even at this time be exceſſive, I do not know that it is always poſſible to tell with certainty whether the *placenta* preſent or not. It may indeed be conjectured, that the *placenta* is there attached, by the cuſhion-like feel of the *cervix* and lower parts of the *uterus*; and when the *os uteri* is ſomewhat dilated, inſtead of the membranes, the fleſhy ſubſtance of the *placenta* may be diſtinguiſhed. Yet every practitioner knows how very different the ſtate of theſe parts is in the beginning of labour, and how difficult it muſt be to diſtinguiſh between a firm *coagulum* of blood and the *placenta*; not to mention that ſo ſmall a part of the *placenta* may be attached over the *os uteri*, that unleſs we could paſs the finger completely round the circle, which is ſometimes almoſt impoſſible, it could not be diſcovered. Taking therefore into conſideration all the varieties occaſioned by either of the cauſes of hemorrhage, and knowing that neither the performance of the operation, nor the event, is materially different, whatever may be the cauſe, provided the diſ-

charge

charge and its effect are equal, we muſt be careful, that we are not deceived by attempts to make too nice diſtinctions *.

From a caſual or ſpontaneous ſeparation of the *placenta*, not attached over the *os uteri*, a hemorrhage may happen in the beginning of labour, when the *os uteri*, for example, is not in any degree dilated; or when it is dilated to a third or half its extent, or any other degree. If the diſcharge ſhould be ſo great as to require ſome preſent meaſures for the relief of the patient, the methods before adviſed muſt be put in practice, and the common aſſiſtance for promoting the dilatation muſt be given, till we can feel diſtinctly the membranes of the *ovum*, which are to be ruptured. By the diſcharge of the waters the diſtention of the *uterus* will be leſſened, the ſize of the blood-veſſels of courſe diminiſhed, and the hemorrhage in general immediately removed or very much abated. By the ſuppreſſion or abatement of the hemorrhage, the action of the *uterus* will be rendered ſtronger, and the delivery often completed in a ſhort ſpace of time without farther aſſiſtance, eſpecially if the patient have before had children.

In every caſe of dangerous or conſiderable hemorrhage, when we can diſtinguiſh the membranes, it therefore ſeems to be right and juſtifiable to puncture or rupture them, and to diſcharge the waters.

But if the hemorrhage ſhould come on in the ſecond ſtage of the labour, that is, after the full dilatation of the *os uteri*, and the rupture of the membranes, when the child's head has entered and in part deſcended into the *pelvis*; if the diſcharge be of ſufficient importance either to prevent the action of the *uterus*, or to bring the life of the patient into hazard, by its violence or continuance; then the aſſiſtance given muſt depend upon the progreſs which the labour

* See an Eſſay on this ſubject written by Mr. *Rigby*, an able and experienced ſurgeon at Norwich.

has

has made, and the ſituation of the child, whether it ſhall be turned, as in preternatural preſentations, or delivered with the *forceps* or *veſtis*; or when neither of theſe is practicable, and the exigency of the caſe juſtifies the operation, by leſſening the head of the child; that is, the life of the parent muſt at all events, if poſſible, be preſerved; but ſuch caſes are rare, and always require accuracy of judgment, and the greateſt circumſpection.

Hemorrhages of this kind are alſo ſometimes combined with preternatural preſentations of the child. Then little more will be required, than what may be neceſſary on account of the preſentation, except that it be ſooner decided, and more ſpeedily performed; remembering ever, that all operations in midwifery are intended to remove, leſſen, or prevent natural or adventitious danger, and not to add to that which before exiſted.

This method of proceeding, that of accelerating the labour by breaking the membranes, recommended in this kind of hemorrhage, ſeldom fails to anſwer the intention of moderating or ſuppreſſing the diſcharge, and of promoting the labour in ſuch a manner, as to remove the danger. The only inconvenience to be apprehended is, that if the hemorrhage ſhould continue in ſuch a degree, as to occaſion the neceſſity of artificial delivery, the operation would be rendered more difficult on account of the previous diſcharge of the waters. But in reply to this objection it may be obſerved, that if the *uterus* ſhould contract round the body of the child, with ſo much force as to prevent the introduction of the hand to turn the child with facility, that it will probably be expelled without any farther aſſiſtance, if we wait patiently for the return of the pains, which we may ſafely do when the hemorrhage is ſtayed, or very much abated. But if in common caſes there be not ſufficient force exerted by the *uterus* for the expulſion of the child, then there will be no great difficulty in paſſing the hand into the *uterus*. It muſt

however be acknowledged, that this is ſometimes amongſt the caſes, for which no preciſe rule can be laid down, and in which the practitioner muſt act according to his own eſtimate of the danger and difficulty.

SECTION VIII.

It is often a mortifying reflection, whilſt we are conducting a patient through a labour rendered uncommonly tedious by the inactivity or irregular action of the *uterus*, that we can foreſee after the birth of the child an unfavourable ſeparation of the *placenta*, which cannot be prevented. All that art has dictated to be done in this caſe is, to ſuffer the body of the child to be wholly expelled by the action of the *uterus*, after the head is born; or in ſome caſes rather to retard its final expulſion, than to uſe any force or hurry in extracting it, by which proceeding the lower parts of the cavity of the *uterus* will be reſtrained from cloſing before the *fundus* aſſumes its proper ſhare of action. Yet no method, nor any dexterity will be ſufficient in all caſes to prevent, after the birth of the child, a troubleſome, and ſometimes a dangerous hemorrhage; the proper management of which often requires as acute an intelligence, and as determined a conduct, as any circumſtance which relates to the birth of the child. As the powers of the *uterus* or of the conſtitution are ſometimes not exerted, or fail to anſwer the purpoſe, and as no woman can be properly or ſafely left till the *placenta* is excluded, it is neceſſary to conſider this ſubject in a full and explicit manner.

From a review of what has been ſaid on the management of the *placenta* by *Hippocrates*, or in the writings contained in his works, it does not appear to have been the general cuſtom, to divide the *funis* before the *placenta* was expelled; that if this were retained beyond

yond the common time, no means, or but very gentle ones, were uſed for the purpoſe of bringing it away; and in caſes of its retention, it was uſual to introduce medicated ſubſtances into the *vagina*, and to give hyſteric medicines for the purpoſe of favouring its expulſion, which might happen on the fourth or fifth day, when it was in a putrid ſtate. The introduction of the hand into the *uterus*, for the purpoſe of bringing away a retained *placenta*, had not been adviſed or come into conſideration, and ſuch caſes would probably very ſeldom occur. Whether this practice were gradually altered, or another haſtily aſſumed, it is impoſſible to ſay; but it is extraordinary, that *Celſus* *, without expecting or relying upon the natural efforts made to eject the *placenta*, of which he ſeems indeed to have had an imperfect knowledge, ſhould have directed the practitioner to introduce his hand into the *uterus*, immediately after the birth of the child, to bring the *placenta* away, together with any *coagula*, which might have been formed in the cavity of the *uterus*. Theſe two contrary methods have, in different times and countries, been adopted and recommended by ſucceeding writers; but unfortunately, the practice of *Celſus* prevailed more univerſally. The Arabians, though fond of the ſtudy of medicine, ſeem rather to have preſerved, than improved or extended the learning which they gained, when they plundered the eaſtern part of the Roman Empire. But in the fifteenth century, which may be conſidered as

* Medicus deinde ſiniſtra manu, leniter trahere umbilicum ita, ne abrumpat, dextraque eum ſequi uſque ad eas, quas ſecundas vocant, quod velamentum infantis intus fuit: hiſque ultimis apprehenſis, venulas membranulaſque omnes, eadem ratione manu diducere a vulva, totumque illud extrahere, et, ſi quid intus præterea concreti ſanguinis remanet. CELSUS, Lib. vii. Cap. xxix.

I may be permitted to obſerve, that many of the popular opinions, on medical ſubjects, are *now* the ſame in this country, as thoſe entertained by the Roman writers. It is probable, that they were firſt introduced by thoſe phyſicians and ſurgeons who attended the Roman army in Britain, and not acquired by the ſtudy of their writings.

the era of the revival of learning, *Paré* publiſhed, among many valuable works, obſervations on the practice of midwifery, under the title, of the Generation of Man. *Paré* *, who had an underſtanding to ſee, and to profit by the errors of others, ſeems deſirous of avoiding all extremes; for with an injunction not to leave the *placenta* behind, he recommends, in ſtrong and repeated terms, the neceſſity of extreme caution, not to uſe violence, leſt we would invert, or do other injury to the *uterus*; and there is no doubt, but the opinion of ſo eminent a man muſt have had its influence upon the practice and writings of others, particularly of thoſe of his own country. In the latter end of the laſt, and the beginning of this century, *Ruyſch* was in high reputation as an anatomiſt at *Amſterdam*, and he was empowered by the magiſtrates to inſpect and regulate the practice of midwifery throughout that city. *Ruyſch* had great induſtry and abilities; and his purſuits in anatomy, and his office, as preſident of the Obſtetric College, leading him to the knowledge of many bad conſequences, which followed the common method of managing the *placenta*, particularly the inverſion of the *uterus*, he laboured the point with great knowledge and ingenuity in many parts of his works; diſcountenanced the practice, and forbad the *placenta* to be extracted haſtily, chooſing clearly to run the hazard of the evils, which might follow the imperfections of nature, rather than of thoſe which would be incurred by the harſh and violent methods then in uſe †. For many years after the time of *Ruyſch*,

* Not having the French edition of *Paré*, I tranſcribe the following from the Latin tranſlation. *Molli* ſi fieri poteſt umbilici tractu; quod ſi ſic non licet, obſtetrix oleo inunctum manum, *blande* in uterum immittat, ducem ſecuta umbilicum, ſicque comprehenſas, ſi adhuc hæreant utero, *leniter* hac et illac concutiat, et ſic concuſſas, *leniter* extrahat; *non autem violentius* educat, ne unà ſequens uterus procidat.

† Prudentius ergo relinquere placentam, donec natura hanc ſeparat, aut donec laxata, magiſque libera, manu evellere hanc detur, quam lethali feſtinatione occidere ægram. Putetne

Ruyſch, the practice of *Celſus* was followed in this country, by ſome even down to this time, but not univerſally; for in a large manuſcript, written on the ſubject of midwifery by Dr. *Percival Willoughby*, Phyſician at *Derby*, in the time of the Civil War, a copy of which came into my poſſeſſion by the kindneſs of my very able and intelligent friend, Dr. *Kirkland*, there is this obſervation: *the afterbirthe oft cometh of itſelfe, yet it is not amiſſe to aſſiſt nature for the producing of it. There bee ſome midwiues, that* never *offer to fetch the after-birthe, but ſuffer nature to expell it, and their women have done well.* The practice of extracting the *placenta*, immediately after the birth of the child, was nevertheleſs common in this country, which I am certain muſt often have produced both much immediate and future miſchief. It was taught in the ſecond ſchool of midwifery eſtabliſhed in *London* by *Chapman* in 1733; by Sir *Richard Manningham*, in the public eſtabliſhment ſet on foot for the purpoſe of teaching midwifery, in the *St. James's* Infirmary, in the year 1738; and by *Smellie*, who I think came to *London* in the year 1742. Soon after this time, in 1746, Dr. *William Hunter* began to give lectures in anatomy; as an appendage to which, he added a certain number of lectures on the anatomy and phyſiology of the gravid *uterus*, interſperſed with many practical obſervations. With a mind compoſed and finely turned for obſervation, with a judgment exceedingly correct, and with unwearied application, Dr. *Hunter* ſoon acquired very high and deſerved reputation; and the great character he eſtabliſhed in the practice of midwifery, for which his perſon and manners were admirably well calculated, and in which

Putetne quis, boni quid contigiſſe trucidatæ mulieri, quod mortua ſit ſine placenta? Quæ cum illa poterat viviſſe! RUYSCH. Adverſ. Anat. Dec. Secunda.—Some allowance is to be made for the arguments of *Ruyſch*, which were intended to overſet the bad practice of his time. For if the *placenta* were to be left entirely to nature in all caſes, there would not be wanting many examples of miſchief and fatal conſequences from the very method which he recommends.

he was ſoon and very much engaged, gave a more than uſual authority to what he advanced on the ſubject. * Being an aſſociate with Dr. *Sandys* for the care of the lying-in department in the *Middleſex* Hoſpital, he propoſed to Dr. *Sandys*, that they ſhould try the event of leaving the *placenta* to be expelled by the action of the *uterus*, without attempting to give any aſſiſtance. After much conſideration and ſome delay, from the dread of cenſure, they agreed upon the trial; and in the firſt inſtance, the *placenta* remained twenty-four hours. No ill conſequence however followed; and the trials being repeated with ſucceſs, it became a very frequent, and almoſt general rule, to leave the *placenta* to be expelled without any aſſiſtance. Several untoward and ſome fatal accidents having followed this practice, it was altered; at leaſt it became neceſſary to admit many exceptions; and after a variety of changes and obſervations, I believe we are at length arrived at a ſtate of practice, with regard to the management of the *placenta*, that will with difficulty be improved; a practice founded on common ſenſe and obſervation, that the *placenta* ought to be, and is generally expelled by the action of the *uterus*, in the ſame manner as the child; feeling ourſelves at liberty, and called upon to aſſiſt, only, when this action is not equal to the purpoſe, or when a hemorrhage or other dangerous circumſtances demand our aſſiſtance.

SECTION IX.

In the courſe of ten or twenty minutes, or a longer time, after the birth of the child, ſooner or later, according to the condition of the patient at the time of her delivery, the action of the *uterus*

* This account I had from Dr. *Hunter* himſelf.

returns

returns for the purpoſe of expelling the *placenta* and membranes, which collectively have the common name of ſecundines, or *after-birth.* This action is indicated by pains, in all reſpects like thoſe the patient had before the child was born, excepting their degree. When theſe pains come on, it is cuſtomary, to take hold of the *funis,* by which if we pull ſlightly, the evacuation of the *placenta* out of the *uterus* will be forwarded, without the riſk of doing any kind of injury to the *uterus.* The *placenta* and membranes formed a complete lining to the *uterus:* but the *placenta* coming away firſt, and then the membranes, the whole is uſually expelled in an inverted ſtate; yet not always, as the ſeparation of the *placenta* is in ſome caſes ſo ſpeedy, that it drops into the *vagina,* and puſhes the membranes before it. But though the *placenta* is generally expelled in a ſhort time after the birth of the child, and with the return of a few pains, it is ſometimes retained, on account, 1ſt. of the inaction of the *uterus*; or 2d. of the irregular action of the *uterus*; or 3d. of a ſcirrhous adheſion of the *placenta* to the *uterus.* It may be retained beyond the uſual time, without any hemorrhage, but whenever there is a diſcharge of blood, the whole or a portion of it muſt have been previouſly ſeparated; and the hemorrhage may continue, or increaſe, or ceaſe and return in theſe caſes, till the *placenta* is extracted or expelled. Every diſcharge of blood at this time, properly ſpeaking, is a hemorrhage; but to this term, together with the other parts of the definition, we annex the idea of ſuch a loſs of blood, as, by its continuance or degree, may be apprehended to occaſion danger, which we are ever to bear in mind; or on every ſlight diſcharge of blood, we might be led to make unneceſſary attempts to extract the *placenta.*

A very ſtrenuous, and long continued exertion of all the powers of the conſtitution is often required for the expulſion of the child. Theſe powers, though generally adequate to this effect, ſometimes fail before it is accompliſhed. But experience having ſhewn, that difficulties,

difficulties, to our apprehenſion inſurmountable, are very frequently overcome by the natural efforts, both reaſon and humanity diſcourage all haſty determinations to purſue ſuch meaſures, as may affect the ſafety of the mother or the child. But as there is a leaven of imperfection in all human actions, animal as well as moral, we may ſometimes be led, by the moſt commendable motives, to defer that aſſiſtance, which any particular caſe may require, ſo long, that after the birth of the child, the patient may be in ſuch an exhauſted ſtate, and the *uterus* ſo completely diveſted of all power of farther action, that it is neither diſpoſed nor able to ſeparate or eject the *placenta*; and ſhe is ſcarcely able to ſupport the neceſſary conſequences of her delivery. The mere debility of the patient is therefore often a powerful reaſon why we ought to wait, without making any attempts to haſten the ſeparation or extraction of the *placenta*; as an immediate ſeparation, natural or artificial, would render her ſtill more exhauſted and feeble, and greatly increaſe the danger ariſing from that debility, which before exiſted. Sometimes alſo, when a labour has gone on with great activity, there is, for a conſiderable time, and from the moment of the expulſion of the child, even though the labour may not have been very fatiguing or ſlow, a total inaction of the *uterus*, for which no reaſon can be aſſigned. But if the time, which paſſes between the birth of the child and the expulſion of the *placenta*, be employed in compoſing the patient's mind, in cooling her when overheated, or in ſupplying her with proper cordials when much fatigued and wearied with the preceding circumſtances, in ſhort, in reſtoring her to her natural ſtate, it generally happens, and we may reaſonably expect the action of the *uterus* to return, and make its efforts to throw off the *placenta* in the uſual manner, though more time may be required. But during this time of waiting for the action of the *uterus* to return, ſhould a hemorrhage come on, we muſt apply ourſelves to the uſe of thoſe means, by which the ſeparation and excluſion of the *placenta*

may

may be forwarded; there being (in a caſe of hemorrhage equally urgent) as juſtifiable a reaſon for the removal of the *placenta*, when that is retained, as there was for the extraction of the child. But every diſcharge of blood is not a ſufficient reaſon for the introduction of the hand, or for the artificial extraction of the *placenta*, as ſome loſs of blood moſt frequently precedes, and always accompanies both its ſeparation and excluſion. We muſt therefore form a judgment of the neceſſity of extracting the *placenta*, by the opinion we entertain of the hemorrhage being ſo profuſe as to endanger the life of the patient by its continuance or probable increaſe. Sometimes alſo *coagula* are diſcharged in conſiderable quantities, which from their appearance may be ſuſpected to have been formed long before labour, by an effuſion of blood into the *ovum*, from the rupture of ſome veſſel which ran over the ſurface of the *placenta*; which *coagula* do not indicate any danger. It is not exactly in order, but it muſt nevertheleſs be obſerved in this place, that when I have been attending women, who were prone to violent hemorrhages after the birth of the child in former labours, I have made it a rule to keep them in an erect poſition, till the waters were diſcharged by the ſpontaneous breaking of the membranes, and the child was on the point of being born. By this method it appeared clearly to me, that the *uterus* acted more favourably, the *placenta* came away more naturally, and the quantity of blood loſt was very much diminiſhed.

When the *placenta* is not ſeparated or ejected in due time after the birth of the child, with or without a hemorrhage, means muſt be uſed for the purpoſe of its excluſion or extraction. If there be no hemorrhage, or none of importance, it is always better to wait than to interfere, becauſe ſlight attempts to extract the *placenta* by pulling by the *funis* may be juſt ſufficient, by looſening a portion of the *placenta*, to occaſion or increaſe a hemorrhage, and not equal to the extraction of the *placenta*; and ſuch conduct is a very frequent

cauſe of a degree of hemorrhage, which may lay us under the neceſſity of introducing the hand into the *uterus*, in order to bring away the *placenta*, which operation might not otherwiſe have been required. But after a certain time, which is too indefinite a term if we were authoriſed to uſe one more preciſe, but certainly not within one hour after the birth of the child, unleſs we are compelled by hemorrhage or ſome untoward ſymptom, gentle means are to be uſed to favour its excluſion; and the moſt gentle muſt be firſt tried, as by giving and frequently repeating ſome actually warm and temperate cordial, which may renew the diſpoſition in the *uterus* to act; by change of poſition, or, by making a moderate preſſure with the expanded hand upon the *abdomen* to aid the action of the *uterus*; or by pulling very moderately by the *funis*, to try whether it be diſpoſed to come away. As the term *moderate* has no preciſe meaning, and what I call violent, may by another be called moderate, we will ſay that ſo much force is on no account to be uſed in pulling by the *funis*, as to incur the riſque of tearing it from the *placenta*, or of inverting the *uterus*; and that it is better to make it a general rule, to prefer the introduction of the hand into the *uterus*, to ſeparate and bring the *placenta* away, than to incur the hazard of either of thoſe accidents. It is however to be obſerved, that when the hand is introduced for this purpoſe, there is not always a neceſſity of acting; for the very irritation thereby occaſioned will often excite the *uterus* to its natural action, and the *placenta* be both ſeparated and expelled, as will be recollected by every one accuſtomed to this operation. But the hand ought never, on any account, to be introduced into the *uterus*, except as a matter of neceſſity, and then with the utmoſt care and tenderneſs; and when introduced, ſhould never be withdrawn, till the end for which it was introduced is, if poſſible, accompliſhed.

In the writings, and in converſations on this ſubject, the introduction of the hand, for the purpoſe of bringing away a retained

placenta, is often mentioned as a ſlight thing; but I am perſuaded, that every perſon, who attends to the conſequences of practice, will think it of importance, and that, if poſſible, it always ought to be avoided.

To promote the ſeparation and excluſion of the *placenta*, the application of the half-cloſed hand to the *abdomen*, ſo as to make a moderate preſſure, is ſometimes of uſe by aiding the *uterus* in its contraction; but this aſſiſtance cannot be given in the worſt caſes, that is, when the *uterus* is not at all contracted, or contracted irregularly. The reſpiration of the patient has alſo an evident effect upon the *uterus* and *placenta*, of which we ſhall be ſenſible, if we retain the *funis* in our hand, in the act of expiration, when it deſcends, and in the act of inſpiration, when it is ſomewhat retracted. By ſupporting the *funis* with juſt ſo much force as will prevent its retraction in the act of inſpiration, we ſhall ſoon be ſenſible, that the *funis* is lengthened, which will prove that the *placenta* is deſcending; and the purpoſe of extracting the *placenta* will be completed, without the uſe of any other means: but this method requires much time and attention. Sometimes alſo the excluſion of a deſcending *placenta* may be favoured by preſſing it, with one finger carried along the *funis*, towards the *ſacrum*, in ſuch a manner, as to bring down an edge inſtead of the whole maſs; but this is not the caſe of which we are ſpeaking.

In all caſes of dangerous hemorrhage, when the *placenta* is retained, it was ſaid to be equally juſtifiable and neceſſary to extract the *placenta*, as it was to deliver the woman of her child under the ſame circumſtances. But this general rule requires explanation, and ſome ſkill in the application. When there is a preſent hemorrhage, ſo important as by its violence or continuance to threaten danger, the *placenta* ought to be immediately extracted. This is not an opinion, but a rule of practice. But if there have already been a hemorrhage, ſo profuſe as to occaſion danger, and the common

conſequences of loſs of blood, as fainting and the like, have already followed; the *placenta* ought not then to be extracted, nor the patient diſturbed, nor any change made, till ſhe is ſomewhat revived from her extreme debility; as the danger would be thereby increaſed, and the patient die, during or immediately after the operation, as I have ſeen and known in too many inſtances. In other words, the extraction of the *placenta* is to be conſidered as a remedy for a preſent or an apprehended dangerous hemorrhage, but cannot remove the effects of one which has already ceaſed.

In caſes alſo in which there is no hemorrhage, if the *placenta* be not ejected, or if none or but very feeble efforts be made by the *uterus* for that purpoſe, a time will come, when we muſt determine upon its extraction, or leave it behind; and the latter being unſafe and unjuſtifiable, the mere retention will be ſufficient authority for us to extract it. Upon this point there can be no diſpute, except as to the time, and we will ſay, leaving the matter at large, for the exerciſe of individual judgment, that, if the *placenta* be not expelled at the end of four hours from the birth of the child, it is generally wiſe to determine upon extracting it; and the determination of chooſing that time is, I believe, to be founded on the opinion, that the parts have not cloſed ſince the expulſion of the child. I can however recollect many examples of a retained *placenta*, without a hemorrhage, to which I have been called at any time within twelve or even twenty-four hours after the birth of the child, in which the *placenta* has been very eaſily managed, when the exigencies of any caſe required it.

In this place it is neceſſary to make another diſtinction. Though the *placenta* may be retained for many hours after the birth of the child, if we be convinced of ſome degree of deſcent, eſpecially if we can feel that part of it into which the *funis* is inſerted, we have no occaſion to be alarmed, or to hurry its excluſion, unleſs there be an exiſting hemorrhage. Then the *placenta* may be ſuffered to remain,

remain, till it is excluded by the action of the *uterus*, or as it deſcends, the moſt gentle aſſiſtance may be given by pulling by the *funis*, to extract it; without any apprehenſion of danger, whether it be detained two, or even twenty-four hours, becauſe we have at all times, under ſuch circumſtances, an eaſy and certain command of it.

SECTION X.

WHENEVER we have determined upon the neceſſity and propriety of extracting the *placenta* by art, we muſt proceed in this manner. The patient being placed in a convenient poſition, as when we deliver with the *forceps* or *vectis*, and every thing in order, the *funis*, which is our guide, is to be held with a moderate degree of tightneſs. The external parts are uſually in ſuch a ſtate, as not to require much dilatation; but if this ſhould be neceſſary, it muſt be done tenderly, and in the manner before directed with the right hand or left, as may be found moſt convenient; as muſt alſo the *os* or *cervix* of the *uterus*, ſhould either be contracted. When the hand is in the *vagina*, the *funis* is to be ſlowly followed into the *uterus*, which though in a ſtate of total inaction before, may then be irritated to a ſufficient degree of action, to ſeparate and expel the *placenta*, without any further aſſiſtance on our part. But if the ſpontaneous action of the *uterus* ſhould not come on, we muſt proceed with the hand to the *placenta*, which may either adhere with its whole ſurface, or it may be partly, or even wholly ſeparated and lying looſe in the cavity of the *uterus*. Should there be a total adheſion, we muſt ſearch for the edge of the *placenta*, on the outſide of the membranes, cautiouſly diſtinguiſhing between the *placenta* and the *uterus*. When the edge of the *placenta* is raiſed, the-

the further ſeparation muſt be made with the blunt ends of the fingers, and the cloſer and firmer the adheſion, the ſlower the ſeparation ought to be made; not proceeding raſhly, or affecting dexterity, but giving our heads time to guide our hands, as if the operation were performed under inſpection. By ſlow proceeding, and by demurring a ſhort time if we meet with more than ordinary difficulty, the ſeparation will be perfected; or, when the greater portion is looſened, if we graſp it ſlightly in the hand, and bend it backwards, the remaining part will often peel from the *uterus*, without trouble; but this requires much caution. Should the *placenta* be found partly ſeparated, we muſt proceed in the ſame manner. But whether on the introduction of the hand we found the *placenta* ſeparated, or whether it were neceſſary to ſeparate it, we are not to extract it immediately, but to wait till the *uterus* begins to contract, and then to withdraw the hand including the *placenta*, more quickly or ſlowly, according to the degree of contraction; for the hemorrhage may not be occaſioned becauſe the *placenta* was retained, but becauſe its retention, or ſome other cauſe, hindered the contraction of the *uterus*. If there be no action of the *uterus* whatever, it is of ſervice to throw the fingers gently backwards againſt the ſides or *fundus* of the *uterus*, to irritate and bring on its action, previous to our withdrawing our hand. But when the *uterus* is perceived to act, then gently withdraw the hand, till the *placenta* is brought into the *vagina*. Whatever motive induced us to introduce the hand to ſeparate the *placenta*, when it is brought into the *vagina*, it ought to be ſuffered to abide there, till the patient is compoſed, and recovered from her fatigue, and till the *uterus* has had time to contract in ſuch a manner, as to prevent the return of the hemorrhage, at leaſt in a dangerous way. For many years I have made it a rule to leave the *placenta*, naturally or artificially ſeparated, to abide in the *vagina* one hour, after it was voided out of the cavity of the *uterus*; and I am convinced by this

method,

method, there is an infinitely leſs chance of an enſuing hemorrhage, on its coming or being brought away, and leſs afterpain. For the blood diſcharged in conſequence of the ſeparation of the *placenta* uſually forms into *coagula*, which are collected into the membranes as in a net, and the *uterus* is left perfectly void of any thing, which can become the cauſe of any conſiderable pain.

With regard to thoſe caſes in which the *placenta* is retained by the irregular action of the *uterus*, there is generally ſome degree of hemorrhage, and often a very profuſe one; though ſometimes there is no diſcharge, or none of importance, only a retention of the *placenta* beyond the common time of its expulſion. When all the parts of the *uterus* act with equivalent force at the ſame time, the united action contributes to the expulſion of whatever may be contained in its cavity. But if one part, the inferior for inſtance, ſhould act, when the other is at reſt, a contrary effect might be produced. The forms, which the *uterus* may aſſume in conſequence of this irregular action, are innumerable, but the moſt common is the longitudinal, which is produced when all the parts, except the *fundus*, act; or the hour-glaſs form, when the middle of the *uterus* only acts, by which it is divided as it were into two chambers or cavities. When it was the cuſtom to bring away the *placenta* immediately after the birth of the child, three reaſons were aſſigned for the practice; firſt, that it was a dead ſubſtance, without any power like that which was ſuppoſed to be inherent in the child; ſecondly, that it was an extraneous maſs, which became pernicious every moment it remained; and thirdly, that if not immediately extracted, it would be almoſt impoſſible to bring it away, the *os uteri* cloſing in ſuch a manner, as abſolutely to prevent the introduction of the hand for the purpoſe of extracting it. Theſe opinions are proved to be groundleſs, for the *placenta*, we know, may remain many hours or ſeveral days without doing any miſchief to the *uterus*; and the opinion of the *os uteri* cloſing ſo ſoon after the

the birth of the child is without foundation, as that ſeldom or never happens: what has been eſteemed the natural cloſing of the *os uteri*, being in reality an irregular contraction or ſpaſm of ſome portion of the *cervix*, from which we are aſſured no harm and little additional difficulty can ariſe *.

When the *uterus* is contracted thus irregularly, as the *placenta* cannot be expelled, it muſt be extracted by art, whenever, on account of a hemorrhage, or of the time that is paſt ſince the birth of the child, it may be thought expedient or neceſſary. There is no way of judging of this kind or degree of contraction, unleſs by the uncertain information we may acquire by the application of the hand to the *abdomen*, till we introduce our hand into the *uterus*. Before this operation it is always proper to try, whether the *placenta* may not be diſpoſed to come away by any of the gentle means before recommended. On the failure of theſe, and being fully convinced of the neceſſity, the hand muſt be conducted in the manner before mentioned, till we come to that part which is partially contracted, whether it be at the *cervix*, or in the cavity of the *uterus*. The hand muſt then be reduced into a conical form, in the way directed for the dilatation of the *os uteri*, or external orifice. Should the ſpaſm be in ſuch a degree, as to make a perfect cloſure of the *uterus* round the *funis*, one finger muſt be firſt inſinuated along the *funis*, and this being turned with a ſemirotatory motion, will ſoon make room for a ſecond, and ſo on, till all the fingers, in a conical form, may be admitted. The dilatation is ſometimes

* Scire enim eſt poſt natum infantem, in utero nullum reperiri tale os ut olim fuerat: ſed ita omnino ſe res habet, ut in burſa nummaria, quæ loris tranſmiſſis conſtricta, rugoſum os format; laxatis autem hinc vinculis, ubique æque lata eſt et expanſa. RUYSCH. Adverſ. Anat. Dec. Secunda.

The tenth chapter of the ſecond Decade is full of uſeful obſervations regarding the management of the *placenta*, given in very honeſt and animated language.

to

to be made in oppoſition to a very firm contraction, yet it muſt be done ſteadily and reſolutely, though not raſhly or violently. Before the hand is paſſed beyond the contracted part, this muſt be amply dilated, otherwiſe it will clip round the wriſt, and impede the ſubſequent part of the operation. When the contracted part is amply dilated, the hand muſt be carried forwards into what may be called the upper chamber of the *uterus*, in which the *placenta* is contained. Whether this be ſeparated wholly or partially, or be yet adhering, we muſt proceed according to the method before mentioned. Immediately upon the ſeparation of the *placenta*, the hand containing it is to be drawn out of the upper cavity, to that part of the *uterus* which was before ſo cloſely contracted, and held there, till, by the preſſure behind, we are ſenſible of the action of the *fundus*. The hand containing the *placenta* is then to be withdrawn by ſlow degrees, till it arrives in the *vagina*, where the *placenta* may be ſuffered to remain for one or ſeveral hours; or we may wait till it is wholly expelled by the pains, in order to avoid the hazard of a ſubſequent hemorrhage.

When the *placenta* is either expelled by the action of the *uterus*, or extracted by art, it ſhould be a general rule to apply the hand to the *abdomen* afterward, that we may be aſſured the *uterus* is not inverted; but this method is not always ſatisfactory, for in one caſe, though the volume of the *uterus* was felt, apparently contracting properly, the inverting *uterus*, as it receded, was miſtaken for a regular contraction.

The natural attachment of the *placenta* to the *uterus* is of ſuch a texture and kind, as very readily to admit of ſeparation. But if that part of the *uterus*, to which the *placenta* adheres, ſhould be in a ſcirrhous or morbid ſtate, the *placenta* will partake of the diſeaſe. On the examination of the *placentæ* of different women, there are not unfrequently found morbid appearances, ſome being diſpoſed to a putrid, others to a ſcirrhous or cartilaginous ſtate;

while in others there is a degree of oſſification in the veſſels, and ſometimes perfect concretions. The adipoſe ſubſtance often found upon the *placenta* in large quantities is not of any importance. The difficulty of the ſeparation will depend partly upon the *placenta* itſelf, and partly upon the ſtate of the *uterus*. When there is found, on the introduction of the hand into the *uterus*, an uncommonly firm adheſion of the *placenta*, a perfect ſeparation will be extremely difficult, and perhaps ſometimes impoſſible, without the hazard of doing direct injury to the *uterus*. There is no ſecurity in theſe caſes, but by taking time in the operation, confiding chiefly in ſlow proceeding, both for accompliſhing our purpoſe, and avoiding miſchief. It has been ſaid, that it is more juſtifiable to leave a portion of the *placenta* behind, than to continue very ſtrenuous efforts to bring the whole away, as theſe may give unbearable pain, and become the cauſe of immediate or ſubſequent injury. It muſt be acknowledged, that it is always a very deſirable thing, to bring away the *placenta* wholly and perfectly, not only for the ſatisfaction of friends, but for the real good and intereſt of the patient. Even the membranes ſhould be managed with caution, for though a portion or the whole of theſe might be left without danger, they occaſion a *fœtor* in the diſcharges, and often ſo much pain as to create a ſuſpicion of diſeaſe. But without meaning to give authority to negligence, or miſconduct, to raſhneſs, or violence, we may ſuppoſe a ſituation, in which we muſt ſubmit to ſome evil, and in which all that is in our power is, to chooſe the leaſt. There can then be no doubt, but that it is a leſs evil to leave a portion of the *placenta* behind, than to do any poſitive injury to the *uterus*, in ſtriving to bring it away. For it has been found, when a portion of the *placenta* was left behind, that the hemorrhage has ceaſed and not returned, and that this portion far ſooner decayed, or was more readily digeſted or expelled, than the whole. I once ſaw an inſtance of a whole *placenta* retained till the fifteenth day after the birth of the child, and then expelled with little

little ſigns of putrefaction except upon the membranes; the whole ſurface, which had adhered, exhibiting marks of a freſh ſeparation. The recovery of this patient was very fortunate, for I have ſeen ſeveral other caſes of a ſimilar kind terminate fatally. It is a concluſion generally made, though not always warranted, that, if a woman die with a portion of the *placenta* retained, her death ought to be attributed to it; yet it ſhould be conſidered, that there may have been previous diſeaſe in the *uterus*, and that the event may have been really occaſioned by violent, though unſucceſsful attempts to bring it away, and not by the retention. Sometimes the danger of theſe caſes is known to the practitioner only, who is obliged to act according to exigencies, for which he may not be particularly prepared; but if he have before acquired a juſt knowledge of the principles of the art, explain himſelf ingenuouſly, determine not raſhly, and proceed ſlowly, he will not do any thing, for which he can be juſtly blamed, and will generally be ſucceſsful.

The *funis* is commonly inſerted about one third of its ſpace from, or at the very edge of the *placenta*, ſometimes in the centre, and now and then the veſſels branch off before it reaches the *placenta*; and the eaſe or difficulty, with which this may be brought away, ſomewhat depends upon the inſertion of the *funis*. The chance alſo of tearing the *funis* away reſts chiefly upon the force uſed to extract the *placenta* by it; yet if it be inſerted fully into the *placenta*, and be in a ſound ſtate, the force which it can bear is infinitely greater, than can be exerted without the hazard of inverting or doing other injury to the *uterus*. But if the *funis* be in a putrid ſtate, or if the veſſels branch off too ſoon, it may be torn away with a very ſmall degree of force, as in the latter caſe it can only ſuſtain what a ſingle branch of the veſſels can bear. Hence in a cautious extraction of the *placenta*, we are ſometimes ſenſible of a ſudden yielding or jerk in the *funis*, which, if the ſame force be continued, will be repeated, till at length the *funis* comes unexpectedly away, and the *placenta* is

left in the *uterus*, or in the *vagina*. Great circumſpection and ſlow proceeding will uſually prevent this accident; but if it ſhould happen in our own practice, or we ſhould be called to aſſiſt others, we muſt determine whether the caſe will allow of farther waiting, or whether there be a neceſſity of bringing the *placenta* away immediately, by introducing the hand into the *uterus*. If there ſhould be occaſion, on account of hemorrhage or any other untoward circumſtance, for the latter method, which, if conſiſtent with the ſafety of the patient, ought always to be avoided, we may conſider the inconveniencies produced by the want of the *funis*, which, when it remains, ſerves as a guide to conduct the hand, and helps moreover to keep the *uterus* ſteady, and to bring down the *placenta* when ſeparated. The former of theſe will not be of much conſequence to a perſon accuſtomed to the operation; and the latter will be leſſened, if an aſſiſtant make a judicious preſſure upon the *abdomen* with both his hands. Some diſadvantage will neceſſarily ariſe from this accident, we ſhould therefore be careful to avoid it, when in our power; but though a little embarraſſment may be occaſioned, even when the *placenta* is in the *vagina*, the importance of the diſadvantages produced by the ſeparation of the *funis* has, I believe, generally been over-rated.

SECTION XI.

