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Detection
of
Infanticide.

Wm. Fairbairn

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In Medical jurisprudence, the destruction of the life of a new born infant, whether perpetrated during Parturition, or, a short time after, is designated Infanticide.

This unnatural, and horrible crime, existed among the earliest nations of antiquity, and, we can find none totally exempt from it. The Jews, seem to have been comparative strangers to it, probably from the fact, that, every inducement was held out for the propagation of children, none for their destruction, a circumstance, which may be explained, by the universal expectation of a Messiah to come. Subsequently, however, as their intercourse increased with surrounding Nations, they naturally imbibed their depraved tastes and habits, and suffered themselves to be carried to the utmost excesses in this, and other vices. Among the Egyptians, and Ancient Persians, this practice was enforced by the most rigorous laws. In Greece, and Rome, Infanticide, was prosecuted in the most barbarous and unrelenting manner. Thebes, seems to have been a solitary exception, and, by her laws

26 Proverbs 33
2 Kings 21 + 8
Psalm 106 + 37
2 Kings 23 + 10.

against this inhuman custom, set a worthy
 example to the neighbouring Nations: but this
 crime, has unfortunately, not been limited
 to the primeval ages, since, even in the 19th
 century, it has not been erased from the
 catalogue of human atrocities, in the most
 civilized Nations: and, still continues to
 disgrace the greater portion of eastern Asia
 and India to this day. When we consider,
 the outrage that is committed against the
 best feelings of human nature, the total per-
 -version of that natural affection, which
 usually animates the breast of a Mother,
 the want of any provocation, or any object to
 stimulate, in the commission of this crime,
 we cannot wonder at the severity, with which
 most codes of Jurisprudence, have denounced
 this act as criminal, and, the perpetrators of
 it as guilty of Homicide. The detection of this
 crime, constitutes one of the most intricate,
 and difficult problems, that can be proposed
 to a Medical Jurist to solve, since the law infers,
 that the child was born dead, unless, the Medical Jurist
 can produce conclusive evidence, of its having been born alive.

This condition, constitutes the great difference between Infanticide, and, a common case of Homicide, therefore, the Medical evidence in a case of Infanticide, becomes of the highest importance, in influencing the judgement, and directing the Verdict of the Jury. On the discovery of the body of a newly born infant, under circumstances, which favour the suspicion, of its death having been effected by criminal means, the examination of the body, affords the most conclusive facts, for the evidence of the Medical Jurist, but, the production of the body must not be considered indispensable, for the conviction of the prisoner, since, in many charges the body is never found, as when the body has been burned after murder, the Medical Jurist has usually, only the half consumed bones, and other residue, from which to deduce his evidence. Nevertheless, these deductions must be of such a character, as satisfactorily, to prove important facts to the Jury. The inspection of the body of the infant, must be carefully, and minutely prosecuted; in order that, we may come to some conclusion of its probable age, and whether it had arrived,

at that degree of maturity, at which it is probable, it possessed the capability of independent existence. The erroneous, but popular notion, that at the period of quickening, the Fœtus for the first time becomes endowed with life, is still acknowledged by our English Statute. But Medical men now know, that the Fœtus is alive from the moment of conception, and, that those sensations, to which the term quickening has been applied, are merely the movements of the gravid uterus, rising from the pelvis to the Abdomen, in seeking a less confined situation. This occurs, between the third and fourth months of pregnancy. Abortion previous to this stage, was not accounted a crime, though as Professor Traill justly remarks, it ought to have been so. We are indebted to the Statute of Lord Ellenborough for the obliteration of this absurd notion, and Abortion, even previous to this, is now punished as a felony. The most frequent ages at which the bodies of infants, come under investigation for this crime, is between the sixth and ninth months of Gestation; a period, which will comprise all cases of Infanticide, but cases have

* Edinburgh, Med. and Surg. Journal. Vol II. p 455.

D^r. Rodman of Paisley, reports the case of a woman, who was delivered of a child at 19 weeks, which lived, but he adds that it was probably a miscalculation of the mother. When the child was three weeks old, it measured only eleven inches, and weighed $2\frac{1}{2}$ lbs, the mother attributed the premature labour, to fatiguing exertions, on the previous day.

Churchills, Midwifery.

D^r. Churchill has known cases of viability, at the 5th and 6th months.

Taylor, medical Jurisprudence.

Reg. v. West. Northamptonshire, Lent. Assises,

A Midwife was charged with infanticide, for procuring the abortion and consequent death of a child, under the seventh month, she was convicted and executed.

x D^r. Beck, D^r. Paris, and Foublaigrie

occurred at a much more recent date than this.* Various authorities,* may be quoted who hold the opinion, that no charge of Infanticide can or ought to be entertained, if it can be proved, that the child has not reached the age of seven months, but since it is ascertained, that live births have occurred before this, it cannot include them, and consequently seems to me imperfect. The principal appearances, by which we may determine the probable age of a child, between the sixth and ninth months, I proceed to enumerate. A child between the sixth and seventh months, usually weighs from one to three lbs, and from the vertex, to the soles of the feet, measures from ten to twelve inches, the head, is considerably larger in proportion with the trunk, the brain is pulpy, and not yet convoluted, the mesial line of corresponds with the xiphoid cartilage, the eye lids adhere closely to each other, the posterior chamber of the eye, is closed by the Membrana Pupillaris, the skin is of a red colour, the nails are not well formed, and do not nearly reach the points of the fingers, the hair, though as yet

very scanty, continues to grow, and acquires a silvery hue. In the Sternum, and other bones, ossification is proceeding gradually, the testicles in the male, which previously were contained in the abdomen, beneath the kidney, and lying upon the Psoas muscle, have descended into the Pelvis. Between the seventh and eighth months, the hair becomes darker, the skin is much thicker, and lubricated with an unctuous substance, the body acquires that symmetry, and plumpness, so characteristic of childhood, from the deposition of Adipose Tissue. The cutis loses the former red tint, the nails are well formed and strong, but do not reach the points of the fingers, the genitals in both sexes, are disproportionately large.

Between the eighth and ninth months, the Foetus weighs from four to five lbs, and is from fifteen to sixteen inches long, the Membrana Pupillaris is obliterated, the quantity of Adipose Tissue increases, the Gall bladder receives its bile, and the intestines their Meconium. At full time the Average length is eighteen inches, and weight seven lbs & upwards, the mesial line corresponds with the

X Capuron,

Branquis tells us, of two cases respectively,
23 and 27 lbs avoird^{wt}

Beck's, Medical Jurisprudence,

D^r Star of Boston found that the average weight
of 222 males was $7\frac{1}{2}$ lbs, and 184 females $7\frac{1}{9}$,

D^r Beck considers the average weight in America
at $7\frac{1}{2}$ lbs.

Foderé vol 2^o page 153, says the average weight
is from 6 to 7 lbs.

La longueur ordinaire d'un enfant né, et
à terme est de dix huit à vingt pouces, et les
deux extrêmes de seize, à vingt deux, et même
vingt trois pouces.

Farr's, Medical Jurisprudence,

D^r Farr considers the average weight, 6 lbs
length 18 inches,

D^r Merriam, met with a case, the same
weight as D^r Traill's.

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Umbilicus. Extraordinary differences in weight, are occasionally recorded. Professor Traill mentions one case, of fourteen lbs weight. Mr Park one of fifteen lbs, and Mr Owen of Ludlow, one which weighed twenty four lbs? X

According to Foedere, and Capurov, the characteristic appearances of maturity, and apparent viability, are the child's ability to cry, and consequently to breathe, the mouth, nostrils, eyelids, ears perfectly open, ossification far advanced, the Fontanelles well formed, Hair, Eyebrows, and Nails perfect, and well formed, under these circumstances we may conclude, that the child was viable. If on investigation, on the contrary, the weight is deficient, the volume is less, if there is a want of energy in the limbs, if the function of sucking is imperfectly performed from inability to embrace the nipple, if the nails are blue and do not reach to the points of the fingers, the temperature is low, ossification is behind, the skin is red, the hair is not colored but downy, when the usual discharge of Meconium and urine is absent, you may safely come to the conclusion that the child is

x Saporow, page 199.

* Dobie, versus Richardson, 1765.

In this case, Dobie's wife was delivered of an infant, which died in half an hour from convulsions, but did not cry the mother died in child bed, and the husband by decree of court lost his effects.

* North, Med. Journal, March 1866, page 182.

D^r. Wayser has published four of his own cases, and one of M. Petite of Copenhagen, where, although there was no evidence of the slightest trace of life, on dissection the thoracic viscera floated en masse.

Olivier D'Angers, speaking from experience, says, that a child may in certain cases live, without breathing, and he therefore argues that murder, may be committed on a child that has not breathed, and that coagulation of the blood is the only proof, that any injury has been inflicted on such a child during life.

immature. Among the Ancient Romans, it was necessary, that the child should be perfectly alive, (*si vivus perfecte natus est.*) before it could inherit. In France, Louis the 9th ordained, that ~~the~~ the viability of the child should depend upon its uttering a cry; but according to the present statute, complete and perfect respiration is all that is required. In England, the viability of a child is determined by any apparent motion, however small; in Scotland, by the uttering ~~a~~ a cry. Having come to some conclusion respecting the probable age of the child, and whether that, and other appearances are such as to render it likely that the child was viable, we proceed to answer the second question.

Was it born alive?

The essential difference between Adult, and Foetal existence, is the act of respiration. It was formerly erroneously inferred, that if the lungs were collapsed, and had no appearance of being dilated, that the child was born dead; ~~but~~ instances are recorded, in which the infant's existence was protracted for many hours, and respiration continued in a very feeble manner, and still the lungs had no

x Reg. v Brain,
Reg. v Sellis.

Taylor's med. jurisprudence

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visible appearance of being distended, from which, we are led to infer, that the mere fact of the Air cells being undilated with air, is no decided proof, that the child has not lived; and our Judges seem to have argued in this manner, in the following cases alluded to by Dr Taylor. The Pulmonary system is principally affected by respiration, and the physical changes which result, occur in the lungs instantaneously, but are more tardy in their appearance in the Heart, and its vessels. In a child of full maturity, which has never respired, the dimensions of the Thorax, is transversely from two to three inches; Antero-Posteriorly two, to two and a half; in a similar child whose lungs have been dilated by respiration, Transversely three to four and a half, Antero-Posteriorly three. The external configuration of the chest is also changed, from being flattened, and as it were compressed, after respiration is made to describe an arc anteriorly. After opening the Thorax, the first appearance we should remark, is the extent of surface the lungs occupy, for previous to respiration, they are confined exclusively to the posterior, and lateral parts,

* Operi, Galeni.

Galeni thus describes the changes effected
in the lungs, by the act of respiration,

ob eam causam,

substantia carnis pulmonum, ex rubra
gravi densa, in albam leuem, ac parvam
transfertur.

of the Thorax, while after the establishment of this action, the middle lobes are forced forward to such an extent, as completely to conceal the Pericardium; which, they never do, unless diseased, in the unexpanded state. In the unexpanded state, the lungs are of a purple or reddish brown colour, but on exposure to the Oxygen of the Atmosphere, for a very short time, the colour is gradually changed to a bright scarlet. After respiration has been established, the colour becomes less deep and approaches a light blue. If the substance of the lung appears mottled, the probability is, that imperfect respiration has occurred.