The hemorrhage, which follows the expulſion or extraction of the *placenta*, may be a continuation of that which came on before the birth of the child, or between the birth of the child and the expulſion of the *placenta*; or it may be unconnected with either of theſe, but merely a conſequence of the ſeparation and excluſion of the *placenta*. This has uſually been deſcribed by writers as an immoderate flux of the *lochia*, but is with more propriety

arranged under the claſs of hemorrhages; and though generally not ſo dangerous as either of the varieties laſt deſcribed, it is often alarming, and, under particular circumſtances, has ſometimes proved fatal.

The diſcharge of blood, which follows the ſeparation and excluſion of the *placenta*, varies in different women, being in ſome very ſmall, and in others there is, after every act of parturition, a diſpoſition to a very profuſe hemorrhage, which ſuddenly reduces the patient into a frightful ſtate. It is a popular opinion, that the greater theſe diſcharges are at the time of delivery, the ſafer women will be from the chance of diſeaſes during childbed; and this opinion very much leſſens the terror of the bye-ſtanders, when diſcharges come on with great profuſion. But the practitioner, who knows the poſſible effect of ſudden and violent hemorrhages at this time, eſpecially in patients who were before much weakened, cannot feel at his eaſe, though ſupported by the general experience of their being ſeldom dangerous. Nor is the opinion true, that the greater the diſcharge, the ſafer the patient will be; for whatever weakens the patient extremely, muſt render her more liable to diſeaſes of various kinds in childbed.

It has often been a matter of great ſurpriſe to me, when I have ſeen a patient bear a ſudden diſcharge of what ſeemed an enormous quantity of blood on the coming away of the *placenta*, without fainting, or ſhewing any ſigns of the common conſequences of great loſs of blood; but it may be explained in this manner. Should every drop of blood, which circulates in the *uterus*, be diſcharged in an inſtant, it would be of no immediate conſequence to the patient, the very exiſtence of the *uterus* not being neceſſary for her life. When all this blood is diſcharged, if the *uterus* ſhould contract ſpeedily, ſo that the veſſels ſhould be reduced to a ſmall ſize, there would not be a continuance or return of the hemorrhage, and the patient would exhibit no ſigns of ſuffering from that which had happened. But

after

after the diſcharge of the blood contained in the veſſels of the *uterus*, as before ſtated, if there ſhould be no contraction of the *uterus*, then the veſſels remaining of the ſame ſize, and the communication between the body and the *uterus* being preſerved open, as in pregnancy; the veſſels of the *uterus* would be repleniſhed from the conſtitution, and the ſame effect would be produced in the patient, as if it were really loſt. Should this ſecond quantity of blood ſupplied to the *uterus* be diſcharged, and another be claimed from the conſtitution, then, according to the quantity demanded, and the number of times the demand was made, would of courſe be the danger of the patient. In ſome caſes the hemorrhage does not follow the extraction of the *placenta* immediately, but comes on after a certain time; and then it may be ſuppoſed, that the communication between the body and the *uterus* was cloſed, but not being confirmed, was opened again by ſome effort too ſoon made, or more violent than the ſituation of the patient could endure. Theſe circumſtances point out very clearly the neceſſity, in the management and for the prevention of uterine hemorrhages, of ever remembering, that the danger attending them is leſſened, and the ſafety of the patient ſecured, only by a proper contraction of the *uterus*. Hence in hemorrhages of this kind, however vehement, the acceſſion of uterine pain immediately proclaims, that the danger is paſſing, or is paſt.

With reſpect to this variety of hemorrhage, two things are to be conſidered; 1ſt. by what method or means it is to be prevented; 2d. how it ſhall be remedied, when it does exiſt.

When the hemorrhage depends upon the imperfect or irregular action of the *uterus*, excited for the end of expelling the *placenta*, it may not be in our power to regulate theſe. But as far as relates to the force uſed in the ſeparation, or hurry in the extraction of the *placenta*, we may always act reaſonably and calmly, and proper conduct will generally inſure ſucceſs. It was before adviſed to leave the *placenta* in the *vagina* for one hour after its excluſion from the

the *uterus*, in common caſes, unleſs it were ſooner expelled by the natural efforts. Objections have been raiſed to this, becauſe it confines the patient to an uncomfortable ſituation for a long time; and it has been ſaid, that it was cruel to leave her friends under anxiety, with the delivery incomplete, when we have the power of readily bringing the *placenta* away. Now, if we are ſpeaking of a caſe of real or preſumed danger, the argument of uncomfortableneſs is not to be put in competition with a conduct, on which the increaſe or diminution of that danger may turn; nor does the cenſure of a good action make it degenerate into a crime, or convert that, which is in its own nature honeſt and intelligent, to cruelty. On the contrary, it may be the height of tenderneſs, in me, to encourage the patient to bear a ſmall degree of preſent pain or inconvenience, by which her ſafety is inſured, rather than by an officious interpoſition to add to the hazard, by complying with the ſolicitation of thoſe, who are not qualified to judge. When the *placenta* is brought into the *vagina*, we have then the abſolute command of it at our pleaſure; but the very eaſe, with which it could be brought away, is often a good reaſon why it ſhould be ſuffered to abide, as it proves, that there is no natural contraction of the parts for its excluſion, otherwiſe it would be expelled without our aſſiſtance. In what other manner a *placenta* remaining in the *vagina* may contribute to the prevention of a hemorrhage, except that, by the irritation made upon the *os uteri*, it urges the *uterus* to act, it may be hard to ſay; though I am convinced of the benefit thence derived. Nor have I, when attending patients who have been prone to a hemorrhage in former labours, been ſatisfied with leaving it in that ſituation for one hour, but have prolonged the time to two hours, or more, unleſs it ſhould be in the mean while ejected by the pains, which proving the increaſed action of the *uterus*, would give an aſſurance of ſafety. Moreover, after waiting ſo long as ſeemed

reaſonable

reaſonable and proper, I withdraw the *placenta* very gently, not increaſing the force on account of every little obſtacle, but demurring and waiting longer. Even after the *placenta* is wholly excluded, if the membranes ſtick, I wait yet longer, and proceed more ſlowly, knowing that a few minutes occaſion a difference between the loſs of one, and ſeven or eight ounces of blood, which ſometimes may be of the the utmoſt importance; nor, under theſe circumſtances, can any harm ariſe from delay.

When we have the management, or are called to caſes of preceding or preſent hemorrhage, the *placenta* being extracted, it ſhould be an unfailing general rule to examine the patient, to be ſure that the *uterus* is not inverted; or perhaps by ſlight irritation about the *os uteri*, to endeavour to bring on its action. Then all the means before recommended for the ſuppreſſion of hemorrhages are to be put in practice, ſpeedily and ſtrenuouſly; and we are alſo to endeavour to promote the action of the *uterus*, if at reſt, or to ſtrengthen it if feeble, by moderate preſſure upon the *abdomen* with a very cold hand.

After the excluſion of the *placenta*, on the application of the hand to the *abdomen*, it is ſometimes clear, from the volume of the *uterus*, though contracted, that there are large *coagula* contained in its cavity. We have been directed by gentle dilatation of the *os uteri*, to give theſe an opportunity of coming away, or even to introduce the hand for this purpoſe*, as by their continuance, they were ſuppoſed to keep up the diſtention of the *uterus*, and to occaſion a continuance of the hemorrhage, as well as other miſchief. Of any advantage ſaid to be derived from this practice I am very doubtful, or whether it may not be ſuſpected to renew or increaſe, rather than to ſuppreſs the hemorrhage. I have never attempted it, nor even troubled myſelf with the ſtate of the *uterus*, unleſs it was inverted, after the

* See the quotation from *Celſus*, at page 491.

placenta

placenta was brought away, but have left whatever *coagula* it contained, to be expelled by its own action. Some have believed, that the hemorrhage was to be prevented by giving, without delay, after the birth of the child, two or three glaſſes of wine, or even a ſtronger cordial, with a view of bringing on a ſpeedy contraction of the *uterus*, and I have really thought ſometimes with great ſucceſs.

The fainting which follows hemorrhages was conſidered as an effect produced, or as a remedy provided for their ſuppreſſion. It was alſo ſaid, that the medicines given, or the means uſed, did ſervice, according to the degree of chilneſs they occaſioned, and the ſlackneſs of the circulation which followed. We were cautioned not to remove this faintneſs by the exhibition of cordials, leſt with the return of the circulation there ſhould be a renewal of the hemorrhage; at leaſt till we had given ſufficient time for the contraction of the veſſels and other circumſtances to take place, before the patient revived. But when the patient becomes cold, and there is apparently the moſt imminent danger of her dying, we muſt preſume thoſe effects are produced, or no longer regard them, but give without delay nouriſhment and cordials in ſmall quantities, very often repeated, and the patient muſt be as it were compelled to live, by the ſtrenuous and conſtant ſupport we give. Nor is the exhibition of cordials to be confined to any particular quantity or time, we are only to be guided in both reſpects by the continuance of danger. Wine, brandy properly diluted, or any domeſtic cordial, will be ſuitable on theſe terrible occaſions, and they muſt be made actually warm. In ſome caſes, volatiles have a good effect, and the *julap. vitæ* of *Bates*, which is compoſed of warm wine and the yelks of eggs, with the addition of a few drops of oil of cinnamon, has proved an admirable medicine. Yet I muſt confeſs, that the beſt and moſt general cordial is very cold air, at leaſt it is indiſpenſably neceſſary; and the ſtrongeſt ſtimulant in extreme caſes is, to ſprinkle the face repeatedly with cold water, which the patient, ſenſible of

the benefit ſhe receives, would often require to be done with great earneſtneſs*.

On the ſame ground on which theſe medicines are adviſed, opiates, though in ſome caſes they may prevent, were eſteemed improper, during the continuance of a hemorrhage, and they certainly ought not to be given too freely, when the patient is reduced to a ſtate of great weakneſs. Above all, ſhe is not to be diſturbed, or raiſed to an erect poſition, but the ſmall portion of the principle of life is to be carefully huſbanded; and there is often a power of living in a quieſcent ſtate, or in a recumbent poſition, when the patient would be deſtroyed by the leaſt exertion, or by being raiſed to an erect poſition. Whether an hour or a day be required for this purpoſe, after a profuſe hemorrhage, the patient ought not to be raiſed, or even moved, before ſhe is quite revived, and then with the utmoſt care and circumſpection; and through want of attention to this matter, ſudden death has ſometimes happened, when we were not ſuſpicious of danger. When immediate danger is no longer apprehended, and the patient has been reduced to a very low ſtate, the views of practice are changed, and it will not be prudent to repleniſh the emptied veſſels too haſtily, or to ſtimulate them to ſtrong action.

It is laſtly to be obſerved, that in the violent and pertinacious head-ach*, and other nervous complaints, which follow profuſe hemorrhages, and ſometimes continue for many weeks, it will be of great ſervice to procure two or three ſtools every day previous to the exhibition of the *bark*, or other tonic medicines, though the patient be pale and in a weak ſtate. For the preſent relief of head-

* *Chapman* mentions a compliment paid him by Sir *Richard Blackmore*, in a caſe of this kind, which ſhews great accuracy of diſtinction. If, ſaid Sir *Richard*, you had uſed leſs cold applications, this patient would have died from the loſs of blood; and if you had continued them longer, you would have extinguiſhed the powers of life.

* Douleurs du teſte apres grande pertes du ſang. *Mauriceau*.

ach,

ach, cold applications to the temples, as white of egg mixed with powdered *bay* ſalt, or crude *ſal ammoniac*, always keeping the legs and feet warm, will ſometimes be of ſervice, as will alſo occaſionally all the nervous medicines in common uſe.

Theſe obſervations I have written with great pleaſure, hoping they may be of ſervice, and I may recommend the method founded on them with ſome confidence, having in practice ſeen innumerable inſtances of its good effects, though the ſubject yet admits of much improvement.

SECTION XII.

ON THE INVERSION OF THE UTERUS.

THE inverſion of the *uterus* has been more than once mentioned, but the ſubject is ſo important, as to require ſome farther conſideration.

In every caſe in which there was reaſon to ſuſpect this terrible accident, eſpecially when it had been found neceſſary to extract the *placenta* by art, we were adviſed to apply the hand to the *abdomen*, for the purpoſe of trying whether the tumour of the contracted *uterus* could be felt, and if there were any remaining doubt, to examine *per vaginam*. When it is inverted, inſtead of feeling through the integuments the contracted *uterus*, there is a conſiderable vacuity at the lower part of the *abdomen*, which gives ſufficient reaſon to ſuſpect the inverſion, and the latter examination proves it. In one caſe which was under the care of a perſon, who might have been allowed to be a competent judge, and expected to act more wiſely, when he applied his hand to the *abdomen*, the receſſion of the inverting *uterus* was miſtaken for its contraction; and it was

actually inverted, though he entertained no ſuſpicion of what had happened.

The reaſons advanced to prove the neceſſity of aſcertaining the inverſion are, 1. that the patient may be relieved from her preſent danger, if there be a hemorrhage; 2. that a part of ſo much conſequence may not be ſuffered to remain in that ſtate, even if there were no hemorrhage; 3. that if it were not ſoon replaced, it could not, after a very ſhort time, be reſtored to its proper ſituation.

Whether the inverſion of the *uterus* be the firſt cauſe of the hemorrhage, with which it is almoſt univerſally attended, or only a cauſe of its continuance, or if there be no hemorrhage, the reaſons for replacing it ſpeedily would be of equal force. Not that all women would die though the *uterus* were inverted, but they would be in the greateſt and moſt imminent danger. The impoſſibility of replacing it, if not done ſoon after the accident, has been proved in ſeveral caſes, to which I have been called, ſo early as within four hours, and the difficulty will be increaſed at the expiration of a longer time. Whenever an opinion is aſked, or aſſiſtance required in thoſe caſes which may not improperly be called chronic inverſions, it is almoſt of courſe, that the repoſition ſhould be attempted; but I have never ſucceeded in any one inſtance, though the trials were made with all the force I durſt exert, and with whatever ſkill and ingenuity I poſſeſſed; and I remember the ſame complaint being made by the late Doctors *Hunter* and *Ford*; ſo that a reverſion of a *uterus*, which has been long inverted, may be concluded to be impoſſible. It ſeems as if the *cervix* of the *uterus* continued to act, or had ſoon acted in ſuch a manner, as to gird the inverted *uterus* ſo firmly, that it could not be moved; yet the inverted ſurfaces, though lying in contact, have not been found coaleſced together, ſo as to form one maſs, as has been ſurmiſed. All that art can do in ſuch caſes, in which the patients are commonly ſubject to profuſe mucous diſcharges, or to frequent hemorrhages, but without any unbearable pain,

pain, is to alleviate their ſufferings, to moderate ſymptoms, and ſometimes to ſupport the perpending *uterus* by a flat peſſary. In a plate publiſhed many years ago, there is an exact repreſentation of an inverted *uterus* of long ſtanding, from a beautiful drawing, by Dr. *R. Atkinſon*.

Beſide the complete inverſion of the *uterus*, in which the *fundus* may be brought into the *vagina*, or without the body, diſſections have ſhewn, that there is what may be called a ſemi-inverſion, in which the *fundus* of the *uterus* has been bent inwards, but not paſſed through the *os uteri*; yet the caſe may have been wholly unknown during the life-time of the patients. This is accompanied with ſymptoms like thoſe of the complete inverſion, and had it been diſcovered, would have required equal care, and the ſame methods to be uſed for replacing it. Many years ago, in a caſe of retained *placenta*, I perfectly well remember feeling a beginning inverſion, which was prevented by firſt reſtoring the *uterus* to its place, and then waiting a ſhort time, before I made any farther attempts to ſeparate or bring down the *placenta*.

With reſpect to the cauſes of the inverſion, it has generally been attributed, ſolely, to the force uſed in pulling by the *funis*, in order to bring away a retained *placenta*. But there is reaſon to believe, that the *uterus* has been inverted, when on account of a hemorrhage, or ſome other urgent ſymptom, the hand has been introduced into the *uterus* while in a collapſed or wholly uncontracted ſtate, and the *placenta* being withdrawn before it was perfectly looſened, the *fundus* of the *uterus* has unexpectedly followed, and a complete inverſion been occaſioned. I have alſo been aſſured, that in ſome caſes there has been a ſpontaneous inverſion; that the accident happened, at leaſt, when no force, or none capable of producing the effect, had been uſed; and then it was imputed to the ſhortneſs of the *funis*, giving the diſpoſition before the birth of the child; or to ſome untoward action of the *uterus*. But with this aſſurance, or explanation, I do

not

not feel quite ſatisfied, becauſe the degrees of force muſt always be vaguely eſtimated; though if a diſpoſition to an inverſion be firſt given by the force uſed in pulling by the *funis*, it may be completed by the action of the *uterus*; or if the leaſt poſſible degree of inverſion were given by the ſhortened *funis*, it might certainly be completed by a very ſlight additional force in pulling by the *funis*.

Uterine hemorrhages following the excluſion or extraction of the *placenta*, though often apparently dangerous, very ſeldom prove fatal; yet now and then we hear of a patient dying from this cauſe. May it not be ſuſpected, that in ſuch caſes there was an inverſion of the *uterus*, which together with hemorrhage, is always attended with dreadful diſturbance of the whole nervous ſyſtem. Whether the *uterus* be inverted or not, ſhould therefore be aſcertained by the methods before mentioned, in every caſe of profuſe uterine hemorrhage.

Seeing then the cauſes by which an inverſion of the *uterus* may be occaſioned, knowing the immediate danger ariſing from it, and, as far as experience has proved, that after a certain time it cannot be replaced, we ſhall want no other inducements to uſe all poſſible care, to avoid doing two things, which have not been uncommon in practice, though it is evident, that in various ways they muſt be injurious; firſt, pulling by the *funis* prematurely, or violently, to bring away the *placenta*; ſecondly, haſty introductions of the hand for that purpoſe. Should, notwithſtanding all our care, a caſe of this kind occur in our own practice, or ſhould we be called to one, which had happened in that of any other perſon, we ſhould find no difficulty, or very little, in reſtoring the *uterus* to its proper ſituation, if, which is of prime importance in every caſe of difficulty or alarm, we maintained the compoſure of our minds; if, paying due regard to the ſtate of the patient, we made our attempt without delay, but at the ſame time without violence, or precipitation. The only point of practice, which occurs to me, as likely to raiſe any

doubt of the conduct we ought to purſue, is, when together with an inverted *uterus* there is an adhering *placenta*. It would probably then be right to ſay, if the *placenta* be partly ſeparated, it will be proper to finiſh the ſeparation, before we attempt to replace the *uterus*; but if the *placenta* ſhould wholly adhere, it will be better to replace the *uterus*, before we endeavour to ſeparate the *placenta*. The ground of this opinion is, that while we are ſeparating the *placenta*, the *cervix* of the *uterus* is contracting, and the difficulty of replacing it increaſing, which is a greater evil by far than a retained *placenta*.

CHAPTER XVI.

ANOMALOUS, OR COMPLEX LABOURS.

ORDER SECOND.

Labours attended with Convulſions.

SECTION I.

THE rules given by different writers, for the management of labours attended with convulſions, ſeem to have been founded on leſs certain principles, and to have been leſs confirmed by experience, than thoſe which have been given for almoſt any other caſes that occur. Theſe rules have nevertheleſs led to two methods of practice, offered with ſufficient confidence, though diametrically oppoſite to each other. According to the firſt*, which has been moſt generally approved and followed, it was deemed indiſpenſably neceſſary, to deliver the patient by art, as expeditiouſly as poſſible, to free her from the cauſe of her impending danger. But according to the ſecond, it being preſumed that the convulſions appertained to the labour as ſymptoms, this, if natural in other reſpects, was to be ſuffered to go on without interpoſition, as if there were no convulſions†; while we were to be engaged

* La convulſion eſt un autre accident qui fait ſouvent perir la mère et l'enfant, auſſi bien que la perte de ſang, ſi la femme n'eſt tres promptement ſecourue par l'accouchement, qui eſt le meilleur remède qu'on puiſſe apporter à l'une et à l'autre.

Mauriceau, vol. i. chap. 28.

† Naturæ partus, quoad cætera ſanus, relinqui poteſt.

Roederer. Element. Art. Obſtetric. Aphoriſm. 679.

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in uſing the moſt efficacious means for preventing their return, or for leſſening the effect which might be produced by them. Without ſucceſs, whatever has been done or omitted, has occaſionally been blamed or regretted; and, in conſultations on caſes of this kind, I have generally obſerved, that the perſon, who advanced his opinion in the moſt confident manner, prevailed on the reſt to acquieſce in his ſentiments; the records of experience having been thought inſufficient, or not ſo duly weighed, as to ſatisfy our minds, or to juſtify our forming an irrefragable rule of practice.

The true puerperal convulſions have not been accurately deſcribed; yet there are ſome peculiarities in the ſymptoms preceding their appearance, and in the convulſions, or the manner of their return, which diſtinguiſh them from every kind of hyſteric ſymptom, and from convulſions proceeding from any other cauſe. Together with the ſymptoms of the epilepſy*, which they very much reſemble, there is not unfrequently a *ſtertor*, which has been conſidered as peculiar to the apoplexy; or the patients, in the intervals between the fits, are obſtinately comatoſe. With the foaming at the mouth there is alſo a ſharp hiſping noiſe, produced by fixing the teeth, and by the ſudden motion of the under lip, as if attempts were made to retract the *ſaliva* back into the mouth; and by this noiſe I have generally been able to diſcover the ſtate of a patient in convulſions, though ſhe was in another room. The intervals between the convulſions, which are of ſhorter or longer duration according to the advancement of labour, evidently depend upon the action of the *uterus*, as will be proved merely by the application of the hand to the *abdomen*; and

* Epilepſia—Agitatio convulſiva univerſalis, chronica, cum oppreſſione ſenſorum, exituque ſpumæ ex ore.—VOGELIUS.

Epilepſia—Muſculorum convulſio cum ſopore.—CULLEN.

Convulſio—Muſculorum contractio, clonica, abnormis, citra ſoporem.—CULLEN.

Spec. 2. 1. Idiopathica.
2. Symptomatica.

when they abate, the patients in ſome caſes ſeem as if they were awakened by ſurpriſe, and ſoon recover the uſe of their faculties; but in others, they lie in the intervals in an inſenſible ſtate, as if they were truly apoplectic, which they are not, though there have been inſtances of patients dying in the firſt attack, when there was no token of labour, as far as could be judged by the ſtate of the *os uteri* *. By the degree of the derangement in the intervals between the convulſions, the danger of the patient is to be eſtimated, as well as by the violence of the fits, or by the ſymptoms which preceded them.

It will be convenient to arrange what I have to ſay farther on this ſubject, in the following order: firſt, to enumerate the reputed cauſes of convulſions; ſecondly, the ſymptoms which precede their appearance; thirdly, the means of preventing them; fourthly, the treatment which may be requiſite when the patient is actually in convulſions; and, fifthly, on the delivery by art.

* In the examination of many women who have died in convulſions, I have never ſeen an inſtance of effuſion of blood in the brain, though the veſſels were extremely turgid, but it is remarkable, that in all, the heart was found unuſually flaccid, and without a ſingle drop of blood in the auricles or ventricles; and in ſeveral there inſtantly appeared many large livid ſpots on the extremities and ſurface of the body. They all died immediately after the *diaſtole* of the heart.

A woman in labour was put to bed, and made an effort to change her ſituation. She died inſtantly in the act of moving; but ſhe had previouſly complained of a piercing pain in her head, and loſs of ſight.

Another was in ſuch a ſituation, that the child was expected to be born the next pain. She threw herſelf back, and died inſtantly.

Another raiſed herſelf in bed to take nouriſhment, about half an hour after delivery. She fell back, and died immediately. She was opened by Dr. *Jenner* of *Berkley*.

There was no effuſion of blood in the brain or any other part, in any of theſe; but the heart was found flaccid, perhaps ſomewhat enlarged, and not a drop of blood in either the auricles or ventricles. Yet the late Mr. *Hewſon* informed me of a caſe of convulſions, in which, on examination after death, he found an effuſion of blood, in a ſmall quantity, on the *ſurface* of the brain.

SECTION II.

ON THE REPUTED CAUSES OF CONVULSIONS.

It is remarkable that puerperal convulſions occur ſo rarely in the country, that I have not been able to make ſome very intelligent men, of great experience, comprehend them, they having never ſeen a ſingle example. The few caſes, of which I have been informed, out of this city, have happened in large towns, or among thoſe who might be reckoned in the higher ranks of life. It has alſo been juſtly obſerved, that women are far more liable to puerperal convulſions in certain years and ſeaſons, than in others. We may therefore conclude, that a remote cauſe of theſe convulſions is to be ſought for in ſome change made in the conſtitution, by the cuſtoms and manner of living in cities and large towns; or in the particular influence of the air; though there may alſo be immediate cauſes capable of producing theſe convulſions in any ſituation.

The female conſtitution becomes infinitely more irritable than uſual in conſequence of the changes made in the *uterus* during pregnancy, every part of the body readily participating with the ſtate of the *uterus*. This increaſed irritability, when not exceſſive, and only affecting in one peculiar manner parts not eſſential to the economy of the conſtitution at large, is ſo far from being injurious, that it proves eventually ſalutary to the parent or child. But we may conclude, that in a conſtitution become unuſually irritable from one cauſe, any additional cauſe of morbid irritation may often excite different and more violent effects, than if that conſtitution had been at reſt, before the application of the ſecond cauſe. It is therefore reaſonable to believe, and the fact is proved by the daily occurrences of practice, that the conſtitution which a delicate mode of

education can ſcarce fail to give, ſtill farther augmented by habits of indulgence, and the eager purſuit of pleaſure in advanced age, renders ſuch women at all times, and in all ſituations, more liable to every kind and degree of nervous affection; that the ſtate of pregnancy makes them ſtill more diſpoſed to the ſame affections, and from ſlighter cauſes to convulſions, than thoſe women are, who, by education, and habits of living, are ſeaſoned, as it were, againſt impreſſions which might affect either their minds or conſtitutions; for it is to both theſe we are to look for the cauſes of convulſions.

That the ſtate of the mind does very often diſpoſe women to puerperal convulſions, and other dangerous nervous affections, there are numerous proofs to be drawn from the hiſtory of practice*. This has been more particularly obſerved among thoſe women, whoſe unfortunate ſituations render pregnancy an evil inſtead of a bleſſing; for, from their ſecluſion from and deprivation of the comforts of ſociety, their ſenſe of preſent ill, or apprehenſion of future diſtreſs, ſuch women are eſpecially ſubject to convulſions at the time of labour, and to become maniacal after their delivery. It has alſo been obſerved, that, from violent and ſudden impreſſions on the mind, more generally from terror than any other, pregnant women have either immediately had convulſions, or fallen into a ſtate which ſhewed a great propenſity to them, though they did not appear before the acceſſion of labour†. In ſome caſes however, from a ſtate of apparently perfect health, the firſt tendency to labour has produced

* There is a very intereſting hiſtory of this in the Bible, 1 *Samuel*, *chapter* iv. and three remarkable circumſtances are mentioned; firſt, the cauſe, the violent agitation and diſtreſs of the mother's mind; ſecond, her ſtate of inſenſibility at the time of her delivery; third, that the child was born living, though the mother died immediately after his birth.

† The carriage of a lady, who was going on a party of pleaſure, was broken down; ſhe was near the time of her lying-in, and was very much frightened, though ſhe received no apparent injury. When ſhe fell into labour, this was preceded by convulſions, in which ſhe died undelivered.

convulſions,

convulſions, which have continued till the child was born, or after its birth; though in other caſes the convulſions have been removed, and the labour has proceeded with great regularity. But there is often reaſon to ſuſpect, that when convulſions have once appeared, they make to themſelves new cauſes of their return, as they have continued for many hours, or even days, after delivery. There is likewiſe reaſon to think, that cauſes, ſeemingly too trifling to produce convulſions, have ſometimes been equal to the effect; as I recollect two inſtances of women who had convulſions at the time of labour, preceded by violent headachs, brought on, as it appeared, by the uſe of ſome mercurial preparation mixed with the powder uſed for their hair.

But it is not only in weak and very nervous habits that convulſions occur, as they ſometimes happen in plethoric conſtitutions, and are accompanied with a ſtrong action of the vaſcular ſyſtem in general, or of ſome particular part of the body; though I do not recollect a caſe, which could be attributed ſolely to this cauſe. With ſuch different conſtitutions and indications, ſome with all the ſymptoms of debility and depreſſion, and others of plethora and fever, the method of treatment muſt of courſe vary; and great judgment will be required to ſuit the proper method, if that can be diſcovered, both in the degree and the extent to which it ought to be carried, to the ſtate of every individual patient.

Beſide the general affections of the body, which may be ſuppoſed to give a diſpoſition to convulſions, affections of different parts, as of the inteſtinal canal or bladder, if they ſhould be too much loaded or diſtended, may have the ſame power*. But in the female conſtitution the *uterus* is the great ſource of morbid irritability, and

* Ad ſpaſmodica, quæ ex uteri vitio proveniunt, pathemata concitanda, non opus ſemper erit, ut materia corrupta et vitiata, utero inhærens, proximè et immediate id efficiat. *Hoffmann*, de Mal. Hyſteric.

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of courſe every cauſe capable of diſturbing this part beyond a certain degree, or in an unnatural manner, may affect the whole frame, according to the kind and degree of the original affection, or according to the previous diſpoſition. Yet all the parts of the *uterus* do not appear equally liable to be diſturbed, for the *os uteri* is evidently the moſt irritable part, even in a natural ſtate, as well as when diſturbed by any morbid or adventitious cauſe*. Hence it appears in pregnant women, on the firſt tendency to labour, that the changes, which that part undergoes, often occaſion a variety of nervous ſymptoms; and that theſe may be brought on, increaſed, or continued, if they before exiſted, by artificial or imprudent dilatation of that part in the courſe of labour, when it is unuſually rigid; or with an increaſed degree of irritability occaſioned by inflammation†.

It has been preſumed, that the preſſure made by the expanded *uterus* upon the deſcending blood veſſels, cauſing a regurgitation of the blood to the ſuperior parts of the body, to the head in particular, by overloading the veſſels of the brain, produced convulſions. This opinion applies to a cauſe very general indeed, and, if true, muſt have had its effect ſo frequently as not to remain in doubt. But it was before obſerved, that women of plethoric habits, were univerſally leſs ſubject to convulſions of this kind than the feeble and irritable, and that they ſometimes firſt came on, or continued with equal violence after the birth of the child, when this preſumed cauſe was removed.

Women are far more liable to convulſions in firſt than in ſubſe-

* In a caſe of this kind, which was publiſhed twenty-three years ago, I obſerved, "When the *os internum* began to dilate, I gently aſſiſted during every fit; but being ſoon convinced, that this endeavour brought on, continued, or increaſed the convulſions, I deſiſted, and left the work to Nature."

† A woman, whoſe caſe was communicated to me by Dr. *Mackenzie*, though the convulſions ceaſed after delivery, died on the fifth day of the puerperal fever. In almoſt every caſe of convulſions that I have ſeen, there was evidently, after delivery, a greater or leſs degree of abdominal inflammation.

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quent labours, which is true; and then, it is ſaid, more frequently when the child is dead, than when it is living; but this I cannot allow. For when women have convulſions, the death of the children ought generally to be eſteemed rather an effect than a cauſe; as they have often been delivered of living children while they were in convulſions; or of dead, and even putrid children, without any tendency to convulſions. Some women have alſo had convulſions in ſeveral ſucceſſive labours; but, having had them in one, they generally, by the precautions taken, or ſome natural change, eſcape them in future. Laſtly, I was for many years perſuaded, that convulſions happened only when the head preſented; but experience has proved, that they ſometimes occur in preternatural preſentations of the child.

SECTION III.

ON THE SIGNS WHICH PRECEDE CONVULSIONS.

1. PUERPERAL convulſions are often preceded for many hours, or for ſeveral days, by a vacillation of the mind, or with a ſlight delirium.

2. Swimming in the head, and other vertiginous complaints, in the latter part of pregnancy, or in women in labour, not unfrequently forebode convulſions.

3. Violent or piercing pain of the head, preceding or recurring with the pains of labour, with ſimilar ſigns of a diſturbance of the functions of the brain, often denote convulſions *.

* The lady of Captain C., who was at the full period of uterogeſtation, but not in labour, having complained about twelve hours of an excruciating pain in her head, coming on at intervals, fell down dead as ſhe was walking acroſs the room.

4. When women in labour frequently complain of blindneſs, they are in danger of falling into convulſions.

5. Convulſions are often preceded by violent pain or cramp at the ſtomach.

6. Convulſions preceded by violent pain or cramp at the ſtomach, are uſually more dangerous than thoſe, which are preceded by affections of the brain only; and they ſometimes cauſe ſudden death by ſtopping the action of the heart.

7. Women who have a rigor on the returns of the pains of labour, are in ſome danger of falling into convulſions *.

8. Women in labour, who have great ſwelling or fulneſs of the neck, joined with an enlargement of the features of the face, and a ſtaring or protruſion of the eyes, accompanied with an almoſt irreſiſtible diſpoſition to ſleep, often fall into convulſions.

9. I have not known any woman, who had frequent vomitings, in the time of labour, fall into convulſions; nor do theſe often happen in difficult labours. But women will frequently have vomitings, after they have been ſeized with convulſions, which afford ſome relief.

10. The danger of caſes attended with convulſions is not increaſed by their frequent return, as theſe depend upon the frequency of the action of the *uterus*; nor always upon an increaſe of the cauſe of the convulſions; but the increaſing violence of the convulſions always denotes an increaſe of danger.

11. In our attendance on patients in convulſions, it may be often obſerved, that the ſpaſms in the ſucceeding fits, chiefly and evidently affect diſtant parts, ſometimes the head, at others the *ab-*

* All rigors may be conſidered as a degree of convulſion; but theſe happen in labours frequently, though not always, without any ill conſequences. I ſaw a feeble woman ſeized immediately after her delivery with a rigor, which, in ſpite if all the means that could be uſed, continued for twenty-five minutes, and then ſhe died. Her labour had been very ſlow, but perfectly natural.

domen,

domen, ſometimes the lungs, and at others the muſcles of the throat; and the immediate danger may depend upon the effect of the ſpaſm in any one individual fit, upon one particular part.

12. When patients are recovered from labours which were accompanied with convulſions, there will often be a vacillation of the mind, or ſymptoms partly delirious and partly maniacal, for ſeveral days or weeks; but from theſe they always recover.

13. Women who have had convulſions, remain wholly inſenſible of all the circumſtances which paſſed from the time when the firſt ſymptoms of the convulſions appeared, to that when they recover their faculties; nor can they ever recollect them.

14. Thoſe women, who when in labour, from the violent pain in the head and other ſymptoms, ſeem to be threatened with convulſions, have often a ſlight bleeding from the noſe; but ſeldom in a ſufficient quantity to give perfect relief, or to prevent miſchief.

SECTION IV.

ON THE MEANS OF PREVENTING CONVULSIONS.

For the prevention of common accidents it appears reaſonable and proper, that women far advanced in pregnancy ſhould avoid all irregularities in their manner of living, and every ſituation where they may be under reſtraint; or they will be liable to many complaints and inconveniencies *. At the time of labour it is a rule generally obſerved, that their minds ſhould be kept compoſed, their apprehenſions quieted, their preſent ſufferings ſoothed by the ten-

* Gregarious animals, when pregnant or giving ſuck, chooſe a place in the herd, different from what they take at other times.

derneſs of their friends and attendants; that they ſhould be encouraged with the hope of a happy event, and that the knowledge of every thing which might agitate or diſtreſs them ſhould be concealed. But when any ſymptoms of diſeaſe appear, beſides theſe precautions, ſuch means, as the conſideration of any particular caſe may indicate to be neceſſary, are to be uſed; and no ſymptoms can require more attention than thoſe, which have been recited as threatening convulſions.

Bleeding is known to leſſen, in a very effectual manner, all the complaints in pregnancy which ariſe from uterine irritation, and to a certain degree, in pregnant women, from all other cauſes. It is therefore, I may ſay, univerſally recommended in all caſes, when theſe convulſions exiſt, or are to be apprehended. The quantity of blood to be taken away, and the repetition of the operation may be ſeveral times required, muſt depend upon the ſtrength of the patient and the violence of the ſymptoms. But as, in ſome caſes of this kind, there are alſo tokens of general debility, and a great dread of the operation, it will then be alſo neceſſary, or preferable, eſpecially when the head is particularly affected, to uſe local bleedings, by ſcarification and cupping at the nape of the neck, by the free and frequent application of leeches, or by opening the jugular vein, or ſometimes by cutting the temporal artery; a thing ſo eaſily done as not to deter us from the practice, and often ſo efficacious as to invite our doing it on many other occaſions.

When theſe ſymptoms have been preceded or are accompanied by others, which denote much diſturbance of, or the lodgment of any offenſive matter in, the ſtomach, emetics may be given with ſafety and advantage *. In many affections of the brain it has been thought

* A very ſhort time ago, a lady had many ſevere attacks of this violent pain in the head, in the latter part of her pregnancy: this was conſtantly relieved by the application of leeches to her temples. When ſhe fell into labour ſhe became blind, and had one convulſion.

thought that emetics afforded ſingular benefit; and when theſe convulſions have been threatened, or exiſted, patients have been ſometimes wonderfully relieved by the operation of an emetic. Care is alſo to be taken to regulate the ſtate of the bowels, whether they be too much relaxed or conſtipated, eſpecially in the latter condition.

Towards the concluſion of pregnancy ſome women are ſubject to violent cramps in various parts of the *abdomen*, or inferior extremities, together with complaints in the head or ſtomach. Should not theſe be relieved by the cuſtomary means, the warm bath may be adviſed, and from its occaſional uſe they will often find much benefit.

Objections have been made to the frequent or habitual uſe of opiates for ſlight complaints in pregnant women; and there is much reaſon to ſuſpect, that they ſometimes, acting perhaps like ſpirituous liquors, prove injurious to the child. But theſe objections do not apply to their occaſional uſe when they are really neceſſary. Yet as, in very large doſes, opiates have been known to produce convulſions, it ſeems better to give them in theſe caſes, in ſmall quantities often repeated, than in a large doſe at one time*.

Nervous medicines of various kinds are uſually given on theſe occaſions, rather from cuſtom, or with the intention of procuring temporary relief than permanent advantage; and they ought not to be neglected. But, on the whole, it appears that in bleeding and

convulſion. Having great ſickneſs at her ſtomach, without vomiting, I urged her to irritate her breaſt with her finger, by which means ſhe vomited five or ſix times, and had no fit afterwards; the blindneſs remained in ſome meaſure for ſeveral days after her delivery. The child had been dead about a fortnight.