Dr Taylor discovered, that he could by artificial insufflation, produce that scarlet hue, (contrary to the opinion of Professor Beruh,) A dilated lung is absolutely, heavier than an unexpanded one, from the greater quantity of blood present, but, the latter is specifically heavier. The average absolute weight of a lung, which has been dilated by respiration, is according to Professor Trail, a, 1000 grs, while in the undilated one, it is seldom heavier than from 430 to 600 grs.

o Dr. Taylor seems to have made a misstatement with regard to the proportions assigned by Professor Traill, p 428. he has made a mistake in the average weight, of the undilated lung for that of the dilated

* Taylor's medical jurisprudence,

* Smith's Forensic medicine,

According to Dr Taylor, it is 549 grs before, and 927 grs after respiration; but the weight of the lung is subject to the same variance, as the volume, according to the degree to which respiration has occurred, as has been satisfactorily proved by Dr Taylor in the following cases.

Case 1 st .	Case 2 nd .	Case 3 rd .	Case 4 th .
Born dead,	lived 6 hours,	24 hours.	9 Days,
Weight, 687 grs.,	774 grs.	675 grs.	867 grs

The lungs before respiration, have a tough, doughy feeling, resembling the substance of the liver emit neither Air, (which may be recognised by the well known sound, to which the term crepitation, has been aptly applied,) nor Blood, but on the other hand in the lung dilated by respiration, a feeling of elasticity is imparted to the fingers, and distinct crepitation with emission of frothy blood, is recognised on incising them. The two tests proposed respectively, by Messieurs Ploucquet, and Guillof, * * though very ingenious, and well worthy of praise, are still nevertheless, open to objection. The first, seems to me, rather dubious in its

effects, and the latter from the great difficulty of the various steps, and the precious time necessarily exhausted in its completion, particularly, unsuitable for practice. Monsieur Ploucquet asserted, that the weight of the lungs bore an inverse ratio to that of the body, and that in the undilated condition, the ratio was 1:70 in the dilated condition as 2:70. Monsieur Chaussier by late experiments, objects on very good grounds to this statement, and Monsieur Devergie, also assures us that the proportion is as 1:60 before and 1:45 after respiration; a statement completely at variance with Monsieur Ploucquet's.

M. Guillot discovered, that the average quantity of fat, in the substance of the lung, is greater before, than after respiration, and in order that this could be clearly demonstrated, the lung must first be subjected to a gradual heat, so as to evaporate the moisture, and dry it, after that, it must be pulverized, and subjected to the vapour of Ether. The average quantity of fat in the lung is 16 per cent, in the undilated, and 6 per cent, in the dilated.

The comparative specific gravity of the lungs,

before, and after respiration, is however the most valuable test we have to rely on, and the one, probably least liable to variance. The lung dilated by respiration is specifically lighter than water, therefore floating, and buoyant on its surface, while the lung undilated by respiration, being specifically heavier, necessarily sinks to the bottom. In 1633, Thomas Bartholin, a Danish Physician, a gentleman to whose indefatigable energies, Forensic Medicine is already deeply indebted, for the elucidation of another important fact, acting upon this principle, fortunately discovered the Hydrostatic Test, or as it is usually better known, under the celebrated *Docimasia Pulmonum*. For a considerable period, this experiment was considered not only, to afford satisfactory evidence that the child had breathed, but sometimes, that it was even murdered. Thus, we have Dr. Hunter asking the question, How far may we conclude, that the child was born alive, and probably murdered by its mother? but when we consider, and are perfectly aware of the objections to which this Test is exposed, we can generally have little difficulty, in eliminating important

and correct facts, from experiment. The lungs having
been removed from the Thorax, we proceed to immerse
them together with the heart in a vessel of water,
if they sink, the experiment should be renewed with
a single one, for, frequently while one lung is buoyant,
the other sinks. If we observe that both lungs are
specifically heavier than water, we should again
repeat the test with small portions of each,
and remark the result, for, in imperfect re-
-spiration, portions of the lungs being dilated
with air float. If the lungs and heart together,
and separately float, the manner in which
they do so should be noticed, whether, they
swim on the surface of the water, or below it.

When the organs treated in the above manner,
are observed constantly to sink, the inference
is, that although the Child may have lived,
yet there are no signs of respiration present.

On the contrary, if they are uniformly buoyant,
the degree to which they are so, will declare
the degree to which respiration has been present.

Let us now shortly refer to the arguments,
which have been advanced to oppose this
test, viz, that the presence of artificial

insufflation, putrefaction, infiltration, hepatization, and congestion, will materially hinder the efficacy of the Hydrostatic Test; but as I formerly remarked, a little care and attention on the part of the Examiner, and the mere knowledge of these objections, will be quite sufficient to surmount them. Where Artificial Insufflation has been employed, the quantity of air present, will be quite inadequate to float that lung.

Though the air cells approximating the Bronchi may be distended, yet the more remote ones are not so, when incised, no blood is emitted, and when floating portions of such a lung, are subjected to vigorous pressure between the finger, and thumb, or twisted in a piece of linen, so much of the air, may be expelled as to cause them to sink. This expulsion of air, cannot possibly be effected in a portion of lung fully expanded by respiration.

In putrefaction, the general appearance of the Tissues, being of a dark brown or green colour, more or less disintegrated, exuding a foetid odour, and the fact of the gaseous matters not dilating the proper air cells, but rising in blisters under the cellular tissue, (to which the

* We are indebted to Professor Mayer, for a series of experiments on this subject. He found that lungs placed in water, not exposed to draughts, floated on the 6th day, if exposed to draughts, not till the 9th day, and continued increasing in bulk, and emitting fetid odours, till the 21st, or 23rd day, when they again sank, to rise no more.