* But the late Dr. *Hunter* informed me of the caſe of a patient who had convulſions, preceded by violent pain at the ſtomach. On the approach of her next labour ſhe was attacked with the ſame kind of pain. She was immediately bled largely, and took thirty drops of *tinct. opii*, by which the pain was removed. She was delivered after an eaſy and natural labour.

keeping the ſtomach and bowels in a healthy ſtate, in giving opiates, and in the occaſional uſe of the warm bath, we have the principal means which medicine affords, as far as can be judged either by reaſon or experience, of preventing puerperal convulſions, of inſuring, in general, an undiſturbed labour, and an uninterrupted recovery *.

It may laſtly be conſidered, whether in caſes of convulſions exiſting or threatened after delivery, eſpecially when there are twins, it might not be expedient and uſeful to make an uniform preſſure by paſſing a napkin round the body, as ſoon as it can be conveniently done, between the birth of the firſt and ſecond child.

SECTION V.

ON THE TREATMENT OF CONVULSIONS.

From the attack of convulſions without any previous ſymptoms, or from the want of attention to thoſe ſymptoms, we have much more frequently an opportunity of exerciſing our judgment in curing than in preventing convulſions. Theſe, it was before obſerved, may come on in the beginning, or in the courſe of a labour; or, which is more rare, though not leſs dreadful, ſoon after the birth of the child; and ſome difference of treatment may be requiſite, according to the time of their appearance. But, whenever they do come on, the danger is ſo manifeſt, and ſo alarming, as to call for the immediate exertion of all the powers of medicine for the relief of the patient.

The firſt and moſt obvious remedy in a caſe of ſuch violent agitation of the whole frame, and ſuch obtuſion or perverſion of the

* *Mulieri ex partu convulſione tentatæ, ſi febris ſuccedat, bonum eſt.*
Hippocrat. Lib. i. de Morbis.

mental

mental faculties, is, to take away a proper quantity of blood from the arm; for the direct good, which may be expected to be gained by bleeding ſpeedily, as well as for the prevention of the miſchief, which might follow the convulſions. One copious bleeding has ſometimes entirely removed the convulſions, which have not returned after, as well as before delivery; but ſhould theſe continu e with equal force for a certain time, it will be expedient, for the particular eaſement of the head, to try the effect of local bleedings. Leeches are too ſlow in their operation, though they may be ſafely applied, and affording ſome relief, ſhould not be neglected, and ſcarification, with cupping, could not be done without much difficulty; ſo that the two methods, moſt applicable and adequate to the urgency of the caſe, are, to open the temporal artery, or the jugular vein; and the latter has certainly been found preferable, perhaps becauſe the blood is thereby diſcharged with greater velocity *. Objections are ſometimes made to bleeding, leſt there ſhould be a difficulty in reſtraining the blood while the patient is ſo much diſturbed; but there is no hazard, and the caſe does not admit of delay. The bleeding, from whatever part the blood may be drawn, is to be repeated according to the effect produced, the ſtrength of the patient, and the violence or continuance of the convulſions †.

In the courſe of a few hours, I have by different operations ſeen more than forty ounces of blood taken away with the happieſt

* For a patient, who was lying in a ſtate which deprived me and ſeveral phyſicians of all hope of her recovery, Dr. *Reynolds* propoſed, that the jugular veins ſhould be opened. The good effects were almoſt inſtantaneous; the patient recovered, and has ſince had many children.

† The late Dr. *Bromfield* informed me of a caſe of puerperal convulſions, for which he had bled the patient without much benefit. In the violence of ſome of her ſtruggles the orifice opened, and a conſiderable quantity of blood was loſt before the accident was diſcovered; but the convulſions from that time ceaſed.

effect

effect; and in a labour of long duration, when the convulſions have been ſevere, at various times, not leſs than ſixty or ſeventy ounces.

The ſtate of the patient will ſeldom allow of the uſe of emetics; but, when they could be given, and have produced their effect, they have procured much relief; and the ſame obſervation may be made of purgative medicines. But the truth is, the moment the convulſions come on, the patients often loſe all power of ſwallowing, even in the intervals, and we are compelled to relinquiſh internal medicines altogether. Yet in ſuch caſes, clyſters, if they can be made to paſs, are uſually given; but, whether they were purgative in the firſt inſtance, or afterwards compoſed with a due quantity of opium, of oil of amber, the fetid gums, or other medicines of that kind, I cannot ſay that I ever ſaw any good produced by them, at leaſt before the birth of the child; and ſometimes they ſeemed to increaſe the irritability.

On a ſuppoſition that the remote cauſe of theſe convulſions is in the too great irritability of the conſtitution at large, and the immediate cauſe in the excitement raiſed by ſome new ſtimulant, as the labour, or the like, opium in any convenient form has been freely given, and ſometimes with evident advantage; though I have ſeen many caſes, in which it had no power to remove, or even to abate, this diſeaſe. From the exhibition of large doſes, I have ſeen the patient brought into a comatoſe ſtate, but the moment ſhe was rouſed, the convulſions have returned with their former violence. Nor has more ſatisfaction been obtained by the various nervous medicines commonly preſcribed; even muſk, often repeated in very large quantities, has done as little ſervice as the reſt.

When the convulſions have continued or increaſed, notwithſtanding the bleeding and the uſe of all the other reaſonable means which could be deviſed, the patient may be put into the warm bath, in which ſhe may remain a conſiderable time, if the convulſions be

ſuſpended while ſhe is in it. There have been inſtances of women with convulſions, who have been freed from them only during the time they were in the bath; and I have heard of one or more caſes of their being actually delivered in the bath, without any ill conſequences, either to the mother or child. When a warm bath could not be procured, or while it was preparing, I have directed flannels wrung out of hot water, or any ſuitable fomentation, to be applied over the whole *abdomen*, and, I think, with advantage; and after the uſe of the fomentations I have alſo adviſed ſome liniment made more ſoothing by the mixture of opium, ſuch as equal parts of oil and *tinctura opii*.

On every principle, of removing the cauſe of the convulſions, of ſubſtituting new modes of irritation different from that which produced the convulſions, of preventing their ill effects, or of abating that exquiſite irritability which renders patients ſubject to them, almoſt every meaſure and method has at one time or other been tried. *Harvey** recommended the irritation of the noſe in a comatoſe patient who was in labour, and gives an inſtance of its ſucceſs. Many years ago I was led by accident to try the effect of ſprinkling, or daſhing cold water in the face; and in ſome caſes the benefit was beyond expectation or belief†: but in other caſes, in which I uſed this

* Exercitat. de Partu.—Page 554.

† I ſubjoin the following caſe, to explain the manner of uſing the cold water. To a patient in convulſions, who had been bled, and for whom many other means had been fruitleſsly uſed, I determined to try the effect of cold water. I ſat down by the bed ſide with a large baſon before me, and a bunch of feathers. She had a writhing of the body, and other indications of pain, evidently occaſioned by the action of the *uterus*, before the convulſions; and when thoſe came on, I daſhed, with ſome force, the cold water in her face repeatedly, and prevented the convulſion. The effect was aſtoniſhing to the by-ſtanders, and indeed to myſelf. On the return of the indications of pain I renewed the uſe of the cold water, and with equal ſucceſs; and proceeded in this manner till the patient was delivered, which ſhe was without any more convulſions, except once when.

this method with equal care and aſſiduity, no good whatever was derived from it; nor has the application of ſinapiſms to the feet, or bliſters to various parts of the body, afforded any advantage, except, perhaps, when the convulſions had ceaſed, and the patient remained comatoſe.

When all means have been tried without ſucceſs, and the convulſions remain, with evident and extreme danger of the patient dying every time they return, we ſhall, notwithſtanding, be driven by neceſſity to wait quietly for the termination of the labour in a natural way, hoping ſhe may ſtruggle through; or we ſhall be obliged to ſeek further reſources in the delivery of the patient by art. But this part of our ſubject ſhall be conſidered in the next ſection.

SECTION VI.

ON THE DELIVERY BY ART.

If it be neceſſary to make diſtinctions as to the time when convulſions come on, with regard to the medicinal treatment, it is infinitely more ſo as to the delivery of the patient by art. We will therefore conſider,

1. Whether delivery by art be proper or juſtifiable in the beginning of a labour attended with convulſions.

when the water was neglected. The child was born living about fifteen hours from the time of my being called, and the patient recovered perfectly.

I was much mortified to find, that I had not diſcovered a certain and ſafe method of treating convulſions; farther experience convincing me, that this often failed. It is however a ſafe remedy; and, though it may not always have ſufficient efficacy to prevent or check convulſions, whoever tries this manner of uſing cold water will ſoon be convinced, that it is a very powerful ſtimulant.

Women

Women ſometimes fall into convulſions before there is any diſcoverable tendency to labour, when there is not the ſmalleſt degree of dilatation or relaxation of the *os uteri*, and when there is no way of judging that it will be labour, except from the peculiarity of the convulſions, or the manner in which they return; and by theſe they may in general be readily diſtinguiſhed from thoſe proceeding from any other cauſe. In ſome caſes alſo, after a long continuance of the convulſions, the *os uteri* has remained cloſed; and then it has been preſumed, that they were not, properly ſpeaking, puerperal. Yet, after a long delay, it has uſually happened, that the dilatation both of the internal and external parts has begun, and proceeded very rapidly; ſo that, in a ſhort ſpace of time, from no degree of dilatation, the *os uteri* became unexpectedly, but completely dilated, when all hopes of delivery had been laid aſide, and the very exiſtence of the labour had been denied *.

When women have before had children, the infant and *placenta* have been ſometimes expelled with wonderful rapidity, by the mere force of the convulſion acting upon the *uterus*. But even in ſuch caſes the convulſions may continue with equal danger after delivery.

Now whether it be proper and reaſonable, that attempts ſhould be made to deliver a woman with the *os uteri* in this ſtate, and under ſuch circumſtances in general, muſt appear very dubious to thoſe, who conſider how much would then be required to be done by art. But, if we farther reflect upon the event of the greater number of caſes of women who have been delivered by art, under theſe, and far more favourable circumſtances, the greater part of

* In a well known caſe of this kind, the midwife, preſuming that it would not be labour, left the patient, who was found dead in the morning, with her child, alſo dead, lying in the bed.

whom have ſoon died, their death being apparently haſtened by the operation, however carefully it might have been performed, we ſhall be deterred from then propoſing it; and, I think, be juſtified in forming this general rule of practice, ſubject perhaps to ſome exceptions, that women, who fall into convulſions in the beginning of labour, ought not then to be delivered by art.

I preſume, that, with all the aſſiſtance which art enables us to give, or if the labour be reſigned to nature without interpoſition on our part, patients will ſometimes die in a deplorable manner *. I alſo know that, if the patient ſhould die when no attempts were made to deliver, that the omiſſion is always regretted; or, if ſhe ſhould be delivered by art and die, that the operation is lamented. Yet there muſt be a rule of conduct to be preferably followed, and with few exceptions; and this is to be made, not according to the timidity or boldneſs of the perſon under whoſe care the patient may be, nor according to the impatience or tenderneſs of friends; but according to a judgment formed by a ſenſe of duty, maturely weighing all that the knowledge of a preſent caſe, or the experience of others, has enabled us to collect †.

2. Though convulſions often happen in the beginning of a labour, and continue to its termination, the firſt ſtage is, in ſome caſes,

* —— with remorſeleſs cruelty,
Spoiled at once both fruit and tree.
The hapleſs babe before his birth,
Had burial, yet not laid in earth.
Milton's Elegy on the Marchioneſs of Wincheſter.

† Dr. *Roſs*, who, forty years ago, was one of the phyſicians of St. *George's Hoſpital*, was the firſt perſon who had courage to declare his doubt of the propriety of ſpeedy delivery in all caſes of puerperal convulſions. The obſervation on which theſe doubts were founded was merely practical, and the event of very many caſes has ſince confirmed the juſtice of his obſervation, both with reſpect to mothers and children.

paſſed

paſſed over without any unuſual diſturbance or irregularity, and they come on in the ſecond ſtage of the labour, when the ſymptoms which uſually precede them did not appear, or rather paſſed without obſervation. The propriety of delivering by art is then to be determined on other grounds than in the preceding ſtatement, whether the convulſions have continued, or commence at that time. For, if it ſhould be thought neceſſary, to deliver by art, this may frequently be done without any peculiar force upon the parts concerned, as the *os uteri* will then either be dilated with the membranes, whole or lately broken, and the child may be turned without difficulty, and ſafely extracted by the feet; or the head will have deſcended ſo low into the *pelvis*, as to allow of the uſe of the *forceps* or *vectis*; or things may be ſo unhappily circumſtanced, as to leave no other option of the mode of delivery, but we may be compelled to leſſen the head of the child. Whichſoever of theſe methods may be thought neceſſary, the rules before given for the management of difficult or preternatural labours, will be ſufficient guides for our conduct: and before any thing elſe is done, the membranes may be ruptured, and the waters diſcharged; from which alone, in ſome caſes, much benefit has been derived. But, from a review of what has paſſed in my own practice, I feel it neceſſary to caution the operator againſt a forwardneſs to ſacrifice the regard due to the child in caſes of convulſions, as many of theſe, with very unfavourable appearances, have terminated happily and ſafely both to the mother and child; and againſt hurry in any operation, as he would thereby leſſen his chance of ſaving the child, and probably with diſadvantage to the mother; and no good can reſult to ſociety, or reputation accrue to the profeſſion, from a practice by which neither of their lives is preſerved. Should the convulſions continue after the birth of the child, the methods before tried muſt be perſiſted in, or new ones adopted, as the ſtate of the caſe may then require or allow; and under theſe circumſtances it

will often be found preferable, to ſatisfy ourſelves with giving time, proceeding gently and circumſpectly with general care, rather than to uſe inceſſantly the more active means, which it has been ſometimes neceſſary to recommend.

With reſpect to thoſe convulſions, which firſt appear after the birth of the child, the exigence of the caſe muſt govern the treatment, and great attention is to be paid to the *placenta*, which, I believe, ſhould not then be haſtily extracted. There is in theſe an appearance of inſtant and unexpected danger, beyond what is found in convulſions before delivery, frightful as they always are. Theſe convulſions are preceded or accompanied by the ſame ſymptoms as thoſe, which come on in the commencement or courſe of a labour; and notwithſtanding the delivery, they require and allow of the ſame means being uſed for the relief of the patient, provided theſe are accommodated to her general ſtrength and circumſtances. In convulſions which come on after delivery, if women eſcape from the firſt fit, there is a great chance of their recovery; but ſhould they remain comatoſe, or whatever their ſtate may be, the particular ſymptoms are to be conſidered, and, from all that has been ſaid upon this ſubject at large, we ſhall be at no loſs to diſcover what may be applicable in any individual caſe of this kind.

But there is yet room for much improvement in our knowledge of the cauſes, effects, and treatment of convulſions, depending on pregnancy and parturition.

Before the concluſion of this ſubject, it will not be amiſs to ſpeak of the ſudden deaths which ſometimes happen ſoon, or a conſiderable time after delivery, when there was no apparent reaſon for ſuſpecting ſuch events.

In every caſe of extreme debility, induced by any circumſtance which might occur at the time of parturition, great caution was generally recommended, that patients ſhould not exert themſelves beyond their ſtrength, or what they were able to do with eaſe.

But

But from a review of theſe dreadful accidents, of which, in the courſe of a long and extenſive practice, I have ſeen and known too many inſtances, I think they may be reduced under the following heads.

Firſt, when before delivery the patients were ſubject to frequent returns of ſpaſm or cramp-like pains in the ſtomach, ſpreading their influence to the heart, as is ſhewn by the temporary ſuſpenſion or interruption of the circulation, indicated by the pulſe. Theſe ſymptoms are very apt to return after delivery with increaſed and dreadful violence.

Secondly, when the patient is very much reduced by loſs of blood at the time of delivery, the weakneſs thereby occaſioned remaining a long time afterwards. In theſe caſes, on making any extraordinary exertion, the patient is ſuddenly overcome, and the powers of the conſtitution are never able from that time to recover vigour of action ſufficient to ſuſtain life.

Thirdly, when without any adequate indication of the miſchief to be apprehended, a faintneſs and a difficulty of reſpiration ſuddenly come on, and theſe increaſing, the patient dies unexpectedly. This event is uſually preceded by her ſpitting a very ſmall quantity of blood, and on examining the body after death, an effuſion of blood in the air veſſels of the lungs has clearly ſhewn the cauſe.

Fourthly, in caſes of extreme debility from other cauſes, particularly in the edematoſe ſwelling of the leg, in which there is often a ſurpriſing degree of weakneſs with much diſturbed action of the whole frame, on the patient's making any effort beyond her ſtrength, and perhaps her inclination, a fatal and ſudden faintneſs is ſometimes brought on, before an action to which ſhe ſeemed competent is completed, and death ſeems more inſtantaneous under theſe than any other circumſtances.

With regard to the firſt cauſe of theſe deplorable events, without waiting

waiting for the return of the ſpaſm, it will be proper to give ſome very warm cordial immediately after delivery, as brandy alone or diluted, acting in the manner uſually practiſed, when patients are ſuffering from the gout in the ſtomach. The moſt ſuitable medicine is the *confectio opiata*, given and repeated in a full doſe according to the exigencies of the caſe.

With regard to the ſecond and third cauſes, there is no way of preventing their effects ſo reaſonable, as by taking care not to fill the veſſels too haſtily, by very plentiful nouriſhment, from an impatience to reſtore that ſtrength which the patient has loſt.

And with reſpect to the fourth cauſe, of which I have ſeen three inſtances, we are to be very circumſpect, that we do not permit, or perſuade patients to make much exertion, while they are very weak, but leave them to act according to their own feelings and judgment.

Theſe obſervations will not I fear be of much importance, but we may be truly ſaid to be ignorant, or to have a very imperfect knowledge of this ſubject, which deſerves more accurate obſervation, and greater conſideration.

CHAPTER XVII.

ANOMALOUS, OR COMPLEX LABOURS.

ORDER THIRD.

Labours with two or more Children.

SECTION I.

THE common order of generation, or the continuance of the particular kind of animals, according to the properties of each kind, is more frequently invaded by an extenſion than a failure of the principle; inſtances of unuſual increaſe being often found both in animals and vegetables, though theſe inſtances occur more frequently in ſome claſſes than in others.

With reſpect to generation, all animals may be divided into two claſſes, uniparient and multiparient. Of the multiparient the number of young produced at one birth ſeems to be indefinite and governed by accidental circumſtances, as the frequent intercourſe with the male, plenty or want of food, and perhaps by the caſual fixture of the firſt conception in the firſt chamber or partition of the *uterus*. It very ſeldom however happens, that animals multiparient by nature bring forth only one *fœtus* at a birth; and perhaps the uniparient do not more frequently bring forth more than one,

though in every ſpecies there are exceptions to this general rule. As to the economy of this important end of the animal creation, it would probably be found, that the female multiparient animals have no excluſive attachment to any individual male; but that the female uniparient have naturally ſuch an attachment.

In ſome ſpecies of animals, the propenſity to bring forth more than their common number of young is greater than in others; in ſheep, for inſtance, more frequently than in cows, in theſe than in lions. Climate, and ſtate or degree of civiliſation, ſeem to have their influence in this reſpect on human beings; for in the account of the women admitted into the Middleſex Hoſpital in this city, in 8636 births, there were only ninety-three caſes of twins, and none of a greater number. Of this number there were 3263 boys; 310 were ſtill born, and of this number 180 were boys; and ſomewhat more than half of the twins were boys. But in the accounts publiſhed by Dr. Clerke of Dublin*, the number of twins was in greater proportion to the births, and there were ſeveral examples of three children.

It has been ſuppoſed, that there is a diſpoſition in certain families to this multiplied generation, which may be transferred either by the male or female; but if this be the caſe, there are no tokens by which this diſpoſition would be ſuſpected, either from the form, ſize, ſtrength, or other appearance.

It is not very uſual for women to have twins, though theſe are to common obſervation more frequent in particular years than in others, and it can ſcarcely be doubted, but there is ſome relation in thoſe years between the animal and vegetable creation. In the courſe of more than thirty years I have met with only one inſtance of three children, and never of more. I have been informed of ſeveral caſes of four children, and there have been pub-

* See Philoſophical Tranſactions.

liſhed

liſhed a few caſes of five children born at one birth, but beyond this number there is no well authenticated caſe upon record.

The ſize of children born at one birth is generally in a reverſe proportion to their number, as is alſo the probability of their being born alive, or continuing to live. Twins are frequently born living, and not much beneath the ſize of a ſingle child; ſometimes three have been born living, and been reared, but not often; and when there have been more, the chance of all or any being preſerved is very little. With more than two children women ſeldom go on to the full period of uterogeſtation. There muſt of neceſſity be ſomewhat more complex and ſometimes hazardous when there are two or more children than in a ſingle birth, but he who underſtands the proper management of a twin caſe will meet with no difficulty to embarraſs him, how many children ſoever there may be; we ſhall therefore ſpeak of all births of this kind under the denomination of twin caſes.

SECTION II.

ON THE SIGNS OF TWINS.

1. WOMEN are ſaid to be always of a greater ſize in the advanced ſtate of uterogeſtation when they are pregnant with twins, than when they have a ſingle child. This is a very uncertain ſign, and popular opinions being uſually founded on this circumſtance only, are therefore far more frequently fallacious than true. But if a woman be unuſually large in the early part of pregnancy, and increaſe proportionably to the full period, there is good reaſon for ſuſpecting ſhe will have twins. But as the term *ſize* is indefinite, and what one, not much converſant in ſuch matters, may conſider

as large, another may conſider as moderate, there can be no ſurpriſe, if conjectures on this ſubject often prove to be erroneous.

2. The *abdomen* of all women with child is in general uniformly diſtended, without any inequality. It ſometimes however happens, that the tendons, which form what is called the *linea alba*, which leads from the navel to the middle of the *oſſa pubis*, being leſs diſtenſible than the ſides of the *abdomen*, which are muſcular, divide the *abdomen* as it were into two equal parts by a *raphe* or indentation through its inferior part. This preſumed ſign of twins is as ancient as the time when the human *uterus*, like that of quadrupeds, was ſuppoſed to be divided into *cornua*, a child being thought to be contained in each horn. But as the form of the human *uterus* is now well underſtood, and known to be equally diſtenſible by its contents, whatever the form of the *abdomen* may be, unleſs it be conſtrained by external means, even leſs regard is paid to its form than its degree of diſtention, when we are judging whether it be probable, that a woman is pregnant with more than one child.

3. Women with child, eſpecially thoſe who have before had children, are ſometimes apprehenſive that they have twins, from a greater, or ſome uncommon motion they feel during pregnancy. Some regard muſt at all times be paid to the repreſentations of thoſe who have had experience, though they may be ignorant of doctrines; yet I have ſeldom found theſe opinions verified by the event.

4. In the courſe of a labour, ſooner or later, according to the ſtrength of the membranes and of the pains, the waters of the *ovum* are diſcharged at once, by one large, or a repetition of leſs diſcharges, when there is only one child. Mention is ſometimes made of a ſecond diſcharge of water, before the birth of the child, as a ſign of twins. This ſecond diſcharge may be occaſioned by an imperfect firſt diſcharge, or by water collected in a conſiderable quantity

quantity between the membranes, on the rupture of the ſecond membrane. When however a child is far advanced towards birth, a ſudden diſcharge of any conſiderable quantity of water from a part beyond the child does create a juſt ſuſpicion of there being another child, the membranes of the ſecond breaking by the efforts made to expel the firſt.

5. Extreme ſlowneſs of a labour, which has been conſidered as a ſign of twins, may be produced by a variety of other cauſes, as we have often mentioned, and of courſe this muſt be a very uncertain one. It is true, when there are twins, the firſt labour is almoſt univerſally ſlow, and this ſlowneſs has been not unreaſonably attributed to the great diſtention of the *uterus*.

But our ignorance of the number of children of which a woman may be pregnant, fortunately does not lead to any errors in practice; becauſe if we knew with certainty that there were twins, our conduct with regard to the birth of the firſt child ſhould not be altered. It would then be our duty, as at all other times, to wait for the expulſion of the firſt child, if the labour were natural, and any difference in practice would only relate to the ſecond child.

After the birth of a child, it was formerly the cuſtom to introduce the hand into the *uterus* to bring away the *placenta*, or any coagulated blood which might be collected in its cavity, and to aſcertain whether there were another child. This practice has been for many years juſtly held both unneceſſary and pernicious, the *placenta* generally coming away without any, or with very little aſſiſtance, and *coagula* being alſo ſafely expelled without any or much difficulty; and the application of the hand to the *abdomen* giving full ſatisfaction as to the other intention. By this method we can often feel diſtinctly if there be another child, and its limbs, together with the different parts of the body, through the integuments of the *abdomen*; but it is generally by its degree of diſtention after the birth of the firſt, that we judge there is a ſecond child. But

on this principle I remember being miſtaken in a caſe in which a young woman with her firſt child had an *aſcites* during pregnancy; and the error muſt always be of that kind, to lead us to believe there are twins when there are not, but can never ſuffer us to overlook the caſe, or to leave a child remaining in the *uterus*, which through inattention or ignorance has ſometimes happened.

In twin caſes, priority of birth does not depend on ſuperior ſtrength, but on convenience of poſition; that which is neareſt the aperture of the *pelvis* muſt firſt be born, whether it be ſtrong or weak, living or dead. When one child is beyond compariſon ſtrong, and the other feeble, it is not unuſual for the feeble one to be killed, apparently by preſſure, though it may not be expelled before the full period of uterogeſtation; ſo that one may come into the world fat and full grown, and the other may be ſmall, withered, and compreſſed. This diſſimilarity in ſize and appearance was once conſidered as a proof of the obſolete doctrine of ſuperfetation.

SECTION III.

ON THE MANAGEMENT OF TWIN CASES.

It is a conſtant rule, to keep patients, who have born one child, ignorant of there being another, as long as it can poſſibly be done.

In far the greater number of thoſe twin caſes, which have occurred to me in practice, while I have been waiting for the circulation in the *funis* to ceaſe, or employed in tying it, or waiting for a pain to exclude the *placenta*, the patient has complained with more than ordinary eagerneſs. On examination, I have found the ſecond child on the point of being born, or the membranes protruding with great firmneſs, ſo that inſtantly on their breaking, the

the patient has been delivered with great rapidity, almoſt before I had time to give notice to the attendants, to prepare for its reception. Of courſe, in labours like theſe, nothing particular could be required to be done, as they terminated with as little trouble, as if there had been only a ſingle child. Our intelligence and care can then only be exerciſed on one or other of theſe occaſions.

1. Whatever may be the preſentation of the firſt child, and whatever method it may be found neceſſary to purſue for the delivery of the patient, theſe are to be preciſely the ſame, and there will be no greater difficulty, than if there were only a ſingle child. One circumſtance alone demands attention, that, if the preſentation of the firſt child be ſuch as to require the child to be turned, when we have introduced our hand into the *uterus*, we muſt be careful not to break the membranes of the ſecond child, if they be yet whole; or if we ſhould find them broken, we muſt take care to bring down the feet of the ſame child. In all other reſpects I think I have found the turning of the child leſs difficult, when there were twins; and if we have been under the neceſſity of turning the firſt child, it will generally be expedient, to extract or get the command of the ſecond, by repaſſing the hand into the *uterus* and bringing down its feet into the *vagina*.

Should the ſecond child preſent with the breech or inferior extremities, there can be no ſolicitude about the caſe. We muſt act as was before adviſed in ſuch caſes, that is, we muſt wait for the expulſion of the child by the natural efforts, if they be excited, or be equal to the effect, otherwiſe we muſt give aſſiſtance.

The moſt fortunate preſentation of the ſecond child in a twin caſe is certainly with the inferior extremities, becauſe it may in that poſition be born without injury or difficulty, and if aſſiſtance be required, this may be given with ſafety and convenience.

In caſes of the ſecond child preſenting with the head, the ſame obſervations will hold good. That is to ſay, the child will probably

be

be expelled by the natural efforts; or if farther aſſiſtance be requiſite, the *forceps* or *vectis* may be conveniently uſed. As to leſſening the head of the child, this operation cannot poſſibly be needful, if there were room for the firſt child to paſs without diminiſhing its bulk; unleſs from ſome very unuſual circumſtance, as a hemorrhage or convulſions, threatening immediate danger.

2dly. When after the birth of the firſt child there is a ſuſpenſion of the pains of labour, and no efforts are made to expel the ſecond child.

The proceſs of the labour of the firſt child will have its effect on that of the ſecond. If we were compelled to make the firſt labour artificial, it might be neceſſary or expedient, to deliver the patient of her ſecond on the ſame principle, unleſs the natural efforts ſhould be efficaciouſly made very ſoon after the birth of the firſt child; which is not the ſtatement I now wiſh to make. But when after the birth of the firſt child, expelled in a reaſonable time and by the natural efforts, from ſome cauſe which we cannot comprehend or counteract, no efforts whatever are made for the expulſion of the ſecond child, the patient being as much at her eaſe as if there had been no previous labour; this is a ſtate of great ſolicitude to every perſon careful of his patient, and of his own character, as he muſt know ſhe will be in ſome degree liable to unpleaſant, and even to dangerous ſymptoms, till the ſecond is alſo born, and the buſineſs completed. The rules of practice have been on this ſubject not only various, but directly oppoſite. By the older writers we have been taught, that it was neceſſary and proper, if the ſecond labour were not ſpeedily finiſhed, immediately after the firſt, to extract the ſecond child, according to its poſition or ſituation, by properly adapted artificial means. Others, on the contrary, averſe on every ſafe occaſion to the interpoſition of art, have adviſed us to wait patiently, till the efforts to expel the ſecond child were renewed, unleſs ſome ſymptom ſhould ariſe, which ſhould call for more

more ſpeedy aſſiſtance. The latter appears to be a more judicious principle on which to act in general, and it is ſupported by ſome facts under the eye and direction of very able men, as well as by many popular accounts; not to mention the guard it provides againſt the miſconduct of thoſe, who may not be perfectly competent to give that aſſiſtance, which they preſume to be required. Like all other general principles in practice, it requires nice diſtinctions to be made in particular caſes, otherwiſe the cauſe of danger will ſometimes creep on inſidiouſly, and come by ſurpriſe. No perſon can object to waiting for a certain time after the birth of the firſt child, provided there be no preſſing occaſion for his interpoſition, before he determines on the extraction of the ſecond child by art. We can then only debate upon the length of time which it may be expedient to wait; and, as we ſay with regard to the *placenta*, it ſhall neither be ſo ſhort as to run the riſk of injuring the patient by hurry or raſhneſs, nor ſo long as to increaſe the danger, ſhould any exiſt, nor the difficulty of delivering the patient, if we ſhould be at length obliged to uſe art for this purpoſe. Without regard to thoſe who are fond of ſpeculative opinions, or the determination of thoſe who are guided by practice alone, I have concluded that we may ſafely, and ought to wait for four hours at leaſt after the birth of the firſt child, before we deliver the patient by art of the ſecond child; if there be no particular cauſe for delivering her ſooner. By this deciſion we ſhall certainly avoid many unneceſſary operations, without detriment to the patient, without increaſing our own difficulties, or hazarding our reputation.

The proper management of the patient after the birth of the firſt child is very obvious. There is no reaſon for alarming her fears, but the caſe will terminate more favourably by keeping her ignorant of the circumſtance, or if it be diſcovered, by cheering her mind, and ſhe will go on better and with more reſolution, by being aſſured

that aſſiſtance ſhall be given, if ſhe ſhould not be delivered naturally before ſome fixed time.

3. When a hemorrhage, convulſions, or other dangerous ſymptoms come on, or are threatened, after the birth of the firſt, or before the birth of the ſecond child.

Though there may be many aberrations, every labour has its denomination from the moſt important circumſtance, with which it is attended, and ſuch circumſtance principally governs the practice, which it may be neceſſary to purſue. Among theſe, hemorrhages and convulſions ſtand in the firſt place, and, whatever may be the nature of a labour in other reſpects, that muſt be of ſecondary conſideration. In twin caſes, however proper or expedient it might be to wait, for a limited time, for the natural expulſion of the ſecond child, the appearance of convulſions, or hemorrhage, or other dangerous ſymptoms, would decide the matter, and put the propriety of waiting any longer out of the queſtion. The patient, if theſe cannot be removed by other means, muſt be ſpeedily delivered by art. But I wiſh to confine the term *ſpeedy* to the determination to deliver; for under all circumſtances, the operation inſtituted for extracting the child, of whatever kind that may be, ought to be performed deliberately, or we ſhall add to the danger which before exiſted. Whether therefore we be compelled by theſe dangerous appearances, or after waiting a ſpecific time, four hours for inſtance, as was before ſtated, we have determined on the propriety of delivering the patient by art, we muſt bear in mind this rule, that we never ought to proceed with any degree of hurry or violence, if it can poſſibly be avoided. We muſt never forget, that it is not the mere delivery of a woman which is of value, but as this may be the means of freeing her from the immediate danger ſhe is in, leaving her with the faireſt chance of a perfect recovery, at the ſame time preſerving, ſhould it be poſſible, the life of the child.

SECTION

SECTION IV.

ON THE MANAGEMENT OF THE PLACENTÆ.

When there are twins, more difficulty is expected, but not always found, in the management of the *placentæ*, than in the caſe of a ſingle child.

The two *placentæ* are uſually connected together ſo as to form one maſs; but in ſome caſes they remain ſingle, except where the membranes cohere, and are to be ſucceſſively extracted.

The number of *placentæ*, ſeparate or connected, is uſually in proportion to the number of children. Some deviations from this obſervation have been recorded, a ſingle *placenta* and a ſingle cord having been found in a caſe of twins, the latter of which branched off into two, after it had departed to ſome diſtance from the *placenta* *.

When the *placentæ* are ſeparate, that of the firſt child ſhould not be extracted before the birth of the ſecond child, as a diſcharge of blood muſt neceſſarily follow, and perhaps a hemorrhage; though ſometimes one *placenta* has been diſcharged before the birth of the ſecond child, without any material loſs of blood; and in ſome caſes of hemorrhage, when there was only one child, the *placenta* has been expelled before the child, without any detriment.

When the *placentæ* are connected, they uſually remain perfectly attached till after the birth of the ſecond child, otherwiſe there would be a hemorrhage.

If there have been a neceſſity of extracting the ſecond child by

* In the Memoirs of the Royal Academy there is an account of a caſe of this kind.

art, it is commonly, but not univerſally, neceſſary to extract the *placenta* alſo by art.

But preſuming that two or more children have been expelled by the natural efforts, and that there is no hemorrhage or other cauſe of alarm, then there appears, and actually is, no more reaſon for giving aſſiſtance to bring away the *placenta*, than if there had been only one child, but we ſafely may and ought to wait for the expulſion of the *placenta* by the natural efforts, as in a ſingle birth.

When we do give aſſiſtance, we muſt recollect, that the two *placentæ* ought to be extracted together or in quick ſucceſſion, as the patient would not be freed from the hazard of her ſituation, if any exiſted, ſhould one of them be retained. When therefore we give aſſiſtance in pulling by the *funes*, we muſt be careful, that each ſhall bear an equal ſhare of the force we think it expedient to uſe. Or if it ſhould be neceſſary to extract the *placentæ*, by introducing the hand into the *uterus*, the hand is not to be withdrawn, till both the *placentæ* are looſened and ready to come away. The caſe will then require preciſely the ſame conduct as that of a ſingle *placenta*, which there is no occaſion to repeat.

The *uterine* diſcharges are more copious in a caſe of twins, than in that of a ſingle child, and they are in general of longer continuance.

CHAPTER XVIII.

ANOMALOUS, OR COMPLEX LABOURS.

ORDER FOURTH.

On Labours in which there is a deſcent of the Funis Umbilicalis before any part of the Child.

SECTION I.

THE *funis umbilicalis* may be eaſily diſtinguiſhed from any part of the child by its pulſation if the child be living, and by its form and continuation, whether the child be living or dead. When a conſiderable fold of the *funis* drops through the external parts, the attendants are very apprehenſive of danger from their ignorance of the part; but this alarm is ſoon removed by an explanation.

Some incident is generally aſſigned as the cauſe of this deſcent of the *funis*; but the rupture of the membranes, with a rapid diſcharge of the waters of the *ovum*, eſpecially if they be exceſſive in quantity, has been conſidered as the moſt uſual cauſe. This circumſtance may ſometimes occaſion the deſcent of the *funis*, but far leſs frequently than has been imagined. For, before the rupture of the membranes, the *funis* may very often be diſtinguiſhed through them, lying before the head, or preſenting part of the child; ſo that, whenever the membranes break, whatever might be the quantity of water,

or the manner of its diſcharge, it would be impoſſible, but that the *funis* muſt be the part which firſt deſcends. For this, with many other reaſons, ſo many cautions have been given to avoid breaking the membranes; becauſe, though the *funis* were thus ſituate, the child would not be in danger, before the membranes were broken. It has alſo been obſerved, that the deſcent of the *funis* has happened to the ſame woman in ſeveral ſucceſſive labours; ſo that, from the uncommon length of the *funis*, or from ſome other peculiar circumſtance, ſome women ſeem to be particularly liable to this accident.

The deſcent of the *funis* makes little or no difference with regard to the progreſs or event of a labour, as far as the mother is concerned. The danger thence ariſing is wholly confined to the child. All our attention, and every meaſure we purſue, muſt then relate to the prevention of this danger, which can ariſe only from the compreſſion of the *funis*, and the conſequent interruption or ſuppreſſion of the circulation of the blood between the *placenta* and child.

All the aſſiſtance which art has afforded for this purpoſe has led to two points of practice; firſt, in directing us to return the deſcended *funis* beyond the head, or preſenting part of the child, whatever that may be; in drawing it to the ſides, where it might be out of the way of compreſſion; or, if theſe were impracticable, to favour the continuance of the circulation, by preventing its expoſure to the influence of the open air. Secondly, by paſſing the hand into the *uterus*, turning and delivering the child by the feet, by which the labour was accelerated, and the danger from the compreſſion of the *funis* avoided.

When the *funis* has deſcended, the ſtate of the child may be preciſely determined by the *funis* itſelf. If there be a pulſation in it, the child is certainly living, though the pulſation may ceaſe during the continuance of a pain, and return in the intervals; but,

if

if no pulſation can be perceived in the *funis*, the child, we may be aſſured, is already dead. When the child is dead, all the efforts of art muſt be uſeleſs to it, and might be injurious to the mother; we muſt therefore be ſatisfied, with permitting the labour to proceed, as if the *funis* had not deſcended. It is only when the child is living, which, as we before obſerved, will be proved by the pulſation of the *funis*, that any interpoſition can either be required, or be of ſervice; yet it is remarkable, that writers on this ſubject have inſtituted their directions in general terms, without regard to the ſtate of the child, whether living or dead. It is alſo to be obſerved, that the ſame directions have been given under all the various circumſtances, in which the mother may be, though theſe are ſometimes ſuch as to make it impoſſible for them to be followed, without inducing ſome danger to the mother, or with any proſpect of advantage to the child; but we ſhall underſtand this ſubject better by conſidering it in the following manner.

SECTION II.

ON THE DESCENT OF THE FUNIS WHEN THE OS UTERI IS BUT LITTLE DILATED.

SHOULD the membranes break in the beginning of labour, more eſpecially if it be the firſt, when the *os uteri* is but little dilated, and the *funis* deſcend before the preſenting part of the child, this would probably periſh long before the *os uteri* became dilated, or acquired ſuch a ſtate of dilatability, as to allow of the ſafe introduction of the hand, if we were diſpoſed to turn the child; and before we had an opportunity of putting in practice any of the methods for replacing the *funis*. With this ſtatement of the ſituation of the mother,

ther, it appears to be more eligible, and, I believe, it is generally conſonant to the preſent practice, rather to ſubmit quietly to the natural event of the caſe, than by violent and ill-timed attempts to deliver the patient by art, with very little hope of ſaving the child, and not without ſome danger to the mother.

SECTION III.

WHEN THE OS UTERI IS FULLY DILATED.

THE *os uteri* is underſtood to be completely or ſufficiently dilated, when it will allow of the introduction of the hand without much force. When the membranes break in the advanced ſtate of a labour, ſhould the *funis* be deſcended before the child, it will even then be neceſſary, to conſider the ſtate of the child, before we determine on the meaſures we might find it ſafe, and think it reaſonable, to purſue. If the child ſhould be dead, we then certainly ought to reſign the labour to the natural efforts without any interpoſition. But, if the child be living, and the preſenting part remain high up in the *pelvis*, eſpecially if the pains have been ſlow and feeble, it will generally be better to paſs the hand into the *uterus*, to turn and deliver the child by the feet; uſing, at the ſame time, the precaution of carrying up the deſcended *funis*, that it may be out of the way of compreſſion. But if the head ſhould be ſo far advanced in the *pelvis*, as in any conſpicuous degree to render the turning of the child unſafe to the mother, that is, if the child cannot be turned without the uſe of much force, it may be proper to uſe our endeavours to preſerve the child by other means, ſuch as by

replacing the *funis*, or by accelerating the labour in its preſent poſition.

For the firſt we have been directed to raiſe the deſcended *funis* beyond the preſenting part of the child, in the abſence of a pain, as far as we can reach; retaining it there when the pains come on, till it ſhall abide above the preſenting part of the child, when we might preſume it was in ſafety. But this method, as far as I know, is, on trial, ſeldom or never found to ſucceed, for the *funis* is uſually forced down again on the return of the pains; though the ſucceſs of theſe attempts will very much depend upon the quantity of *funis* deſcended, or upon its being in a ſingle fold, or in ſeveral convolutions, and whether it be on the fore part or ſides of the *pelvis*, where it can be more commodiouſly managed.

The late Dr. *Mackenſie*, than whom I have not known a man more intelligent in converſation, or more excellent in practice, informed me of another method, which he had tried. Inſtead of attempting to replace the deſcended *funis* in the common way, he brought down as much more of it as would come with eaſe, and then encloſed the whole maſs in a ſmall bag made of ſoft leather, gently drawn together with a ſtring, like the mouth of a purſe. The whole of the deſcended *funis*, incloſed in this bag, was conveniently returned, and remained beyond the head of the child till this was expelled; and the bag containing the *funis* having eſcaped compreſſion, the child was born living. But he very ingenuouſly told me, that he had afterwards made ſeveral other trials in the ſame manner without ſucceſs.

Many years ago Mr. *Croft* alſo informed me of a method, which he had ſucceſsfully practiſed in theſe caſes. When he had in vain attempted to replace the *funis* in the common way, he carried up the deſcended part beyond the head, till he met with a limb of the child, ſuppoſe the leg or arm. On this he ſuſpended the *funis*, and then withdrawing his hand, ſuffered the labour to proceed

ceed in a natural way*. There may be much of accident in the ſucceſs of theſe different methods, but I ſhould believe, whenever it may have been thought neceſſary to introduce the hand into the *uterus*, that it would be found more expedient, to complete the buſineſs by turning the child, and delivering by the feet.

With reſpect to the acceleration of the labour, the means to be uſed muſt depend upon various circumſtances, which we will conſider in the next ſection.

SECTION IV.

1. It is to be obſerved, that every child is not born dead, though the *funis* had deſcended, and no means were uſed to free it from compreſſion; but it muſt evidently have been in the greateſt jeopardy. The danger of theſe caſes depends upon two circumſtances; the time which may paſs when the *funis* is compreſſed before the expulſion of the child; and the degree of compreſſion made upon it, in conſequence either of the ſmallneſs of the *pelvis* in proportion to the head of the child, or of the reſiſtance of the ſoft parts, or of the untoward ſituation of the *funis*. The firſt is beyond the power of art to remedy: the ſecond will depend upon the ſtate of the parts, whether it be a firſt child, or whether the patient may have before had one or many children, which is accidental. If the *funis* ſhould have deſcended with a firſt child, in general, the more ſlowly the labour proceeds, the leſs will be the hazard from the compreſſion; but, unfortunately, the children thus circumſtanced

* Mr. *Croft* informed me, that, beſide the two caſes publiſhed in the London Medical Journal for the year 1786, he has met with other caſes, in which he has been equally ſucceſsful.

will

will commonly periſh, though there is a bare poſſibility of their eſcaping; and I have been mortified, in ſome inſtances, with an aſſurance, in my own mind, that a very few minutes delay in the expulſion of the child has been the cauſe of the misfortune. When the *funis* deſcends in thoſe women, who have had many children, there is little comparative reſiſtance made by the ſoft parts; and, by exciting the pains to act with more vigour, or by encouraging the patient to exert her efforts more ſtrenuouſly towards the concluſion, the child will be ſooner expelled, and its life, perhaps, be preſerved. But no attempts to ſave the child are on any account to be made, but ſuch as can be practiſed without the chance of injuring the mother.

2. When the head of the child preſents, and has advanced far into the *pelvis*, if the pains be ſlow and ineffectual, and the child living, it may be conſidered whether, without hazard to the mother, we may not apply the *forceps* or *vectis*; and, by extracting the head ſooner than there was reaſon to think it would be expelled by the natural pains, preſerve the child. With regard to turning the child, and delivering by the feet in theſe caſes, the operation can only be performed before the head has deſcended far into the *pelvis*; though in ſome inſtances I have gone in this reſpect beyond the common rules of the art, and have ſucceeded in ſaving the child.

3. When there is a deſcent of the *funis*, with a preternatural preſentation of the child, our conduct muſt have regard to both theſe circumſtances.

Should the breech preſent, the caſe will very much reſemble the preſentation of the head; that is, the ſame methods for replacing the *funis* may be tried, and with rather a better chance of ſucceſs. If theſe fail, inſtead of conſidering the labour as one of thoſe, which is to be reſigned to the natural efforts, it may be expedient at a proper time to bring down one or both of the inferior extremities, taking care that the *funis* be not entangled between the

legs of the infant; and there are few cafes of this kind, in which we may not conduce to the preſervation of the infant, by proceeding in this manner when the *funis* is the preſenting part.

Should the arm of the child preſent, and ſuch preſentation be complicated with a deſcent of the *funis*, very little difference of conduct will be required; becauſe, for the firſt reaſon, we ſhould determine to turn the child, and deliver by the feet, and the additional circumſtance of the deſcended *funis* can require nothing more to be done. Yet when the feet of the child are brought down, if the pulſation of the arteries of the *funis* be lively or perceptible, it may ſometimes admit of a debate whether it will be moſt proper to haſten the delivery, eſpecially if the *os uteri* be not ſufficiently dilated; or to leave it to be expelled by the returning pains. In either caſe it will however be right, to attempt to return the *funis* within the *os uteri*, and, if it be in our power, out of the way of compreſſion. The general rules already given for the uſe of the *forceps* and *vectis*, and for the management of preternatural labours, make it unneceſſary to enlarge on this part of our ſubject in this place.

SECTION V.

ON MONSTERS.

This ſubject affords very little room for practical obſervations, becauſe the ſymptoms in early pregnancy are not different from thoſe in natural births; and becauſe the *fœtus*, whatever be its ſtructure, is uſually expelled eaſily and regularly at the time of labour. We might indeed be miſtaken in our opinion of a preſenting part: but as in any caſe of real difficulty, the needful inveſtigation

gation would diſcover the nature of the caſe; and as we ſhould have little to conſider but the ſimple extraction of the monſtrous *fœtus*, without injury to the mother, the general rules of practice would be readily applied to every exigence ariſing from that cauſe.

Several books have been profeſſedly written on monſters, but the ſubject, inſtead of being conſidered and cultivated as a branch of natural hiſtory, or as leading to phyſiological diſcoveries and explanations, has, by the manner of treating it, been rendered little more than a theme of ſuperſtitious wonder, of ridiculous falſehood, or of ſenſeleſs curioſity. The ſame obſervation may be made on the caſes publiſhed in almoſt every periodical work, and on collections of monſters. Yet lord *Bacon* thought that a hiſtory of monſters was very much wanted for two purpoſes; "firſt, to correct the partiality of axioms and opinions, which are commonly formed on common and familiar examples; ſecondly, becauſe from the wonders of nature is the neareſt paſſage to the wonders of art; for it is no more than by following, and as it were hounding nature in her wanderings, to be able to lead her afterwards to the ſame place." The advantages which might be derived from the purſuit of the firſt intention are manifeſt, but thoſe from the ſecond, ſeem to be problematical.

It is probable that monſters might be reduced into regular orders or ſyſtems, as they all ſeem to be of one or other of the following kinds.

1. Monſters from redundance, or multiplicity of parts.
2. Monſters from deficiency or want of parts.
3. Monſters from confuſion of parts.

To theſe might perhaps be added, without impropriety, another kind, in which there is neither redundance, nor deficiency, nor confuſion of parts, but an error of place, as in tranſpoſitions of the *viſcera*. But children born with diſeaſes, as the *hydrocephalus*, or their effects, as in ſome caſes of blindneſs from previous inflamma-

tion, cannot be properly conſidered as monſters, though they are often ſo denominated.

Of the firſt order there may be two kinds, redundance or multiplicity of natural parts, as of two heads and one body; of one head and two bodies; an increaſed number of limbs, as legs, arms, fingers, and toes; or excreſcences or additions to parts, of no certain form, as thoſe upon the head, and other parts of the body, and theſe are uſually more or leſs important according to their ſize, or the part where they grow. But as ſuch excreſcences, whatever may be their ſize, have, from their texture, a diſpoſition to enlarge, and to aſſume a morbid action, it is become an eſtabliſhed rule to extirpate them whenever it can be done with ſafety.

2. Of monſters from deficiency or want of parts, the inſtances are leſs frequent than thoſe of the former kind, as of the brain and back part of the head; or of the whole head, as in the *acephalus*; or of one eye, as in the *monoculus*; of the lip and palate, as in the hare-lip; of one or both arms; of the fore-arm or hand; of one or more fingers; of a portion, or of the whole of the ſpinal proceſſes of the *vertebræ*, as in the *ſpina bifida*; of the incomplete formation of the ſkin, moſt frequent at the navel, or ſome part of the *abdomen*; of the penis, eſpecially of the prepuce; of one or both of the inferior extremities; of the heart; of the liver; ſpleen, or any of the abdominal *viſcera*; of the lower part of the *rectum*, terminating before it reaches the *anus*; and many others.

3. Monſters from confuſion of parts, as when the whole body is in one maſs (uſually called a mole), in which various parts of the child are found lying together in apparent confuſion; of parts adhering together, as of the fingers and toes; of the *rectum*, as in the cloſure of the *anus*; of the *vagina*; of the external or internal parts of generation, as in thoſe called hermaphrodites; of the two inferior extremities connected together and terminating in a point; of the club foot; and many others.

As

As we are ignorant of the manner in which the primordial parts of a regular conception are formed and eſtabliſhed, and in many reſpects, of the order in which the various parts of a *fœtus* are unfolded or enlarged, it is not ſurpriſing that we ſhould be ignorant alſo of the manner in which monſters or irregular births are generated or produced; though it is probable that the laws by which theſe are governed, are as regular, both as to cauſe and effect, as in common or natural productions. Formerly, and indeed till within theſe few years, it was a generally received opinion that monſters were not primordial or aboriginal, but that they were cauſed ſubſequently, by the power of the imagination of the mother, transferring the imperfection of ſome external object, or the mark of ſomething for which ſhe *longed*, with which ſhe was not indulged, to the child of which ſhe was pregnant; or by ſome accident which happened to her during her pregnancy. Such opinions, it is reaſonable to think, were permitted to paſs current, in order to protect pregnant women from all hazardous and diſagreeable occupations, to ſkreen them from ſevere labour, and to procure for them a greater ſhare of indulgence and tenderneſs, than could be granted to them in the common occurrences of life. The laws and cuſtoms of every civilized nation have in ſome degree eſtabliſhed a perſuaſion that there was ſomething ſacred in the perſon of a pregnant woman, and this may be right in ſeveral points of view; but theſe go a little way towards juſtifying the opinion of monſters being cauſed by the imagination of the mother. The opinion has been diſproved by common obſervation, and by philoſophy, not perhaps by poſitive proofs, but by many ſtrong negative facts; as the improbability of any child being born perfect, had ſuch a power exiſted; the freedom of children from any blemiſh, their mothers being in ſituations moſt expoſed to objects likely to produce them; the ignorance of the mother of any thing being wrong in the child, till, from information of the fact, ſhe begins

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to recollect every accident which happened during her pregnancy, and aſſigns the worſt or the moſt plauſible as the cauſe; the organization and colour of theſe adventitious ſubſtances; the frequent occurrence of monſters in the brute creation, in which the power of the imagination cannot be great; and the analogous appearances in the vegetable ſyſtem, where it does not exiſt in any degree. Judging however from appearances, accidents may perhaps be allowed to have conſiderable influence in the production of monſters of ſome kinds, either by actual injury upon parts, or by ſuppreſſing or deranging the principle of growth, becauſe, when an arm, for inſtance, is wanting, the rudiments of the deficient parts may generally be diſcovered*.

As to the explanation or correction of axioms framed on common and familiar examples, there are ſome things of great importance too obvious to eſcape notice. When, for inſtance, there has been a defect of brain, or even no head, there has been found a ſyſtem of nerves; when the heart has been wanting, there has been a vaſcular ſyſtem, ſufficient to carry on the circulation of the blood; when there was neither liver nor ſpleen, the blood was equally red as in perfect infants; and an endleſs number of circumſtances as curious is to be found in the hiſtory of monſters. It appears, that phyſiology might be greatly improved by a cloſe and accurate cultivation of this ſubject, and that an able and diligent anatomiſt would not only detect many modes and varieties of things, hitherto unobſerved, but by carefully regiſtering his obſervations, he would at length be able to form general concluſions highly important to ſcience, and which would in an eminent degree increaſe his own reputation.

* See *Blondell* on the Power of the Imagination, &c.

SECTION VI.

ON THE EXTRAUTERINE FŒTUS.

THE kind of extrauterine *fœtus* of which it is intended to ſpeak in this place is not occaſioned by a rupture of the *uterus*, but by a failure of that part of the proceſs of conception, when the impregnated *ovum*, inſtead of returning through one of the fallopian tubes into the *uterus*, is either detained in one of thoſe tubes, or, not being received into them, drops into the cavity of the *abdomen*, where it muſt abide. In theſe caſes, wherever the miſplaced *ovum* may be lodged, the external ſurface adheres, and forming a *placenta*, acquires ſufficient nouriſhment to bring the child to perfection. But though it be well aſcertained, that this muſt be the order of proceeding when an extrauterine *fœtus* acquires any conſiderable ſize, it is not unreaſonable to think, that an *ovum* may miſcarry in its tranſition from the *ovarium*, and often remain without increaſe in the part which receives it, as a ſimple extraneous body.

When the period of uterogeſtation is in theſe caſes completed, or ſooner, there is a general diſturbance, ſimilar in many reſpects to that of natural labour; which continues till the child is dead, when the tumult is for the preſent appeaſed, and the conſtitution is at reſt. But after ſome time, either on account of undue preſſure made by the bulk of the child on ſome part not able to bear it, without being excited to ſome new and extraordinary action, or from other cauſes, freſh but unavailing efforts are made. Or as in the caſe of any other extraneous and offending body, a common proceſs is eſtabliſhed, which beginning with inflammation, and pro-

ducing adheſion to the neighbouring parts, an opening is ultimately made into ſome part of the inteſtines or *vagina*, or through the integuments of the *abdomen*, by which the indiſſoluble parts of the child are at length expelled. In many caſes, however, when the *fœtus* has been lodged in one of the fallopian tubes, this has burſt at various periods, and the patient has been ſpeedily, though not immediately, deſtroyed. But in ſome caſes the extrauterine *fœtus*, enveloped in its own, or ſome adventitious membrane, or covered with a ſtony concretion, has remained harmleſs, except from its bulk, for the reſt of the patient's life *.

Various opinions have been entertained reſpecting the ſituation of the extrauterine *fœtus*. It was commonly believed that it might be placed in any part of the cavity of the *abdomen*, though many aſſerted that it was moſt generally detained in one of the fallopian tubes †. In ſupport of this latter opinion many facts might be adduced, and I was inclined to give my aſſent; but from ſome caſes which have ſince occurred, I rather believe, that the *fœtus* when extrauterine is not univerſally, though moſt frequently, lodged in one of the fallopian tubes.

Many circumſtances in the animal economy are proved, or rendered probable, by theſe caſes.

1. That impregnation takes place in the *ovarium*, but is perfected in the *uterus*.

2. That though the *fœtus* be extrauterine, the *uterus* becomes conſiderably enlarged, and performs its proper office by providing the efflorеſcent or deciduous membrane for the reception of the *ovum*.

3. That the ſame ſymptoms are produced in the early part of pregnancy, whether the child be contained in the cavity of the *uterus*, or be extrauterine.

* See Collection of Engravings.

† See *Opera omnia Anatomica*, Diemerbroeck, page 135.

4. That

4. That though the child be placed in one of the fallopian tubes, or in the cavity of the *abdomen*, a *placenta* is formed, different indeed in ſtructure, but capable of ſupplying the child with ſufficient nouriſhment to bring it to perfection; which tends to prove, that the *uterus* does not perform its office by any ſpecific action or quality.

5. That the diſpoſition to labour comes on, before or at the completion of the period of uterogeſtation, which ſhews that it is not excited by diſtention or any faculty of the *uterus*, but by ſome ſtate or quality of the child.

6. That ſo ſmall a cavity or canal as is that of a fallopian tube is capable of being gradually diſtended to ſuch a ſize, as to contain a *fœtus* of the growth of five or ſix months, or ſometimes even nine months, without burſting; though in ſeveral caſes the fallopian tube, which contained the child, has been found rent open, the death of the patient being thereby ſpeedily occaſioned, though the cauſe had not been ſuſpected.

7. That the *menſes* ceaſe during the time of geſtation ſo long as the child is living.

8. That the *menſes* return in due time after the death of the child, though this may not be expelled; unleſs the conſtitution be very much impaired.

In the records of medicine there is a very great number of examples of the extrauterine *fœtus*, in all of which there may be obſerved ſome ſimilarity of circumſtances, though in ſeveral of them there are many and great varieties, depending perhaps upon ſome caſual ſituation of the child, or ſome peculiarity in the conſtitution of the patient. Few practical remarks have been made upon the ſubject, which can be uſeful to thoſe, who are in the way of meeting with caſes of this kind. Nor has the order of the proceſs, when the extrauterine *fœtus* comes to be voided, been deſcribed with much accuracy. I therefore wiſh to obſerve, that in every caſe of this kind, which I have ſeen, there has been ſome-

times great danger, and in all of them much pain and ſuffering, which it is our duty to avert, or to alleviate, according to the indications. When the proceſs by which an extrauterine *fœtus* is to be evacuated commences, it may ſoon be diſcovered, whether the effort will be made by the inteſtines or *vagina*, or through the integuments of the *abdomen*. If by the former, the whole proceſs is to be left without any, or as little moleſtation as poſſible on our part, to the natural action of the conſtitution; for though we might apparently accelerate the proceſs, and procure perhaps a little temporary relief, we ought to be careful not to diſturb or interrupt the proceedings of nature already eſtabliſhed, which art can in theſe caſes, as in many others, very imperfectly imitate. But if an abſceſs ſhould be formed in the ſide or any part of the *abdomen*, and through the ſubſequent opening any part of the child ſhould be evacuated, it will then be expedient to forward the excluſion of the remaining parts, either by enlarging the opening, or by giving ſuch other aſſiſtance, as ſurgery is very competent to afford.

When the extrauterine *fœtus* is evacuated by the inteſtines or *vagina*, after the patient has endured all the conſequences of an abſceſs formed in very tender parts, there is firſt diſcharged a large quantity of offenſive purulent matter; then the ſame kind of matter mingled with hair or membranous ſubſtance; then the ſmall bones of the *fœtus*; and laſtly the larger bones, the moſt difficult to be excluded of which are the bones of the *cranium*, and the larger bones of the limbs; and if any of theſe ſhould happen to lie athwart the opening in the inteſtine or *vagina*, their diſcharge may ſometimes be favoured by changing their poſition. When all the bones are evacuated, the affected parts gradually recover from the injury they have ſuſtained without any remaining miſchief, and the patient uſually enjoys as perfect health, as if no ſuch accident had happened.

CHAPTER XIX.

ON THE MANAGEMENT OF WOMEN IN CHILDBED.

SECTION I.

In the courſe of the obſervations which have been made on various parts of the practice of midwifery, occaſion hath frequently been taken, to mark and to conſider thoſe reſources of the conſtitution, by which preſent evils were remedied, and future danger prevented. Theſe reſources are ſo conſpicuous in all circumſtances attending parturition, and ſo generally found adequate to the effect, that, notwithſtanding the long train of difficulties and diſorders we have enumerated, it is a popular, and I believe a true remark, that the moſt healthful part of the lives of women is that, in which they are employed in bearing and nurſing children. As it is however proved, that thoſe proceſſes, which are apparently of little importance to the conſtitution, do ſometimes become the cauſes of diſeaſe, ſo it might be expected, that thoſe, which are of great importance, ſhould, though generally exempt from danger, in particular caſes become the cauſes of peculiar accidents and diſeaſes. The laws of a religion founded on principles of the moſt active benevolence, the feelings of humanity, and the common intereſts of ſociety, will not ſuffer us to be indolent ſpectators of the diſtreſſes of our fellow creatures, from whatever cauſe they may ariſe. But in the ſituation which we are now conſidering, the paſſions of men are deeply intereſted, there is more than common tenderneſs

mixed with our concern for thoſe who ſuffer on theſe occaſions, and the mind is not at theſe times prepared for untoward events. Much induſtry hath therefore been uſed for the diſcovery and eſtabliſhment of ſome method, by which women might be conducted through the ſtate of childbed with the leaſt hazard of exciting thoſe diſeaſes, to which their ſtate was ſuppoſed to render them peculiarly liable; or that very great pains ſhould have been taken to diſcover the ſafeſt and moſt efficacious method of curing thoſe diſeaſes, when they actually exiſted. The intentions of all may have been commendable, but as the directions given for both theſe purpoſes have been various and contradictory, it is proper to inquire into the principles, on which ſuch oppoſite practice has been adviſed. We may then fix upon that, which ſeems moſt reaſonable, or has been found moſt ſucceſsful.

From the Moſaic law we learn, that, in the ſtate of childbed, women were obliged, for a certain time, to live ſeparate from the world, and were exempted from the cares and ſolicitudes of life. Whatever was the principle of this law, whether it were eſtabliſhed from motives of religion or manners, the time thus allotted gave to the women the privilege and opportunity of repairing their own health and ſtrength, and of dedicating themſelves with uninterrupted attention to the care of their children.

By the earlieſt writers in medicine we are taught, that the treatment moſt proper for women in childbed was that, which is now termed antiphlogiſtic. Without entering upon a minute detail, it is ſufficient to obſerve, that, in the purſuit of this method, we were generally directed to confine, for a certain number of days, every patient lately delivered, to the ſame ſtrict regimen, as if ſhe actually had an inflammatory fever, or had received a wound of the moſt dangerous kind *.

* See *Celſus*.

This

This abſolute reſtraint from every cuſtomary indulgence, and conſignment to a regimen appropriate to the bed of ſickneſs, was a mode of ſhewing tenderneſs, of the propriety of which it muſt have been difficult to perſuade the majority of people, who felt themſelves at their eaſe, and in perfect health. For this was not pretended to be neceſſary with a view to remove any preſent evil, but to prevent a danger which might never occur. As no general method of proceeding could poſſibly ſecure the well-doing of every patient, the failure of this ſtrict regimen in any individual caſe was brought forward as an argument of its general impropriety; in fact, though this plan might be always rigorouſly enjoined, it appears to have been ſeldom exactly followed.

The propoſal of allowing a diet more plentiful in quantity, and more cordial in quality, was founded on the preſumed neceſſity of guarding againſt the conſequences of that weakneſs, which was thought to be occaſioned by the circumſtances attending child-birth. Then was recommended the cuſtom of ſupplying to the conſtitution thoſe deficiencies, which might be occaſioned by the uterine diſcharges, with plentiful living; and *caudle* was diſpenſed with an unſparing hand, to remedy every temporary inconvenience. Conſent is ſeldom refuſed to that medical advice, which is agreeable to the will of patients, or the partiality of friends; and this regimen was of courſe readily adopted, and long maintained its influence.

A conſideration of theſe two different methods of proceeding will explain all that has been ſaid by different writers, on the doctrine and practice of low and generous living in childbed. There have been alſo recommended in a few inſtances, other methods of treatment inſtituted according to the fancies or opinions of phyſicians who have applied themſelves to this ſubject, but of theſe I ſhall only mention two.

1. It had been obſerved, that fevers of any kind were ſeldom terminated without an increaſed perſpiration, or a profuſe ſweating.

A fallacious

A fallacious inference was then drawn, that the ſame proceſs, by which the conſtitution was freed from a diſeaſe, would, before the formation of ſuch diſeaſe, be the moſt likely method of preventing it. On this ground the cuſtom of keeping women in a ſtate of conſtant perſpiration for a certain number of days after their delivery by warm drinks, hot rooms, and diaphoretic medicines, was eſtabliſhed; and the greater the degree to which it was carried, and the longer it was continued, the greater ſecurity was preſumed to be given to the patients from the apprehended diſeaſes. Many inconveniencies followed this method of proceeding, eſpecially by checking the natural diſcharges, in interrupting the ſecretion of the milk, by reducing the ſtrength, and increaſing the irritability of the patient. But the practice was long purſued, neither common ſenſe, nor experience, having power to extirpate deep-rooted prejudice.

2. It was by ſome believed, that a woman lately delivered ought to be treated, as if ſhe had been injured by a concuſſion or violent bruiſe of ſome internal part; and that the means to be adviſed for the relief of preſent inconveniencies, as well as the prevention of future miſchief, were ſuch as might be proper under ſimilar circumſtances from any other cauſe. There is no occaſion to recapitulate all the means recommended upon this principle; but it may be obſerved, that *ſpermaceti*, the moſt popular medicine given to women in childbed at the preſent time, was originally adviſed, becauſe it was eſteemed of ſovereign efficacy in the caſe of an internal bruiſe.

It is remarkable, that the different and oppoſite modes of treatment have been enjoined to women in childbed, univerſally, without any diſcrimination of peculiarity of conſtitution, former habits of living, diſpoſition to certain diſeaſes, or the kind of labour which the patient might have endured; and without due regard to the heat or coldneſs of the climate, or the ſeaſon of the year when the patient might be confined. General as the regulations were,

all,

all, that was ſuppoſed neceſſary to be done, was to follow one or other of theſe injunctions implicitly; and whenever a diſeaſe aroſe, it was attributed, often erroneouſly, and ſometimes very unjuſtly, to ſome irregularity or deviation from theſe.

It has been often obſerved, that a ſtate of pregnancy was an altered, but not a morbid ſtate. The ſame obſervation may be made with equal propriety and truth of a woman in actual labour; and it may be extended to women in the ſtate of childbed, which, though ſometimes accompanied with diſeaſes, cannot ſeriouſly be ſuſpected to be of neceſſity the cauſe of them. One moment's conſideration, and the ſlighteſt view of the perfectly ſafe termination of labours in general, and of the happy recovery of the maſs of women from childbed, under infinitely various circumſtances, muſt convince us of the contrary. Before we therefore fix upon this or that method of treatment, it is worth our trouble to inquire, whether it be neceſſary to eſtabliſh any peculiar method.

When a woman is recently delivered, the attending circumſtances, as the diſcharge of the waters, the excluſion of the child and of the *placenta*, together with the lochial diſcharge, commonly reduce her to the ſtate of a perſon, who has had a profuſe evacuation of any other kind. The great efforts ſhe may probably have made, in the courſe of even a natural labour, muſt alſo conſiderably increaſe this change in her conſtitution. From what cauſes does this change ariſe? from that emptineſs and fatigue conſequent to vehemently increaſed action. Is it poſſible to fix upon any better method of treatment, than what would be eſteemed right and proper under the ſame circumſtances from any other cauſe? That is, to give her ſuitable refreſhment, and leave her to repoſe. Judging from events we certainly cannot, and after ſeeing much practice and trying various methods, not only immediately after delivery, but through the courſe of childbed, I am fully perſuaded, that laying aſide all refined ſpeculation, thoſe patients will fare the beſt, and recover moſt certainly

certainly and ſpeedily, by whom the leaſt change from their former habits is made. Some difference of treatment muſt of courſe be required for the delicate and the robuſt, for the nervous and the plethoric, when there has been a long and difficult, or a ſhort and eaſy labour, in a hot or a cold climate, in ſummer or in winter, and in the ſame climate, under particular ſituations and circumſtances. Theſe muſt of courſe be left to the judgment of the medical attendant. But when no particular reaſon, which demands a contrary treatment, exiſts, I am convinced, that the general principle of making as little change as poſſible from their former habits and cuſtoms, either in diet, or in any other reſpect, will beſt anſwer his expectations. In the colder climates, ſome extraordinary care ſeems to be employed in guarding againſt the evils and inconveniencies to be dreaded from cold; but in *Africa* the woman immediately walks into the adjoining river, for the purpoſe of purifying herſelf and her infant from the conſequences of her delivery.

Some years ago it was a general cuſtom, to bind the *abdomen* very tight immediately after delivery, with the view of aiding the contraction of the integuments, and of preſerving the ſhape of the patient. In ſome countries, *India* in particular, this is practiſed to a degree, that one cannot think of without ſhuddering at the miſchief, which muſt of neceſſity be very often occaſioned. In this country the practice has been very much diſcountenanced as uſeleſs and pernicious, and it is now wholly, or nearly laid aſide, till five or ſix days after delivery; when a broad band, daily but very gradually drawn a little tighter, may be applied not only without injury, but with ſome advantage.

One of the firſt, and not an uncommon conſequence of delivery, is faintneſs. This may proceed from any of theſe cauſes, loſs of blood, fatigue of the labour, ſudden emptying of the *abdomen*, and its conſequent changes, or from great agitation of mind. The method to be purſued, when it ariſes from the firſt cauſe, has been fully

fully conſidered when we ſpoke of uterine hemorrhages; and when it proceeds from other cauſes, wine or ſome temperate cordial is to be given, and the patient is to be kept perfectly undiſturbed, till ſhe recovers. From the dread of any accident happening, I have long made it a general rule, to wait with every patient for an hour after her delivery, not chooſing to put confidence in thoſe, who may not be well acquainted with what is neceſſary to be done on extraordinary occaſions, ſhould they ariſe.

Sometimes, but very rarely indeed, one of the *labia* becomes ſuddenly and enormouſly enlarged, either towards the concluſion of labour, or immediately after delivery, from an effuſion of blood in the cellular membrane of that part, and in a ſhort ſpace of time after the appearance of the accident, the ſkin burſts from the violence of the diſtention. This complaint was firſt deſcribed by Dr. *Macbride* * of *Dublin*, in the year 1766, and ſince that time, I have been called to three inſtances. It occaſions very great pain, but one moſt important part of it is the ſurpriſe it occaſions, and the alarm it gives, when it is not well underſtood. But I believe it is void of danger, not having ſeen or heard of any dangerous conſequences from it, or ever found any thing neceſſary to be done, but to wrap the tumefied part in a flannel wrung out of warm water and vinegar, and on the diſcharge of the coagula, which ſhould not be haſtened, to dreſs the little ſore with ſome ſoft liniment. It is remarkable, that the *labium* always burſts on the inſide, as if it were merely from mechanical diſtention; and as the pain is ſometimes violent, and the patient full of apprehenſion, it will be expedient to give a proper doſe of the *tinctura opii* in ſome cordial. I have alſo ſeen one caſe of a ſimilar kind produced by external injury, in a perſon who had never been pregnant, and this yielded to the like treatment.

* Medical Obſervations, *London*, Vol. V.—See alſo Medical Commentaries, *Edinburgh*, No. xxi.

Few women paſs through the ſtate of childbed without ſuffering more or leſs pain in the *abdomen*, and this may ariſe from various cauſes.

1. From coagula of blood formed and retained in the cavity of the *uterus* *; or according to the opinion of ſome, by the ſhrinking of the *uterus* to its proper ſize. In the uterine diſcharges conſequent to delivery, there is a general order, but with an endleſs variety, depending upon the conſtitution of the patient, the circumſtances which attended the delivery, and the local ſtate of the parts †. A proper knowledge of theſe may be readily acquired; and when coagula are formed, as above ſtated, the pains thereby occaſioned, which are called *afterpains*, are uſually according to the ſize of the coagula, and the difficulty with which they are excluded. Theſe pains come on ſoon after delivery, and they return, though with longer intervals and leſs in degree, in the manner of thoſe of labour, excluding in due time whatever *coagula* might remain in the cavity of the *uterus*. Women have ſeldom pains from this cauſe with firſt children, and they are ſuppoſed to have them in proportion to the number of children they have had, which is generally true. Very much of this pain may however depend on the manner in which the *placenta* and membranes were brought away, for if that were done with violence, or in a hurry, the *uterus* will be left in a very irritable ſtate, and there will generally be formed a ſucceſſion of large *coagula*; whereas if we had waited for their excluſion by the natural action of the *uterus*, or given only very gentle aſſiſtance, the

* Cum uteri cervix poſt partum ſeſe modicè contrahit, et propterea ſanguinis grumi cum difficultate aliqua prodeunt, doloreſque faciunt, quos obſtetrices noſtræ enixus poſteros (afterthroes) vocant, &c.—See Harvey, page 567.

† Per lochia emanat primo ſanguis purus, poſtea ſanioſus, recentis carnis loturæ ſimilis, deinde ichoroſus—ideoque per excreta de puerperæ ſanitate aut diſcrimine ſtatuimus.

HARVEY, *Exercitatio de Partu.*

cavity

cavity of this would have been gradually diminiſhed as the *placenta* deſcended, and of courſe have prevented either the effuſion of ſo much blood, or the formation of ſuch large *coagula*.

The ſufferings of women from theſe pains are ſometimes very great, though they prove eventually ſalutary, and, if we had it in our power, ſhould not be ſuppreſſed, till the end for which they are excited is anſwered. They may however be ſafely moderated by warm applications to the *abdomen*, and when extremely violent by ſmall doſes of the *tinctura opii*, though much unjuſtifiable clamour hath been raiſed againſt the uſe of this medicine for women in childbed. It will alſo be of ſervice, as ſoon as it can with propriety be done after delivery, to procure one or more ſtools, by an injection or ſome lenient medicine. The freedom from danger prevents all ſolicitude on this account, and we know, when the *uterus* is cleared, pains from this cauſe will uſually ceaſe within twenty-four hours after delivery.

2. When the *abdomen* has been greatly diſtended, the integuments, even before delivery, will be tender and often ſlightly inflamed, and the tenderneſs may be increaſed by the labour, and continue after delivery. A warm flannel well ſprinkled with any kind of ſpirit applied over the whole *abdomen*, and occaſionally renewed, is the only thing I have found it neceſſary to employ for this complaint.

3. From wind in the bowels.

On the excluſion of the contents of the *uterus*, a conſiderable change immediately takes place in the poſition of many parts contained in the *abdomen*, and from many others the accuſtomed preſſure or ſupport, which they received during pregnancy, is wholly taken away. A greater freedom being given to every part, the change for the preſent often gives the ſame uneaſy ſenſation, as wind pent up or rolling in the bowels, though in a ſhort time it is generally removed by the accommodation of the parts to their

new ſtate. Should there afterward be reaſon to attribute the pain in the *abdomen*, with which a woman may be troubled, to this cauſe, inſtead of giving ſtrong aromatic or heating medicines, it will be proper to procure one or more ſtools by an injection, or ſome lenient purgative, the moſt efficacious and excellent of which is that in common uſe, prepared in the following manner.

℞. Kali tartariſat. vel natri tartariſat. vel magneſiæ vitriolatæ,
Syrup. roſæ, *āā* unciam dimidiam,
Infus. ſenæ tartariſat. uncias quatuor,
Tinct. ejuſd. drachmas ſex. M.

Capiat cochlearia iij. vel iv. ampla primùm, et poſt tres horas cochlearia duo ſecundis horis, donec alvus ſoluta erit.

After the operation of the medicine an opiate in any proper vehicle may be given, and the patient will be freed from the complaint.