Jassiolé, and Chaupeau, also inform us, that the lungs are the last organs in the body affected by Putrefaction.

term, Bullae, has been applied) also that the application of a slight compression, will cause it to sink, and the absence of blood when incised, will prove sufficiently distinguishing * properties, to prevent any unfortunate mistakes arising from this phenomenon. The consolidation of the air cells in Hepatization, or Scirrhus, both from the extreme rarity of their occurrence, the facility of discovery, and the impossibility of artificially inflating the diseased portion, can, it appears to me be discarded, with great propriety. That condition of the lungs, comparatively lately revealed by Dr. Loig of Leipzig, to which the term Atelectasis (ατελής) incomplete (εκτάσις) expansion cannot be so easily overcome, and in fact is by far the most serious objection to this experiment. This condition of the lung, may be easily distinguished from that of Hepatization, from the fact, that the incompletely expanded portion of lung, can be dilated by artificial insufflation, no consolidation of the air cells being present. Any influence, which has the effect of enfeebling the vital energies, such as severe hemorrhage from the cord, or any of the causes

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which induced Asphyxia, may readily pro-
-duce this incomplete expansion, which
after a time (in those unexpanded portions
of lung) may pass into a state of Hepatization.

Having carefully examined all the ad-
-vantages, and alleged disadvantages of the
Hydrostatic Test, the inference we may
safely conclude from that examination
is, that if the suspected lung, throughout
the various steps of the operation, is noticed
uniformly to sink though the likelihood
is very strong that the child was born dead,
yet we cannot justly come to this con-
-clusion until the consideration of other
appearances corroborates this suspicion.

If the lung is observed always to float,
and we have satisfied ourselves that
that buoyancy is not dependent, on any
of the above mentioned objections, the con-
-clusion we arrive at is, that the child
respired, and consequently, was alive.

Having very briefly considered, the
appearances, and characters in the
Pulmonic System, resulting from the

+ Churchills' Midwifery, page 106.

o Dr. Handyside found it closed, in 1 and 8, between the 2nd + 3rd day. Taylor's Med: Jurisprudence, Caspurov, Med: lég des accouchements, page 337. Caspurov records a case, in which this closure was present previous to birth and respiration.

Med: Gazette, 1838-967.

Dr. Cheevers has also frequently met with it. Two cases are recorded which occurred at Guy's Hospital, London, respectively at the ages of 11 and 50 years.

act of respiration; let us now turn to the corresponding changes; in the Circulatory System.

On the birth of a child the circulation of the blood, undergoes great and permanent changes. The blood which previous to this, was purified by the Placenta, (according to the theory lately propounded by Dr. J. Reid) has in order to undergo purification, to pass to the Foetal lungs, to be brought into the close proximity, and purifying influence, of the Oxygen of the atmosphere. The Foramen ovale, Ductus Arteriosus, and Ductus Venosus, in consequence, being of no further use become impervious, and obliterated to mere cords. This process necessarily proceeds slowly. Cases of complete perviousness of the Foramen ovale, for a considerable period after birth, and even throughout adult existence, are of pretty frequent occurrence but as a general rule this aperture becomes closed after the establishment of respiration.

The umbilical arteries also become

impervious, after this action. No instance has been recorded of complete obliteration of the Ductus Venosus, previous to birth; but upon the establishment of respiration, it collapses and shrinks to a mere cord, and is quite impermeable. From the late experiments, performed by Professor Berut of Vienna, (for the investigation of the state of contraction of the Ductus Arteriosus, at various periods after birth,) we learn, that after a few seconds of respiration, the Aortal extremity becomes contracted; after a few hours it resembles a truncated cone; after a few days it narrows still more in the centre; after a few weeks it will hardly admit a crow quill, while, after several months it is quite impermeable.

a few seconds, several hours, a week, a month,



X Taylor's Med: Jurisprudence, p 194

* Beck's Med: Jurisprudence

The remark previously made on the tests for the proof of respiration, having occurred in the Pulmonic System, is also applicable to those of the Circulatory System. - that not one fact is of itself able con-
clusively, to prove that the child was born alive =.

Sometimes good evidence may be derived from the state of the Digestive System. As if food such as milk, sugar, albumen were found in the stomach, it would prove beyond a doubt that the child was born alive. Dr. Geoghegan of Liverpool detected farinaceous food in the stomach of an infant, by the application of Iodine. The liver is also subject to great diminution in size after birth, and Dr. Beck proposed that if it were satisfactorily proved, (that that diminution resulted from the organs of respiration after birth, monopolizing the greater quantity of that blood, which was wont to permeate the liver) to subject to comparison, the reciprocal relations of the liver, and lung. But that atrophy of

o Beck's med. jurisprudence.
Mr Bryce, on the Foetal liver.

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the liver occurring after birth, seems to me to depend more upon the removal of its former function, of throwing off the carbonaceous matter by the blood; and, this view seems supported by the fact, that in cases of Phthisis, when a considerable portion of lung is destroyed by disease, and is unable to get rid of this carbonaceous matter, the liver becomes hypertrophied, (this function devolving on it.) The condition in which the bladder, and rectum are found, should be observed whether filled with their respective secretions, or empty, since some authorities consider this of much value for the inference of live birth. The situation of the Diaphragm, is also worthy of remark whether lying in the Thorax or Abdomen.

Taking it for granted that the various phenomena observed on the dead body, are of such a nature as to lead us to conclude, that the child was born alive. The next question which naturally occurs to us, and which is of fundamental importance,

* Male's Meed: Jurisprudence, page 101.

* Mahow on Infanticide, Prob. Vol II.
Translated by Gregory, p 28.

is the probable cause of death? and whether that death happened naturally, or, by criminal design? and, first, as to the natural causes.

Disease.