4. From ſpaſm.

After delivery the *uterus* itſelf, or its appendages, or any of the contents of the *abdomen*, may be affected from this cauſe, with pain varying in degree, but ſometimes extremely ſevere. This may often be relieved by lightly rubbing the *abdomen* with a warm hand, or with ſome anodyne embrocation, or the application of warm flannels wrung out of ſome ſpirituous fomentation. If theſe fail, recourſe muſt be had to *tinctura opii*, at leaſt to *opium* in ſome form, given in ſuitable doſes, according to the degree of pain, and repeated as may be neceſſary. Spaſmodic pains of the *abdomen* very often reſemble thoſe ariſing from inflammation, and in ſome caſes I conſider it as one of the moſt difficult things in the practice of medicine, to diſcriminate them. In very irritable habits the difficulty is much increaſed, as ſuch are extremely liable to painful ſpaſms, to have their pulſe quickened, heat excited, and the whole frame

ſrame diſturbed in a manner very like to what happens in true fever or inflammation, yet all the diſturbance may often be ſpeedily quieted by a proper opiate.

5. From inflammation.

This leads us to the conſideration of that diſeaſe now generally called the puerperal fever; not becauſe it is peculiar to the ſtate of childbed, but becauſe it is the moſt common ſpecies of fever, to which puerperal women are ſubject, and certainly occaſions the death of much the greater part of thoſe women, who die in childbed. This has been deſcribed by the ancient as well as modern writers, with perſpicuity ſufficient to diſtinguiſh it, but the methods propoſed for the cure have been leſs ſatisfactory. Evident diſadvantage hath ariſen from its having been attributed to a variety of cauſes, and from the different opinions entertained with reſpect to the nature and qualities of the diſeaſe, from the ſuſpicions entertained, that the peculiar ſtate of the patient required peculiar management, and from its having been deſcribed under ſuch various appellations. It has been repreſented by ſome writers, as entirely owing its exiſtence to the undue ſecretion or ſubſequent depoſition of the milk, and therefore denominated the milk fever; by others, to a ſuppreſſion of the *lochia*, and called by that name; while others have deſcribed it as the miliary fever. Some again have conſidered this diſeaſe not as a fever, but as an inflammation or ulceration of the *uterus* *; while others have contended, that the inflammation was wholly confined to the *omentum*, the *peritonæum*, or the inteſtines, and that the *uterus* was not anywiſe concerned. A contrariety of opinion of more importance, was produced by the interpretation of the word *eryſipelas*, which was probably given by

* Uterus a placentæ ſeparatione, præcipue violenta, excoriatur, tanquam ulcus ingens internum, lochiorum liberiore emanatione detergitur et mundificatur. Ideoque per excreta de puerperæ ſanitate aut diſcrimine ſtatuimus.—*Harv.* page 556.

the

the ancients to this diſeaſe, without any intention to denote a ſpecific kind of inflammation; yet the early uſe of this term was of ſufficient conſequence to bind thoſe, who attended to the nicer diſtinctions in noſology, to a particular mode of practice, according to the nomenclature *. With ſuch different notions regarding the cauſes of this diſeaſe, we might expect, that the treatment would be different; and as it was contradictory, we may preſume, that it muſt often have been hurtful. There is undoubtedly much difficulty in forming a juſt idea of a very complicated diſeaſe, and in proportion to the difficulty, every attempt to make accurate diſtinctions is deſerving of commendation. But however ſymptoms may vary from affections of particular parts, or in particular conſtitutions, there is but one eſſential nature of the diſeaſe; and if we have a true notion of this, we have leſs reaſon to be ſolicitous about the cauſe, or the determination of the part originally or principally affected. For a ſimilar treatment may be enjoined with equal propriety for an inflammation of the *uterus*, *omentum*, *peritonæum*, or inteſtines, or perhaps any of the contents of the *abdomen*; provided a fever is produced, and the influence of the diſeaſe, originally local, be extended to the conſtitution. It is however obſervable, that inflammation of the *uterus* is far leſs dangerous than an equal degree of inflammation of any of the *viſcera* of the *abdomen*, eſpecially in the ſtate of childbed; becauſe the *uterus* readily admits of a return of the lochial diſcharge, which always affords relief, and ſometimes cures the diſeaſe. But in inflammations of any of the contents of the cavity which has no vent or outlet, the effects of the inflammation become an addition to the exiſting diſeaſe, or a cauſe of new diſeaſe.

The knowledge of the cauſes of this diſeaſe, whether occaſional

* Si mulieri pregnanti fiat in utero eryſipelas, lethale eſt.—*Hippocrates.*

or immediate, will be of ſervice rather in enabling us to prevent it, than in leading us to the cure when it is formed; for if a patient be brought into a certain ſtate, the peculiar cauſe of that ſtate will not demand any material difference in the treatment directed for her relief. There is but too much reaſon to lament, that inconſiderate proceeding, and the want of common care, frequently give riſe to the puerperal fever. But independently of the changes occaſioned in the conſtitution by particular modes of living, women, with a view to parturition, will not bear a compariſon with other creatures *. The erect poſition of the body, the different ſtructure of the *uterus* and *placenta*, and the paſſions, though neceſſary, and perfectly adapted to the rank in which Providence hath placed mankind, become permanent cauſes of much pain, and eventually produce inconveniencies, and ſometimes danger; and for theſe reaſons women are alſo ſubject to ſo great a number of complaints during pregnancy, from which all other creatures are exempt. Some of theſe complaints, the retroverſion of the *uterus* for example, are dangerous in their own nature, while others indicate or produce a diſpoſition to diſeaſes, not formed in the conſtitution till after delivery; and the inflammatory appearance, ſo often obſerved in the blood of pregnant women, may perhaps be juſtly eſteemed a mark of a ſtate particularly diſpoſed to fever. Some habits are naturally liable to diſeaſes of the bowels, proceeding from an exceſs in the quantity, or an alteration in the quality of the bile, and ſuch may derive a new and temporary cauſe of them from irritation, and from the diſturbed ſecretions of the *viſcera*, from the preſſure of the enlarging *uterus*, or by the labour. Nor is it improbable, but that, by the ſudden removal of this preſſure at the time of delivery, a

* Mulieribus præ cæteris animalibus hæc contingunt, et præſertim delicatis, vitamque umbratilem et mollem degere aſſuetis; ut et iis quæ teneræ valetudinis ſunt, et facile in morbos labuntur. HARV. *Exercitat. de Partu.*

greater

greater proportion of fluids, than circulates even in a natural ſtate, may ruſh upon ſome particular part, and from a very ſlight obſtruction cauſe a local plethora. Imprudent management at the time of labour, eſpecially rude treatment of the *os uteri*, and a violent or haſty ſeparation of the *placenta*, will often give riſe to this diſeaſe. In ſhort, every cauſe, capable of producing either local inflammation or fever under any circumſtances, will at this time be followed by worſe effects; and any diſturbance raiſed in the conſtitution will, after delivery, be invited as it were to parts already in a very irritable ſtate, from the violence which they have ſo lately undergone.

It is natural for women, eſpecially with their firſt children, to have ſlow and painful labours, which they will generally bear with reſolution, and, if not miſmanaged, without danger. Inſtead therefore of hurrying and deranging the order of a labour, which is always improper, and ſometimes injurious, under the falſe and ill-judged notion of freeing the woman from her miſery, we ſhould conſider, that the buſineſs was intended to proceed ſlowly, and ſhould be left entirely to the action of the *uterus*, and the efforts of the conſtitution *. When there are deviations from the regular courſe of labours, the uſefulneſs of midwifery as an art, and the ſkill and judgment of the practitioner, will be ſhewn, in deciding which of

* Increpandæ ſunt obſtetrices, præſertim juniores temerariæ; quæ, cum parturientes præ dolore ejulare opemque efflagitare audiunt, ne imperitæ vel parum ſatagentes videantur, manus oleis oblinendo, locaque muliebria diſtendendo, mire tumultuantur; porrectiſque potionibus medicatis, facultatem expultricem irritant; atque moræ debitæ impatientes, dum accelerare ac facilitare partum cupiunt, eundem retardant potius et pervertunt, efficiuntque non naturalem et difficilem.—Melius profecto cum pauperculis res agitur, iiſque quæ furtim gravidæ factæ clanculum pariunt, nullius obſtetricis advocata opera: quanto enim diutius partum retinent et morantur, tanto facilius et felicius rem expediunt. HARV. *Exercitatio de Partu.*

theſe require the aſſiſtance of art, and in chooſing the ſafeſt and the beſt means of giving relief.

There is not throughout nature an operation more wonderful than the act of parturition, and there is little reaſon to be ſurpriſed at the bad conſequences which ſometimes follow an alteration ſo important, though this alteration is natural. Judging from ſpeculative principles, they might be expected to occur more frequently; and, though they are often occaſioned by bad management, they cannot always be avoided under the moſt promiſing circumſtances, and with the greateſt care.

When a woman is delivered, it ſeems neceſſary to make a moderate and uniform compreſſion upon the *abdomen*, but binding it tight is certainly improper, and the general abuſe of bandages, as was before obſerved, has induced me to forbid it altogether till the ſeventh or eighth day after delivery. Women are certainly not ſo often attacked with this fever, after difficult labours, becauſe of the particular care with which they are then managed, whereas after eaſy ones they are more unguarded.

The time when women are chiefly ſubject to this fever, is uncertain. There are not wanting inſtances in which it has been evidently forming before delivery, or during labour, or at any intermediate time for ſeveral weeks afterward; but the ſooner from the time of delivery the patient is attacked, if in an equal degree, the greater is the attendant danger. But the moſt frequent time of its appearing is on the third or fourth day after delivery, when the patient is ſeized with a ſhivering fit, from the violence and duration of which we may generally eſtimate the danger of the ſucceeding diſeaſe. In ſome caſes however there has been no cold or ſhivering fit, or none which was obſervable; and in others, the ſhivering fit in the ſtate of childbed has not been followed with thoſe ſymptoms which were to be apprehended. Before the ſhivering fit, the patients have been much debilitated, and complained

of wandering pains in the *abdomen*, which very ſoon became fixed in the hypogaſtric region, where a ſwelling or fulneſs with exquiſite tenderneſs ſoon enſue. As the diſeaſe advances the whole *abdomen* becomes affected and tumefied, ſometimes nearly to its ſize before delivery, the woman herſelf being ſenſible of and deſcribing its progreſs. She alſo feels great pain in the back, hips, and ſometimes in one or both legs, and other parts affected in uterine complaints. She can ſcarcely lie in any other poſition than on her back, or on one ſide, with her body incurvated, and if the diſeaſe be confined to the *uterus*, the ſeat of the pain ſeems to be changed when ſhe alters her poſition. There is uſually either a vomiting of green or yellow bitter matter, or a nauſea and loathing of the ſtomach, with an offenſive taſte in the mouth. An inſtantaneous change both in the quantity and appearance of the *lochia* takes place, and ſometimes, though rarely, they are wholly ſuppreſſed. The milk, if ſecreted, recedes, or is diminiſhed, and the taſte with the appearance are much altered. The urine is voided often, with pain, and in ſmall quantities, and is remarkably turbid. A teneſmus or frequent ſtools come on, and from the general diſturbance it is often manifeſt, that all the contents of the *pelvis* are at once affected by the diſeaſe. The tongue becomes dry, though ſometimes it remains moiſt and is covered with a thick brown fur; but as the diſeaſe advances its appearance varies, and in ſome dangerous caſes it has been little changed. The patient immediately entertains the ſtrongeſt apprehenſions of her danger, and uſually labours under vaſt anxiety, her countenance bearing indubitable marks of great ſuffering both in body and mind.

The progreſs of this diſeaſe is ſometimes extremely rapid, eſpecially in unfavourable ſeaſons and hot climates. Inſtances have occurred, in which women have died within twenty-four hours of the firſt attack; and I have ſeen a few, who never grew warm after the *rigor*. In ſome, death has followed quite unexpectedly, either from

from inattention, or from the ſcarcely perceptible, but inſidious progreſs of the diſeaſe, the indications not having been at all proportionate to the danger. In other caſes the ſhivering fit is ſucceeded by heat, thirſt, and other ſymptoms, according to the courſe obſerved in other fevers; but the pain which originated in the *abdomen*, joined with theſe, is to be eſteemed the pathognomonic or chief ſign of this diſeaſe. It ſeems neceſſary to enumerate all the ſymptoms, which commonly, though not excluſively, attend this fever, and not in any individual patient; yet caſes will occur in practice, in which there will be much variation, depending on the degree of diſeaſe, the part affected, the conſtitution of the patient, and the period after delivery when the fever makes its appearance.

The pulſe has almoſt invariably in this diſeaſe an unuſual quickneſs from the beginning. It has often that ſtrength and vibration obſerved in diſorders of the moſt inflammatory kind, in robuſt conſtitutions; and yet is ſometimes exceedingly feeble and quick, beyond what might be expected from the concurring circumſtances. The latter is to be reckoned among the moſt dangerous ſigns, proving perhaps, that there is a great degree of diſeaſe, and that the powers of the conſtitution are unable to ſtruggle with it, or to bear the operation of the medicines, which might be neceſſary for its relief. There is much variation in the ſubſequent ſtages, but there is ſcarcely a worſe omen, than a very weak and accelerated pulſe, even though the other ſymptoms may ſeem to be abated. But this quickneſs of the pulſe, if not attended with other ſigns of inflammation or fever, is not to be conſidered as indicating danger, becauſe very irritable patients have ſometimes in childbed a very quick pulſe, unaccompanied with any other dangerous ſymptom.

The ſigns of inflammation, joined with thoſe of extreme irritability, continue for a few days, when thoſe of putridity appear, ſooner perhaps in this than in moſt other diſeaſes, which are originally

nally of the truly inflammatory kind. The teeth very early collect a brown adhesive *sordes*, and all kinds of food and drink are nauseated, except such as are agreeable from their coldness or sharpness. A singultus attends, every return of which affects the *abdomen* in the most painful manner. *Petechiæ* or *vibices* are often found in unwholesome situations, and in some constitutions of the air, at a very early period of the disease, and there are frequently miliary eruptions; but the latter seem rather a consequence of the method of treatment than of the disease, for they do not afford that relief, which often follows their appearance in true eruptive fevers.

The bowels are in general very much disturbed, and in some cases a looseness takes place immediately upon the accession, in others three or four days after, or not till the last stage of the disease; but it very seldom fails to attend, nor can it be removed without the greatest difficulty as well as danger, before the disease is terminated. The stools often come away involuntarily, being always preceded by an increase of pain, and every evacuation gives momentary relief. They are uncommonly fetid, of a green or dark brown colour, and working like yest. It is also remarkable that after the long continuance of the looseness, when the patient has taken little or no solid nourishment, large and hard lumps of excrement will be sometimes discharged, which one might suspect to have been confined in the bowels for a long time before delivery. With regard however to this symptom, it is very necessary to observe, that great disturbances of the bowels are frequently occasioned by mere irritation, in delicate constitutions, which are soon removed by the well-timed exhibition of some cordial opiate.

There is a peculiarity in this fever, which I believe has not hitherto been observed or mentioned. It is an erysipelatose tumour of a dusky red colour, on the knuckles, wrists, elbows, knees, or ancles, about the size of a shilling, and sometimes larger. This is almost universally a mortal sign, and on the inspection of those who

who have died with this appearance, the diſeaſe has been found to have affected principally the *uterus* or its appendages.

When this fever commences ſoon after delivery, and continues its progreſs with violence for a few days, our hopes of a favourable event will often be diſappointed, and the impending danger may uſually be foretold by the uninterrupted progreſs of the ſymptoms, and by returns of the *rigor*. An early derangement of the faculties of the mind is always a very threatening ſymptom. A looſeneſs immediately ſucceeding the attack, though in one ſenſe it may indicate the degree of diſeaſe, always contributes to its abatement, and ſometimes proves critical; as does likewiſe a ſpontaneous vomiting, ſometimes even towards the laſt ſtage, when all hopes of recovery were abandoned. The profuſe ſweat, which follows the ſhivering fit, has very often been completely critical. In ſome there has been a tranſlation of the diſeaſe to the extremities, where the part has inflamed, and a large abſceſs has been formed; a ſimilar abſceſs has alſo in ſome caſes been formed on one ſide of the *abdomen*, which has been healed by the moſt ſimple treatment. Freſh eruptions of the *lochia* are always a favourable ſymptom, and are to be reckoned among the moſt certain ſigns of amendment. A ſubſidence of the *abdomen*, after copious ſtools, and with a moiſt ſkin, is a fortunate alteration for the patient; but that circumſtance, without evacuations, and a dry ſkin, threatens the utmoſt danger. In the moſt ſevere degrees of this diſeaſe, which have reſiſted all the means of relief in the early ſtage, thoſe who have eſcaped, ſeem to have owed their ſafety to the vomiting before mentioned, or to a conſtitution happily ſtrong enough to bear the long continuance of the looſeneſs, by which the effects of the diſeaſe were gradually drained away.

Of an uncommon caſe of the abſceſs above mentioned it will not be ſuperfluous to add the following account.

On June the 10th, 1798, a lady had been delivered of a dead child,

child, between the ſeventh and eighth month of her pregnancy, when ſhe ſuffered very acute pain in the extraction of the *placenta*, which was thought neceſſary. For ſeveral days previous to her delivery ſhe had a conſiderable degree of fever, and much general uneaſineſs over the *abdomen*, for which ſhe was bled, and took ſome cooling and quieting medicines. On the 12th (the ſecond day after her delivery), ſhe had a ſtrong and violent rigor, ſucceeded by very ſevere pain in her left ſide, near the ſpine of the *ilium*, and fever, which continued for ſeveral days, when her milk (before ſecreted) entirely diſappeared.

Though the pain and fever were abated, they never entirely left her; and after another rigor on the 19th, with an increaſe of fever and pain in the part firſt affected, her friends were alarmed, and a phyſician of eminence was deſired to ſee her. He preſcribed what the ſituation and circumſtances of the patient ſeemed to require, and ſhe was much relieved. There were, however, frequent exacerbations of fever; the pain of which ſhe originally complained never entirely left her, and was ſometimes violent. It was now perceived ſhe had no power of moving her left leg or thigh, and ſhe herſelf was ſenſible of a deep-ſeated ſwelling on the left ſide of the *abdomen*, though it could not be diſcovered by her attendants. A bliſter was applied to the whole of the pained ſide, and after ſome days farther attendance, the phyſician withdrew, recommending her to go into the country, and encouraging her to hope, that, as ſhe recovered her ſtrength, her complaints would leave her. She was alſo adviſed to uſe as much exerciſe as ſhe could, and accordingly attempted every day to walk with a crutch, and the help of her nurſe; but every attempt gave her excruciating pain, and ſhe was daily ſenſible of loſing, inſtead of gaining ſtrength.

I firſt ſaw her on the 28th of July. As there was an evident fulneſs on the left ſide of the *abdomen*, with much pain on preſſure, loſs of appetite, and other ſymptoms of fever, from ſome de-

gree of which ſhe was, in fact, never entirely free, I directed three or four leeches to be applied to the part affected, and to be repeated every other day, and ſuch medicines as were likely to abate the fever, to keep the bowels gently open, and to moderate the pain. She was ſomewhat relieved by theſe means, and as ſhe was very weak, I tried the *bark*, and ſome other tonic medicines, from which ſhe did not apparently receive any benefit. From the contraction and waſting of the limb, and from the other circumſtances before recited, thinking it probable that an abſceſs had begun to be formed in ſome part of the cavity of the *abdomen*, I requeſted to have a conſultation, and Dr. *Baillie* was called in. After a mature deliberation on all the preceding circumſtances, and the preſent ſtate of the patient, it ſeemed moſt reaſonable to think, that an abſceſs was forming in the *pſoas* muſcle. Small doſes of *cicuta* in the ſaline draughts were preſcribed, and a ſoft plaſter with *opium* was applied to the ſide; the caſe of the patient ſeeming to admit of little other relief than ſome alleviation of her ſuffering. In the middle of Auguſt ſhe returned to her houſe in town, not in any reſpect amended in her general health, and ſhe ſuffered more from her local complaints.

In a few days after her arrival in town, the pain being much increaſed, ſhe went into the warm bath, and on the following day ſhe was ſuddenly relieved by diſcharging a very large quantity of purulent matter, mixed with her urine. This was conſidered as a proof that an abſceſs had been formed, and diſcharged into the bladder, probably by means of an adheſion which had taken place, and a ſubſequent communication between this and the part firſt affected.

She continued to go into the warm bath for a few days, but ſuſpecting that ſhe was weakened, and feeling herſelf very much fatigued by it, ſhe relinquiſhed it altogether. At this time her medicines were changed for ſome of the milder turpentines, in

ſmall

ſmall doſes; and, ſhe ſtill ſuffering conſiderable pain, opiates were given, and repeated as the caſe required.

When there was the greateſt quantity of purulent matter diſcharged with the urine, and ſometimes I think there could not have been leſs than four ounces at a ſingle evacuation, ſhe ſuffered the leaſt pain; but when there was a ſuſpenſion of the diſcharge, the pain was always moſt ſevere.

In the beginning of September, a ſwelling of a conſiderable ſize, with an evident fluctuation in it, was diſcovered on the inſide of the thigh, without any appearance of inflammation or redneſs of the ſkin, as if the fluctuating matter had been formed there; and, by a careful examination, the courſe by which the fluid had deſcended from the groin to the thigh, could be readily traced. The ſwelling gradually deſcended till it came very near the ham, varying in ſize, according to the poſition of the limb and body, and the patient thought ſhe could diſtinctly perceive both the deſcent and riſe of the fluid.

The night ſweats, and other hectic ſymptoms, were now extreme; but, after a trial of the bark, and other medicines of that claſs, which diſagreed, ſhe for many weeks took no medicine whatever, except ſmall doſes of *opium*, when the pain was violent, and ſome gentle laxatives, when ſhe was coſtive. She was allowed to drink porter at her meals, and at any other time, without reſtraint, when ſhe wiſhed for it, and always conſidered herſelf not only ſupported, but very much refreſhed by its uſe.

In October ſhe kept her bed altogether, unable to move, or help herſelf in any poſition, and frequently ſuffering much pain. I then propoſed a conſultation with Mr. *Cline*, the ſurgeon of the family, to conſider of the propriety or expediency of making an opening in the tumour in the thigh, and by giving it an inferior vent, to prevent the matter from returning into the *abdomen*. Mr. *Cline* did not

not then think it juſtifiable, to make an opening in the tumour, and I readily acquieſced in his opinion.

At the latter end of this month, ſhe was reduced to a ſtate of extreme weakneſs, and exceedingly emaciated, but her appetite, which had never entirely left her, now began to improve. The tumour in the thigh daily leſſened, and ſoon diſappeared altogether; as did the quantity of matter diſcharged with the urine, till that alſo entirely ceaſed. In November ſhe frequently voided ſmall quantities of blood with her ſtools, and at the latter end of that month her health and ſtrength were conſiderably improved. There was alſo about this time a return of ſome power of moving her limb; ſhe ſoon became able to walk with crutches, the infirm leg being ſupported in a ſtirrup; and ſhe had a return of the *menſes*, which had not before appeared ſince the time of her delivery.

On the 20th of December ſhe was lifted into the coach for the benefit of taking the air, and her health might at this time be ſaid to be reſtored, as ſhe had no complaint, and though weak and emaciated, was every day ſenſible of amendment.

In the beginning of the year ſhe again proved with child, and went on to the full period of pregnancy, when ſhe was ſafely delivered of a healthy boy; having recovered before the time of her delivery the perfect uſe of her limb. She now walks, and performs all the offices of life with her accuſtomed eaſe, and has not the leaſt remaining token of the complaint from which ſhe had ſo ſeverely ſuffered.

The ſwelling and tenderneſs of ſome part of the *abdomen*, joined with a fever, were mentioned as the pathognomonic ſymptoms of this diſeaſe. But as theſe parts are often affected by the greatneſs of the diſtention during pregnancy, by after-pains, by flatulence, and by ſpaſms, as well as inflammation, we may be alarmed without reaſon, and miſtaken in giving the name of a diſeaſe, which does not exiſt, to complaints of infinitely leſs conſequence. On

this principle we may account for the ſlight manner in which ſome have mentioned the puerperal fever, while others have recommended methods of treatment foreign to its nature, and inadequate to its cure. But with attention, this fever may be readily diſtinguiſhed from all other complaints, to which it bears any reſemblance. Violent ſpaſmodic affections of the *uterus* coming on ſoon after delivery, and extending their influence to various parts of the *abdomen*, if accompanied with great quickneſs of the pulſe, may give apprehenſions of this fever, though they will be almoſt immediately relieved, by a fomentation to the *abdomen*, and the proper uſe of opiates. After-pains approach neareſt to thoſe pains of the *abdomen*, which attend it; but though theſe are ſometimes attended with great tenderneſs of the *abdomen*, the intervals of perfect freedom from pain, which are never obſerved in this fever, notwithſtanding there may be conſiderable exacerbations, and the regularity with which, in after-pains, all other circumſtances proceed, will be evident and ſufficient diſtinctions.

About the time when this fever moſt frequently appears, eſpecially in its worſt form, a diſturbance is raiſed in the conſtitution by the ſecretion of the milk. The conſent between the *uterus* and breaſts is of ſo intimate a nature, that it is ſcarcely poſſible for them to be affected ſeparately, as the tranſition of the humours from one to the other abundantly demonſtrates. But though this diſeaſe has been very often imputed to the milk, the ſuppoſition is probably groundleſs; for if this ſecretion be not interrupted in its natural courſe, the inconveniencies ariſing from it, though they may be troubleſome, will not be attended with any danger. But thoſe who are unwilling or unable to give ſuck, or to whom ſuckling may on ſome other account be improper, are liable to various complaints, from which nurſes are free. In ſuch caſes, I have found no method of preventing ſo effectually the ill conſequences likely to enſue, as by procuring ſtools before the ſecretion is completed,

and

and for ſome days afterward with regularity. Should inflammations come on, and abſceſſes be formed in the breaſts, they are always much lamented, and conſidered as proofs of miſmanagement; but there is great reaſon to conclude, that they ſometimes prevent more grievous and dangerous complaints, and that they could by no care have been obviated. It is remarkable, that not one inſtance has been obſerved of any woman, who had an abſceſs in the breaſt, being attacked with this fever; nor of one who, in conſequence of her labour, had ſuch an affection of the bladder, as to occaſion a ſuppreſſion of urine. At another period of life, when the diſpoſition to cancerous diſeaſes exiſts in the conſtitution, their fixing upon the *uterus* or breaſts ſeems to be merely owing to ſome accidental cauſe.

A diſeaſe in which the ſymptoms come on with violence, proceed with rapidity, and of which the event has ſo often been fatal, cannot fail to alarm every man ſolicitous for the welfare of his patients, or who has a due regard for his own character; and under circumſtances ſo peculiarly diſtreſſing as are thoſe of women in childbed, humanity would urge us to exert our abilities for their relief with zeal and tenderneſs.

We ſhould in the firſt place endeavour to ſhorten the *rigor*, by hot applications to the extremities, and by giving warm diluents in ſmall quantities often repeated. A conviction of the neceſſity of ſpeedily removing the *rigor*, has induced ſome to give very active cordials for this purpoſe; but as the hot fit which ſucceeds will in ſome meaſure depend upon the means uſed, it does not ſeem proper to give ſpirituous liquors, unleſs they are well diluted.

Bleeding has been adviſed in the beginning of violent diſeaſes, with the intention of ſuppreſſing the diſeaſe, of alleviating the ſymptoms, or of rendering the operation of the medicines, which were afterwards to be given, more ſafe and effectual. For the cure of the fever now under conſideration, ſome have placed their whole

confidence in the early and free uſe of this remedy, while others have expreſſed more than ordinary fears and apprehenſions with reſpect to it*. Perhaps it may be impoſſible to form a rule of practice ſo general as to preclude the neceſſity of leaving much to diſcretion; for the treatment of patients differing in conſtitution, though labouring under the ſame diſeaſe, muſt vary, or the worſt conſequences will inevitably follow.

In the early part of my own practice, I had much doubt of the propriety of bleeding indiſcriminately for the cure of this diſeaſe, and I was long of opinion, that it was not the moſt natural, ſafe, or effectual remedy. I conſidered, that ſpontaneous hemorrhages were ſeldom critical in this diſeaſe; I ſuſpected, that women in childbed ſuſtained bleeding worſe, than in almoſt any other ſituation; and from ſome defect in the remedy, or ſome error in the application, I often found myſelf diſappointed in my hopes and expectations, when I relied upon it. It ſeemed alſo an obſervation of importance, that thoſe women, who had loſt much blood at the time of delivery, were more liable to this diſeaſe, and that it was more commonly fatal to them. The conſequences alſo of erring by the too free uſe of the lancet ſeemed more to be dreaded, becauſe they were harder to be repaired, than thoſe which might ariſe from an oppoſite conduct.

But I am now convinced by manifold experience, that my reaſoning was fallacious, and my fears groundleſs; and that what I had conſidered as proofs of the inſufficiency or impropriety of bleeding in the true puerperal fever, ought in reality to be attributed to the

* Equidem de ſanguinis miſſione multum controvertitur; nonnulli enim venam pluries tundendam eſſe arbitrantur, dum cæteri vel minimam ſanguinis detractionem averſantur.—— And afterwards——Hæc (praxis) enim docet phlebotomiam, haud niſi caſu urgentiori et ſumma cautela eſſe celebrandam, pro rerum conditione. Cæterum multa de hac re lepidè et dilucidè tradita, proſtant apud ſcriptores, quæ tamen inter praxim implicatiſſima deprehenduntur. LIEUTAUD. *Synopſ. Univ. Pra. Med.*

neglect

neglect of performing it in an effectual manner, at the very beginning of the diſeaſe. In ſhort, if the firſt ſtage be ſuffered to paſs unheeded, bleeding will certainly then be injurious, the opportunity having been loſt; and the phyſician afterwards called in, however great his talents may be, will too often have the mortification of being a ſpectator of miſchief, which he cannot then remedy, and of an event, which he can only deplore.

It is in general abſolutely neceſſary to bleed in the beginning of the puerperal fever, and we may then avail ourſelves of the advantage which this operation affords, with equal ſafety and propriety as in any other inflammatory diſeaſe, under other circumſtances. With reſpect to the quantity of blood drawn, we are to be guided by the conſtitution of the patient, and the violence of the ſymptoms, being cautious not to err by bleeding unneceſſarily, or in taking away too large a quantity. But if benefit ſhould be derived from the firſt operation, and the violence of the diſeaſe ſhould require it, we ſhall be juſtified in repeating it at ſhort intervals; not with a view of moderating or retarding the progreſs of the inflammation, but if poſſible of wholly ſuppreſſing it. For when the fever has remained for a very few days, the putrid ſymptoms advance very rapidly, and its continuance depends upon cauſes, which bleeding cannot remove, and will certainly increaſe. When the attack is violent, and the conſtitution feeble, it is always more ſafe and expeditiouſly ſerviceable, to draw blood by ſcarification and cupping, or by the application of eight or ten, or even a greater number of leeches to that part of the *abdomen*, which appears to be principally affected. In ſome countries the application of leeches to the hemorrhoidal veins has been conſidered as more effectual in this diſeaſe, than any other mode of bleeding. I muſt acknowledge, that the advantages, which I have often ſeen derived from local bleeding, have given me the greateſt ſatisfaction and pleaſure.

But though women, who have had profuſe uterine hemorrhages

at

at the time of delivery, are particularly liable to the puerperal fever from this or ſome contingent reaſon; and though it is ſeldom removed by ſpontaneous hemorrhages, yet theſe are ſometimes critical. The following caſe, which was communicated to me by Dr. Joſeph Denman, of whom, as he is endeared to me by ſentiments of eſteem and regard more cloſely than by fraternal affection, I might be allowed to ſpeak in terms of high approbation, is an example of this kind.

"I was called in the middle of the night to go ten miles to a woman, whoſe *placenta* had been retained many hours after the birth of the child. The want of courage to withſtand ſolicitation, and the diſtance from me, were my reaſons for undertaking to ſeparate it. The *placenta* adhered ſtrongly, but the ſeparation was made very gently, and without any conſiderable hemorrhage. On the third day, the patient was ſeized with a ſhivering and fever, which continued all night. From this ſhe was relieved by ſo large a diſcharge of blood from the *uterus*, that I was again ſent for on that account. There was no ſwelling of the *abdomen*, but great tenderneſs, much pain in the head, conſtant thirſt, a little delirium, and ſhe had no ſtools. An increaſe of fever every evening, and the ſame profuſe diſcharge every forenoon, continued for ten days. She took occaſionally teſtaceous powders with rhubarb, ſaline mixtures, tincture of roſes, infuſion of bark, and ſome doſes of opium. She at length recovered."

The hemorrhages ſeem in this caſe to have been abſolutely critical, and my own practice hath ſupplied me with inſtances of a ſimilar kind in different ſtages of this fever, and many more have proved the great advantage of returning or free ſanguineous lochial diſcharges. Yet in theſe caſes I had ſufficient reaſon to preſume, that the diſeaſe had not only originated in the *uterus*, but was confined there, without extending to the abdominal *viſcera*.

Having finiſhed theſe obſervations on the uſe and advantages of bleeding,

bleeding, I beg leave to repeat, that when the puerperal fever of a true inflammatory nature exiſts, I feel aſſured I am right in the opinion I have advanced reſpecting bleeding. But as it is ſometimes extremely difficult to diſtinguiſh between this fever and complaints proceeding from mere irritability, which far more frequently occur, eſpecially in very delicate habits; and as all the complaints ariſing from irritability would at this time be increaſed by bleeding, and rendered dangerous by a repetition of it; I recommend in the ſtrongeſt terms, that we ſhould be accurate in our diſtinctions before we determine on a plan on the purſuit of which the good of our patient may ſo eſſentially depend.

When the attack of this fever is violent, a vomiting of bilious matter attends, there is often a multiplicity of ſtools, and the commencement is ſometimes not unlike a moderate degree of the *cholera morbus*. It has been an almoſt univerſal rule in practice, in other diſeaſes, to forward theſe evident intentions of nature, at leaſt not haſtily to obſtruct or ſuppreſs them; but in this, different meaſures have been purſued. It has been objected, that a woman lately delivered has ſuffered too much from her labour, to bear with ſafety a method of proceeding, found uſeful in other fevers with the ſame indications; or that the parts affected would be too much agitated by the operation of an emetic. It has alſo been conjectured, that the vomiting and uneaſineſs of the ſtomach ought to be aſcribed to uterine irritation alone, and are hyſteric ſymptoms in the common acceptation of the word, and therefore not likely to be relieved by encouragement. But if in theſe caſes we conſider the appearance of the matter diſcharged, the great relief which the patient immediately receives from the evacuation, and the advantages which are found to reſult from it in the courſe of the diſeaſe, it ſeems impoſſible to fix upon circumſtances, which more ſtrongly indicate the neceſſity of giving an emetic. Aſſent has been given to an opinion, that the vomiting of porraceous

matter, when an hyſteric ſymptom, does not require evacuations; yet even in ſuch caſes it may be ſuſpected, that the porraceous matter, by its irritation upon the ſtomach, is the *materia morbi*, which occaſions or increaſes the ſpaſms, and that the diſcharge ſhould not be ſtopped, while it is preternatural. It would be difficult to imagine a ſituation, in which medicines of any kind were likely to do much ſervice, when the ſtomach is oppreſſed with vitiated humours.

But however unſatisfactory theſe reaſons may be, experience will ſupport me in aſſerting, that, when ſuch complaints accompany the beginning of this diſeaſe, or occur during its progreſs, we ſhall loſe an opportunity of doing much ſervice, if we be deterred from giving a vomit; and that the operation is not only perfectly free from danger, but certainly anſwers many other good purpoſes beſides that of cleanſing the ſtomach. It is nevertheleſs to be obſerved, that an emetic was in this caſe firſt adviſed, chiefly for the relief of a ſymptom, without any expectation of thereby curing the diſeaſe. Yet there are advocates ſo ſtrenuous for the uſe of emetics in this diſeaſe, as to recommend the repetition of them every day, and who have aſſerted, that they are the moſt powerful medicines for the abſolute cure of the puerperal fever. To the merit of having firſt recommended this practice I am not entitled, becauſe my firſt giving them was accidental, and perhaps I am not yet fully competent to judge of it; yet experience has in many caſes proved to me, that emetics may not only be given, but frequently repeated in this diſeaſe, with very great advantage.

I may in this place be permitted to make a digreſſion, for the purpoſe of obſerving, that it appears, from the records of medicine, that two different opinions were very early entertained reſpecting the treatment of fevers in general. The firſt and moſt prevalent of theſe was, that every fever was a proceſs eſtabliſhed by the powers of the conſtitution, for the purpoſe of altering and aſſimilating,

ing, or of ſeparating and rejecting ſome offending matter; or changing one ſtate of the body into another, better fitted for the performance of its functions. The proceſs was defined by the term generally, though not properly, tranſlated fermentation; by which the ancients underſtood the different ſtates of bodies, whilſt they were in the act of changing into ſome new form or ſtate, or the proceſs by which they were changed; and not vinous, acetous, or any other fermentation, according to the modern diſtinctions of this term. As this proceſs in fevers was expected to be ultimately ſalutary, it could not, according to this opinion, be diſturbed without miſchief; unleſs, on account of violence, irregularity, or ſome extraordinary deviation from its uſual courſe, it might be judged neceſſary, to moderate it when too violent, to encourage it when too remiſs, or to obviate accidental ſymptoms. The ſecond opinion was, that in a fever excited by any cauſe, the body was in a ſtate adverſe to its wellbeing, and perhaps inconſiſtent with life; and that the fever ought therefore to be ſubdued by the expeditious uſe of all ſuch means, as were likely to remove the cauſe, or to appeaſe the action of the powers of the conſtitution; or, by weakening the powers themſelves, to reduce the body into ſuch a ſtate, that it ſhould be unable to continue or maintain what might be called the feveriſh proceſs.

The marks of theſe opinions may be readily diſcovered to pervade every ſyſtem of fevers, and every method of treatment, which have been offered to our conſideration, or recommended for our guide, even down to the preſent time. There is no doubt but that the knowledge of both theſe opinions will occaſionally be found of much uſe in practice, if we be not led to extremes. But the knowledge of a diſeaſe, or of a method of treatment, is of infinitely leſs value than the faculty of applying it, and conſtitutes in fact a ſmall ſhare of the excellence of a phyſician. He, by diſcovering the part principally affected, and by weighing its importance to the conſtitution;

the nature of the diſeaſe, its preſent ſtate and probable conſequences; and by taking into conſideration all the collateral circumſtances, will clear his mind from perplexity and error, and form a rule for his own conduct far beyond the influence or power of any doctrine.

But in the treatment of the puerperal fever the difficulty has been much increaſed, on account of the very great caution, which, for reaſons before aſſigned, was judged neceſſary. It was alſo ſaid, that by regulating the puerperal diſcharges, all the diſeaſes incident to women in childbed were to be prevented, or moſt naturally cured; and all evacuations, by which theſe were likely to be interrupted or ſuppreſſed, were forbidden. In ſhort, in this ſtate there was a ſuſpicion of ſomething ſacred or myſterious, with which we were not authorized to interfere; and neither common ſenſe nor obſervation had ſufficient efficacy, to control thoſe impreſſions, which originated in ſpeculation and prejudice, and which are now fully proved to have been without foundation.

Many years ago, after much embarraſſment and repeated diſappointments in the treatment of this fever in the cuſtomary way, I gave the powder, which was recommended by, and has acquired much reputation under the ſanction of the late Dr. *James*, and ſometimes the following medicine; and I was ſoon ſenſible of their good effects.

℞ Antimon. tartariſat. gr. ij.
Chel. cancror. pp. ℈ ii. *intimè miſceantur.*

Of a powder thus prepared, after bleeding, and, if thought neceſſary, the exhibition of a clyſter, I have given from three to ten grains, repeating it as circumſtances required.

Should the firſt doſe produce no ſenſible evacuations, for on theſe only we are to rely, an increaſed quantity muſt be given at the end of

of two hours, and we muſt proceed in this manner, till the end we wiſh be obtained.

But if the firſt doſe ſhould occaſion a vomiting, purging, or profuſe ſweat, we muſt wait for the good effect of theſe operations; and we ſhall then be able to judge of the propriety of repeating the powder.

But when the evacuations are concluded, if any alarming ſymptoms ſhould remain, we need not heſitate to give the powder in the ſame quantity as was firſt uſed, though an equal quantity is not often neceſſary, if the firſt doſe have operated properly. We cannot reaſonably expect, that a diſeaſe, which exhibits ſuch evident marks of danger, ſhould inſtantly ceaſe, even if the principal part of the cauſe ſhould be removed, or of the effect be abated. Yet we muſt be careful not to rely ſo far upon an abatement of the ſymptoms, as wholly to deſiſt from purſuing the method, which produced the abatement; for no diſeaſe is more liable to returns, which are generally more violent than the firſt attack, and with accumulated danger. It muſt alſo be obſerved, that as the certainty of the cure often depends upon the due repetition of the powder, the cuſtom of giving this, or any other medicine, at ſtated hours, is never eligible, and ſometimes improper.

If a ſickneſs, loathing of the ſtomach, or offenſive taſte in the mouth, attend the commencement of the diſeaſe, this medicine ſeldom fails to occaſion vomiting, and the patient, with a countenance ſtrongly expreſſive of the benefit ſhe has received, will atteſt the advantage of the method purſued. Nor does the medicine often fail to procure copious ſtools, which are uncommonly fetid, and, as was before obſerved, in the looſe ones, lumps of hardened *fæces* are intermixed. Their appearance ſhould in ſome meaſure guide us with reſpect to the continuance of the evacuations, in proportion to which the *abdomen* becomes eaſy and ſubſides, and the other ſymptoms become more favourable. The urine is ſoon voided

with more eaſe, and in larger quantities, a moiſture of the ſkin or profuſe ſweat ſucceeds, and the *lochia*, which were before brown or pale, fetid, and in ſmall quantities, increaſe and become ſanguineous. But we are to remember, that the ſmall quantity of the *lochia* is never to be eſteemed indicatory of diſeaſe, independently of other appearances, becauſe with reſpect to quantity they evidently vary in every conſtitution.

At the ſame time that we avail ourſelves of the advantage to be obtained from the uſe of the antimonial powder, we muſt not neglect the uſe of thoſe means, which contribute to procure immediate eaſe or relief to the patient. Emollient clyſters in caſes attended with violent pain, eſpecially if preceded or accompanied with coſtiveneſs, are neceſſary and proper. Clyſters have alſo been eſteemed of more importance than merely as the readieſt means of promoting ſtools, or as a temporary fomentation to the bowels; for ſome phyſicians of great experience have thought they were able to remove a great part of the cauſe, or to prevent the continuance of the diſeaſe, by directing them to be adminiſtered ſo frequently, that they were at length returned without any mixture of *fæces*. Fomentations, or vapour-bathing, or even the warm bath, may ſometimes be uſed with advantage; but I think a folded warm flannel, well ſprinkled with brandy, and occaſionally renewed, is one of the beſt and moſt comfortable applications. When the pain is confined to one part of the *abdomen*, or remains after the abatement of the fever, if not removed by leeches, a bliſtering plaſter, applied directly to the part, may always be recommended with ſafety, and will ſometimes do much ſervice. Plentiful dilution being abſolutely neceſſary, the patient ſhould be carefully ſupplied with proper drink, in ſmall quantities often repeated. The moſt palatable, and generally the beſt, is chicken water, or very weak beef tea; or, if objections be made to theſe, barley water, thin gruel, milk and water, whey, and tea of almoſt any kind, may be drunk at pleaſure.

In

In this manner I treated the wife of a ſoldier in the guards, whom I attended July 1, 1767, in a ſafe, but tedious labour. She was of a very ſtrong habit of body, and upwards of thirty years of age. About thirty-ſix hours after the birth of the child ſhe was ſeized with a violent ſhivering, followed with ſevere pains in the *abdomen* and loins, and within a few hours from the attack of the diſorder, became nearly as big as ſhe had been before delivery. On the third I gave her four grains of the antimonial powder before mentioned, and finding no ſenſible effect, I repeated it in the ſame quantity after two hours. She puked twice, and had ſeventeen ſtools, like yeſt in appearance, within ſix hours after the repetition of the powder. When the operation of the medicine ceaſed, the *abdomen* had almoſt wholly ſubſided, and the tenderneſs and fever much abated. As ſhe was much fatigued, I gave her a cordial draught, with a few drops of tincture of opium. She had ſome quiet ſleep in the night, and ſweated profuſely. There did not appear any neceſſity of repeating the powder, and ſhe recovered perfectly, without taking any other medicine except ſome ſaline draughts, and afterward the decoction of *bark* twice every day.

The event of this caſe, and of ſome others which occurred to me about the ſame time, was very flattering. I preſumed, that I had at length diſcovered a method of treating this fever, and a medicine which would ſeldom fail to anſwer the moſt ſanguine expectations. But further experience has convinced me, that without previous or even repeated bleeding in ſome caſes, when the inflammatory ſymptoms are violent, this medicine will often fail to ſubdue the fever, and that it is ſometimes uncertain in its operation. It is perhaps to be reckoned among the ſigns of an unfavourable termination of the diſeaſe, when the medicine in proper quantities produces no ſenſible effects. I am however perſuaded, that if we have an opportunity of giving it ſoon after the acceſſion of the diſeaſe, it will often do the moſt eſſential ſervice, and that too much

cannot

cannot well be ſaid in favour of this method. And it is above all things to be wiſhed, that phyſicians had the *early* care of patients in this diſeaſe; for the diſſections of thoſe, who have died, have proved, that very terrible miſchief is produced in various parts with amazing celerity. In a very great number of patients, whom I have had an opportunity of examining, all or ſome of the following appearances were obſerved. The *uterus*, or its appendages, were in a ſtate of inflammation; or ſometimes one or both of the *ovaria* of a livid colour, and altered in their texture, as if mortified. The general ſubſtance of the *uterus* was looſe and ſpongy, and it was leſs contracted, than it ought to have been ſince the time of delivery. The *os uteri*, and that part of the *uterus* to which the *placenta* adhered, were diſcoloured, and had a ſloughy appearance. Small abſceſſes were ſometimes found in the ſubſtance of the *uterus*, or in the cellular membrane, which connects it to the neighbouring parts. The bladder was inflamed. The *omentum* was very thin, irregularly ſpread, and in a ſtate of inflammation. The inteſtines were inflamed chiefly in the peritoneal coat, adhering to each other, and much inflated. Inflammatory exſudation, and ſerum extravaſated in the cavity of the *abdomen*, have been found in various quantities; but theſe were in a leſs degree, when the patient had laboured under a long continued purging. In the cavity of the *abdomen* were likewiſe found large flakes of coagulable lymph, which have been often miſtaken for curdled milk, or for diſſolved portions of the *omentum*. It muſt indeed be acknowledged, that the information acquired in this ſearch has not afforded any practical advantage, equal to the care or aſſiduity, with which it has been made. What we have been able to learn has chiefly proved, that various parts are affected in different ſubjects; that when the diſeaſe has continued with violence for a few days, its effects will generally be beyond the reach of medicine, and that if the patient ſhould fortunately recover, her recovery will depend upon circumſtances,

which the phyſician cannot without great uncertainty and difficulty command *.

In the leſs violent degrees of this diſeaſe, and more delicate conſtitutions, it will be neceſſary to purſue the ſame intentions, though with leſs activity. In ſuch caſes, after local bleeding with leeches or otherwiſe, as may be moſt convenient, and giving a proper doſe of ipecacuanha, or waſhing the ſtomach with an infuſion of chamomile flowers, more lenient medicines muſt be preſcribed. But they muſt be ſuch as will produce a certain and ſpeedy effect, for after the operation of an emetic, if ſtools be not procured, we ſhall neglect the means, and loſe the opportunity, of doing moſt effectual ſervice; for without them the relief obtained will not be permanent. An emollient clyſter may be firſt injected, to remove any hardened *fæces* from the lower part of the *rectum*; and then the antimonial powder in ſmall doſes, or the ſaline draughts with a due proportion of the *natron* or the *kali tartariſatum*, or with rhubarb, or the following draught may be given every third or fourth hour:

℞. Natri tartariſat.
Mannæ opt. āā ʒii.
Infuſ. ſennæ, aq. ment. ſat āā ℥i.
Tinct. cardamom. gut. xxx. M.

Or two ounces of *magneſia vitriolata* may be diſſolved in a pint of thin gruel, and one or two large ſpoonfuls given every hour, till due evacuations are obtained; and this medicine has been found to

* We have been told, that, in the diſſections of ſome who are ſaid to have died of this diſeaſe, no appearances of inflammation have been diſcovered; but I ſhould ſuſpect, that in ſuch caſes miſtakes had been committed as to the nature of the diſeaſe, and probably in its treatment.

anſwer

anſwer the intention, when apparently more pleaſant medicines could not be retained.

In every caſe of diſeaſe, which requires ſpeedy and repeated evacuations for its relief, particularly if attended with violent pain, it is neceſſary to give a reſpite to the conſtitution, by which it may be enabled to exert its own powers, or recover from the fatigue of the operations themſelves. For this purpoſe opiates are wiſely preſcribed, when the operations are concluded. But opiates being given for the purpoſe of eaſing pain, or of quieting ſome agitation, if they be not given in a ſufficient quantity to produce the intended effects, are uſeleſs; for it is by their effects we are to judge of the propriety or advantage of their uſe. In ſome caſes alſo, which were accompanied with violent pain at the commencement, it has been found neceſſary, to give a large doſe of *tinctura opii*, immediately after the firſt bleeding, without waiting for any other evacuations, by which the progreſs of the diſeaſe will be retarded. Nor is there ever occaſion to heſitate upon the uſe or repetition of an opiate at any period of this diſeaſe, when the violence of the pain requires it; for though the pain may originally be a conſequence of the diſeaſe, it becomes after a certain time a powerful cauſe of its continuance and increaſe.

In the inferiour degrees of this diſeaſe, after bleeding once, either with the lancet, or, which is generally preferable, by the application of leeches to the part, if thought neceſſary, and the exhibition of an emetic, which can ſeldom be diſpenſed with, we ſhall find the ſimple method of exhibiting an opening draught for the purpoſe of procuring four or five ſtools every day, and an opiate every evening, produce the moſt happy effects. But it is not poſſible for me to expreſs my ſentiments of the advantage, which may be ſometimes procured by daily purging, ſo clearly as by the relation of the following caſe, which was lately under my care.

The

The wife of an eminent tradeſman was brought to bed of a living child, after a very tedious and difficult labour. She was of a corpulent but relaxed habit, and this was her firſt child. About four hours after her delivery ſhe was ſeized with a purging, and the ſtools, which were of a dark colour and exceedingly offenſive, ſoon afterwards came away involuntarily. I ſaw her early the following morning, November 22d. She had conſtant but not exquiſite pain in the *abdomen*, which was tumefied; her ſkin was hot, her pulſe quick, and ſhe was thirſty. Having voided no urine, I introduced the catheter, applied a flannel well ſprinkled with brandy to the lower part of the *abdomen*, and ordered an opening draught of the kind before mentioned. She had proper evacuations by ſtools all day, and in the evening took an opiate. On the 23d I found, that the purging continued, and there was little alteration in the other ſymptoms. The opening draught was repeated in the morning, and the opiate at bed-time. On the 24th I was informed ſhe had got ſome refreſhing ſleep in the night. The pain in the bowels and feveriſh ſymptoms were abated, but the ſtools, which were yet very fetid, came away involuntarily. Both the draughts were repeated as on the preceding day. On the 25th, though the ſtools continued to come away without her conſent, the *abdomen* had ſubſided, and the tenderneſs was almoſt gone. On the 27th the purging ceaſed, and ſhe recovered without the repetition of the medicines. I was under the neceſſity of drawing off her urine twice every day, till the eleventh after her delivery, when ſhe was able to void it without any aſſiſtance. But it is not to a ſingle caſe that I ſhould have occaſion to appeal in a matter of ſo much conſequence. A long and ſucceſsful practice hath convinced me, that the purging, which often attends this diſeaſe, is not only ſalutary, but frequently critical, and inſtead of being ſuppreſſed, that it ought to a certain degree to be encouraged. Nor would it be difficult for me to re-

collect many cafes, in which fatal conſequences have ſpeedily followed imprudent attempts to ſtop the evacuations *.

As the diſeaſe paſſes into its more advanced ſtages, it becomes more complicated and dangerous, and there is a neceſſity of being very circumſpect in our endeavours to give relief. Bleeding, unleſs by ſcarification, or the application of leeches to the *abdomen* or hemorrhoidal veſſels, will very ſeldom be proper at this time; and if directed, or repeated, from the encouragement which the inflammatory appearance of the blood may afford, will generally haſten the fate of the patient, by reducing the ſtrength in a much greater degree, than it can abate the diſeaſe; as I have ſeen in many inſtances of this and other kinds of fever. It muſt therefore be omitted, or preſcribed with the greateſt caution. But if the ſtomach or bowels be much diſturbed, and an emetic were not given in the beginning, one may be given at almoſt any period of the diſeaſe with ſafety and advantage. Or if there be no looſeneſs, and ſtools have been procured ſparingly through the courſe of the diſeaſe, the general method of cure may be purſued, if the ſtate of the parts firſt affected ſhould require it, allowing for the reduced ſtrength of the patient. The frequent injection of gently purgative

* Theſe remarks on the neceſſity of procuring ſtools are to be conſidered as applicable only before the patient is reduced to a ſtate of great debility, or perhaps in fevers occaſioned by local inflammation of ſome of the contents of the *abdomen*. Experience has proved, that, in the advanced ſtate of fevers of the *typhus* claſs, coſtiveneſs is the moſt favourable ſymptom. *Sydenham* takes particular notice of this in his moſt excellent treatiſe on the fever of 1661; and in a principal hoſpital of this city, it is an eſtabliſhed rule, never to promote ſtools, or any weakening evacuation, in fevers of this claſs, after the fourth day. But in the advanced ſtate of theſe fevers, coſtiveneſs, *for a great number of days*, not only prevents an increaſe of the debility, but is the moſt promiſing ſymptom of a happy termination of the diſeaſe. It deſerves to be particularly noticed, whether patients, in the advanced ſtate of theſe fevers, ever die while the bowels are conſtipated.

or

or emollient clyſters will be extremely proper, and laxative medicines of the kind before mentioned; not omitting to give opiates to procure temporary eaſe, or neglecting the uſe of ſuch diet and general regimen, as will ſupport the ſtrength of the patient.

But when the ſtools are very frequent or involuntary, and all appearances threaten imminent danger, we muſt be cautious, that our attempts to cure the diſeaſe are conſiſtent with the ſtate of the patient, though ſomething muſt be hazarded for her relief. Clyſters of chicken water, or flour and water boiled to a proper conſiſtence, or of a decoction of linſeed, often repeated, then conſtitute a very important part of the cure, by waſhing off ſome part of the offending matter, which ſtimulates the bowels to frequent evacuations, and by acting as a fomentation. But if great care be not taken in their adminiſtration, the patient will ſuffer intolerable pain on account of the tenderneſs of the *uterus*, which I ſuppoſe to be the part principally affected, at leaſt in which the diſeaſe moſt commonly originates, and of the influence of which this part never fails to partake.

At this time it will alſo be uſeful, to give very ſmall doſes of ipecacuanha mixed with the opiate as a diaphoretic, or the *pulv. ipecacuanhæ compoſitus*, either in ſome cooling vehicle, as the ſaline draughts, or with cordials, as the ſituation of the patient may require. But if the ſtomach or bowels ſhould be much diſturbed in the advanced ſtage, or if any new cauſe of diſturbance ſhould occur, the ipecacuanha may even then be given ſometimes in ſuch a quantity, that it may act as an emetic. The white decoction with a large proportion of gum arabic, or the common emulſion with ſpiritus ætheris nitroſi, makes at this time a proper and agreeable drink. If the ſtrength of the patient ſhould ſink, and great faintneſs come on, a neceſſary quantity of ſome cordial and wine muſt be given in the interval between the draughts. I have alſo often in this ſtage given camphor in ſubſtance, in julap, or in the form of

emulſion, but have generally been obliged to diſcontinue its uſe, becauſe it ſoon became diſguſting to the palate, and offenſive to the ſtomach; nor have I ever found that advantage from the uſe of camphor, which ſome have taught us to expect in this diſeaſe, though in many inſtances the camphor mixture has appeared to be an agreeable cordial, and to moderate pain.

Under the moſt deplorable circumſtances, we ought never to deſiſt from uſing our endeavours with aſſiduity, to relieve and extricate the ſick from the imminent danger they are in, both from principles of humanity and prudence; for they will ſometimes recover very unexpectedly, when every prognoſtic is againſt them. Something always remains to be done, which may be of uſe, or contribute to their comfort; either with the view of obviating troubleſome or painful ſymptoms; or of ſupporting, by means adapted to their ſtate, their ſtrength; or of promoting ſome obſtructed ſecretion, eſpecially by regulating the ſtate of the bowels. On ſuch occaſions I have among other things been induced to try clyſters of various kinds, emollient, anodyne, and antiputreſcent, particularly of ſtrong decoctions of *Peruvian bark*; but the event obliges me to acknowledge, that I have not obſerved much advantage from them, beyond what may be derived from the domeſtic ones, which are in common uſe.

Nor has the *bark*, though given in different ſtages of the diſeaſe, with remiſſions tolerably diſtinct, anſwered the intention as a febrifuge; though in a few caſes, in which the intermiſſions were complete, it has ſucceeded. As a ſupporter of the general ſtrength of the conſtitution, the *bark* has been likewiſe found of leſs ſervice, than might have been expected; becauſe of the diſturbed and very irritable ſtate of the bowels, which it tends to increaſe. Inſtead of this medicine, the colomba root, in powder or infuſion, has been given every fourth or ſixth hour; or the common bitter infuſion prepared with cold water, and joined with ſome aromatic; or a

ſtrong

ſtrong infuſion of chamomile flowers, with the addition of a few cloves; and ſometimes the following medicine, eſpecially when the hiccup has been troubleſome:

℞ Spir. ætheris vitriolici ʒii.
Aqu. puræ, vel menth. ſativ. ℥viij.
Sacchar. pur. q. s. fiat miſtura, cujus ſumat ægra uncias duas, tertia vel quarta quaque hora.

In other caſes *æther* or *Hoffmann's* mineral anodyne liquor has been given; but they have often proved leſs agreeable to the ſtomach, and I believe not more efficacious, than the *ſpiritus ætheris nitroſi*, which I have ſubſtituted for them, and given with great freedom and advantage. It was before obſerved, that the hiccup was frequently an indication of a collection of offenſive humours in the ſtomach, and has generally preceded the ſpontaneous vomiting, which in the worſt ſtate has ſometimes proved critical; though the ſame ſymptom is alſo not ſeldom a proof of the progreſs of the diſeaſe, and a ſign of the utmoſt danger.

In the courſe of the diſeaſe, when the *abdomen* had been much diſtended, notwithſtanding the evacuations, I have recommended the application of the *cataplaſma cumini* moiſtened with brandy; and ſometimes directed clyſters compoſed of *electarium e baccis lauri*, or a ſolution of *aſa fœtida* in ſimple peppermint water; and wiſh I was juſtified in ſpeaking more highly in their praiſe: but they are among the things which have occurred to me, when I have ſcarcely known what to propoſe.

I have rarely attempted to inject medicines of any kind into the *vagina* or *uterus*, though from a conſideration of the probable ſtate of the parts, and of the fetid humours diſcharged, it is reaſonable to think, that emollient or gently detergent injections might ſometimes

be

be uſeful. But the helpleſs ſtate of the patient is ſuch, as to render the operation itſelf very troubleſome; and if they be adviſed, great caution will be neceſſary both in their compoſition and adminiſtration; but fomentations to the external parts have, I think, ſometimes afforded comfort, and been of ſervice.

Theſe are all the obſervations I have made, and the opinions I have entertained on the puerperal fever in its ſimple ſtate; that is, conſidering it as a diſeaſe, originally, of the truly inflammatory kind, affecting one or more of the parts contained in the *abdomen*, extending its influence over the whole conſtitution, and ſpeedily aſſuming a putrid form with more or leſs virulence, according to its degree and treatment during the inflammatory ſtate. But when putrid diſeaſes are epidemic *, the puerperal fever may, at the commencement, partake of the reigning diſeaſe (varying only in the affection of the parts concerned in parturition), as the hiſtories of the plague, in this and other countries, have ſufficiently proved. This diſeaſe may alſo be combined with a phrenſy or peripneumony, with ſymptoms multiplied and varying according to the combinations. Then our principal attention muſt of courſe be paid to the moſt urgent diſeaſe or ſymptom; but the event of ſuch caſes muſt be more dangerous, on account of the number and importance of the parts concerned.

There is another conſequence of an epidemic, or even a ſporadic puerperal fever, on which it would be criminal to be ſilent. This is the contagious nature of theſe fevers; it having been long ſuſpect-

* The firſt account I have met with of a puerperal epidemic is in *Peu*. It appeared in the year 1664, in the *Hotel-Dieu*, at *Paris*. In this account there are ſome very curious obſervations. In this country we have very reprehenſibly neglected, to preſerve any regiſter of the times, when ſuch fevers have prevailed. But in the year 1788, an account of a puerperal epidemic was publiſhed by my ingenious friend Dr. John Clarke, according to its appearance in one of the hoſpitals in this city, and, in ſome inſtances, in private practice.

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ed, and being now fully proved, that they may be, and often have been conveyed by midwives or nurſes, from one patient to another. This fact explains the reaſon, why perſons, practiſing for many years with the moſt enviable ſucceſs, have at one or more periods of their lives, without any change in the principles of their practice, met with a number of unfortunate caſes; when perhaps an adjoining neighbourhood has been entirely free from ſuch diſeaſes. Of this I have known many inſtances, and have repeatedly ſeen it the cauſe of the moſt painful diſtreſs, and ſevereſt reflections. Nor ſhould this ſubject remain a barren ſpeculation, but, according to the value ſet upon reputation, teach thoſe, who are engaged in the practice of midwifery, the impropriety of their attending patients in fevers and other dangerous diſeaſes, if it can poſſibly be avoided; and to uſe every precaution, that they do not carry contagion from one patient to another. The nature and the power of contagion ſeem not to be perfectly underſtood, and it may exiſt in many diſeaſes, in which it has not yet been ſuſpected. The ſubject is therefore deſerving of the moſt ſerious inveſtigation.

SECTION II.

MANIA.

AMIDST the great variety of complaints to which women in childbed are liable, there is none ſo diſtreſſing as that aberration of the mental faculties, which ſometimes, though happily very rarely, we have an opportunity of obſerving. This diſorder has ſometimes ſhewn itſelf immediately on women becoming pregnant, in others when the time of labour approached, in others during the ſtate of childbed, apparently occaſioned by ſome extraordinary

diſturbance

diſturbance or peculiar irritation of the *uterus*. In ſome caſes it has, however, been evidently cauſed by irritation of another kind; as when the breaſts have been inflamed, or an abſceſs has been formed, and at the time of firſt ſuckling or weaning the child, ſeven or eight months after delivery; but in every caſe, the diſorder has been occaſioned by an uncommon irritation of one of theſe parts, ſpreading its influence to the brain, though without any reference to former diſpoſition or habits, acquired or hereditary. Speaking of convulſions, it was ſaid, that pregnant women labouring under any diſtreſs of mind from the peculiar circumſtances of their ſituation were liable to them: and the ſame obſervation may be made of this diſorder; for if the nervous ſyſtem be once diſturbed to a certain degree, or in any particular manner, the kind of diſorder thereby produced may be accidental; and the ſame cauſe, which ſhall in one perſon produce convulſions or paralytic affections, ſhall in another produce the diſorder of which we are ſpeaking, either of the melancholic, or violent kind. In the ſame manner patients, who have long ſuffered from intermitting fevers, have in ſome ſeaſons been diſpoſed to maniacal diſorders *.

Almoſt all the diſeaſes of women in childbed were formerly attributed to two cauſes, the interruption of the lochial diſcharges, and the milk; the latter of which was ſuppoſed to have, when imperfectly ſecreted, a pernicious influence upon the conſtitution in general, or on ſome part in particular. Hence the name of the milk fever, the *œdema lacteum*, or the edematoſe ſwelling of the leg, and in general of all ſwellings or abſceſſes formed in any part of the body ſoon after delivery; and this aberration of the mind is, for the ſame reaſon, called by noſologiſts, the *mania lactea*. I do not, however, know, whether there be any real difference in this diſorder when it happens to women in childbed, or under other

* See Sydenham.

circumſtances,

circumſtances, or in the ſymptoms attending it; ſaving, as that ſtate is conſtantly changing ſo as women depart from the time of delivery, there is always a chance of amendment from every degree of change. Perhaps for this reaſon, this diſorder, in ſome inſtances, ceaſes in twenty-four hours, and in others, it continues only for a few days, in ſome a few weeks, and in others for ſeveral months. But the inſtances of its continuing more than ſix months are very rare; and there is ſcarcely one to be found, who did not ultimately recover. It has been aſſerted in very unqualified terms, that women, who become maniacal in childbed, always recover. This opinion, I preſume, extends only thus far, that if they live, they always recover their faculties, the diſtemper proceeding from diſordered functions and not from any organic diſeaſe; but I have ſeen ſeveral women die during their maniacal ſtate, and not long after the acceſſion of the diſorder. Their death has ſometimes appeared to be owing merely to the vehemence and continuance of their exertions.

The time when this diſorder appears is different, in ſome caſes a few days after delivery, in others about a fortnight or longer, in the manner before mentioned. All women ſoon after delivery are either more irritated, or more ſubject to irritation, than they perhaps are at any other time; and hence, chiefly, aroſe the neceſſary cuſtom of keeping them quiet, and ſecluding them, for a certain time, from the chance of meeting with ſuch occurrences as might diſturb them. I have known more than one inſtance of a lying-in woman in a very irritable ſtate, but with perfect compoſure of mind, becoming at once deranged by ſome fright or miſchief apprehended to herſelf or child, or from ſome diſmal ſtory related to her; who might have eſcaped, had ſhe been managed with circumſpection. It is impoſſible to deſcribe how much of the prevention and cure of theſe complaints depends on the judicious conduct, and proper manners of the attendants.

As to the delineation or hiſtory of maniacal diſorders, under any

circumſtance, this does not ſeem neceſſary, if it were practicable; becauſe the name does not depend on a ſymptom, or a ſingle act, unleſs it were an outrageous one indeed; but often upon the conſtruction of general and unuſual conduct, varying in degree and outward form in every individual patient. For theſe reaſons it is not ſurpriſing, that in ſome caſes there ſhould be a difference of opinion as to the actual exiſtence of the diſorder, even among men of experience; or that, on the firſt interview, it is often impoſſible to give an opinion, which could be ſupported. The difficulty of deciding is alſo very much increaſed, by the difference in the conduct of the patient at particular times; for even in very bad caſes there are generally lucid intervals, or a reaſonableneſs except on certain ſubjects, when the diſorder would not be ſuſpected. Yet if we once conclude a patient to be maniacal, which we were unwilling to ſuſpect, and ſtill leſs willing to announce, a review of the preceding circumſtances commonly exhibits pretty clear proofs of the gradual progreſſion of the diſorder.

On the attack of every complaint of this kind, from the exertions of the patient, and the tumultuous derangement of her mind, the pulſe becomes extremely quick, the general heat of the body is increaſed, and there are in moſt caſes the common ſymptoms of fever, though mania has been defined a delirium without fever. Nor, when caſes become chronic, is there ever a time, when they are to be ſeen without more or leſs of what might be called fever, eſpecially in and after fits of outrage.

Though there is ſufficient difference in the general appearance of the patient in theſe diſorders, to make it evident on the attack, that it is not, properly ſpeaking, fever, ſomething like the ſame method of treatment has been judged neceſſary. It was formerly the cuſtom, to enjoin the uſe of very powerful medicines, and very ſevere treatment, for maniacal patients, and among other things copious bleedings. But for women reduced in their ſtrength by the circumſtances

cumſtances of childbed, more gentle proceedings are requiſite. Bleeding, if adviſed in any degree, muſt be performed with a ſparing hand; for if there be a fact, of which I am aſſured, it is, that copious bleedings are extremely prejudicial; not abating the diſorder even for the preſent, and, if the patient ſurvive, increaſing and rendering it more deeply rooted and permanent afterwards. Generally ſpeaking, they ſhould therefore be altogether omitted. It is alſo becauſe they increaſe the preſent irritation, and have been found ultimately to do no ſervice, that bliſters are ſeldom recommended in theſe caſes. The reſiſtance, which is often unwiſely made to the harmleſs wiſhes and inclinations of the patient, frequently becomes a cauſe of violent outrage, as has alſo been obſerved in fevers attended with delirium.

The intentions in the uſe of medicines are, to remove all feveriſh diſpoſition, whether original or ſymptomatic, and to leſſen at the ſame time the exceſſive irritation. For theſe purpoſes it is uſual, to give the ſaline draughts, with a ſuitable quantity of ſyrup of white poppies, or a few drops of laudanum, repeated as the caſe may require. The ſecretions being generally much interrupted, eſpecially thoſe by the bowels, theſe muſt be promoted by the occaſional uſe of clyſters, or of the common purging mixture, ſometimes by ſmall doſes of calomel, ſo as to procure two motions regularly every day; and in this ſtate of the diſorder no other medicines ſeem to be required.

Immediately on the attack, with many other alterations of the countenance, eſpecially of the eyes, eaſily obſerved, but which cannot be deſcribed, the ſkin has often a yellow tinge, and ſometimes there is a complete jaundice. It is then thought requiſite to give an emetic, not with the view of curing the diſorder, but of relieving the ſymptom, and of regulating the conſtitution, and this muſt be our guide in all medicinal treatment; for I believe the idea

of any medicine having the power of influencing the mind, except by producing certain effects upon the body, is wholly abandoned.

In the more advanced and ſettled ſtate of the diſorder, there has been but one view, that is to abate irritability, though very different means have been uſed for this purpoſe. In caſes of great depreſſion of the ſpirits, or what has gone under the general name of melancholy, gentle emetics have been much adviſed, and I think with great advantage, every other or every third day; and at the intermediate times, nervous medicines, ſuch as the *ſpirit. æther. vitriol. comp.*, *confect. Damocrat.*, or the fetid gums, eſpecially the gum ammoniac and camphor, which Dr. Kinneir recommended many years ago in ſtronger terms than experience will juſtify. On occaſional returns of great perturbation and violence, we muſt recur to the method uſed on the firſt attack.

Opiates have been given with two intentions. Some have merely purpoſed to ſoothe and moderate the violence of the diſturbance by the frequent repetition of ſmall doſes. Others have aimed by the more liberal uſe of opium often repeated to ſuppreſs the irritability altogether. As far as I can judge, the former method is far preferable to the latter; and I think there can be no doubt, but that opiates in large doſes, inſtead of diminiſhing, add in no ſmall degree to the irritability, which before exiſted. A phyſician of very great eminence obſerved to me, that opium almoſt univerſally excited diſturbance, before it exerted its quieting powers, but that other *narcotics, cicuta* for inſtance, immediately acted by their peculiar quality, without raiſing any previous diſturbance.

Among many other medicines, which have been recommended in the advanced ſtages of this diſorder, it would have been extraordinary, if ſome of the preparations of quickſilver had not been tried; and of theſe calomel has had the preference. It was the favourite medicine in maniacal caſes, as long as I remember any thing

thing of the profeſſion. By ſome all preparations of quickſilver have been thought to increaſe, and by others to leſſen irritability, but the explanation of the operations of medicines has very little forwarded the improvement of the art; and I am not clear, whether the practice of medicine may not, even at this time, be juſtly conſidered as empirical, the excellence of the art chiefly depending on the ſagacity and judgment of each perſon who practiſes it, and not on any fixed principles.

Calomel has uſually in theſe caſes been given as an alterative, in doſes too ſmall to produce any immediately evident effect, but repeated ſo often as to make very material alterations in the conſtitution. Sometimes it has alſo been given as an active purge, the operation of it being ſuppoſed more efficacious than that of any other medicine of this claſs. The cauſes of mania, or the effects produced by it, ſpeaking of the diſorder at large, as has been proved by the diſſection of dead bodies, may be widely different, and for theſe different medicines may be neceſſary and proper. But in that ſpecies of which we are now ſpeaking, it is not ſuppoſed, that any diſeaſe exiſts in any of the conſtituent parts of the body, but that it wholly proceeds from diſturbed action of the nervous ſyſtem; and that we ſhall probably ſucceed the beſt, not by aiming to cure a diſeaſe which does not exiſt, or which is beyond the power of phyſic, with very active medicines, but by obviating ſymptoms, which may, in this caſe at leaſt, be ſaid to conſtitute the diſeaſe.

Throughout the courſe of the complaint ſtrict regularity of the nonnaturals is to be eſtabliſhed, ſuch as the times of going to, and riſing from bed, exerciſe, employment, if poſſible, times of taking food, kinds of food, and the like; and above all care is ever to be taken, that the patients, in their fits of rage, be prevented from doing miſchief to themſelves or others. From a ſtrict regulation of theſe matters, and from the eſtabliſhment of a mild, but firm and vigilant

vigilant authority, it is probable, as much advantage may be derived, as from any medicine.

SECTION III.

Of every complaint, to which women in childbed are liable, and which may require medical aſſiſtance, it is not neceſſary or poſſible here to take notice. I have therefore confined myſelf to thoſe, which ſeem of the greateſt conſideration either from their frequency or importance. Of this kind is the puerperal ſwelling of the inferior extremities, as it may not improperly be called. This diſeaſe has been long ago and often mentioned by the French writers, moſt commonly under the name of *l'enflure des jambes et des cuiſſes de la femme accouchée*; or that of, *dépôt du lait*, from its ſuppoſed cauſe; but often with ſo little accuracy, as to make it difficult to diſtinguiſh, what kind of ſwelling they meant to deſcribe. By the Germans it is uſually called the *œdema lacteum*. Though the diſeaſe has frequently occurred in this country, and has been long underſtood in practice, the firſt treatiſe upon it was publiſhed by Mr. *Charles White* of Mancheſter, and ſoon after another by Mr. *Trye* of Glouceſter. As might be expected from men of their abilities and eminence, in each of their works there are many things deſerving attention; but as the ſubject yet requires farther inveſtigation, with regard to its cauſe, its hiſtory, and method of treatment, I ſhall offer the reſult of ſuch obſervations and opinions, as have occurred to me on this diſeaſe.

The puerperal ſwelling of the inferior extremities does not ſeem to depend upon the kind of labour the patient may have had, as it indiſcriminately happens after thoſe which were eaſy, and thoſe which

which were difficult; or on any evident peculiarity of the conſtitution, the corpulent and the thin, the feeble and the ſtrong, being equally liable to it; or on rank in life, as the rich and poor are alike ſubject to it; or on any mode of treatment in the ſtate of childbed. Nor does any appearance during pregnancy denote a diſpoſition to it, the ſwelling of the inferior extremities at that time being a totally different complaint; but the whole diſeaſe ſeems to ariſe from ſome circumſtance, that occurs after the delivery of the patient. It is alſo remarkable, which is a ſatisfactory reply to thoſe who have attributed this ſwelling to the depoſition of the milk, that it has happened to thoſe who had an abundance, or thoſe who had a ſcarcity of milk; to thoſe who did, or thoſe who did not give ſuck; and ſometimes, though rarely, in abortions, when no milk was ſecreted.

Before the appearance of any ſwelling, or any ſenſe of pain in the limb about to be affected, women become very irritable, and grievouſly depreſſed in their ſpirits, without any apparently ſufficient reaſon, complaining only of tranſient pains in the region of the *uterus*, and from theſe only the approach of the diſeaſe has frequently been foretold. After a ſhort time they are ſeized, often very ſuddenly, with an extremely acute pain in the calf of the leg, extending to the inſide of the heel, and then, obſerving the courſe of the lymphatics, ſtretching up to the ham, along the internal part of the thigh to the groin, occaſioning a ſlight ſoreneſs over the lower part of the *abdomen*. Then alſo the inguinal glands are affected, ſometimes the external, which are perceptibly enlarged, indurated, and painful, and ſometimes the internal, or both, and probably alſo, judging from the ſymptoms, thoſe which lie at the bifurcation of the veſſels at the loins. Except that I have not obſerved the limb to be diſcoloured, or the lymphatics inflamed, and marking their courſe by a redneſs of the ſkin (which we provincially call the *anguiſh vein*), the firſt effects of this diſeaſe very much reſemble

thoſe, which would attend the abſorption of ſome poiſonous matter from the lower part of the limb. The whole ſurface of the ſwelled limb becomes inſufferably tender to the ſlighteſt touch or preſſure, eſpecially in thoſe parts where the glands are ſeated; yet without any other apparent change, except that the ſkin is gloſſy and of a deadly paleneſs; and a certain degree of paleneſs, not unlike that of a chlorotic or dropſical perſon, is ſpread over the countenance and whole body, every vein ſeeming to be ſcantily ſupplied with blood. When the pain has continued about twenty-four hours, the limb begins to ſwell, and the pain is uſually abated in proportion to the increaſe of the ſwelling; but from the moment of the attack, all power of acting with the limb is loſt, every attempt to move it giving great torture, and a diſpoſition to faint. There are, however, many varieties in the manner, in which the diſeaſe commenceth, as well as in its degree and progreſs; but the glands and lymphatics of the limb are evidently the parts firſt and principally affected. In ſome caſes the acceſs of the diſeaſe is ſlower, and the ſymptoms leſs violent, heſitating, as it were, whether it ſhould be formed or not. In theſe the pain is not only leſs ſevere, but diffuſed over the limb, inſtead of being fixed on particular parts, and the ſwelling ſcarce ſufficient to draw attention.