The Foetus participates in many of the diseases of the mother, and consequently may die before birth, from Small pox, Fever, Syphilis, and probably many other as fatal congenital affections. Dr. Burgess alleges Apoplexy, and Asphyxia are very common causes of death, among newborn children. Dr. Male informs us, that Introsusception^{*} is a frequent occurrence among infants, and that this can be discovered only by dissection. Mahow says, premature obliteration⁺ of the Foramen Ovale, furnishes in his opinion, the explanation of many deaths, without any apparent cause. Laborie is also of this opinion. But the maladies which are of the greatest importance in a medico-legal point of view, are those affecting the organs of respiration or air passages, as Hepatization, Congestion, Scirrhus, oedema, the diagnostic

o Med. Gazette, page 542.

* North Med. Journal, (Cornack's) page 278.
March 1846.

properties of which, are all very patent. That
 condition of imperfect dilatation, (actelectasis)
 may be also classed as a disease, perfect
 dilatation perhaps may have been prevented,
 by hypertrophy of the Thyroid gland, or the
 obstruction of the mouth or fauces with mucus.
 The child may have been born with such a
 deficiency of some vital organ, as would
 render the very idea of its survival,
 quite out of the question, as in the two
 cases reported, in one of which the Thyrus
 terminated in a cul de sac, and in the
 other the duodenum was obliterated
 for more than an inch. In a third pub-
 lished by Dr. Fairbairn & Ledw., the child
 died from swallowing its tongue, from a
 peculiar development of the lower jaw,
 and a defect of the Træma, in such a
 case, the appearance would exactly re-
 semble those of stranguation. There is a
 vulgar idea, but a prevalent one, that it is
 legal to destroy such monstrous births, but it
 must be remembered that the law punishes in
 the most severe and summary manner,

* Mr. Pooley's case.

A lady was delivered of a hideous monster, and in the absence of the husband, and at the instigation of the friends, the midwife destroyed it, and was soon after committed on a charge of Homicide,

and however hideous the deformity may *
be, it is not acknowledged as justifying
the deed.

In Footling or Breech presentations,
compression of the cord may so obstruct the
organic function of circulation, between the
mother and child, as to prove the death of
the latter. Or strangulation may occur from
the cord, being twisted round the neck of
the infant. Deaths are frequently reported
to have occurred in this manner. Dr. Fairbairn
who had two cases of this kind, informed me,
that in both, the cord had three times ^{two}
round the neck, and was so tight, it had
to be divided with the knife, to prevent
strangulation; both fortunately recovered.
According to Dr. Burns, this happens only
when the cord exceeds its usual length
of two feet. A child may become so ex-
-hausted, and its vital energies so en-
-ervated, from excessive haemorrhage oc-
-casioned by an accidental rupture of
the cord, or premature separation of the
placenta, as rapidly to pass into syncope,

* Simpson's Midwifery

* Dr. Simpson. Ed. Med. & Surg. Journal 1844.

and death. But death as a result of accidental rupture, is a comparatively rare occurrence, from the fact, that torn arteries bleed little, and if respiration is established, the blood has already sought a different course. Dr. Taylor however, mentions a case, where death ensued even under these circumstances. Since it is a well ascertained fact, that a great proportion of children die during child's birth from natural causes, the law infers, that unless the medical evidence proves the contrary, death is presumed to have occurred in this way. According to Dr. Simpson, the proportion of still births among legitimate children is as 1 in 20, but among illegitimate it bears a much higher proportion, being as 1 in every 8. A greater number of male children die in this way than female, as in Males it is 140:100 while in Females 106:100. In protracted delivery, the child's head may be so materially injured from the severe contractions of the uterus, as to cause death, and since this has been remarked as a frequent occurrence among male children, where the

head attains considerable dimensions, it seems the probable explanation of the fact, of the greater mortality among male children, than female. The head in such cases, would be elongated, and more or less deformed.

Having concluded our remarks, on the natural causes of death among new born children, let us now consider those modes of death, which must be included under the head of criminal design, and for the facility of description, I propose to divide this subject into two sections; viz, those of Omission, and Commission. It must not be overlooked, that in many instances death from Omission may be palliated, or sufficient explanation may be afforded of ignorance, or want of presence of mind, as completely to do away with the suspicion, of wilful, or premeditated violence, as from the unexpected occurrence of delivery, and the mother's consequent inability to assist herself, or procure any one else to do so. This should be remembered, particularly in the case of

* A girl had become pregnant, under circumstances particularly disastrous. Actuated by the strongest impulse of shame and remorse she concealed her situation from every one, and ascribed her appearance to a cold she had caught. On the day of her delivery, she had been to market, and in returning home slipped her foot and fell into a mill pond, she was speedily rescued, and conveyed to a neighbouring malt kiln, where she was left under the charge of a woman. On whose absence she was left seated at the fire, drying herself, and on whose return she had been delivered of a baby, which was lying at her feet in the ashes, and was so severely scorched that it died a few hours after. The girl said her pains came on suddenly, and she became unconscious, and could afford no assistance to her child, she was forthwith banished for life.

© Observations on the uncertainty of the signs of Murder, in Bastard children.

primiparous females. A very remarkable case of this sort, is recorded by Burnett, in his (Criminal laws of Scotland) it occurred in Aberdeen, in September, 1804.*

Foederer (vol. IV p 504) asserts as a cause of death, the omission of removing the child, from that state of supination in which it commonly enters the world.

Asphyxia has been induced from the pressure of the bed clothes, or wet linen, over the mouth and nostrils of the child, from the membranes not being ruptured, or the neglecting to remove any mucus which may be present in the Fauces, and preventing the access of air to the lungs. D^r Hunter relates an instance of a child being suffocated, from its face being immersed in a pool made by the uterine discharges. A similar case occurred to D^r Beck, in which the mother was totally unable, to render assistance to her offspring. D^r Wharrie's case, reported in the (North med: journal 1845) is a very good example, # of, how in such a case the power capability of

Northern Mid. Journal 1845.