This diſeaſe happens at no preciſe time after delivery, as it has come on at any period, from the fifth or ſixth day, to the third or even fourth week, but moſt commonly, I think, between the fifth and twelfth day. Whenever it does appear, the whole conſtitution is ſpeedily and greatly affected by it. The pulſe is extremely quick and generally feeble, the heat of the body is much increaſed, the tongue is white and clammy, and the countenance pale and dejected; the urine, which is voided in ſmall quantities, is thick and of a muddy colour, unlike what I have obſerved in any other diſeaſe, the muddineſs gradually leſſening as the diſeaſe abates; the patient is coſtive, the *fæces* being of a pale colour and clayey conſiſtence;

ſiſtence; and the uterine diſcharges, whatever their quantity may be, have an offenſive ſmell, and unnatural appearance. It is however to be obſerved, that this ſmell and appearance do not always continue through the courſe of the diſeaſe, but on inquiry will be found to have exiſted at, or ſome days before, its commencement.

Either or both the legs may be affected together or ſucceſſively. When the latter is the caſe, the diſeaſe having remained for a certain time in one leg, and the ſymptoms being abated, the other has been ſuddenly and unexpectedly ſeized. Then the ſymptoms have recurred with equal violence, and gone through a ſimilar courſe. But the patient having eſcaped the danger before apprehended, though diſconcerted, bears the ſecond attack, even if it be more ſevere, better than ſhe did the firſt. Should the ſecond leg become affected, it is not by a tranſlation of the diſeaſe from one limb to the other, the leg firſt affected remaining in the ſame ſtate, and obſerving the ſame progreſs as before the affection of the ſecond. When only one leg is affected there are, in ſome caſes, occaſional exacerbations of the diſeaſe, after apparently conſiderable amendment; and theſe may render it neceſſary to change the order of treatment, or even to return to that which was proper at the commencement.

After eight or ten days continuance, according to its lenity or violence, the more urgent ſymptoms of this diſeaſe begin to abate, but in many caſes very ſlowly; the debility and oppreſſion ſometimes remaining for ſeveral weeks, as the conſtitution is naturally more inert or vigorous. Though all the other ſymptoms be removed, the ſwelling may, and generally does remain for many weeks, or even months, and in ſome very bad caſes, the limb has never been reduced to its primitive ſize, or recovered its wonted powers of agility and firmneſs, during the patient's life.

The conſtitution ſeems to be very much diſturbed and enfeebled at the beginning of the diſeaſe, and unequal to the due perform-

ance of its common functions, yet after a certain time it ſeems to become local; for the patients recover their health, and often menſtruate regularly; but even this change has ſeldom afforded the expected relief to the affected limb.

Though this diſeaſe often creates much and great alarm to the patient and her friends, and always occaſions much pain and ſuffering, yet on the whole it may be ſaid, that it is not dangerous. I do not mean, nor ſhould I be juſtified in ſaying, that it was never attended with danger; having been informed of ſeveral caſes, and ſeen one, which proved fatal, where no other cauſe of the patient's death could be aſſigned or ſuſpected. But on the retroſpect it appeared, that this might poſſibly have been avoided, if more regard had been paid to the repreſentations of the feelings of the patients; for they were urged, at leaſt encouraged, to exert themſelves beyond their abilities and inclinations, and ſunk immediately after, or while they were making ſome great effort.

From this deſcription of the diſeaſe, the inguinal and neighbouring glands ſeem to be the parts firſt affected, and the ſubſequent ſwelling of the limb to be evidently occaſioned by the blocking up of all paſſage for the lymph through thoſe glands. The pain and extreme ſoreneſs of the limb, which are always ſomewhat abated when the ſwelling comes on, appear to be incidental, and to be produced by the diſtention of the lymphatic veſſels; ſo that the ſwelling ſeems to prove that thoſe, which were before over diſtended, are relieved, either by the burſting of ſome, allowing the effuſion of lymph into the cellular membrane; or a ſeries of veſſels of ſmall dimenſions are enlarged, by which thoſe lymphatics, which before ſuffered from extreme diſtention, together with the parts on which they made compreſſion, are eaſed.

But it remains to be proved how it comes to paſs, that theſe glands are originally affected; and this I ſhould endeavour to explain by preſuming, that, as the lymphatic veſſels of the *uterus* and *vagina* are

are very much increaſed in ſize during pregnancy, they are more capable of abſorbing any fluid, which may come into contact with their orifices; and if any fluid not conſonant in its qualities with that, which they were by nature intended to convey, were to be admitted and conducted to the gland, to which any particular lymphatic may lead, a morbid affection of the gland might be produced, which would occaſion all the ſucceeding miſchief. Whether the internal or external inguinal glands, or thoſe at the head of the *triceps*, or any other, were affected, will depend on the courſe of the lymphatic, which had taken up the offending matter.

It was before obſerved, that the uterine diſcharges have an offenſive ſmell, and unuſual appearance. Now it has been proved, that the moſt healthy fluids of the body, perfectly innocent and unoffending to the part where they were ſecreted, may act as means of great and morbid irritation, if transferred to a part not originally deſtined to receive them; that is, they may act in ſome degree as poiſons. But in the preſent caſe, the ſecretion being of a morbid kind, as far as can be judged by ſmell and appearance, the malignity of its effects may be aggravated. I therefore feel ſatisfied, that the abſorption of vitiated matter from the *uterus* is the cauſe of the ſwelling of the inguinal glands. Farther, if this abſorbed matter had not been interrupted by the gland, and thus prevented from ſpreading over the whole body, this diſeaſe would have been infinitely more dangerous; and this opinion is ſtrengthened, not only by the common conſequences of acknowledged poiſons when abſorbed, but by many ſimilar complaints frequently met with in practice: as in the ſwelling of the inferior extremities in men, when the proſtate gland is affected; in one or both legs, when the *uterus* is diſeaſed; in the arm, when the axillary glands are enlarged; and in many other caſes. But the changes in the uterine diſcharges, which precede this diſeaſe, are not, it is apprehended, like the changes produced by the retention of coagula, or of ſmall

portions of the *placenta* or membranes, but they are conſequent to an unhealthy ſtate or morbid action of the *uterus*.

Having formed this opinion of the cauſe of this diſeaſe, and reaſoning by analogy of its effects, in the method of treatment, without aiming to cure the diſeaſe in the firſt inſtance, I take the ſymptoms for my guide, and endeavour to relieve theſe by all the means in my power. As the ſenſe of extreme weakneſs, and exceſſive irritability, are the moſt prominent and diſtreſſing, the patient is to be well ſupported by cordial medicines, and by a liberal uſe of wine; not reſtraining her to any preciſe quantity, but leaving her at liberty to judge what that ſhall be, by the degree of depreſſion which ſhe feels. Opiates are alſo to be given, to abate and ſoothe the general irritability of the habit, and together with theſe, ſuch medicines as promote the ſecretion by the ſkin and kidneys. For theſe purpoſes I uſually give the following draught.

℞ Aq. ammon. acetat. ℥ſs.
Syrup. papaver. alb.
Spir. nuc. moſ. ā ʒii.
Aq. ment. ſat.
— puræ. ā ℥ſs. M. f. hauſtus quarta vel ſexta quaque hora ſumendus.

Should this fail to moderate the ſufferings of the patient, a few drops of *tinct. opii* may be occaſionally added to the draughts, eſpecially to that taken at bed-time, and the quantity of *ammonia acetata* may be increaſed, or pure *ammonia* may be given in ſome caſes of great depreſſion.

Perhaps the beſt application to the ſwelled limb is a liniment compoſed of one drachm of camphor diſſolved in an ounce of oil of olives; or ſome of the expreſſed oil of mace ſoftened down to a proper

a proper conſiſtence with a ſufficient quantity of oil of almonds; and to either of theſe may be added from five to ten grains of powdered *opium*. The moſt painful parts, or the whole limb, may be gently anointed with a ſmall quantity of theſe every night and morning, and afterwards covered with a looſe flannel. By ſuch means, ſome relief is uſually obtained, though not much permanent benefit; and they are preferable, I think, either to ſpirituous or to hot fomentations, which, without producing more advantage, are apt to bring on profuſe ſweating, and great faintneſs.

In this ſtage of the diſeaſe, local bleedings with leeches, and bliſters applied to the enlarged glands, have been recommended, as effectual means of ſpeedily curing the diſeaſe by removing the glandular obſtruction. But if my opinion of the cauſe of the diſeaſe be juſt, the haſty diſperſion of the ſwelling of the glands, if it could be effected, though it might leſſen or wholly remove the ſwelling of the limb, would ultimately prove a very great diſadvantage, by allowing the abſorbed *virus* to eſcape; and this pervading the whole body, a diſeaſe primarily local would become a general one of the moſt dangerous kind. In the caſe of poiſonous matter of any kind abſorbed by a ſlight wound or abraſion of the ſkin of the hand or fingers, (an accident to which ſurgeons are particularly liable in their diſſections and operations), the ſwelling of the neareſt or ſome gland, which cuts off the communication between the limb and the body, leads to the ſecurity of the patient. But if active and effectual means be uſed to remove the ſwelling of the gland, the abſorbed virus paſſes into the conſtitution, and the patient will probably be deſtroyed. It was by an error of this kind we loſt Mr. *Hewſon* the celebrated anatomiſt, when he was riſing into eminence, and many other deſerving men, whom I recollect, and with whoſe caſes I was well acquainted.

With regard to the ſtate of the bowels, though we are to

be circumſpect in preventing the inconveniencies of conſtipation, it is never adviſable to purge, in this ſtage of the diſeaſe. Their regular courſe may be obtained by the occaſional uſe of *magneſia vitriolata*, or any other medicine of the kind, which will anſwer the purpoſe, and is leaſt likely to diſturb the ſtomach. Clyſters are not eligible, becauſe the change of poſition, which they require, is often extremely difficult and painful.

The great tumult raiſed on the firſt attack of the diſeaſe being appeaſed, the quantity of wine and opiates may be leſſened, or they may be leſs frequently given; but in this we are to be guided by the degree of debility and irritation that remains. As a preventive alſo, when the diſeaſe is threatened, a generous diet and wine are to be allowed, if the appetite of the patient will allow her to take nouriſhment.

When the conſtitution is, according to the old mode of expreſſion, fortified, and the health ſomewhat reſtored, the ſwelling of the leg is to be conſidered rather as of a chronic, than of an acute kind, and all reaſonable endeavours may be uſed to diſperſe it. I have then given the *decoctum cinchonæ* or *caſcarillæ*, with a ſaline draught, or the *kali vitriolatum*, or *magneſia vitriolata*, or a ſtrong infuſion of burnt ſponge, two or three times a day, and every night at bed time, half a grain, or a grain of calomel, with or without an opiate. In ſome caſes I have thought it more eligible to give from three to five grains of calomel twice a week, with a purging draught on the following morning, and ſome of the draughts before mentioned on the intermediate days. In other caſes the cryſtals of *tartar* have been liberally given in any convenient form; or the *cicuta* with a decoction of *ſarſa*, and various other things uſually adviſed on ſimilar occaſions: and whenever there was much remaining weakneſs, ſome preparation of iron, as the *ferrum vitriolatum* or *ammoniacale* in ſuitable doſes, has been of much ſervice.

Then alſo it is neceſſary to ſupport the ſwelled limb by a ſlight flannel

flannel bandage drawn gradually tighter, and to uſe different applications, ſuch as the volatile liniment, or one compoſed of three parts of *linimentum ſaponis*, and one part of *tinctur. cantharidum*, and ſometimes ſmall quantities of the *unguentum hydrargyri*. The frequent application of ſmall bliſters to different parts of the limb has been then ſtrongly adviſed, and in many caſes with evident advantage. Electricity has been tried, but of its real benefits I am not competent to judge. Certainly many patients have been much relieved by perſevering in the uſe of warm ſea bathing; and they are to be encouraged, but with ſome caution, to uſe exerciſe, otherwiſe the deſuetude will endanger their being crippled. It may laſtly be obſerved, though ſome women have been afflicted with this ſwelling of one or other of the inferior extremities in ſeveral ſucceſſive labours, in general they, who have had it in one labour, are not more liable to it in ſubſequent ones, and are ſometimes relieved during their confinement from the conſequences of a former attack. And here I muſt conclude.

THE END.

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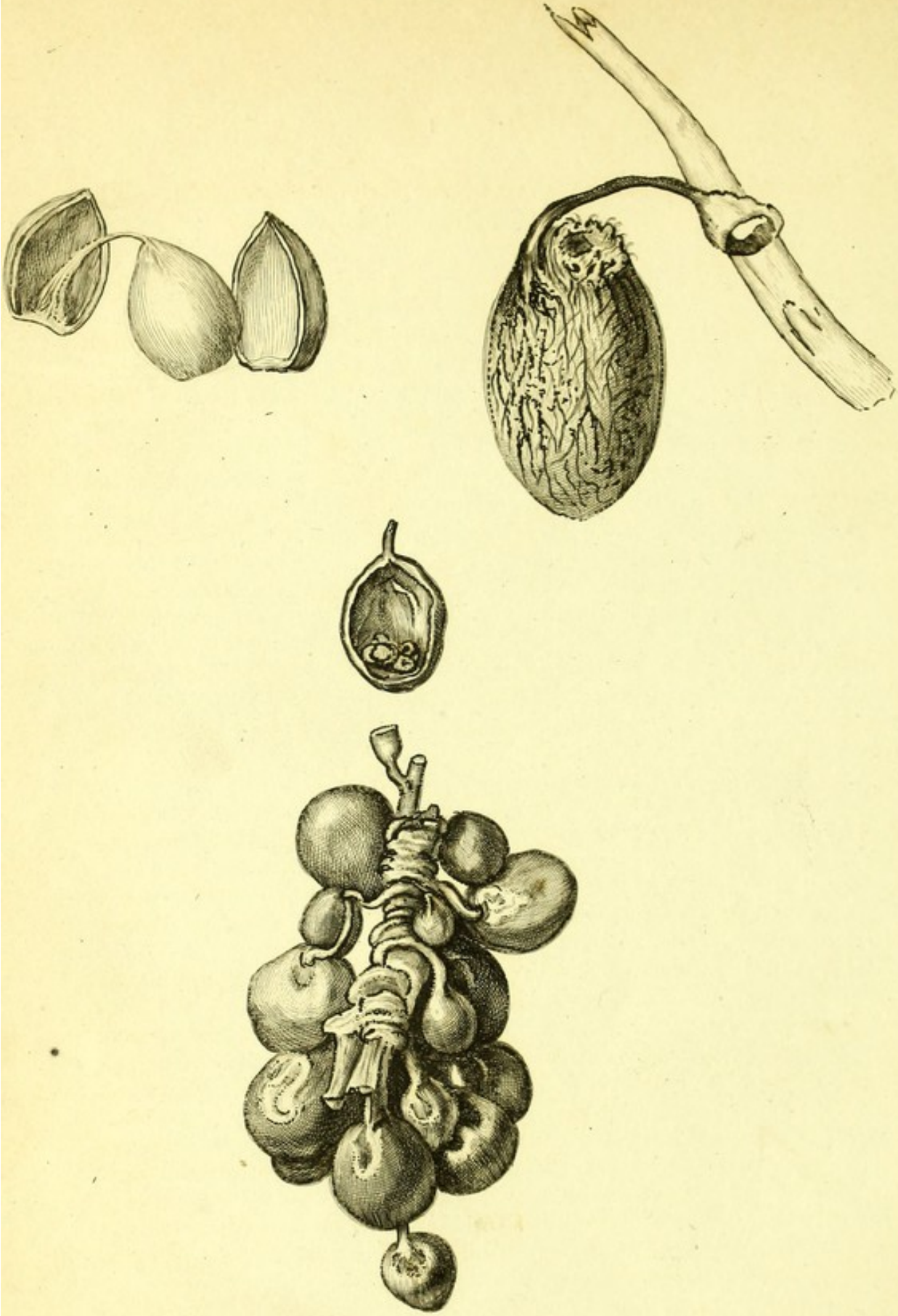
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THE END.

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When the firſt Number of the following plates was publiſhed, it was my intention to give a ſeries to correſpond with and explain the order of the obſervations made in the preceding Introduction. Under the moſt favourable circumſtances every work of this kind muſt proceed ſlowly; but too many avocations have interrupted the execution of my deſign, and my advanced age forbids me to hope for length of life ſufficient to complete it. Yet the progreſs made (not without much labour and expence) fully exhibiting my aim, it ſeems expedient to add the plates already finiſhed to this quarto edition, eſpecially as with their preſent utility they may afford ſome aſſiſtance, if any perſon with more leiſure ſhould wiſh to perfect the plan. For the principal part of the drawings I am obliged to my much eſteemed friend and neighbour Dr. *Richard Atkinſon*, who with a perfect knowledge of the ſubjects unites great excellence in the art of painting; and the engravings are generally well executed.



Miller sculp.

PLATE I.

The *Funis* of a Nut.—The *Chryſalis* of the *Phalæna Atlas*.—The Eggs of the Cuttle Fiſh.

I HAVE joined theſe three ſubjects in one plate on account of their reſemblance, though they are taken from ſuch different parts of the creation.

In the repreſentation of the Nut attention is chiefly paid to the *Funis*, which is mentioned by *Linnæus*, and probably by many other writers. As the apex of the kernel is by this *Funis* bound to the broad end of the ſhell, the ſhell to the huſk, or foliaceous cup, and this again by a twig to the tree, the whole manner in which nouriſhment is conveyed to the kernel appears. The coats of the kernel likewiſe reſemble the membranes of the *ovum* in viviparous animals; and the flocculent lining of the ſhell, the membrane formed, after conception, over the internal ſurface of the *uterus*. Mr. *Miller*, who made this drawing, thinks that many ſeeds have a ſimilar *apparatus*.

In ſome ſhells, the Apricot for inſtance, there is no lining to the ſhell, or connection between it and the kernel. In ſuch, the ſhells being covered with fruit, or a huſk, are more porous, and the nouriſhment, penetrating the cavity in the form of a dew, is abſorbed by the kernel.——See *Amœnitat. Academ.* vol. iv.

THE *Chryſalis* of this Moth was plucked from the tree upon which it hung, on an iſland in the Straits of *Malacca*, by my worthy friend *Thomas Liell*, Eſq. and on the following day a large and beautiful Moth eſcaped.

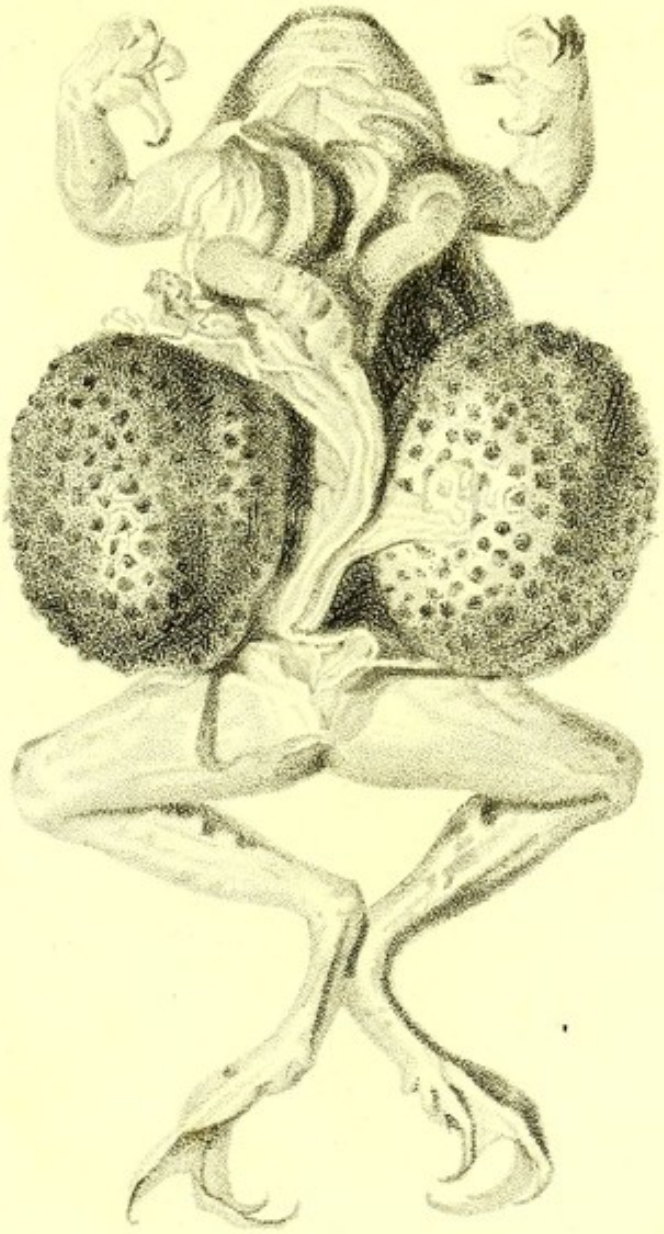
I do not know that there is any thing peculiar in this *Chryſalis*; but the largeneſs of the ſize ſerves to ſhew diſtinctly the beautiful arrangement of that ſubſtance, which is ſpread like net-work over the ſurface of the *chryſalis*, and which, being concentrated at the upper end into one cord, is fixed to the twig of a tree as a place of ſecurity.—See *Merian's Surinam Inſects*, pl. lii.—*Amœnitat. Academ.* vol. iv. *Bombyx*.

THE Eggs of the Cuttle Fiſh, which in their form and ſize reſemble a ſmall grape, are faſtened in cluſters by an animal ſubſtance to ſea-weed, in a place ſuited to the ſtate of the Fiſh when it eſcapes from the egg.—*Geſner*, in his account of the *ſepia*, has quoted the reaſon aſſigned by *Ariſtotle* for theſe eggs being collected into cluſters, "That they may be conveniently imbued with that viſcous fluid ejected by the male, by which they are to be nouriſhed and increaſed." *Geſner* alſo ſpeaks of their excluſion from the egg in theſe terms—"Mox ova edita craſſitudinem acinorum uvæ minorum intra diem decimum quintum capiunt, quibus abruptis ſepiolæ excluduntur; quæ, (ſi quis prius, prole jam perfectâ, abſciderint ovi membranam) ſtercuſculum mittunt, ſuumque præ metu colorem immutant ex candicante in rubiuſculum."——See *Amœnitat. Academ.* vol. i.——See alſo *Aldrovandus*, *Charlton*, and *Geſner*.

PLATE II.

A Diſplay of the Internal Parts of a Frog, with the *Ovaria*.

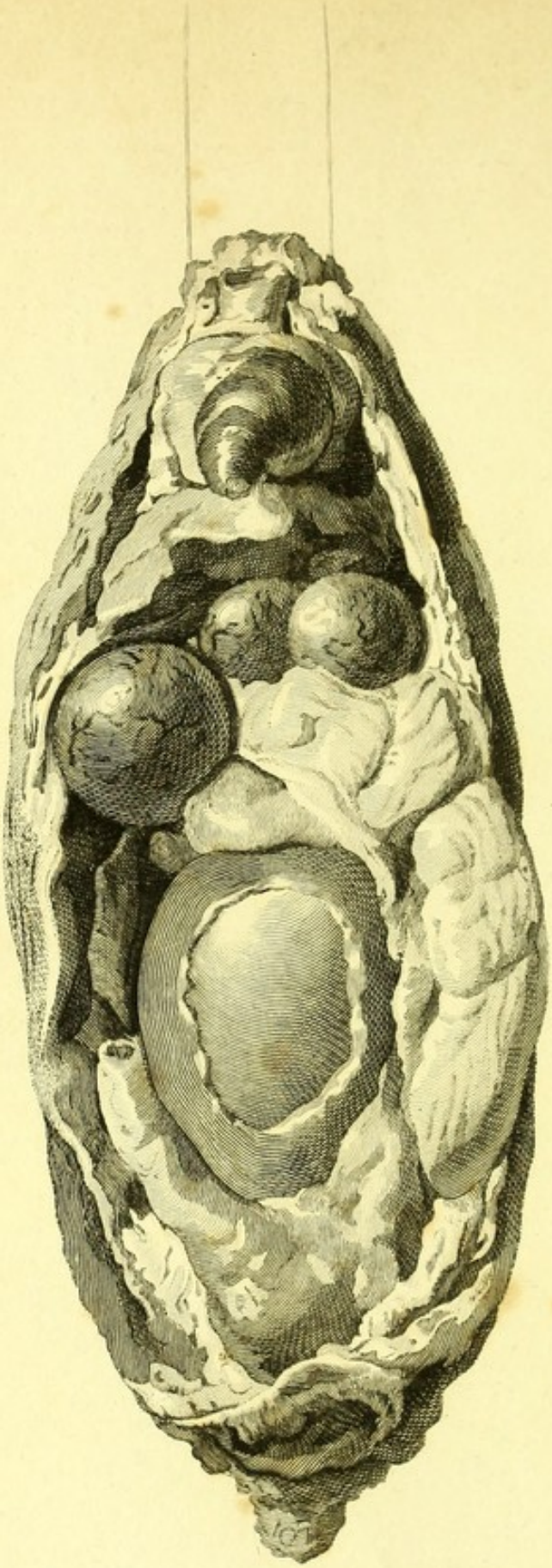
BEFORE the contents of the *ovaria* are depoſited, thoſe in a Frog are ſo large, and ſo much expanded, that they hide the *uterus* and origin of the *ovaria*, and almoſt all the *viſcera* of the *abdomen*. For this reaſon *Roeſel* thought it neceſſary to give two drawings for the explanation of this ſubject; the firſt, to repreſent the *ovaria*, and the ſecond, the parts of generation. But, by turning aſide the left *ovarium*, every thing is brought to view without any derangement, and as clear a repreſentation is made of the whole, as the nature of the ſubject allows, or ſeems to require.



J. J. Reynoldyk delin.

C. Knight sc.

London Publish'd Dec.r 22. 1783. by Dr. Thomas Denman.



Rymsdyk delin.

W. Skelton sculpt.

Publish'd as the Act directs by Dr. Tho. Denman, 23 Feb. 1787.

PLATE III.

A Section of a Hen, ſhewing the *Ovarium*, with an Egg perfected in the *Infundibulum*.

In the *ovarium* of a Hen are contained the *primordia* of an infinite number of Eggs, differing in ſize, and riſing towards perfection in regular ſucceſſion. While theſe abide in the *ovarium*, they conſiſt of the Yelk only, impregnated with the fecundating principle conveyed in the act of copulation; but in their paſſage through the *Infundibulum*, which has a membranous expanded orifice fitted for their convenient reception, they collect the White, and other ſubordinate parts. In the lower part of the *Infundibulum*, which by ſome writers has been diſtinguiſhed as the *uterus*, they become inveſted with the membranes and ſhell; ſoon after which they are expelled.

Harvey has given as good a deſcription of theſe parts, as words can convey; but a repreſentation to the eye was wanting, and this plate, by the exertion of the artiſts, is rendered worthy of ſupplying that deficiency. *De Graaff* has indeed given a delineation of the *Ovarium* and *Infundibulum*; but they are taken out of the body, by which means their original poſition, relation, and genuine appearances are loſt.

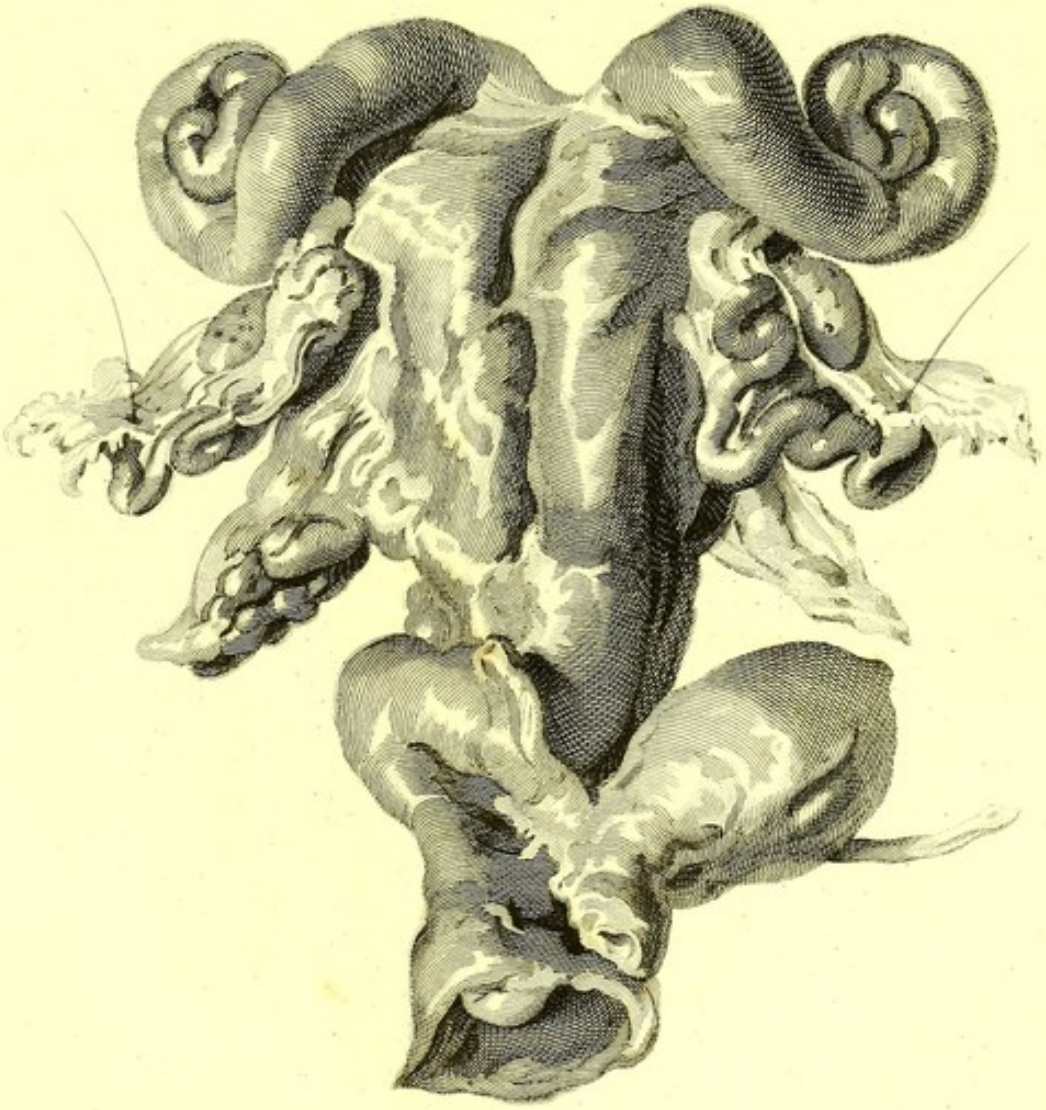
There is yet wanting a delineation of the daily changes made in the Egg during incubation. Theſe might be reduced into one view, and then the ſubject would be nearly complete.

PLATE IV.

The *Uterus*, with the Bladder of an Ewe.

THIS very beautiful drawing repreſents the form of the *uteri* of the *Pecora*, or ſixth claſs of animals, according to the ſyſtem of *Linnæus*; in which the *fundus* of the *uterus* is divided into branches or horns, convoluted and terminated in a point.

In the ſucceeding plate there is given a ſpecimen of one of the cotyledons of a cow, which is an animal of the ſame claſs. Occaſion will be taken in the courſe of this work, to give an example of the form of the *uteri* of the different claſſes of animals, both in the common and impregnated ſtate, and of the manner in which the *uterus* and *ovum* are connected together.



J. V. Reymsdyk delin.

W. Skelton.

Publish'd as the Act directs, by Dr. Thos. Denman, 23 Feb. 1789.



W. Skelton sculp.

Dyk delin.

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PLATE V.

A Part of the *Uterus* of a Cow, with one of the *Cotyledons*, and a Portion of the Membranes.

THE changes which take place in the *uterus* of a Doe *after conception*, as the ſoftneſs and tumefaction of its ſubſtance, the formation of its membranous lining, and the origin and progreſs of the caruncles or glandular eminences in its *cornua*, to which the *cotyledons* are afterwards fixed, are all particularly deſcribed by *Harvey*.

The drawing now before us is from theſe parts in a Cow, an animal of the ſame claſs, which therefore are probably in all reſpects, except the ſize both of the caruncles and *cotyledons*, ſimilar to thoſe of the Doe. This *cotyledon* is in part ſeparated and turned from the caruncle, by which means the texture of both is more clearly ſeen, and additional beauty given to the plate.

PLATE VI.

Three Human Abortions, one of which contains Twins.

If delineations were to be made of every variety obſerved in abortions, there would be no bounds to the work. Yet in every collection there muſt be ſome examples, that we may be able to diſtinguiſh the different parts of which an *ovum* is compoſed, the proportions which they bear to each other at different periods of pregnancy, and ſometimes the part of the proceſs of utero-geſtation which failed. It muſt however be allowed, that the generality of theſe things are preſerved for their beauty, or as matters of curioſity, rather than of uſe. I ſuſpect nevertheleſs that there are ſome appearances, beſides the *veſicula umbilicalis*, not yet perfectly underſtood, and therefore recommend the whole ſubject as worthy of being reviewed by ſome anatomiſt, who has time and opportunities of examining it with accuracy. The figure which contains Twins is in itſelf of rather more value, as it is the firſt of the kind which has been delineated.



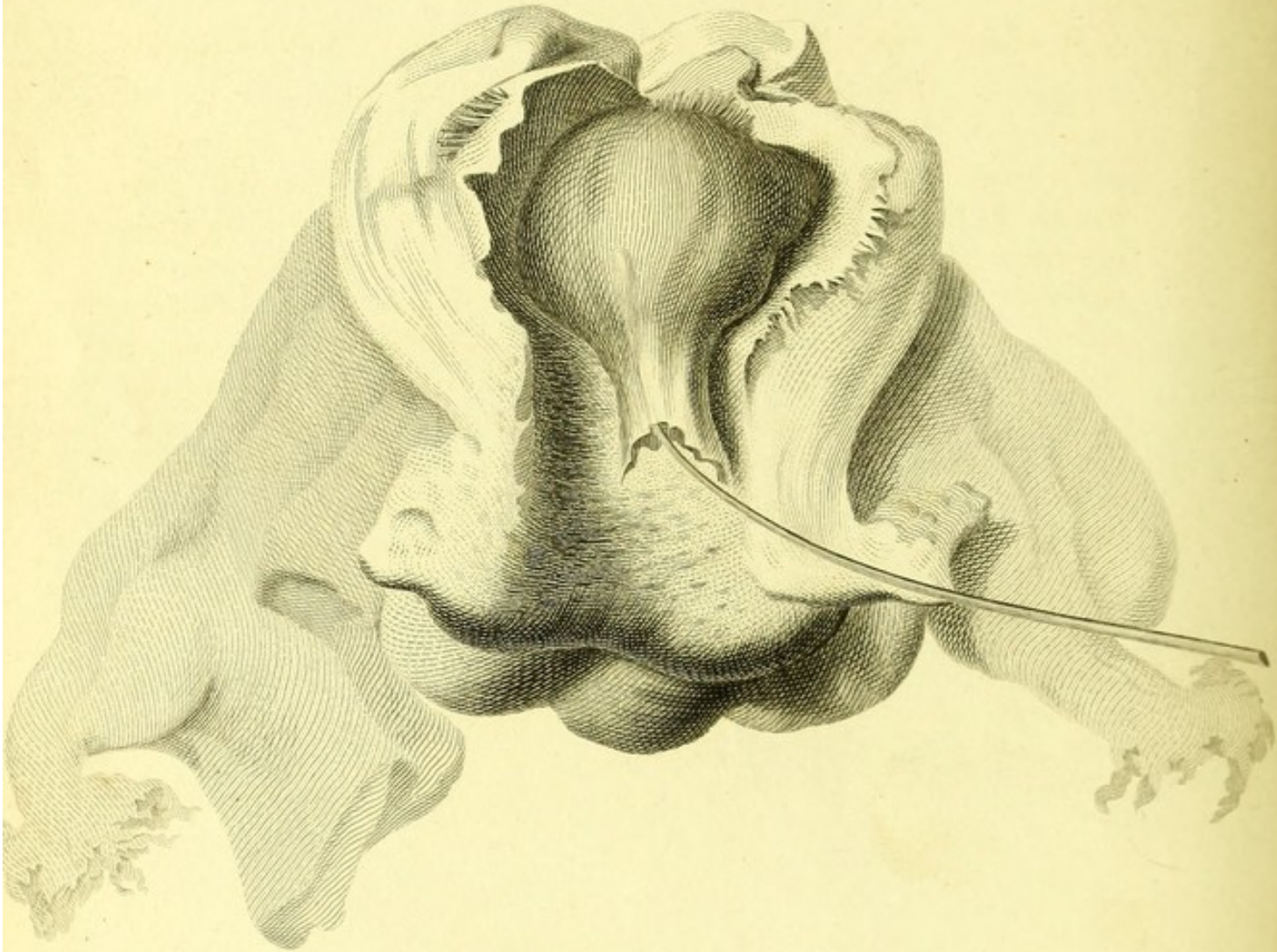




J. V. Rymsdyk delin.

C. Tom

Publish'd as the Act directs, by Dr. Tho. Denman, 23. Feb. 1787.



R. Atkinson Del.t

T. Medland Sculp.t

London Publish'd Nov.r 3. 1790. by D.r Thomas Denman.

PLATE VII.

The *Uterus*, with the *Ovum* contained in it, of a Woman who died about the ſeventh week of her Pregnancy.

THIS drawing was taken, under the inſpection of the late Dr. *William Hunter* and Dr. *Underwood*, from a woman who died in conſequence of an uterine hemorrhage, which came on about the ſeventh week of her pregnancy, and proved fatal before the *ovum* could be expelled. The *os uteri* was ſufficiently opened, and all the parts of the *ovum* looſened from the *uterus*, except a ſmall portion at the *fundus*, the attachment of which remained very firm, and had a ſchirrous feel and appearance. The common means had been uſed to abate the hemorrhage, and to favour the excluſion of the *ovum*, but without effect; for the patient died on the third day from the firſt ſymptoms of abortion; the prognoſtic, founded on the general event of ſuch caſes, not giving reaſon to apprehend danger.

The ſhort lines, which paſs from the *uterus* to the *ovum*, ſhew very diſtinctly the manner of their connection, and the part which was found adhering when the body was opened.

PLATE VIII.

An Human *Ovum*, about the third month of Pregnancy.

THIS *Ovum* is rather larger than might be expected from the date, and more perfect than thoſe uſually are which are expelled in conſequence of the common cauſes of abortion. No other art was uſed in preparing it than by ſoaking it in water, to cleanſe it from the adhering blood. The artiſt who made the drawing was a *German*, whoſe name was *Nall:* He was ſo ſtruck with the beauty of the preparation, that he never was ſatisfied with his work, and took uncommon pains to finiſh it.

Beſides the two proper membranes of the *Ovum*, there is preſerved a large portion of that membranous production of the *uterus*, the formation of which *Harvey* has ſo well deſcribed; which many writers have denominated the falſe or ſpongy *Chorion*; *Ruyſch*, from its appearance, the *Membrana Villoſa, illam placentæ partem obducens, quæ uterum reſpicit*; *Bianchi*, the *Placento-vaſcularis cortex ad totum ovi ambitum*; *Hunter*, ſuſpecting it to be a *lamella* caſt off from the *Uterus* after every conception, *decidua*; and from its duplicature, or *tranſit* over the *ovum*, which he diſcovered, *decidua reflexa*; and which, from its office, I have ventured to call the connecting membrane of the *Ovum*.



— —— *del!*

C. Knight scu

London Publithed Dec.r 22. 1783 by Dr. Thomas Denman.



Fresey pinx.

C. Knight sculp.

London, Publish'd Dec.r 22. 1783. by Dr. Thomas Denman.

PLATE IX.

A Morbid Human *Ovum*.

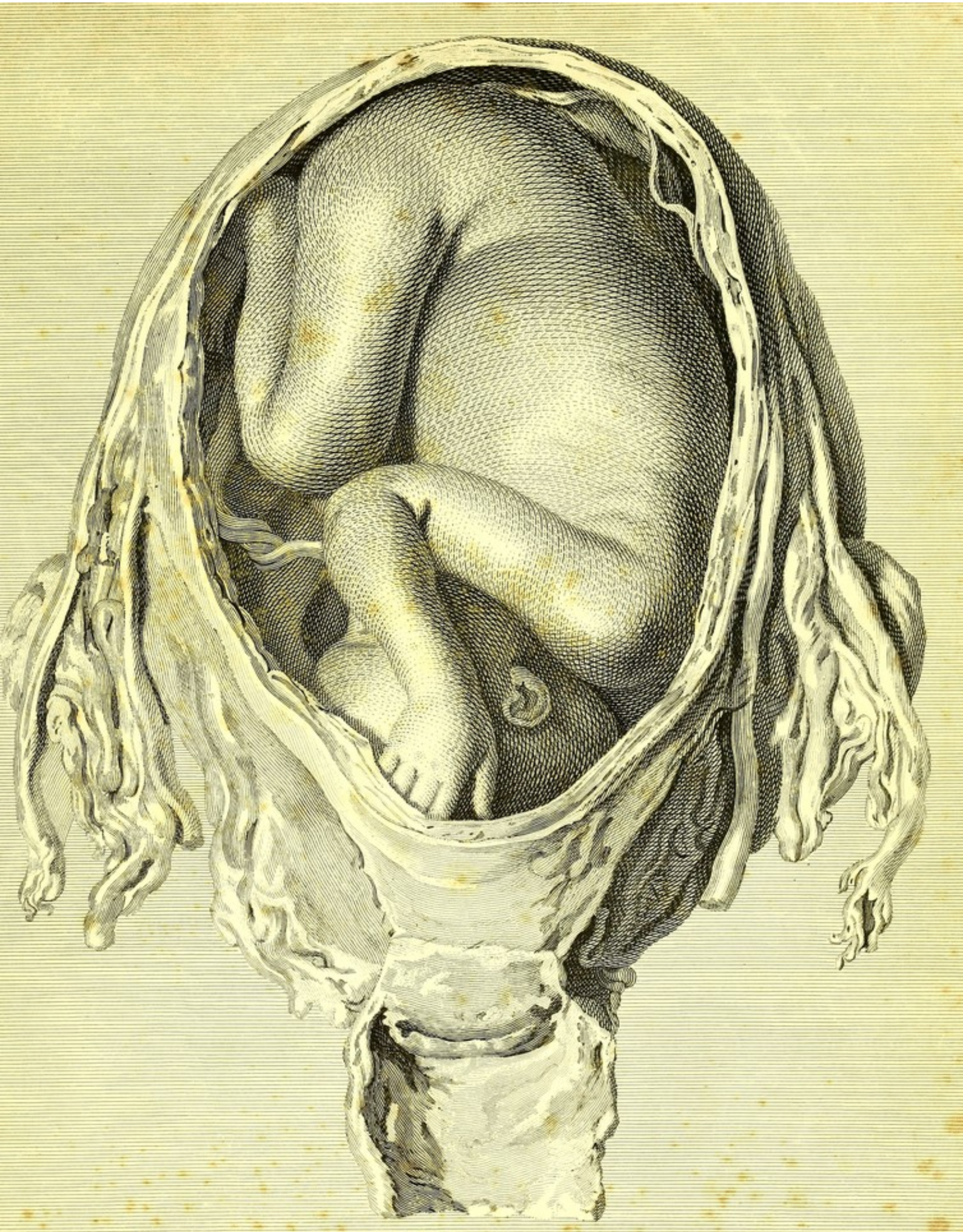
THE circumſtances chiefly deſerving attention in this Plate are, the ſmall ſize of the *embryo* compared with that of the *placenta*, the dropſical ſtate of the *funis umbilicalis*, and the change which has taken place on the internal ſurface of the *placenta*, which is riſing into eminences, and has aſſumed ſuch an appearance as if it would have been formed into tubercles or hydatids, in the manner ſuggeſted by *Ruyſch*, and of which he has given ſeveral drawings.

It appears that this *embryo* muſt have been blighted in the very early part of pregnancy, though it has no marks of decay. But the *placenta* adhered, increaſed in its ſize, and remained in the *uterus* to the end of the ninth month, and was then expelled without much pain or difficulty. When brought to me, it was ſuppoſed to be a mole, and ſeemed like a maſs of fleſh without any particular organization; but when carefully examined, was found to be an *Ovum*, with the appearances ſo well repreſented in this plate.

PLATE X.

The *Uterus*, containing the Child of a Woman, who died in the Act of Parturition.

THE preparation, from which this drawing was taken, has not been diſturbed in any other way than was abſolutely neceſſary to free it from the parts to which it was connected; but, as it has been preſerved in ſpirits, the outline of the limb and body of the child is rendered ſomewhat hard. It may however be conſidered as a juſt and perfect view of the ſituation of the *fœtus in utero* at the time of birth; and though, perhaps, no two children were ever found exactly in the ſame poſition, there is one which may be called the moſt natural, becauſe its general habitudes are moſt frequent. This now exhibited correſponds ſo punctually with that deſcribed with ſuch unrivalled elegance by *Harvey*, that his deſcription might be almoſt ſuſpected to have been taken from the ſame preparation.





R. Atkinson ad vivum pinxit.

W. Skelton

Publish'd as the Act directs, by Dr. Thomas Denman, 23. Febry 1788.

PLATE XI.

Rupture of the *Uterus.*

THE perſon, from whom this drawing was taken, died ſuddenly in the act of parturition. I ſaw her a very ſhort time before her death; and, no attempts having been made to extract the child, all the parts are exhibited preciſely in the undiſturbed ſtate in which they appeared on making a crucial inciſion through the integuments of the *abdomen.*

The caſe was an example of the ſpontaneous rupture of the *uterus* at the poſterior part, oppoſite the projection of the *ſacrum.* The body of the child eſcaped into the cavity of the *abdomen*, the head remaining locked in the *pelvis.* The *fundus* and anterior part of the *uterus*, not being diſeaſed or injured, had contracted properly after the excluſion of the child. The caſual expanſion of the right *Fallopian* tube with its *fimbriæ* upon the body of the child explains the relative ſituation of the parts, and gives additional beauty to the plate.

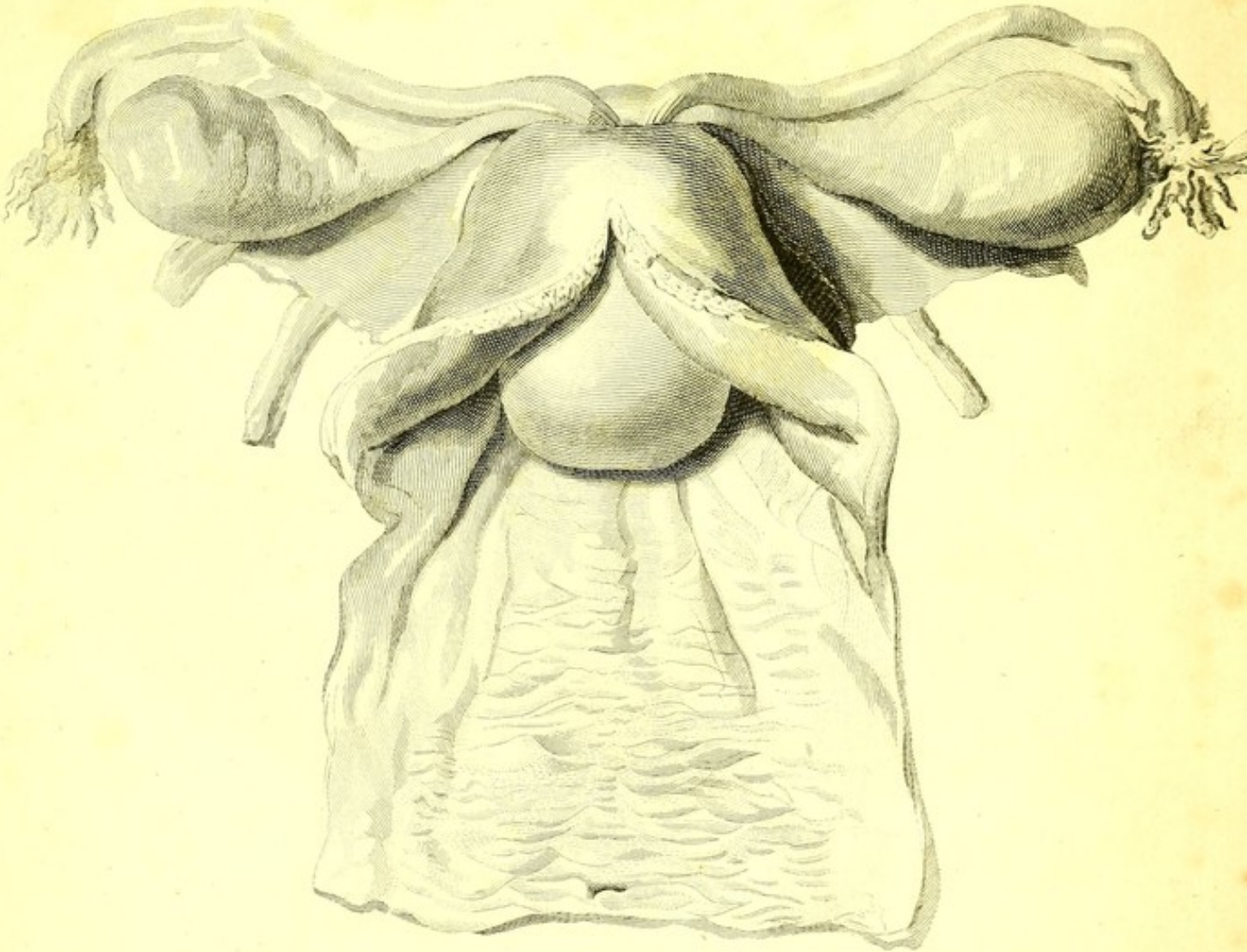
Many caſes of the rupture of the *uterus* are recorded by different writers, eſpecially by *Bonetus* in his *Sepulchretum*, and by *La Motte*; but I believe no juſt engraving of the ſubject hath been publiſhed. There is yet wanting a repreſentation of a rupture at the anterior part of the *uterus*; which ſometimes happens, though far leſs frequently than at the poſterior part. For the completion of the ſubject it would alſo be neceſſary to delineate ſome of the varieties, to determine the preciſe part which is moſt commonly ruptured, together with the ſtate of the *uterus* at the ruptured part. But of the rupture of the *uterus* the inſtances are ſo rare, that what remains to be done muſt be finiſhed by the labours of different anatomiſts and practitioners.

PLATE XII.

Inverſion of the *Uterus*.

Of the inverſion of the *uterus* many accounts have been publiſhed, particularly by *Ruyſch*, who has alſo given a drawing of it ſoon after the accident; but this is not ſufficiently exact to convey much information. There is likewiſe in that very correct and ſplendid work of the late Dr. *William Hunter*, the *Anatomia Uteri Humani Gravidi*, a plate, which repreſents the ſtate of the ſurface of the *uterus* immediately after its inverſion.

I was called to the patient, from whom this drawing was afterwards taken, ſoon after her delivery, when ſhe was ſuppoſed to be in extreme danger from an hemorrhage. I very imprudently neglected to take an examination *per vaginam*, ſo that the inverſion was not diſcovered till near twenty-four hours after the accident; when the repeated attempts I made, with all the addreſs of which I was maſter, and all the force I dared to exert, failed to reduce it. The *uterus* continued inverted, but the patient ſurvived, and lived ſeveral months; though ſhe was, for the remainder of her life, ſubject to profuſe uterine diſcharges, by which ſhe was at length exhauſted. I have however ſeen ſeveral inſtances of women, with the *uterus* inverted, living for many years in tolerable health. In this plate the poſterior part of the *vagina* is laid open: The *uterus* ſeems to be diminiſhed in its ſize, and the *ovaria* to be ſomewhat enlarged. The altered poſition and direction of the *Fallopian* tubes is well repreſented, and by theſe all the other parts are explained. The inverted ſurfaces of the *uterus*, though lying in contact, had not adhered.



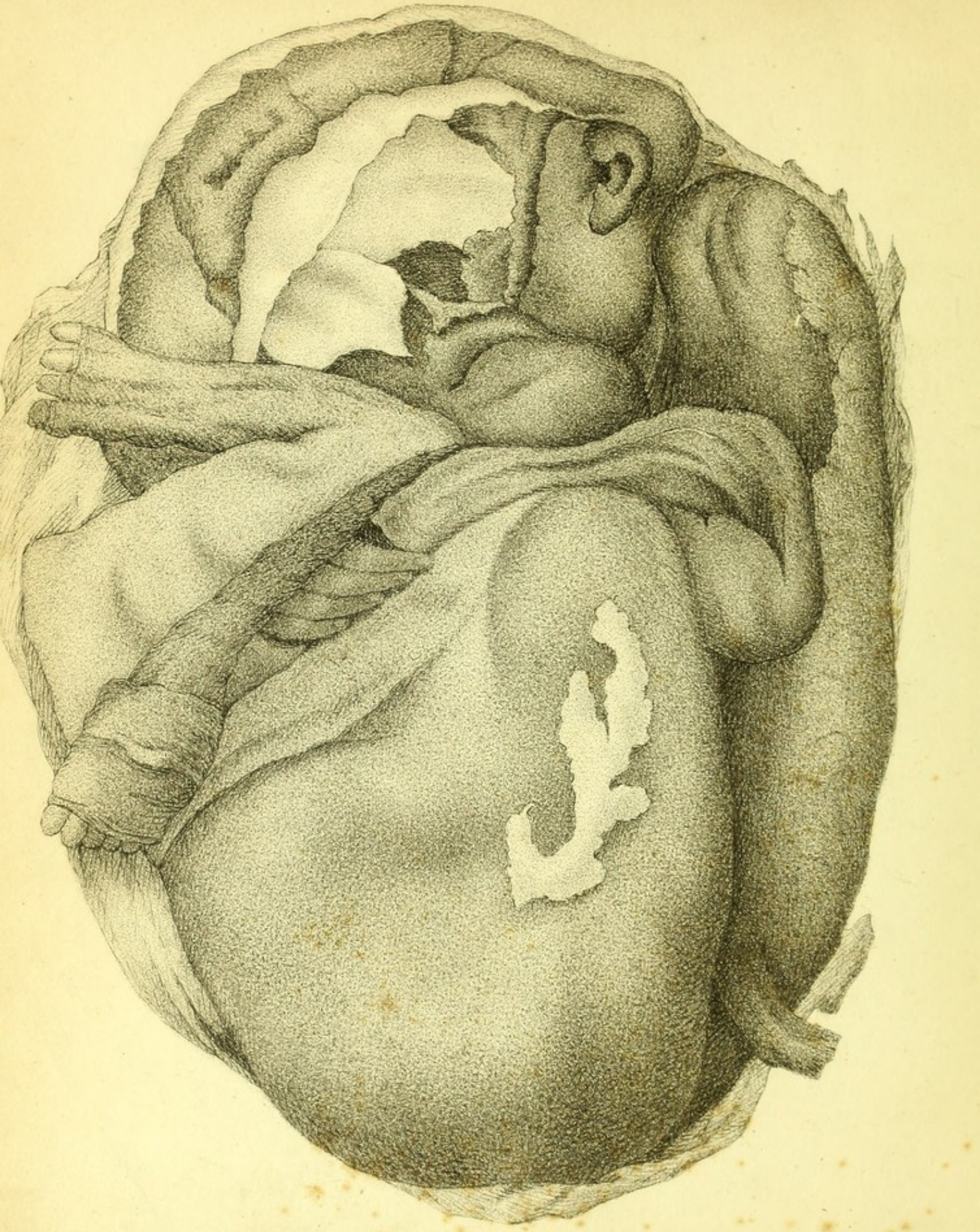


PLATE XIII.

An Extra-uterine *Fœtus* contained in its Sack, the anterior Part of which is removed.

Of this caſe, which was communicated to me by Profeſſor *Hamilton* of *Glaſgow*, the account is imperfect; but the fact is indiſputable, and the drawing a faithful repreſentation of the poſition and ſtate of the child when the ſack was opened, after the death of the patient.

The woman after ſeveral miſcarriages became pregnant; the motion of the child was diſtinctly felt; at the end of nine months ſhe had the ſymptoms of labour, which after a certain time ceaſed; there was no evacuation of any kind from the *uterus*, but the *abdomen* gradually leſſened, though it did not return to its natural ſize. Her huſband dying, ſhe married again; but though ſhe menſtruated regularly, ſhe was never afterwards with child. From the conception of the extra-uterine *fœtus*, ſhe lived thirty-two years in good health, nor was her death occaſioned, directly or indirectly, by that circumſtance.

The *fœtus*, ſlightly covered with calcareous matter, was included in a globular ſack, which adhered by a ſmall part of its ſurface to the left ſide of the *abdomen*. Whether the ſack was formed by the gradual diſtenſion of an original part, or was a new ſubſtance; whether the extra-uterine ſtate happened from a defect of the *ovarium*, or from a rupture of the *Fallopian* tube, or of the *uterus*; or at what period of pregnancy the circumſtance occurred, I am not able to give any account.

The plate ſhews the poſition of the child, and the degree of change it had undergone, ſo plainly as to require no farther explanation. The child weighed ſeven pounds. There were no remains of the *placenta*, and only about ſix inches of the *funis*.

In a very old painting in my poſſeſſion there is a view of the rupture of the *Fallopian* tube about the ſixth month of pregnancy. This, with many obſervations found in different authors, might be conſidered as a preſumptive proof of a general opinion, that the *fœtus* commonly eſcaped from that part into the cavity of the *abdomen*.

The late Dr. *William Hunter*, I believe, firſt obſerved, though the *fœtus* be extra-uterine, that the *uterus* undergoes thoſe peculiar changes which render it fit for the reception of the *ovum*.

PLATE XIV.

An Excreſcence from the *Fundus* of the *Uterus*, with an Inverſion of the *Uterus*.

My very much eſteemed friend Mr. *Hamilton*, profeſſor of anatomy at *Glaſgow*, inſpected the body from which this drawing was taken. The woman had laboured under the diſeaſe about three years; but ſhe had concealed it. The tumour became ſo large in the *vagina*, as to occaſion pains like thoſe of labour, but was at length excluded through the external parts. Mr. *Hamilton* then ſaw her for the firſt time, but ſhe was ſo exhauſted, that ſhe died in the courſe of a few hours.

On the examination of the parts after death, the excreſcence was found to ſpring from the *fundus* of the *uterus*, which was completely inverted, and dragged through the *os uteri* into the *vagina*. The excreſcence is ſeen adhering; and the part where the *uterus* terminates and the excreſcence begins, may be readily diſtinguiſhed. The texture of the excreſcence was ſoft and ſpongy; it meaſured nine inches in length, twelve in circumference, and weighed one pound and four ounces.

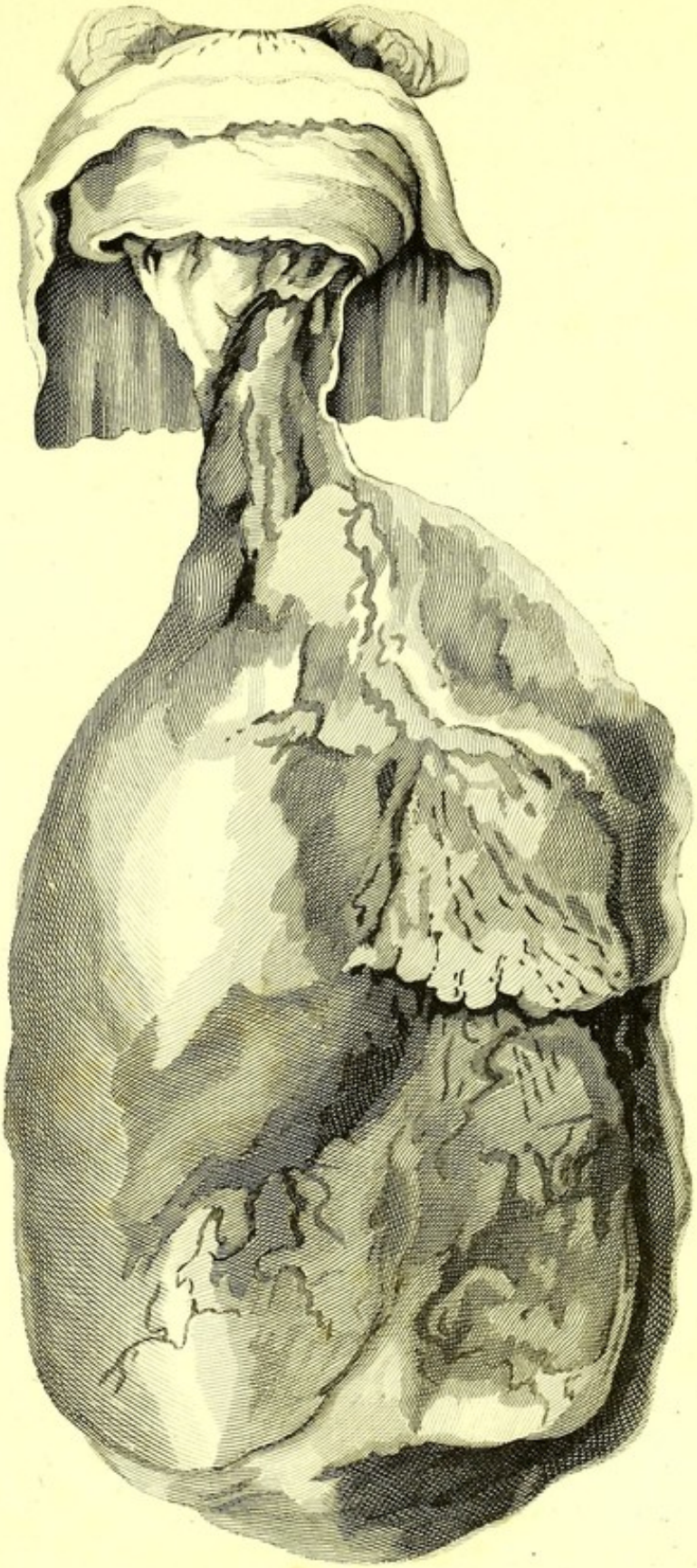
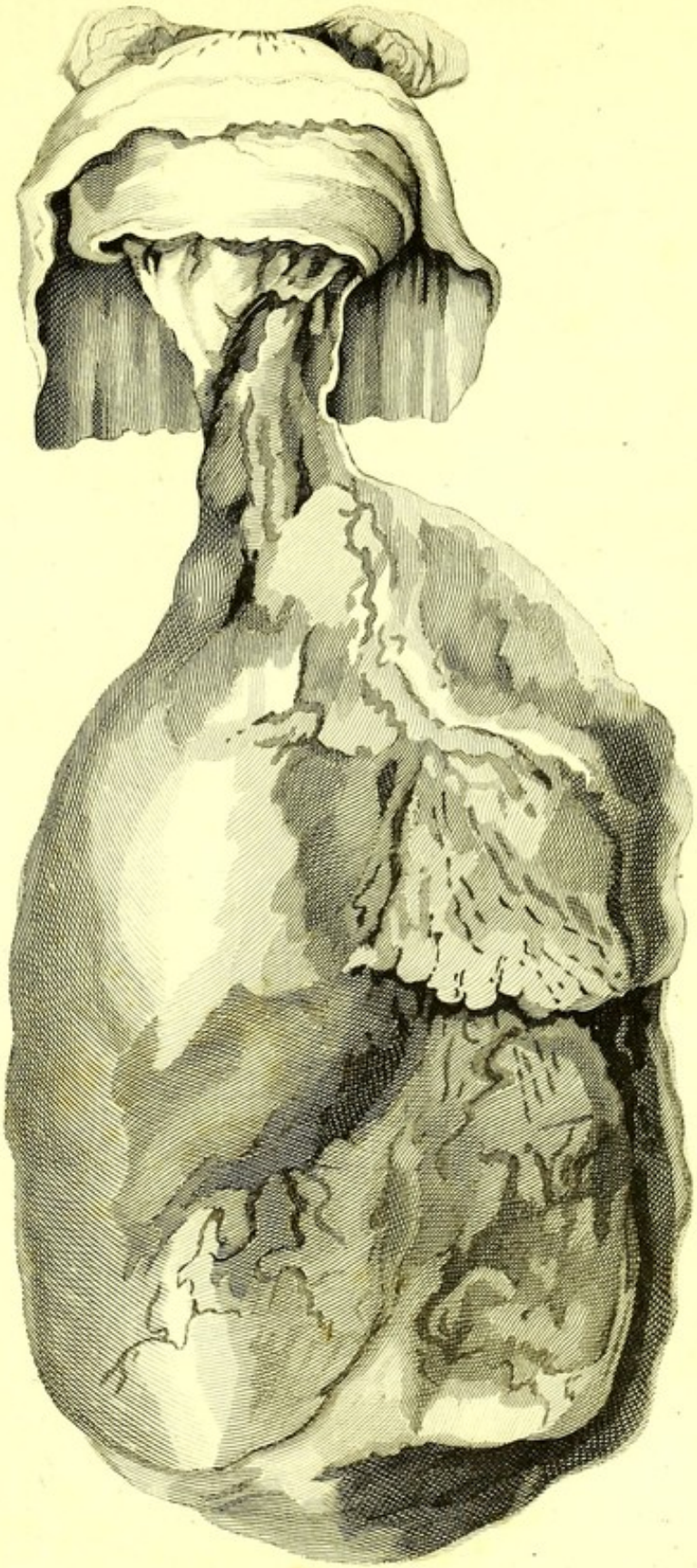


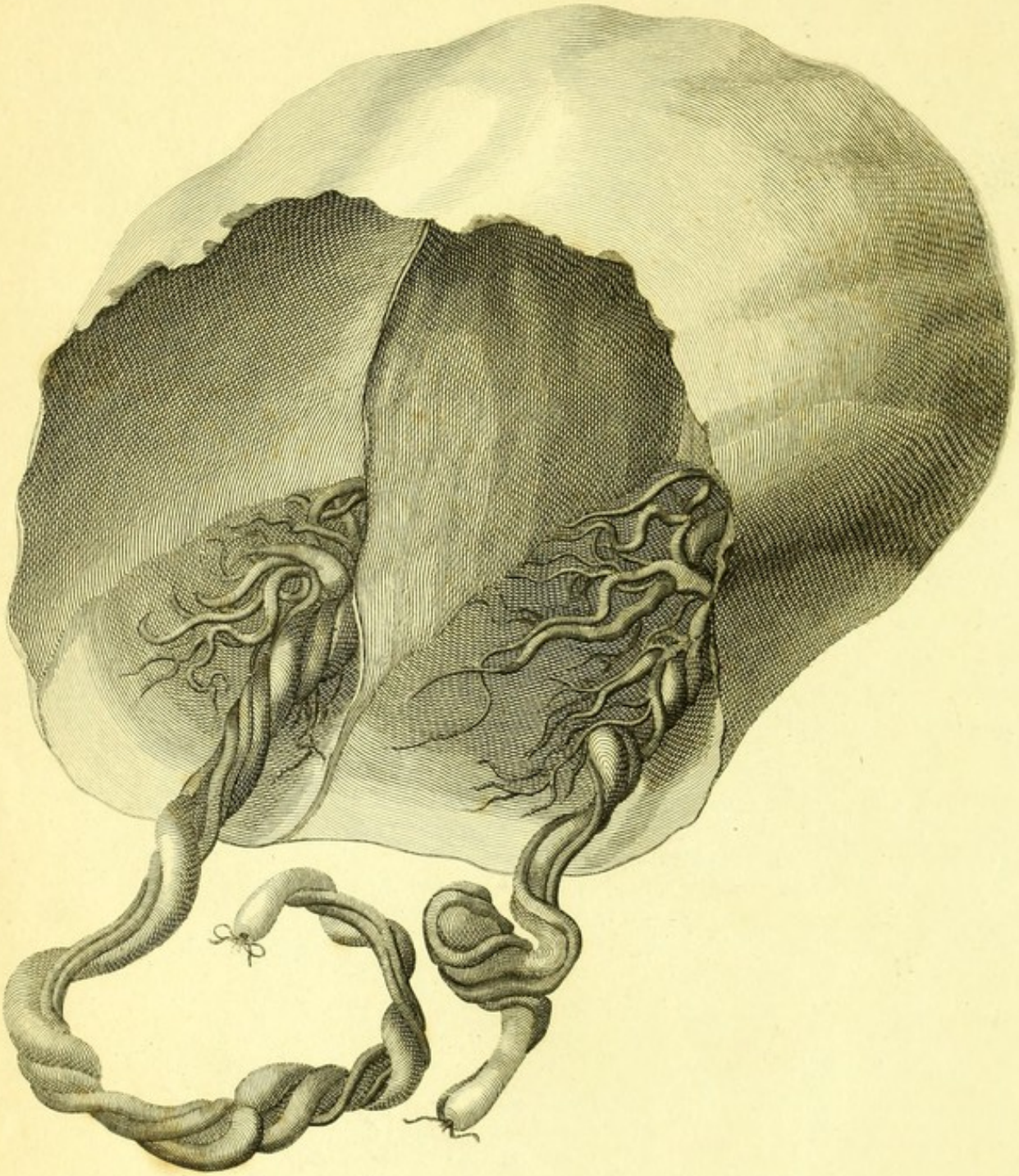
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F. P. Nolder delin.

W. Skelton sculp.

Publish'd as the Act directs, by Dr. Thomas Denman, 25. Feb. 1787.

PLATE XV.

A Twin *Placenta* with the Membranes.

After a ſlight injection of this *Placenta*, the membranes were diſtended with horſe-hair, and when dried, the ſubject was placed before the artiſt. The drawing is therefore ſomewhat formal, not admitting of ſo much elegance, either in the deſign or execution, as is obſervable in ſome of the foregoing prints. But the partition of the membranes into chambers for the accommodation of the two children is preſerved diſtinctly, and that is the great object of the plate.

I do not know, or recollect, that any engravings have hitherto been made or publiſhed of *Ova*, in which there were two, three, or more children, either in early pregnancy, or at the full period of utero-geſtation. I therefore recommend this whole ſubject, in which there may be ſome peculiarities and certainly are many varieties, to thoſe who may meet with opportunities of inveſtigating it, as entirely new, and as affording them room for acquiring reputation by attending to a very uſeful and curious part of natural hiſtory.

PLATE XVI.

A *Polypus* of the *Uterus*.

THIS plate is engraved from a painting of a preparation in the *Muſeum* of the late Dr. *Hunter*. It repreſents "the *uterus* and *vagina* ſlit open to nearly their whole length, ſhewing a *polypus* larger than a child's head at the time of birth. This hangs from the *fundus* of the *uterus*, by a peduncle as thick as one's finger and more than an inch in length."

Several attempts were made to paſs a ligature round the ſtem of this *polypus*, but without ſucceſs, chiefly on account of its ſize. Had an attempt been ſooner made, there would probably have been leſs difficulty.

A. The peduncle.
B. The *Polypus*.

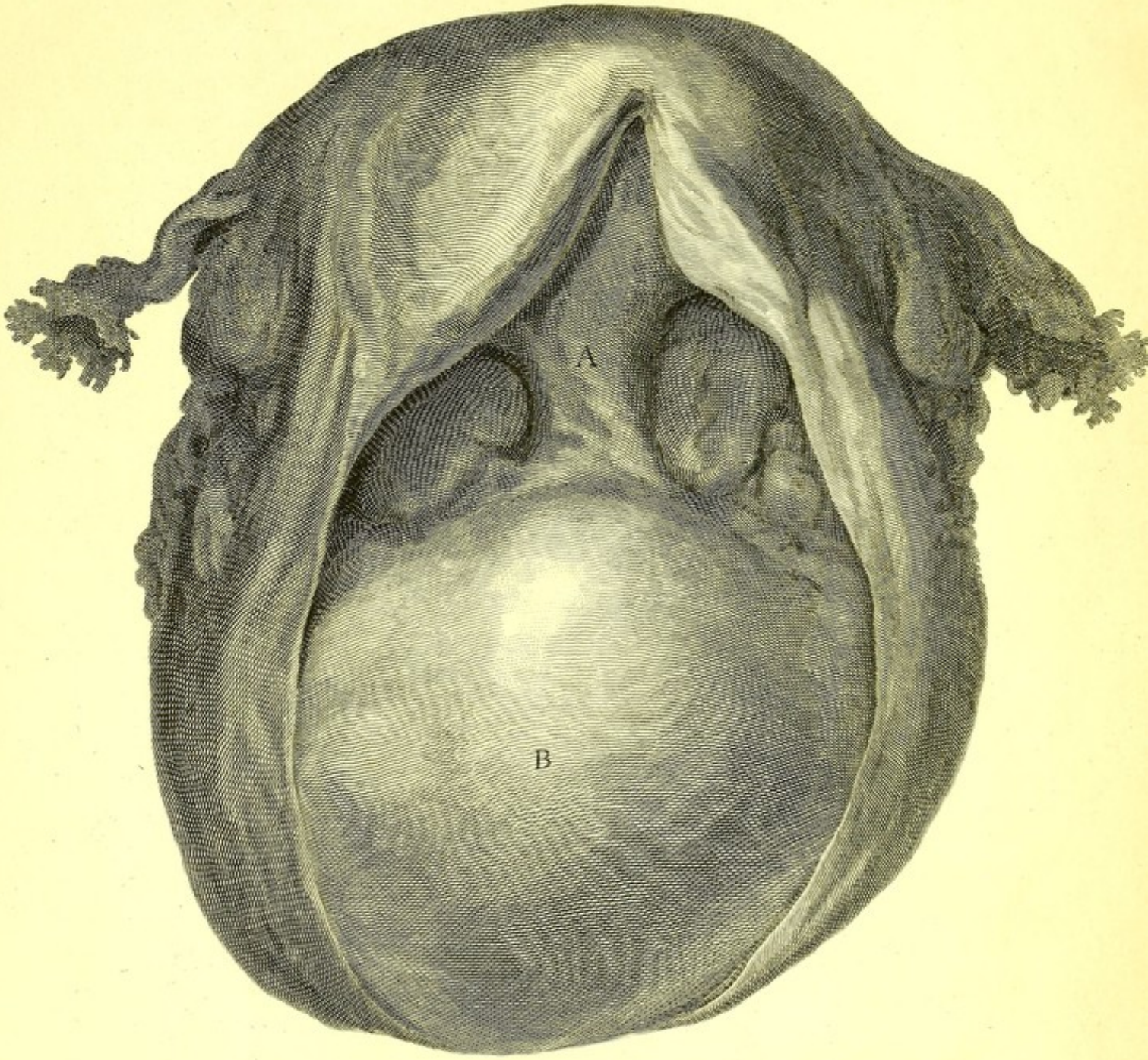
PLATE XVII.

A *Polypus* with an Inverſion of the *Uterus*.

THIS plate is alſo engraved from a painting of another preparation in the ſame *Muſeum*. In this "the *uterus* is ſhewn inverted by a large *polypus*, growing without any ſtem, from the *fundus* of the *uterus*, which is dragged low down in the *vagina*. The ligature (which remains) was paſſed and fixed, as it almoſt neceſſarily muſt, upon the inverted part of the *uterus*. The patient died on the fourth or fifth day after the operation." It is remarkable that the *uterus* was cut to a conſiderable depth by the ligature, before her death.

A. The Ligature as it was fixed.
B. The origin of the *Polypus*.
C. The lower part of the *Polypus*.

KING'S COLLEGE LONDON



R. Atkinson M.D. pinx.t

J. Heath A.R. sculp.t

Pub.d by T. Denman M.D. 2 Feb.y 1801


A
B
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