A young woman who had previously given birth to two illegitimate children, was according to her own statement, seized during the night with abdominal spasms, after some delay, and suffering, and while her mother who slept with her had gone out to procure assistance, she rose from the bed, under the impression she was going to have a motion of her bowels, and there being no suitable convenience in the apartment, she seated herself on an earthen pitcher filled with water. Instead of the contents of the rectum, a child, and shortly afterwards an after birth dropped into the vessel, and she said she was rendered so faint and helpless by the consequent hemorrhage, as to be unable to render her offspring any assistance. She was found by her mother's return, with a neighbour, seated upright on the vessel. A suspicion of foul play, induced the Procurator Fiscal, to order Mr. Leanos and myself to investigate the case, but nothing could be proved against her. But Dr. Wharrie remarks, since she had physical power to maintain her position on the pitcher, the presumption is, that had she wished she might have saved the life of her child.

Mr Wm John Fairbairn?

Thus a good Gray on the
whole -

Fredere' instead of 'Fodere'

In 45th page - The signs of recent
Delirium only show that she may be
the mother of the child, not that she
destroyed it.

rendering assistance to her offspring, may be artfully advanced by the prisoner in her defence. The Foetus has in some instances fallen from the mother, while in the erect posture, and engaged in her usual avocations, and been consequently much injured; and Mr. Tatham reports a case * where a patient in her fourth labour after trifling pains, was on her way to the bed room, when the child was unexpectedly thrown on the floor, bleeding profusely from the lacerated cord; but she had presence of mind to call for assistance, and her child was saved. An interesting case of unexpected delivery is reported by Mr. Nye. Children have frequently been delivered, and thrown into privies while the mother was engaged at a necessary process. Mr. Tatham relates a case of this sort, also, where the wife of a clergyman while in her last month of pregnancy, at Chapel was obliged to retire to her night chair, where she was delivered † of twins. They were speedily rescued but did

*

© Mr. Ryan, Lancel, June 1845

* Campbell's Midwifery.

Federw. vol 1 v page 505

Campbell's Midwifery.

not survive more than a week.

Omission to preserve the necessary warmth of the child, is another frequent instance of death from omission, and all that needs be mentioned on this head, is embraced in the admirable and concise remarks made by Foederer, on this point. # X

"If the body of a child is rigid, and shrivelled, discoloured, and in a state of partial or complete nudity, buried under stones or earth, and if the lungs from their buoyancy, prove that respiration has taken place" and if from the blanched appearance of the integuments, and the internal organs gorged with blood, contraction of the Arteries has occurred, we cannot do less than attribute death to exposure. This condition, may be easily distinguished from death by hemorrhage, by the total want of blood in the latter case. Premature tying of the cord, has been remarked in a case which occurred to Dr. Campbell, to be succeeded by the most # alarming symptoms, but he observes when death ensues from this cause it should be ascribed to

ignorance rather than to wilful design,
unless where a qualified practitioner has
been employed.

Criminal design.

All that need be said on this subject may
be comprised under the three divisions,
Wounding, - Asphyxiating, {Hanging, Drowning,
Poisoning, Suffocating}

And first as to Wounding.

A wound may be defined, as recent solution
of continuity of the tissues of the body, in
which the skin is included, occurring
suddenly by external means. It may be
proper here to give a slight sketch, of the
characteristic appearances, which would
lead us to infer, that a wound was in-
flicted before, or after death. In wounds
inflicted during life, there are usually
traces of hæmorrhage, either upon the in-
tegment, or the adjacent clothes, eversion
of the edges, owing to the vital elasticity
of the skin, and coagula between the lips of the
wound; while after death the absence of copious
hæmorrhage, if present at all exclusively venous,

their being neither eversion nor tumefaction,
 and if coagula their not being adherent, will
 prove sufficiently diagnostic properties. I do not
 intend to enter here, into a description of all
 the different sorts of wounds, since wounds of
 a serious nature are never wilfully inflicted
 on the body of a new born child, but with the
 intention of murdering it. It is only necessary to
 say, that wounds and contusions intentionally
 and criminally inflicted, which have so injured
 the Brain, Spinal Marrow, Heart, Respiratory or
 Digestive organs, or such lesion of blood vessels
 as would produce mortal Haemorrhage, must be
 regarded as the means of murder. We may very
 appropriately at this point define the appear-
 ances characteristic of violence, inflicted before
 and after death. For the investigation of the
 latter fact, we are indebted to Dr. Christison.
 Ecchymosis is the effusion of blood from ruptured
 vessels into surrounding tissues, external dis-
 colouration of a deep blue or livid hue en-
 suing after a brief interval, (if the subject
 outlives its production) it successively changes,
 from blue, to violet, green, yellow, and terminates

by fading to a pale citrow colour, when the discolouration is entirely removed, by the absorption of the extravasated blood. Dr. Christian from his assiduous researches proved, that blows inflicted 2 hours after death, presented no material difference from those produced, ante mortem. From this interesting and important discovery, we conclude, that judging from visible appearances, contusions inflicted immediately after death, may easily be confounded with those produced, ante mortem. But Ecchymosis the result of contusions, inflicted after death, may be clearly distinguished from the - mortem extravasation. From the fact, that there is no corresponding oedema on the integument. The colour is deep purple or brown. There is generally more or less diffuse infiltration in the cutis, while this is never remarked after death. It very frequently happens that valuable information may be obtained, from the Ecchymosis assuming such a form, as may indicate, the means by which the violence was perpetrated, as in Hanging, a livid

ring of extravasated blood, usually marks the situation of the injury. Digital impressions, are also usually present in those strangled. But there is an invariable appearance of the dead body, worthy of being mentioned viz, a livid congested appearance of the more dependent portions of the body, due to the gravitation of the blood corpuscles, which has been termed *Sugillation*. The essential difference between an *Ecchymosis*, and a *Sugillation* is, that in the first, the blood is coagulated, in the latter fluid.

Penetrating the brain through the Fontanelles, is a very deadly, and unfortunately, a plan very often resorted to, for the perpetration of Infanticide. Guis Pateau mentions an instance, of a midwife in Paris, who destroyed several children in this way, but was at last convicted and executed. Brendel, and Belloc, have met with similar instances. The temples, internal canthus of the eye, the neck, Thorax, about the region of the heart,

and abdomen have all been selected for the object, in order to kill the infant. The spinal cord, is said to have been punctured by needles. <sup>Gay's
page 12</sup> In such cases the skin should be carefully scrutinized for any minute spot of Ecchymosis, which will probably be discovered around the wound, we must ascertain the depth, and situation of the wound, and whether it was sufficient to account for death. We must however be careful not to mistake that œdema, and discolouration, consequent on a difficult labour, for that swelling and ecchymosis which follow blows, maliciously inflicted after birth. Fractures of the skull, may be conveniently discussed under this head. I previously mentioned that this cause of death, may happen accidentally, and it depends chiefly on the common sense of the Medical Jurist, to ascribe it to accident, or criminal design. These accidental Fractures it may be mentioned, are commonly very slight, amounting to mere fissures, while in those inflicted with intent to murder, the injury is much

Investigations of Leceux +

He chose 15 infants, who had only survived a few hours after birth, and in whom the bones of the skull were quite sound. He raised them by the feet, to the height of 20 inches, and then dropped them perpendicularly on a stone floor; he found fractures in one, and sometimes both Parietal Bones in twelve of them. He doubled the height, and found the Fractures in the Parietal Bones, extending in some instances, quite to the Occipital, + Frontal Bones, and when dropped from a still greater height, vertically on the floor, the injury was greatly increased, even to the stretching of the meninges + commissures of the Brain, and injury to the Brain.

X Hutchison's Infanticide

X Beck's Jurisprudence

more severe. The skull would probably be crushed, and driven inward, while the brain may protude, and the scalp be extensively contused. We had before in treating of the natural causes of death, among newborn children, occasion to mention that this may result, from injury to the bones of the head, owing to the powerful contractions of the Uteri, and for the confirmation of that statement allow me to refer to the following cases. The first case occurred to Dr. Schwöerer. The child was still born, he received it into his hands at birth, so that the head could not have sustained any outward violence, on inspection, the integument over the Vertex, was found swollen, and discoloured, and on cutting into it, a quantity of extravasated blood was exposed beneath, in conjunction with two distinct fractures in the Parietal Bone. The second case is reported in Casper's *Wochenschrift* October 1840. where there was a similar condition, viz a clot, in conjunction with a radiated fracture. Coagula were

present on both occasions in conjunction with the dura mater, and brain. There is a third reported in the above publication, September 1837. in which, both Parietal Bones were flattened, and in one, there were two fissures each an inch in length. Luxation, and Fracture of the cervical vertebrae, may be mentioned as a cause of death. In such cases the vertebrae are found fractured or dislocated, the ligaments ruptured and death from severe injury to the ^{spinal} cord ensues. Having given a slight sketch of the appearances presented by wounds, inflicted ante & post mortem; and treated Fractures in a summary manner, I propose now to pass to the next division of our subject.

Suffocating -

We previously proposed, for facility in description, to divide this subject into three subdivisions, Hanging, Drowning, Asphyxiating.

Hanging may cause death, from injury to the vessels, or nerves of the neck; dislocation of the head forwards, and pressure on the cord;

or by obstruction to the passage of air to the lungs, from pressure on the Trachea. Where a cord has been used, there is in general a distinct ring of ecchymosis round the neck in the course of the cord, the face is livid; tongue protruded, and swollen; mouth and wind pipe filled with mucus; eyes injected; and forced from their sockets; Pia mater, jugular veins, and right side of the heart, gorged with black blood; lungs livid, and covered with spots. The only instance in which it is possible to confound this state is in the before mentioned, hanging by the funis, but by the use of the Hydrostatic test, and the application of the following facts "that the ecchymosis in the former, is not superficial, there is more or less extravasation of blood, together with excoriation, or chafing, of the cuticle, all which signs are quite incompatible with the idea that it has been occasioned by natural causes, when we take into account the softness, and lubricity of the Funis.

A case occurred in London, in 1842, where a woman attempted Infanticide, by immersing the head of her child only, in a pail of water, but fortunately, the child was discovered and resuscitated.

↳ In a case related by Foedere, vol 14 page 525. A woman succeeded in destroying her child, and concealing her delivery, though surrounded by females; by crushing its head between her thighs as soon as born.

"Il resta constant qu'elle avoit pressé la tête de son enfant en la comprimant fortement avec les cuisses lors de sa sortie."

Infanticide by drowning is by no means
 common. It is seldom resorted to for the
 perpetration of murder, but merely for con-
 cealment of the body after. The main point
 to be investigated, in a case of drowning is;
 "was the child alive when immersed in the
 water"? it is not necessary that the whole
 body should be under water to occasion
 death, but the fact that the mouth and
 nostrils, were below the surface is quite #
 conclusive. Where a child has not respired
 it is quite impossible to produce proofs that
 the child was drowned, as in a case re-
 ported in (Lornach; Edin: Journal Oct. 1845
 p 796) where a woman caused herself to be
 delivered in a bath, and the child when born
 to be forcibly retained under water. The diagnosis
 of drowning after respiration, is founded upon
 appearances exactly similar to those observed on the
 bodies of adults, destroyed in this way;
 and of which I will proceed to give a
 short description. Death by drowning,
 is due to asphyxia, in which condition
 the blood is circulated unfit for the support

of animal life, this condition is induced by the medium of water, proving a physical obstruction to the entrance of air to the lungs, and though expiration is carried on, and the air contained in the lungs is all expended, a fresh supply cannot be obtained; and the person becomes unconscious, and dies asphyxiated. In the case of an infant discovered drowned in water, the verdict must be either accident or murder; and murder is inferred by law, and it then rests on the accused, to afford satisfactory proof of accidental drowning. The face is usually pale, the brain congested, the lungs, and right side of the heart gorged with black blood, the tongue protruded, the nose, and mouth filled with frothy mucus, excoriations at the ends of the fingers, and dirt or sand lodged under the nails, must be carefully examined. In the body which has been sometime immersed the eyes are half closed, and the diaphragm lies low in the abdomen. The contents of the stomach should particularly be remarked for if

+ Dr. Easton of Glasgow's case recorded in Med. Journal 1845.

there are present portions of straw, or weeds, similar to those in the water, we may conclude, that the infant was alive when thrown into the water. The kind of water contained in the stomach, should also be noticed whether salt or fresh, and if it corresponds with that in which the child was immersed. New born children may be drowned, or suffocated by being thrown into mud, or more commonly the soil of privies, but this like drowning is seldom resorted to as a mode of death, but merely for concealment. It may be alleged in the defence, that the child was born dead and thrown in for the sake of concealment; but this can easily be proved by the Hydrostatic Test. The presence of suspicious wounds or marks which remain unaccounted for by the fact, that the child was still born, and merely thrown in for the sake of concealment.

Professor Traill mentions a case, in which from noticing particles of chaff in the stomach, and similar particles floating on the surface of the water he concluded

that the child was alive when thrown into the water, and this trivial circumstance, which to a careless person, would probably never have been noticed, or if noticed, not taken advantage of; yet to an intelligent and shrewd mind, it proved of the highest importance, and constituted the principle fact on which his evidence was built. Children have been murdered by preventing the passage of air to the lungs, by corks, or other foreign bodies thrust into the fauces. In such cases dissection alone can elicit the cause of death. When an infant has been smothered under the bed clothes, by pressure from the hands, or the application of a wet cloth the same phenomena will be observed as in the case of strangulation. Under the head of suffocation it would be well to mention, that children may be suffocated by exposure to mephitic vapour, or noxious fumes, but this is extremely rare; women have been known to destroy their children by suffocating them with the fumes of Sulphur. When death has been produced by the vapour of burning charcoal.

The body presents several peculiar appearances. It preserves its heat, for ~~the~~^a long time after apparent death; there is great accumulation of black fluid blood, in the veins, and hardly any in the arteries; the vessels of the lungs, and brain, are especially gorged with this fluid; the face is red, and somewhat tumefied, the eyes are bright, and the lips have a vermilion hue.

Poisoning is introduced, among the probable ways in which child murder has been perpetrated, but is very rare, one hears of death produced by this cause.

The earliest case of poisoning observed by Professor Taylor was at two months, and this can be hardly mentioned as a case of infanticide, where to a child of the above age a quantity of arsenic was administered and it died in three hours, and a $\frac{1}{2}$ after, if poisoning be suspected, the usual course of procedure in such a case, is exactly similar to that in the adult. Having concluded a short and very imperfect sketch of the usual natural

and criminal causes of death, among newborn children; before entering upon the particulars of the suspicious appearances of recent delivery, in the accused, let me shortly mention the appearances indicative, of the period of survival in children, that have been born alive. It has been remarked, that scarcely any appreciable changes, occur in the corpse of a dead child, until after the lapse of twenty four hours. After twenty four hours the skin is less firm, and considerably paler than immediately after birth, the umbilical cord is shrivelled, and of a purplish colour, between the ligature and abdomen the meconium has been discharged, the lungs are more or less distended with air.

From the second to the third day.
The skin is yellowish, the cord is brown and dry.

From the third to the fourth day.
The skin is yellowed, and the cuticle desquamates, from the chest, and abdomen. The umbilical cord is of a brownish red colour, flattened, semi transparent, and

* *Philosophical Transactions 1794-1795* .

twisted, a distinct line of demarcation presents itself, between the healthy skin and the brown shrivelled portion, of the cord.

From the fourth to the sixth day.

The remainder of the cord usually separates, but sometimes not until the eighth or tenth, if the umbilical aperture is cicatrized, and healed it is probable, the child has survived for three weeks or a month. From the observations of

* Orfila, it would appear, that putrefaction proceeds more rapidly in the infant, than the adult corpse; but the period which has elapsed since the child died, can only be determined by observing the degree of putrefaction in the body, compared with temperature, locality, and other conditions, to which it has been exposed. If the body has been immersed in water, putrefaction proceeds more slowly in running, than stagnant water, but it appears from the experiments of D. Gibber's that before the body can be converted into adipocere, it must have been immersed between five or six weeks in running water.

When the body is subjected to the combined

action of the air, and water at the same time, putrefaction takes place very rapidly; or when free access to the internal parts is afforded by incisions, If however, the corpse be enclosed in a coffin, previous to the commencement of putrefaction, it may be retarded for a long time. Having now treated all the different subjects in connection with Infanticide, viz, The History of Infanticide. The Viability of the child. The proofs that it was born alive and was killed. The probable time which has elapsed since the perpetration of this crime, it only remains for us to consider, the signs of recent delivery in the mother, so as to be able to draw sound conclusion, as to the probable guilt of the mother.

of her being the mother of the child

Signs of recent delivery.

The female is weak, her countenance pale, and anxious, the parietes of the abdomen flaccid, and thrown into folds, the external organs of generation swollen, and sometimes extensively lacerated, the lochial discharge continues from 15 to 35,

days after delivery. The mammae become perceptibly, larger, heavier, and more tense, and usually after the second or third day yield their secretion (milk). It becomes almost a practical impossibility for a Medical Jurist, to state with precision that a woman has been delivered, after two or three months; it is a matter of great difficulty giving an opinion on this subject if not examined within twelve days, the wrinkled appearance of the abdomen is the only persistent mark of delivery.